

TOP^{of} MIND

TARIFF-INDUCED RECESSION RISK



The Trump Administration's dramatic tariff moves have upended decades of US trade policy, sparking a rapid reassessment of the US and global economic outlook and a surge in tariff-induced recession fears. What lies ahead for the US economy amid this radical policy shift—and the uncertainty around it—is Top of Mind. We speak to three economy-watchers about their views on recession risk: Nobel Prize winner Paul Krugman (a recession seems likely, owing largely to uncertainty, which any policy reversals would only enhance), GS' Jan Hatzius (recession isn't the base case but the risk of one is elevated, though policy reversal would be stabilizing), and American Compass' Oren Cass (there's no reason Trump's trade policies would need to cause a recession, and they should lead to better US economic outcomes).

We then assess how vulnerable markets are to recession (quite) and how to protect portfolios as well as address what this all means for China and what—if any—tariff off-ramps exist (few).

“

It's not the size of the [trade] policy shift, but the uncertainty around it that could cause a recession... [and] at this point, policy reversals may actually worsen the situation because they would enhance uncertainty.

- Paul Krugman

I don't disagree that the uncertainty effect could inflict ongoing damage to the economy. But I do think a pullback on tariff policy would nevertheless help stabilize conditions in the near term.

- Jan Hatzius

There is no reason the trade policies the Administration is pursuing would need to cause a recession. On the contrary, they should produce a great deal of investment and, more broadly, better economic outcomes for America.

- Oren Cass

”

WHAT'S INSIDE

INTERVIEWS WITH:

Paul Krugman, Professor, City University of New York's Graduate Center, Nobel Prize in Economic Sciences winner

Oren Cass, Founder and Chief Economist, American Compass

Jan Hatzius, Head of Global Investment Research and Chief Economist, Goldman Sachs

MARKETS: RECESSION-EXPOSED
Dominic Wilson and Vickie Chang, GS Markets Research

USTS: WORSENING HEDGE, BUT NO CRISIS
Lotfi Karoui and William Marshall, GS Markets Research

HEDGING RECESSION: A GUIDE
Christian Mueller-Glissmann, GS Multi-Asset Strategy Research

LATAM: TRADE LESSONS LEARNED THE HARD WAY
Alberto Ramos, GS LatAm Economics Research

US-CHINA TRADE: SAME GAME, NEW RULES
Hui Shan, GS China Economics Research

POTENTIAL TARIFF OFF-RAMPS
Alec Phillips, GS US Economics Research

Allison Nathan | allison.nathan@gs.com

Jenny Grimberg | jenny.grimberg@gs.com

Ashley Rhodes | ashley.rhodes@gs.com

Investors should consider this report as only a single factor in making their investment decision. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to www.gs.com/research/hedge.html.

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

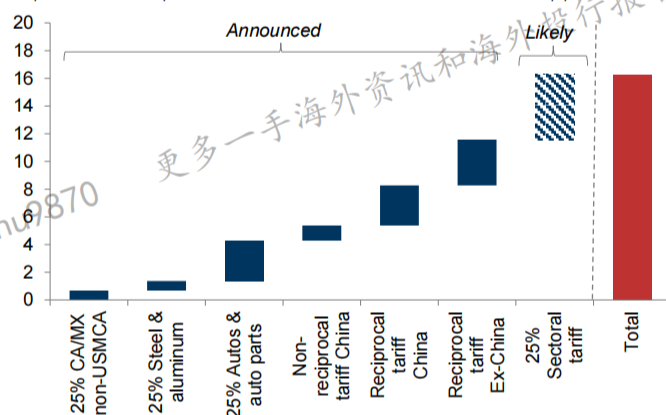
- We [revised](#) our US growth and recession forecasts to reflect our expectation that the effective US tariff rate will rise by around 16pp this year, and now [forecast](#) 2025 US real GDP growth of 0.5% (Q4/Q4) and see a 45% probability of a recession over the next 12 months.

Datapoints/trends we're focused on

- Labor market; we [expect](#) future declines in hiring to push the unemployment rate to 4.7% by end-25 (vs. 4.2% now).
- Fed policy; we [expect](#) three 25bp "insurance cuts" this year to combat the risk of a sharp labor market downturn.
- Inflation; we expect core PCE inflation to accelerate to 3.5% by year-end under our baseline tariff assumptions.

US tariffs: a big jump

Impact of tariff policies on the US effective tariff rate, pp



Source: Goldman Sachs GIR.

Japan

Latest GS proprietary datapoints/major changes in views

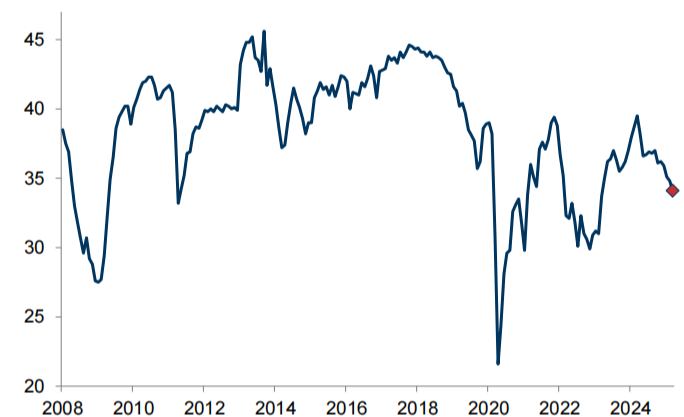
- We recently [lowered](#) our CY2025/2026 Japan real GDP growth forecasts to 1.0%/0.7% (from 1.2%/1.0%) to reflect softer external demand and domestic capex amid higher US tariffs and heightened global trade policy uncertainty.
- We recently [lowered](#) our FY2026 Japan core CPI inflation forecast to 1.1% yoy (from 1.9%) to reflect likely lower oil prices, a stronger Yen, and government subsidies.

Datapoints/trends we're focused on

- BoJ policy; we [expect](#) two BoJ rate hikes per year, with the next one likely in July, but the BoJ could reduce the number of hikes or postpone them in the event of a US recession.
- Consumer confidence, which is at a [two-year low](#).

Japan: losing confidence

Consumer confidence, index



Source: Cabinet Office, Goldman Sachs GIR.

Europe

Latest GS proprietary datapoints/major changes in views

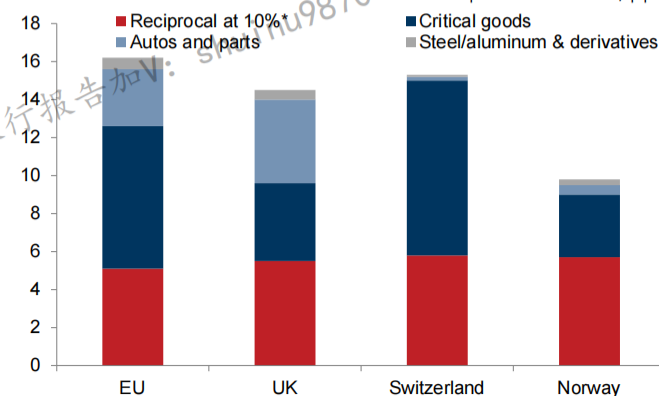
- We recently [lowered](#) our 2025 Euro area real GDP forecast to 0.7% (from 0.8%, yoy) and our end-2025 core inflation forecast to 1.9% (from 2.1%, yoy) and, in turn, revised down our ECB terminal rate forecast to 1.5% in September (vs. 1.75% in July before) amid the global trade war.
- We recently [lowered](#) our 2025 UK growth forecast to 0.95% (from 1.05%) and our BoE terminal rate forecast to 2.75% (from 3%) to reflect tighter financial conditions and weaker growth abroad.

Datapoints/trends we're focused on

- European defense renaissance, which we still [expect](#) ahead.

Europe: bracing for a sizable US tariff increase

Increase in the US effective tariff rate on European countries, pp



*Net of exemptions.

Source: Goldman Sachs GIR.

Emerging Markets (EM)

Latest GS proprietary datapoints/major changes in views

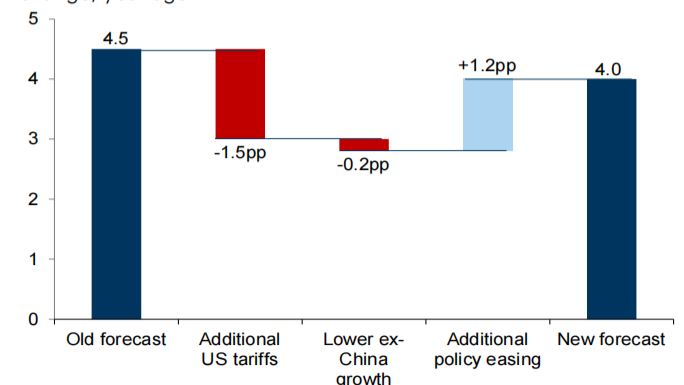
- We recently [lowered](#) our 2025/2026 China real GDP growth forecasts to 4.0%/3.5% (from 4.5%/4.0%) and now expect policymakers to deliver 60bp of policy rate cuts this year (vs. 40bp before) following the substantial rise in US tariffs.
- We recently [lowered](#) our 2025/2026 China headline CPI forecasts to 0%/-1.6% (from 0.4%/-0.9%) to reflect higher US tariffs and the lower commodity prices we now expect.
- We [lowered](#) our EM growth forecasts, including in [LatAm](#), [CEEMEA](#), and most [Asian economies](#), amid higher US tariffs.

Datapoints/trends we're focused on

- EM monetary easing, which we [expect](#) will be front-loaded.

China: cushioning the tariff blow, but not fully

Contribution to change in GS 2025 China real GDP growth, % change, year ago



Source: Goldman Sachs GIR.

Tariff-induced recession risk

The Trump Administration's dramatic tariff moves have upended decades of US trade policy, sparking a rapid reassessment of the economic outlook in the US and beyond and a surge in tariff-induced recession fears. What lies ahead for the US economy amid this radical shift in trade policy—and especially the uncertainty around it—is Top of Mind.

We first speak with Nobel Prize winner Paul Krugman, who explains that the size and speed of the rise in tariff rates makes this “the biggest trade shock in history”. But he's more concerned about the uncertainty around the trade policy shift than the scale of it when it comes to US recession risk. That's because even high tariffs don't normally cause recessions, he says, but unpredictable tariffs that leave businesses hesitant to make long-term investment decisions very well might. So, he says that “a recession seems likely” and argues that policy reversals may actually hurt rather than help given that the reversals themselves may be reversed at a moment's notice, which only enhances the problematic uncertainty.

Jan Hatzius, GS Head of Global Investment Research and Chief Economist, also expects a sizable tariff-induced hit to US growth owing to reduced business investment, the tax hike-like effect of tariff increases on real income and consumer spending, and tighter financial conditions as markets price a dimmer outlook. He's forecasting very low US growth of 0.5% Q4/Q4 and a 45% chance of recession within the next year, assuming the full slate of the “Liberation Day” tariffs won't take effect, but would probably shift to a recession call, he says, if they do. That said, Hatzius is more optimistic than Krugman that a policy reversal could stabilize near-term conditions and believes that even in the face of the current stagflationary shock—which undoubtedly complicates things for the Fed—it would not hesitate to act aggressively if need be.

And Oren Cass, Founder of American Compass, argues that while the Trump Administration's goal of reordering the global trade system for the US' long-term benefit will entail some short-term costs, “there is no reason the trade policies the Administration is pursuing would need to cause a recession”. In his view, while the abruptness and lack of communication around the implementation of the shifts in tariff policy were understandably frustrating, the Administration has already taken helpful steps to course correct, which should continue to resolve any uncertainty. And, Cass says, companies already have enough information about the Administration's tariff goals to work out the right strategy: invest significantly more in US-based production. All in all, he expects Trump's trade policies to “produce a great deal of investment and, more broadly, better economic outcomes for America.”

Amid these differing views, we then ask what—if any—playbook might provide a useful guide for what could be in store for the US economy. Although Krugman and Hatzius agree that

no historical analogue for the current trade shock exists, Alberto Ramos, GS Chief LatAm Economist, discusses the lessons learned from decades of trade protectionism in Latin America, which have resulted in exceptionally volatile boom-bust economic cycles and notoriously poor performance in the manufacturing and tradable goods sectors, with protectionism one of—if not the most—important cause of the region's relative decline in the latter half of the 20th century.

We then explore the other major worry that surfaced amid the recent extreme tariff-induced market volatility: that a trade-related economic crisis could morph into a financial crisis. Both Krugman and Hatzius acknowledge risk of this, which foreign investors' diminishing appetite for US assets amid the current policy uncertainty may compound. But Hatzius takes some comfort from the banking system's relative health compared to just before the Global Financial Crisis. And GS senior strategists Lotfi Karoui and William Marshall make the case that concerns about a financial crisis amid recent bond market dysfunction look overblown, as Treasury and corporate bond market “plumbing” has remained relatively resilient throughout the recent extreme market volatility.

So, what does all of this mean for markets? GS senior strategists Dominic Wilson and Vickie Chang argue that despite the markets pricing one of the largest growth downgrades on record following “Liberation Day” (outside of Black Monday, the Global Financial Crisis, and the Covid lockdowns), recession risks now look underpriced relative to our forecasts, which leaves markets vulnerable to any signs that a recession is materializing.

So, how can investors protect their portfolios? Marshall and Christian Mueller-Glissmann, GS Head of Asset Allocation Research, agree that the answer is no longer bonds as Treasuries' safe-haven nature has come under increased pressure. Mueller-Glissmann instead advises investors to look to the traditional safe havens of the Yen and Swiss Franc as well as gold, option overlays, and regional and style diversification for effective recession hedges.

Lastly, we turn to Hui Shan, GS Chief China Economist, and Alec Phillips, GS Chief US Political Economist, to dig into two more pressing questions today: what does the dramatic US tariff shift mean for the other major economy now bearing the brunt of it—China? And what—if any—off-ramps could put an end to tariff uncertainty and its economic impacts? The answers on both fronts are not necessarily encouraging.

Allison Nathan, Editor

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



Interview with Paul Krugman

Paul Krugman is Professor at the City University of New York's Graduate Center. He was awarded the Nobel Prize in Economic Sciences in 2008 for his work on international trade and economic geography. Below, he argues that uncertainty around the Trump Administration's policy shifts could cause a recession, and any policy reversals may do more harm than good.

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



Allison Nathan: The Trump Administration's trade policy shifts have sparked recession fears. Do tariffs normally cause recessions?

Paul Krugman: No. Tariffs reduce efficiency, raise the cost of living, and motivate people to buy fewer imported goods, but they may buy more domestic goods. So, while tariffs

generally have unpleasant effects, they don't usually lead to a collapse in demand that would cause a recession. Case in point: Britain emerged from WWII with a shortage of dollars and maintained protectionist measures throughout the 1950s, including tariffs of roughly 25%. These measures undoubtedly left the country less efficient and poorer than it otherwise would have been, but unemployment remained extremely low and growth positive throughout this period.

Allison Nathan: But does the sheer scale of this trade shock raise recession risk?

Paul Krugman: The scale of the shift is undoubtedly unprecedented. While the situation remains fluid, the US average tariff rate is set to be a bit higher than the infamously high Smoot-Hawley tariff of 1930. But that tariff came on top of already-high tariffs, so the increase from Smoot-Hawley alone was only a few percentage points. Today, the average tariff rate is leaping from ~3% to 20% and trade is around 3x as big a share of the US economy as it was in 1930. So, this trade policy shock is, quite literally, an order of magnitude bigger than any in the history of the US or any other country, for that matter. The high tariff rates in Britain and some developing countries in the decades following WWII were not implemented in one jump. So, this is not the highest level of tariffs in history, but it is the biggest trade shock in history.

That said, it's not the size of the policy shift, but the uncertainty around it that could cause a recession. Given the substantial number of changes to tariff policy in just the past couple of weeks, nobody knows what will come next, which is a significant impediment to investment. If your company has a component plant in Mexico and an assembly plant in the US, should you invest in Mexico? Well, not if high tariffs on Mexican imports lie ahead. Should you invest in the US? Well, not if the tariffs go away, which would leave your US business uncompetitive. Anything companies do right now runs the risk of stranding a substantial amount of money. As a result, the option value of just sitting on your hands and doing nothing is exceptionally high. So, while a high but stable tariff is unlikely to cause a recession, an unpredictable tariff rate very well might. While my track record of predicting recessions is terrible—like most economists—a recession seems likely.

Allison Nathan: Does any historical analogue exist for such a policy-induced shock leading to recession?

Paul Krugman: It's difficult to identify any historical analogue of a president-directed policy causing a recession. Andrew Jackson destroying the Second Bank of the United States, which set off the panic of 1837 and ensuing recession, might be one. But if you have to go back to Andrew Jackson to find anything remotely comparable, then it's clear this is an off-the-map event. Radical policy changes are unusual and typically happen in response to an event. For example, the New Deal was enacted in response to the Great Depression and sizable relief packages were enacted in response to the Covid pandemic. As of January 2025, the US economy was growing steadily with fairly low inflation; no crisis prompted these radical policy changes. So, this is a rare moment in history.

Allison Nathan: Some people argue that the self-inflicted nature of this shock makes it more manageable because the government can just reverse policy if the economic damage becomes too severe. Do you agree?

Paul Krugman: No. At this point, policy reversals may actually worsen the situation because they would enhance uncertainty. After all of the back and forth on tariff policy over the last several weeks, we've learned that any reversal could be undone at a moment's notice. So, investment decisions are no easier given that companies still have no idea what the world will look like when their investment matures.

Allison Nathan: What, if anything, could diminish the uncertainty at this point?

Paul Krugman: No easy answer exists given the enormous discretion the law provides the president over trade policy. This discretion was intended to create flexibility around tariff negotiations and allow the US to respond if political pressures became too great. But this discretion is now being used in a very different way. As long as the structure of the law does not change and the procedures that set trade policy remain as politicized as they are today, enormous uncertainty will persist.

Allison Nathan: So, if a recession does materialize, what would it most likely look like?

Paul Krugman: Since this is uncharted territory, it's hard to be confident about what a recession may look like. That said, the focal point of the recession threat is business investment in tradable goods in sectors that are either competing with imports, are exported, or are strongly affected by the tariff regime. For example, healthcare investments don't strike me as an area that would be particularly affected by these tariffs. And the US economy is roughly 75% non-tradable. So, the affected areas would likely be limited, but the impact within those areas could be severe. Now, business investment comprises a significant share of GDP, but not nearly as much

as consumer spending. And I don't see reason to believe that this would be a protracted jobless recovery. So, once people have adjusted to a more uncertain world with lower investment, the economy may be able to recover relatively quickly. All told, my best guess is that any recession from this shock would more likely be moderate than severe.

Allison Nathan: Given that the policy shifts will likely induce an inflation shock alongside a growth shock, wouldn't the consumer also come under pressure?

Paul Krugman: The impact on consumer spending is certainly a wild card here. Consumers have fewer long-term decisions that could be whipsawed by policy uncertainty than businesses do, but the effect on consumer sentiment has been severe, as evidenced by one of the biggest declines in consumer confidence in history. So, consumers are rattled, which is especially remarkable because the economy isn't suffering much yet; unemployment and inflation have yet to soar.

But while tariffs can be thought of as a tax hike on consumers, tax cuts are also making their way through Congress. So, even including the tariffs, the overall tax burden on Americans will probably be lower, and certainly lower than if the 2017 tax cuts were allowed to expire as scheduled. The net effect of all of this might still be contractionary because the tax hike is effectively on the bottom 80% of the income distribution, and the tax cut is for the top few percent, which means income will be redistributed from people living closer to the edge to people who already have a lot of savings. And the around 2.5-3% estimated tariff-related rise in consumer prices would certainly reduce real incomes, which would add to the downdraft on the economy, while the top few percent are exposed to the stock market declines that the uncertainty has induced. So, the effect on overall spending will probably be negative, but not that severe given that these are all well-understood, conventional effects. But if consumer spending falls off a cliff, any recession could undoubtedly become severe.

Allison Nathan: Are you at all concerned that tariffs could induce a supply-side shock on top of a demand-side shock if countries significantly scale back production?

Paul Krugman: The Austrian theory of economic cycles posits that recessions result from wrenching structural shifts in the economy that prevent workers and resources from frictionlessly moving to where they're needed, fueling a significant rise in unemployment and recessionary conditions. As far as I can tell, this has never been the case, possibly with the exception of the restructuring of the economy around the pandemic. But the current moment might end up a real example of this if prohibitive tariff levels necessitate a rewiring of production and supply chains that leads to substantial frictional unemployment. Quantifying the severity of such a radical shift is difficult since we've never seen anything like this. It would perhaps be comparable to a wartime mobilization, but without a war and without the associated solidarity. It's certainly possible to come up with stories where this ends up quite badly for the economy.

Allison Nathan: You recently cautioned that the risk of a tariff-induced financial crisis is rising. What are you watching?

Paul Krugman: The reality that high tariffs will probably hurt more companies than they help and that some companies won't be able to survive is worth watching because corporate bondholders may share in the downside of losing companies but won't share in the upside of winning ones, which could be quite disruptive to certain kinds of assets. And highly leveraged firms are a concern in this environment because a domino effect of rising defaults is not hard to imagine. My pet indicator for signs of such stress is breakeven inflation rates, which currently aren't actually measuring inflation expectations but rather liquidity issues in the bond markets. Right now, they're not signaling 2008/2009 or March 2020-levels of disruption, but they certainly don't look healthy. So, there is reason to be antsy because once financial market disruptions begin, all kinds of vulnerabilities may be exposed. I'll steal the line that you don't find the skeletons in the closet until the house falls down. A severe disruption in the financial markets is one of the most likely routes to a more extreme recessionary scenario.

Allison Nathan: There's a narrative that investors are losing faith in US assets. How much damage could that inflict?

Paul Krugman: While the historical record shows that countries that impose tariffs tend to have stronger currencies given the reduced demand for imports that improves the country's trade balance, this time the Dollar has weakened substantially despite the imposition of much higher than expected tariffs. That may partly reflect the current uncertainty about the US outlook relative to other economies. But investors may also be questioning whether the US is still the safe haven it used to be. In today's world, can investors trust that the current US government won't decide that it doesn't like paying so much interest to foreigners and will therefore force foreigners holding Treasury bills to convert them into long-term bonds, as some Administration officials have suggested? If investors start to fear that the US may be inclined to engage in something that would effectively be a default, then the US' safe-haven status will certainly come under scrutiny. All that said, the 9% decline in the Dollar since the inauguration vastly pales in comparison to past international currency crises; the Indonesian Rupiah fell over 80% during the 1998 crisis. So, this Dollar decline is far from a full-scale currency crisis, even if it probably reflects some loss of faith in US assets.

Allison Nathan: So, what are you watching to gauge the direction of the economy from here?

Paul Krugman: What I *won't be* watching are general market moves because markets don't know any more than the rest of us, so I don't take solace from an up day for the S&P 500 or become more concerned on a down day. As we discussed, I will continue watching possible indicators of market disruption. But I will be especially focused on how the policy process evolves and whether it remains wildly uneven. It would take a lot to convince me that the US is returning to anything like normal policy, and I see an element of a self-defeating prophecy here: if the markets start to calm, I suspect that may just serve to unleash the animal spirits of the people at the top. Perhaps midterm elections could dampen this dynamic, but even that remains unclear. So, I am not optimistic that the immense uncertainty this Administration's approach to trade policy has generated will diminish anytime soon.

Interview with Jan Hatzius

Jan Hatzius is Head of Global Investment Research and Chief Economist at Goldman Sachs. Below, he explains why the sharp increase in tariffs poses substantial risk to the US economy.



Allison Nathan: The Trump Administration's dramatic shift in tariff policy has sparked substantial concern about the US economic outlook. What are the hard and soft data telling us about the current state of the US economy and what could lie ahead?

Jan Hatzius: The hard data generally remains solid. The labor market data has held up reasonably well; the March employment report was stronger than expected, the unemployment rate has only drifted up a bit to 4.2% on a rounded basis, and jobless claims have remained relatively steady. Although Q1 GDP tracking has decelerated somewhat sharply to an estimated 0.4%, quarterly GDP numbers are known to be volatile. But the soft data look more concerning. Survey-based measures of current conditions look quite mixed and some measures of expectations on both the business and consumer fronts look outright recessionary. So, we're observing a progression in terms of the hard data looking mostly fine, assessments of current conditions looking a bit shakier, and expectations looking really bad.

Allison Nathan: Are these concerns about the tariff hit to the US growth outlook warranted?

Jan Hatzius: We agree that the tariff hit to US growth will be sufficiently large to keep growth very weak this year. We're currently assuming a 16pp increase in the average US tariff rate, which we estimate will amount to a ~2pp hit to growth comprised of three roughly equally-sized components: one, the tax-like effect of tariff increases on real income and, in turn, consumer spending; two, the tightening of financial conditions as markets price a dimmer outlook; and three, lower business investment as tariff policy uncertainty leads businesses to wait to make long-term investment decisions. This hit leaves our baseline growth forecast at 0.5% Q4/Q4. So, we're not currently forecasting a recession, but it's a relatively close call, as we see a 45% probability of a recession within the next year.

Allison Nathan: What would push you to a recession call?

Jan Hatzius: The most straightforward path to a recession baseline would be if more tariffs take effect than we currently expect. We actually did move to a recession baseline when the full reciprocal tariffs briefly went into effect on April 9 but reverted back to our non-recession baseline when the 90-day pause was announced. The Trump Administration is now negotiating with trading partners, and if those negotiations fail for many or most countries and the tariff rates revealed on the April 2 Rose Garden placard take effect, that would be a reason to return to a US recession call.

Beyond that, we'll be closely watching the data for greater clarity on how much damage the tariffs and the uncertainty associated with them, which is particularly difficult to measure, are actually inflicting on the real economy. Assessing that may

prove difficult in the short term because distortions such as a potential surge in pre-buying ahead of tariffs may make the data less reliable. And while labor market indicators will likely provide the clearest view into whether a slowdown is morphing into a recession, it may take a while to get good data. Claims should be helpful in providing some timely guidance on the economic trajectory, but they only reflect firings. Hiring often accounts for more of the ups and downs in net job creation but is harder to observe in real time. So, we might be flying blind for a while. But, two months down the road, we'll have a much better idea of whether a recession call is warranted.

Allison Nathan: How unusual would a trade/policy-driven recession be if one materialized?

Jan Hatzius: Extremely unusual. I can't identify an example of one in the last century, certainly not of a trade policy-induced recession. The Smoot-Hawley tariffs are often mentioned in this context. But given that the economy was already contracting sharply, the consensus is that while these tariffs were very damaging, they didn't cause the Great Depression.

Allison Nathan: If a tariff-induced recession does materialize, what would it most likely look like in duration and severity?

Jan Hatzius: It's hard to know because it will largely depend on what happens with trade policy itself. But I have sympathy for the argument that any recession probably wouldn't be that severe because once recessionary conditions become evident, policymakers would likely react. After all, we've already seen the White House blink with the decision to pause, at least in part because the news flow on markets and the economy had become increasingly alarming. Whether that means the Administration would again pare back tariffs if we begin to see recessionary conditions is, of course, uncertain. But my best guess is that any recession would be less steep than usual because the damage could be greatly mitigated by a policy reversal.

Allison Nathan: Some people have argued that simply reversing policy won't necessarily reverse the economic damage because it wouldn't remove the uncertainty around policy, and may even increase it. What's your view?

Jan Hatzius: I don't disagree that the uncertainty effect could inflict ongoing damage to the economy. But I do think a pullback on tariff policy would nevertheless help stabilize conditions in the near term. That stabilizing effect would likely diminish the more back and forth there is on tariff implementation. And the uncertainty reduces the likelihood of a big bounce back on a policy reversal. But I do think such a reversal would at least keep the economy from continuing to contract at a rapid rate. This is a very different situation than, say, 2008, when large imbalances forced a long-coming reckoning in the housing and financial markets and the banking system, which monetary policymakers had limited ability to address given that rates were already at zero.

Allison Nathan: Are you at all concerned that tariffs could induce a supply-side shock on top of a demand-side shock if countries significantly scale back production?

Jan Hatzius: The potential for shortages is certainly a risk given that the US is a large-scale deficit country, and the situation is particularly fraught vis-à-vis China, which produces many goods that the US needs and would be hard-pressed to do without. If the situation escalates to something akin to production and/or export embargos, the impact on the US economy could be severe, going far beyond just higher prices. So, China has a lot of leverage. From a glass half-full perspective, that leverage may incentivize the Administration to come to terms with China. From a glass half-empty perspective, China can inflict significant damage on the US economy.

Allison Nathan: Is there risk of a financial crisis that could become recessionary?

Jan Hatzius: I do see some financial vulnerabilities. US asset valuations, including both equities and credit, remain elevated and face risk of further significant declines in a downside economic scenario. This would weaken private sector balance sheets and could create a vicious circle between tightening financial conditions and deteriorating real economic performance.

Foreign investors' appetite for US assets is also key to watch. Signs that this appetite is diminishing are apparent in the currency markets. And there is reason to be concerned that this trend could interact with another major worry vis-à-vis the long-term health of the US economy: the large and unsustainable fiscal deficit. The ex-interest deficit is set to remain at 3-4% of GDP, which suggests an ever-increasing ratio of government debt to GDP.

The good news is that the banking system is much less leveraged and much better capitalized than it was heading into the 2008 crisis. The March 2023 regional banking crisis didn't morph into a full-blown financial crisis partly or even mostly for this reason. So, that episode could perhaps be considered a fire drill, and it provided some comfort.

Allison Nathan: To what extent would an accompanying tariff-induced inflation shock limit the Fed's ability to prevent/fight a tariff-driven recession?

Jan Hatzius: Rising inflation will undoubtedly complicate the Fed's response. Consistent with a general rule of thumb that 1pp on the average effective tariff rate is worth 10bp on core PCE, we have raised our core PCE inflation forecast by a substantial 150bp since the inauguration and now expect a year-end core PCE inflation rate of 3.5%. So, the Fed will be facing a stagflationary shock, which is harder for policymakers to deal with because it's difficult to determine whether their main focus should be on inflation or growth.

The good news is that with the current Fed funds rate at 4.25-4.5%, the Fed has substantial room to cut to support the economy and/or stabilize financial markets if need be. We currently forecast three 25bp "insurance cuts"—in June, July, and September—to combat the risk of a sharper labor market downturn. But I have no doubt that if the economy and labor market show signs of more severe deterioration, the Fed would

cut—and probably quite aggressively—even if it means a bigger short-term increase in inflation. My conviction rests on the fact that, one, maximum employment is, of course, part of the Fed's mandate. And two, a substantial weakening in the labor market would likely suppress the second-round effects on inflation and keep inflation expectations in check, which should enable the Fed to lean into the view that the tariff-driven price increase is more of a price level shift rather than the start of a serious inflation problem. All told, the Fed will probably be a bit late given the difficulty of deciding whether the inflationary impact or the real economic impact warrants more attention. But, if the economy shows serious signs of deterioration, I strongly believe that they would do a lot, with a lot of impact.

Allison Nathan: But can cuts be effective if uncertainty is the main source of concern for businesses and consumers?

Jan Hatzius: Yes. Sizable rate cuts wouldn't directly address policy uncertainty but could significantly offset uncertainty effects. The channels of monetary transmission, for example, through the mortgage market, should still work. In a recession, I would expect roughly 200bp of cuts, but the Fed could always do more if those cuts don't have sufficient impact.

Allison Nathan: If we do end up in recession and the Administration doesn't pare back tariffs in response, what could the recovery look like?

Jan Hatzius: If tariffs push the US into recession and remain at high levels, my intuition would be that—all else equal—the level of GDP would remain lower than it otherwise would be, but that growth would eventually move back to something closer to trend. So, the economy wouldn't make up the loss from the tariff hit, but relatively normal growth would resume from the lower level of activity. This would differ substantially from, say, the V-shaped recovery following the Covid pandemic, when a period of exceptionally strong growth on the reopening of the economy made up for the initial hit. But nor would I expect a protracted decline or stagnation in growth. That said, real questions remain about the impact of trade restrictions on long-term growth given the reduced ability to exploit comparative advantages over time, the potential for less innovation because of less competitive pressure, and just more sand in the gears of capitalist machinery. These unfavorable trends wouldn't prevent the economy from growing, but they might dent growth at the margin over the longer term.

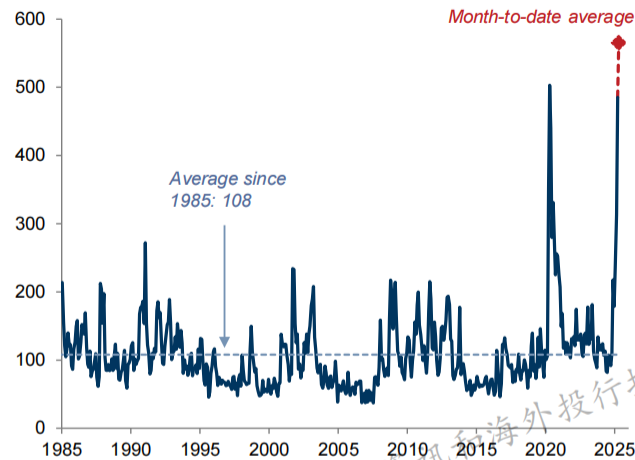
Allison Nathan: What could all this mean for ex-US economies?

Jan Hatzius: As the scale of the tariff increase has become clearer over the past month, we have downgraded the US growth outlook the most among the major economies. But China is a close second given the size of the tariffs there, which we expect substantially more stimulus to only partially offset. That said, out of the roughly 25 of the biggest economies we cover, we have downgraded the growth outlook in all but a handful. While some countries may emerge from the trade war unscathed or even in a stronger position—for example, a country like Vietnam is an interesting edge case that could end up either greatly benefitting from or hurt by the tariffs—the reality is that protectionism is ultimately a negative sum-game, and our forecasts reflect that.

Tariffs: a hit to certainty and sentiment

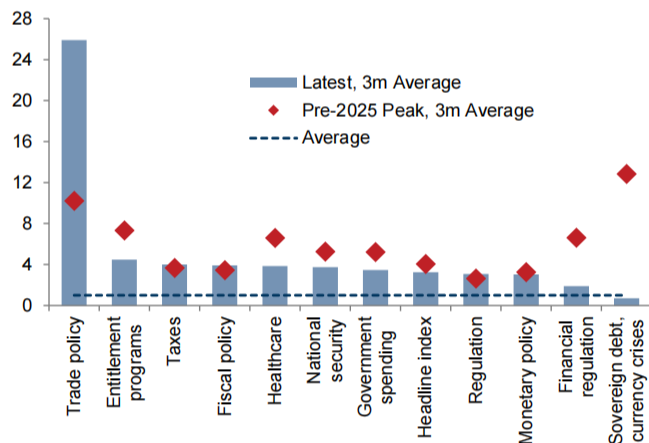
Measures of overall US economic policy uncertainty have spiked...

Baker, Bloom, Davis Headline Policy Uncertainty Index



Source: PolicyUncertainty.com, Goldman Sachs GIR.

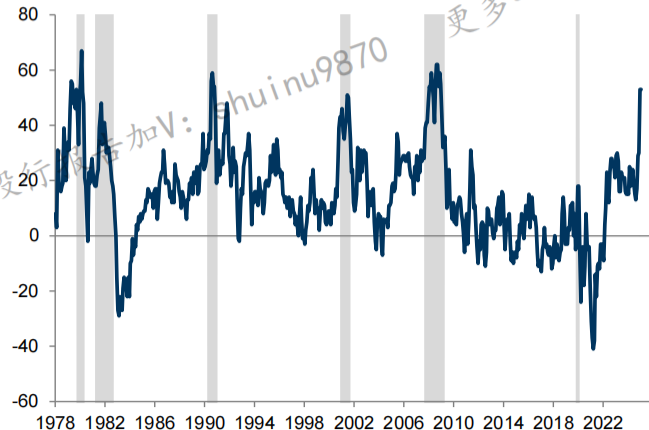
While uncertainty about trade policy is particularly extreme, most thematic policy subindices are above average. Thematic policy uncertainty indexes, relative to their 1985-2024 average



Source: PolicyUncertainty.com, Goldman Sachs GIR.

...with consumers expecting higher unemployment over the next 12 months...

University of Michigan survey: consumers who expect higher unemployment over the next 12m, diffusion index

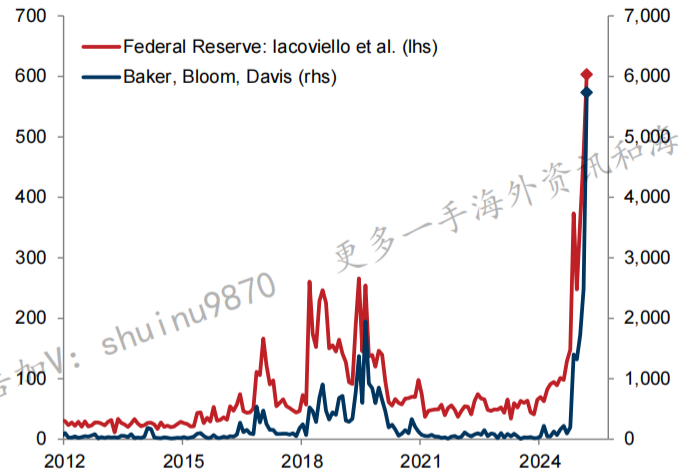


Source: University of Michigan, Goldman Sachs GIR.

Special thanks to GS US Economics team for charts, which originally appeared in an April 6 [US Economics Analyst](#).

...as have measures of trade policy uncertainty, which have surpassed their 2018-2019 trade war peaks

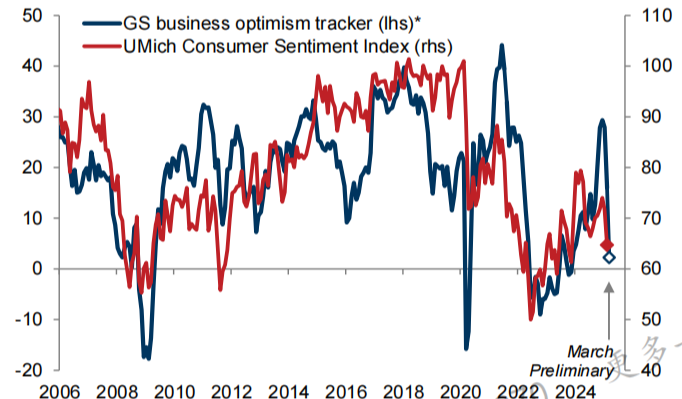
Trade policy uncertainty indexes



Source: PolicyUncertainty.com, Matteo Iacoviello et al., Goldman Sachs GIR.

Tariffs and elevated policy uncertainty are weighing on confidence among businesses and consumers...

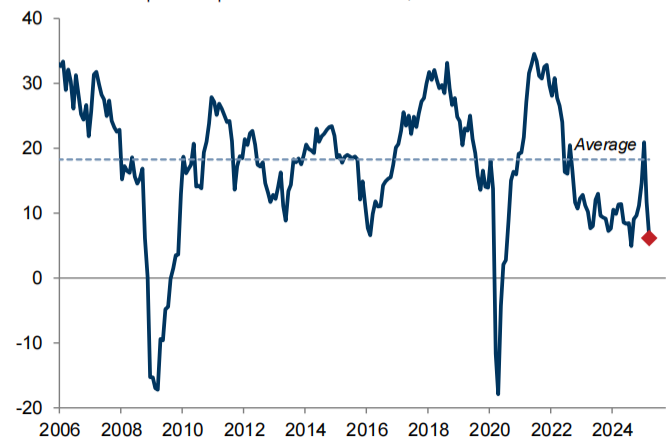
GS business optimism tracker (lhs) vs. University of Michigan Consumer Sentiment Index (rhs)



*Our business optimism tracker is a composite of 13 surveys that ask business leaders about their confidence in the economic outlook over the next 6-12m. Our preliminary estimate for March is based on surveys released thus far. Source: Federal Reserve, NFIB, Duke, The Conference Board, Business Roundtable, University of Michigan, Goldman Sachs GIR.

...and businesses' expectations for future capex declining sharply in recent months

GS future capex expectations tracker, index



Note: Our capex expectations tracker is a composite of surveys that ask business leaders about their future capex expectations over the next 3-12m. Source: Federal Reserve, NFIB, Business Roundtable, Goldman Sachs GIR.

Interview with Oren Cass

Oren Cass is the Founder and Chief Economist of American Compass and editor of the forthcoming book, *The New Conservatives: Restoring America's Commitment to Family, Community, and Industry*. Below, he argues that while the Trump Administration's trade policies entail some short-term costs, if well-executed they should produce better long-term economic and security outcomes for the US.

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



Jenny Grimberg: The Trump Administration's aim to reorder the global trade system has sparked concerns about a US recession. Are such concerns warranted?

Oren Cass: The Trump Administration has been on point in focusing on globalization's failures over the past generation, the realities of China's rise, and the US economic and security implications of the shift from a unipolar to multipolar world. The Administration recognizes the need for change and is willing to accept the associated short-term costs in pursuit of a better long-term arrangement for the US, which is very encouraging after decades of politics as usual.

Most economists agree that these short-term costs raise the risk of recession, but they certainly don't guarantee one. And markets, despite their recent declines, aren't signaling that these costs will be catastrophic. The fact is that the Administration's trade policies on their own aren't sufficient to plunge the US economy into recession given the share of imports affected by the tariffs and the availability of substitutes. Of course, the second-order effects—the tariffs' impacts on consumer and business confidence, etc.—are very important to consider. And the quality of the Administration's communication, any further tariff developments, the market reaction, and the media narrative will also have an impact. But there is no reason the trade policies the Administration is pursuing would need to cause a recession. On the contrary, they should produce a great deal of investment and, more broadly, better economic outcomes for America.

“There is no reason the trade policies the Administration is pursuing would need to cause a recession. On the contrary, they should produce a great deal of investment and, more broadly, better economic outcomes for America.”

Jenny Grimberg: Does the uncertainty that the implementation of this trade policy shift has generated warrant concern?

Oren Cass: Many of the concerns around the Administration's implementation strategy both in terms of the abruptness and lack of communication around the long-term goals of tariffs are fair, and the frustration among markets and allies is understandable. The Administration is now trying to course

correct. It paused the reciprocal tariffs for every country except China for 90 days, allowing time for negotiations. It has also begun to provide a clearer picture of its goals, with CEA Chair Steve Miran's [recent remarks](#) at the Hudson Institute particularly useful in this regard and more clarity likely to come as the reciprocal tariff negotiations proceed. Such clarity should resolve a lot of the uncertainty about the ultimate strategy and endgame.

Certainly, much work remains to be done. The goals vis-à-vis the China tariffs need to be clarified. The Administration should explain whether it is seeking to make a deal with China or, conversely, decouple from it, though the Administration may itself not know at this point as internal debates on this topic continue. The intended duration of the 10% global tariff should also be clarified. And all of this should be legislated to give these policies the permanence and credibility they need.

That said, companies already have enough information about the Administration's tariff goals to work out the right strategy: invest significantly more in US-based production. None of the potential outcomes on the table suggest that strategy would end up being the wrong one. So, to some extent, I see a “doth protest too much” dynamic among many large corporations that are still looking for excuses not to reshore production or do more domestically.

“Companies already have enough information about the Administration's tariff goals to work out the right strategy: invest significantly more in US-based production.”

Jenny Grimberg: But don't companies that invest in the US today run the risk of ending up uncompetitive if the Administration's trade policies are reversed, either by this Administration or a subsequent one?

Oren Cass: Nobody hesitated to rush investment to China as soon as it was granted World Trade Organization (WTO) membership notwithstanding the obviously massive risks associated with doing business in the country. That decision worked out very well for many companies in the short-run that then got their lunch eaten in the medium- to long-run, but they all seemed perfectly comfortable taking that risk. So, I find the idea that businesses just can't operate in a world of less-than-perfect certainty about future political and geopolitical conditions a bit lame.

Jenny Grimberg: If the Trump Administration is successful in providing more certainty/clarity around its trade policy,

to what extent would that reduce the short-term costs of reordering global trade?

Oren Cass: Clearer communication is important and valuable, but rewiring global trade will come with short-term costs regardless. That said, when people talk about having to incur a short-term cost to achieve a long-term benefit, those costs are referred to as investment. And in this context, a lot of those costs are literally investment—resources allocated to the development of productive capacity. That can be a cost well worth incurring over the long term.

From the market's perspective, reduced profit expectations can also be considered a cost. Globalization and easy access to cheap labor undoubtedly benefit multinational corporations' bottom lines. So, a reversal of those trends could drive profits and equity prices lower. But the stock market is not the economy, and it doesn't provide a useful proxy of the actual well-being of the country. Just because some corporations may find themselves worse off in a new era of global trade doesn't mean the US economy won't benefit in the aggregate.

Jenny Grimberg: Some people have argued that the ability of companies to generate strong profits is an important pillar of the US economy's strength. What's your response?

Oren Cass: In *The Wealth of Nations*, Adam Smith said that "the rate of profit is always highest in those countries going fastest to ruin." High profit margins aren't intrinsically good. Case in point: over the past few decades, globalization and financialization have made America a great place to earn a lot of money, but in ways that didn't necessarily benefit the country and the people who live there. So, US policy should ultimately strive to reestablish the link between successful, profitable businesses and activities that benefit ordinary Americans, which the Trump Administration is attempting to do through its trade agenda and beyond.

Jenny Grimberg: But didn't President Trump arguably inherit a strong economy? Doesn't that imply that something was going right in the American economy?

Oren Cass: The economy was certainly near the top of the business cycle when Trump returned to the White House, but that says nothing about the long-run strength of the American economy. Real wage growth for median and lower-wage workers has been quite poor for the last 50 years. And the hollowing out of America's manufacturing base has cost the country significantly in terms of lost employment opportunities, left-behind communities, reduced innovation, slow productivity growth, and weaker national security and resilience. So, while politicians were focused on optimizing the day-to-day economic metrics, the typical US worker has found it much more difficult to afford the basics of middle-class security.

Jenny Grimberg: To what extent does that subpar outcome for many Americans owe to trade versus trends in education, automation, and other factors?

Oren Cass: Many factors have weighed on the well-being of the middle class. But free trade and globalization are absolutely an important piece of the puzzle. The reality is that free trade, particularly with China, has proven a terrible policy choice, both

economically and geopolitically. The US, as we've discussed, has experienced deindustrialization to the detriment of its economy. And, despite what many argued when China joined the WTO in 2001, China has become a less—not more—liberal country whose market is still dominated by the state in all respects and who has used the international economic system to advance its own aims that don't serve America well. So, preserving free trade with China is not in the US' interests.

“The hollowing out of America's manufacturing base has cost the country significantly in terms of lost employment opportunities, left-behind communities, reduced innovation, slow productivity growth, and weaker national security and resilience.”

Jenny Grimberg: Are there other ways to address such ills that could prove less costly than tariffs, such as industrial policies like the CHIPS Act?

Oren Cass: I'm a strong supporter of the CHIPS Act, but a CHIPS Act for every industry necessary to rebuild a strong US industrial base would be politically difficult and cumbersome to execute, as Congress would need to become involved every time a product or industry was deemed critical. Propping up all the elements of an industrial economy with only subsidies would also pit America against other countries in a subsidy race, which would ultimately result in a capacity glut and policy failure. So, using broad tariffs to incentivize reindustrialization is far preferable to using only industrial policy, and tariffs are arguably the more free-market option, as they would eventually leave it to the market rather than the government to decide what else to produce in the US and how to do so most effectively.

Jenny Grimberg: Ultimately, what does the ideal reordering of the international trade system look like in terms of the best outcome for the US economy, and how likely is it?

Oren Cass: The ideal outcome would be a US-centered alliance that is both a trading bloc and a security partnership built on the premise of balanced trade. That doesn't mean no bilateral deficits—many reasons exist to run such deficits—but it does mean that each country in the alliance wouldn't pursue an export-led economic strategy that seeks to push its surpluses onto other economies.

Another key feature of such an alliance would be genuine burden-sharing and leadership on the defense front by allies in each region. And, crucially, it would entail agreement among everyone in the alliance on a common policy toward China that seeks to decouple supply chains, exclude investment, restrict technology transfers, etc. These are reasonable demands for the US to make of its allies, and America would undoubtedly hold itself to the same conditions, as it long has. So, I view this as a plausible outcome, and one that would provide a much better foundation for security and economic growth in this century.

Potential tariff off-ramps

We ask Alec Phillips, our Chief US Political Economist, about the potential off-ramps to tariffs (and their economic impacts) from the White House, Congress, and courts



The White House

The most straightforward off-ramp would be for the White House itself to reverse the tariff increases, but a meaningful pullback seems unlikely given the Administration's goal to reduce the US trade deficit.

- The most straightforward off-ramp would be for the White House itself to lower or even reverse the tariff increases following successful negotiations with US trading partners. Trump will likely announce a few deals that include commitments to purchase US goods in specified quantities—similar to the provisions in the US-China Phase One trade agreement during the first Trump term—as a means of lowering certain bilateral trade deficits. However, doing so for every trade partner isn't feasible given the sheer number of countries involved. So, it seems unlikely that deals will be reached with all or even most of the countries targeted by the country-specific portion of the reciprocal tariffs by the end of the 90-day pause.
- Economic and financial pain could also force the White House to reverse course on tariffs; the 90-day pause on the country-specific tariffs likely owed to the Administration's growing concerns about the dysfunction in financial markets, particularly the bond market. But Trump will probably need to make the threat of the additional tariffs appear real again before the end of the 90-day pause to maintain negotiating leverage. A negative financial market reaction might limit the potential for further tariff hikes, but doesn't look likely to force tariff reductions at this point.
- Even if tariff rates remain at current levels, product-specific exemptions could be another off-ramp, with the recent exemptions on computers, smartphones, and other electronics an indication that Trump is willing to go that route. That could mean a higher likelihood of imposing country-specific tariffs, but alongside several exemptions on economically- or politically-sensitive products that reduce the tariffs' ultimate impact.

Congress

Congress looks likely to act, but the effect would be mainly symbolic.

- The most straightforward route to a congressional off-ramp is through a simple majority vote to terminate the emergency declaration Trump has used to impose the "Liberation Day" tariffs. As only a few Republican votes would be needed to reach a majority (assuming all or nearly all Democrats vote in favor), these resolutions have a good chance of passing. Such a resolution has already been introduced in both chambers of Congress, with a vote in the Senate likely in early May. The House looks less likely to vote, but even if it does, any vote would be largely symbolic, as any legislation Congress passes would require a presidential signature, and Trump would almost certainly veto any legislation to limit his authority to impose tariffs. Congress could override a veto, but Republican dissatisfaction with tariffs does not appear deep enough to reach the two-thirds majority required to do so. That said, even one chamber of Congress voting against broad-based tariffs would send an important political signal that could pressure Trump to limit further escalation, and, on the margin, reduce the odds that he implements some of the country-specific tariffs.
- Congress could also pass legislation to limit the president's authority to impose tariffs, but this would likely face an even more challenging road. Unlike the national emergency resolution, such legislation is not guaranteed consideration in either chamber of Congress—and the House at least appears unlikely to allow such legislation to come up for a vote—and would require a supermajority vote. Again, this seems unlikely given the current sentiment

among Republicans. And even if it did ultimately pass through Congress, the legislation would still have to contend with a presidential veto. While Democrats could plausibly win control of the House following midterm elections next year, which could ease the path of tariff-limiting legislation through Congress, Democrats would likely still need substantial Republican support to override a presidential veto.

Courts

The odds are slightly higher that the courts intervene, but it is far from guaranteed and likely wouldn't happen in time to prevent the tariffs' economic impact from being felt.

- The fastest way to block tariffs via the courts is through a preliminary injunction, which would pause the tariffs while a potential court case unfolds. However, obtaining an injunction requires evidence of irreparable harm, and financial losses from tariffs might not qualify as tariff revenues could be refunded if the court ultimately overturns the tariffs (the argument of irreparable harm become stronger with higher tariff levels). A successful injunction would also require a good chance that the plaintiffs will ultimately win the case, which can be a high bar to meet.
- While an injunction looks unlikely, a favorable court ruling against tariffs is still possible, and several court cases are already underway. Most notably, a case has been filed in Florida against Trump's IEEPA-based China tariffs, which would also apply to the broader tariffs that Trump announced on "Liberation Day" under the same authority. That lawsuit makes three claims:
 1. IEEPA does not give the president the authority to impose tariffs (notably, the law makes no mention of the word "tariff").
 2. These tariffs violate the Supreme Court's major questions doctrine (MQD), which holds that Congress must explicitly grant the president the power to impose policies with this level of economic and political significance, which Congress has not done. This same argument was used to block President Biden's student loan forgiveness plan, which was a fraction of the size of the Trump tariffs.
 3. Even if Congress *had* granted the president such authority, it would run afoul of the non-delegation doctrine, which limits the extent to which Congress can delegate its legislative power to other branches of government.

However, trade lawyers [are generally skeptical](#) that such a court challenge could succeed, as courts have traditionally deferred to the executive branch on questions of foreign policy.

- Even if the courts intervene to block the IEEPA-based tariffs, Trump could use several other authorities to impose tariffs, such as Section 122 of the US Trade Act of 1974, which allows the president to impose an additional 15% tariff on imports for up to five months, or Section 338 of the Tariff Act of 1930, which allows up to a 50% tariff on countries that discriminate against US producers. The president could also use Section 301 of the 1974 Act, which places no limits on the amount or duration of tariffs and was the basis for the Trump Administration's 2018-19 China tariffs. Another option would be Section 232 of the Trade Expansion Act of 1962, which allows for national security-related trade restrictions and was the basis of Trump's steel and aluminum tariffs. That said, the courts blocking Trump's ability to use IEEPA would still be meaningful, as it could provide a temporary reprieve for financial markets and might make the Administration more cautious in pursuing other legal authorities.

Markets: recession-exposed

Dominic Wilson and Vickie Chang argue that the market's recent relief rally leaves it vulnerable to a potential recession

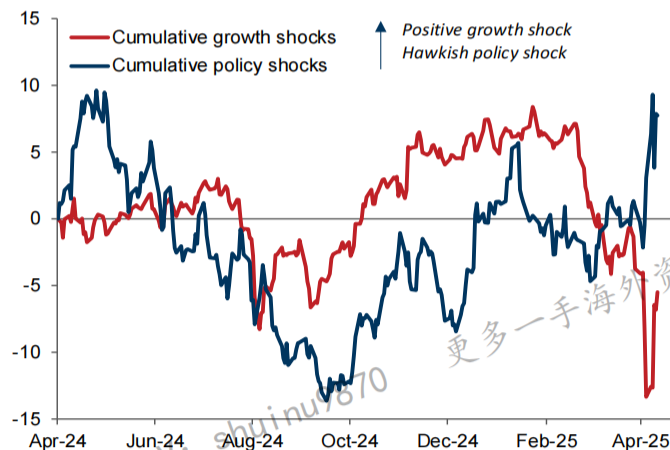
While markets came into the year pricing a very optimistic US growth picture, rising policy uncertainty over the last couple of months has led to more worry about the growth outlook. Directionally, this shift makes sense. Our US economists have repeatedly downgraded their own forecasts since the start of the year, doing so again following the more hawkish-than-expected April 2 tariff announcements, which put recession risk more firmly on the table (see pgs. 6-7). But despite an increase in growth worry, markets have backed away from pricing recession in the days since the 90-day pause on country-specific tariffs, so recession risks now look underpriced relative to our own forecasts, which see 45% odds of a recession over the next year.

Tariff turmoil, and back again...

Looking at a range of indicators and, in particular, at signals from the joint movements in equity and bond markets, we find that the market's growth outlook declined steadily through March but experienced an especially sharp downgrade on the back of the April 2 tariff announcements. The implied decline in market growth views for April 3 and 4 screens as the biggest 2-day move in that measure outside of Black Monday (1987), the weeks following Lehman's collapse (2008), and the week in which the US entered Covid lockdowns (2020).

The market reversed a growth downgrade and hawkish policy shock on the 90-day tariff pause

1-year cumulative growth and policy shocks, index



Although the downgrade to US growth views was very sharp, even at the worst point, our cross-asset framework did not see market pricing as consistent with a full-blown recession. Common recession gauges told a similar story, with only the VIX reaching levels associated with past recession peaks while longer-dated equity volatility, credit spreads, and the yield curve did not.

...leaves markets in relief, for now

A reversal in the proposed tariffs was always the most direct route to stabilizing markets. With signs of stress emerging in

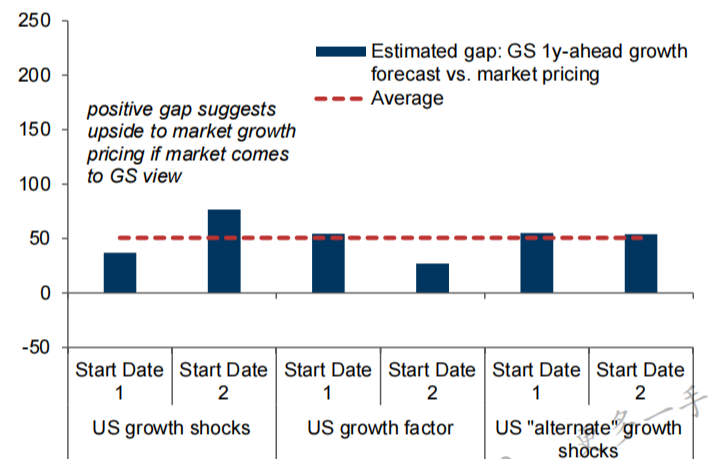
the US Treasury market, the April 9 pause of the country-specific tariffs on every country except China arguably prevented an acceleration in the market turmoil and precipitated a sharp reversal in the market's growth downgrade. According to our growth shock measure, it constituted the largest one-day upgrade to US growth views since March 2020, capping a week of records. Markets have now retreated somewhat from that initial relief, but so far the relief in growth pricing has largely survived.

Not enough downside risk priced in...

Our growth benchmarking exercises suggest that market pricing has moved to pricing something somewhat below our baseline forecast of weak but non-recessionary US growth. But it still suggests that markets are pricing little discount for what we see as an elevated 45% probability of recession over the next 12 months.

The market's US growth pricing is somewhat below our baseline forecast....

Estimated gap between GS 1y-ahead growth forecast and market pricing, bp

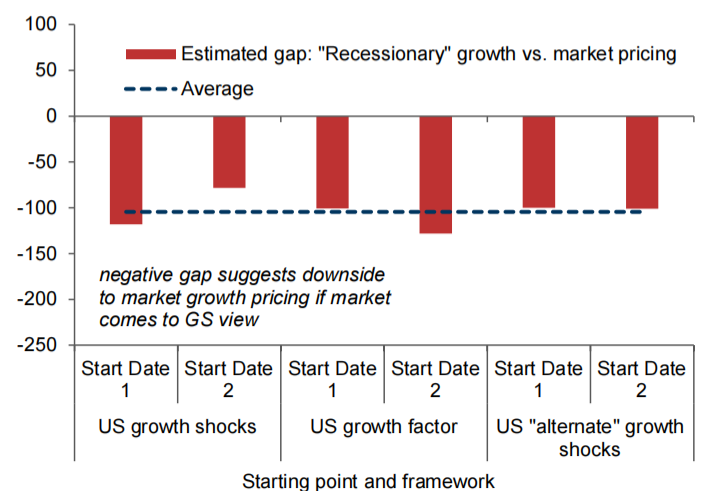


Note: Start Date 1 considers changes in market pricing since August 2023, and Start Date 2 considers changes since July 2024.

Source: Goldman Sachs GIR.

...but allows little discount for elevated recession risk

Estimated gap between GS recessionary growth forecast and market pricing, bp

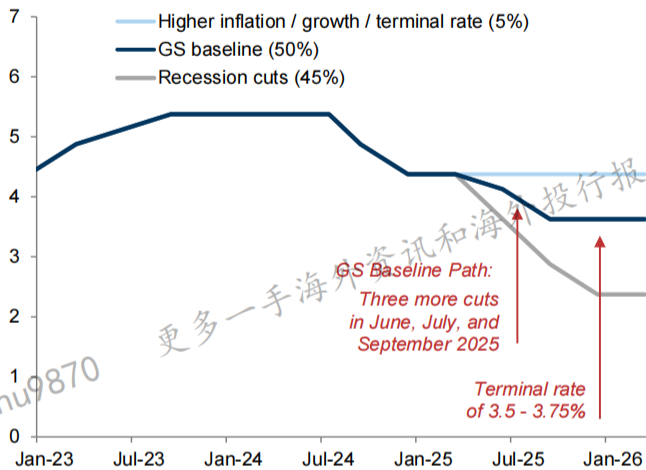


Source: Goldman Sachs GIR.

Front-end rates markets tell a similar story. Rates markets are pricing a little more than our baseline expectation of three 25bp Fed cuts in 2025. But after accounting for a still-high chance of recession—in which we would expect 200bp of cuts this year—the forwards lie above our estimate of the weighted average of the likely scenarios.

We expect three 25bp Fed rate cuts this year, although uncertainty remains high...

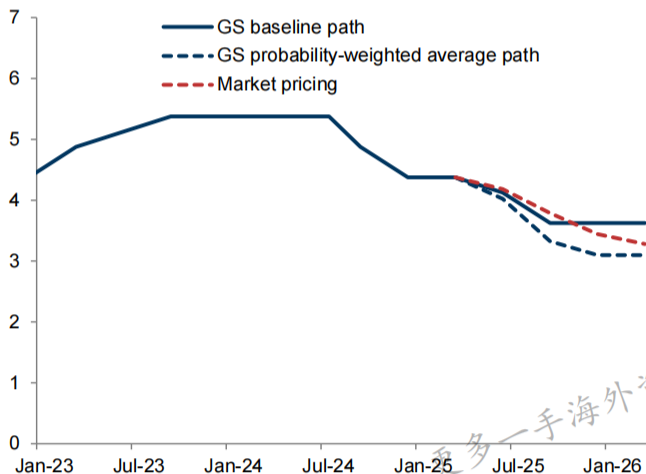
Fed funds Rate, %



Source: Goldman Sachs GIR.

...and market rates pricing is still more hawkish than our probability-weighted forecast

Fed funds Rate, %



Source: Goldman Sachs GIR.

...which leaves room for meaningful downside

If the US economy continues to track along our baseline forecast and avoids recession, current pricing may not be challenged, though we see only modest room for further relief in that scenario. Short-dated equity volatility and skew were among the few places where market pricing reached recessionary/crisis levels, so some further relaxation there is possible without any fresh near-term news. That, in turn, may encourage some near-term re-risking. Further news of tariff reductions or pauses, particularly with respect to China, would also likely fuel some additional upside. And the data may not show signs of weakness immediately, particularly as spending by consumers and businesses may have been pulled forward ahead of the tariff announcements.

However, while we think some relief has been warranted, markets have quickly moved to a position where they look to be underpricing the downside risks to the economy in the absence of further meaningful reductions in proposed tariff rates, leaving them vulnerable to any signs that recession may be coming. The downside from current pricing in that scenario looks meaningfully larger than the upside from a more benign outcome. If investors move back toward pricing higher recession risks, that would likely be accompanied by further weakness in equity markets, especially cyclicals, higher longer-dated equity volatility, wider credit spreads, and a substantially deeper Fed easing cycle than is currently priced, likely beginning with a 50bp cut.

Dominic Wilson, Senior Markets Advisor

Email: dominic.wilson@gs.com
Tel: 212-902-5924

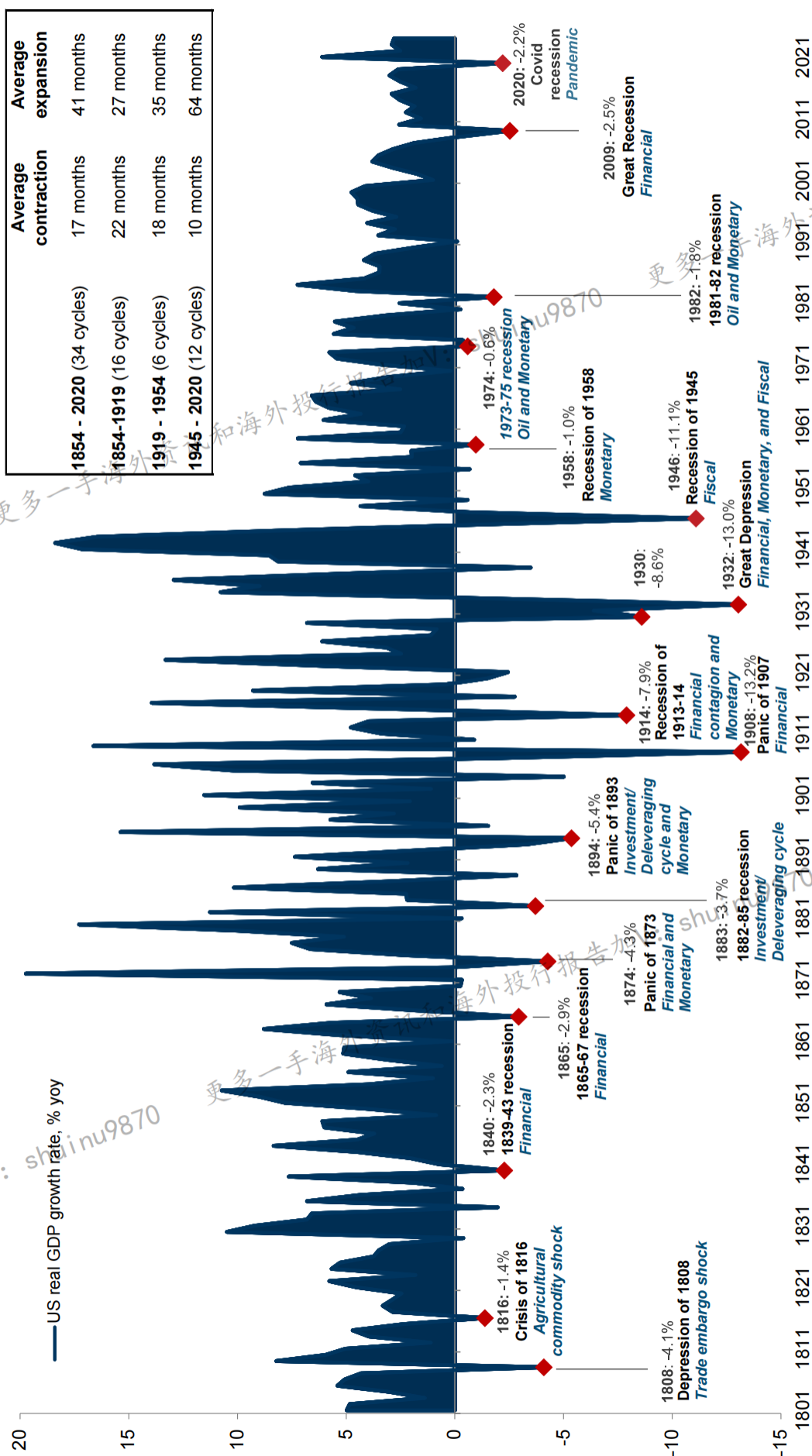
Goldman Sachs & Co. LLC

Vickie Chang, Senior Global Markets Strategist

Email: vickie.chang@gs.com
Tel: 212-902-6915

Goldman Sachs & Co. LLC

The long history of US recessions



Note: Blue italics denote key contributors to the recession/depression rather than an exhaustive list of drivers, as classified in the June 2017 US Economics Analyst: The Next Recession: Lesson from History and the January 2019 US Economics Analyst: Learning from a Century of US Recessions; red markers denote trough in yoy US growth in major recessions; US growth data for 1800-1979 from IMF "Fiscal Prudence and Profligacy".

Source: IMF, NBER, various news sources, Goldman Sachs GIR.

USTs: worsening hedge, but no crisis

Lotfi Karoui and William Marshall argue that concerns about a financial crisis amid recent bond market dysfunction look overblown

The recent dysfunction in the bond market amid the ongoing global trade war has raised questions about Treasuries' safe-haven role and stoked fears of a financial crisis. While we think the recent developments suggest that Treasuries may have lost their edge as a growth hedge, concerns around an "LDI-style" crisis in fixed income markets look overblown.

The safe haven role, undermined...

The market volatility of the last few weeks has laid bare several headwinds that have undermined the traditional haven role of Treasury bonds in periods of rising growth risks. First, the combination of downside growth risks and upside inflation risks [has pushed](#) investors to demand more compensation for taking duration risk. Second, the narrative has reverted toward concerns about long-term debt sustainability and the challenging fiscal arithmetic in a slower growth environment. Third, unease over the prospect of reduced foreign participation in the US Treasury market has grown. While we see no concrete evidence that acute foreign selling has occurred over the past week, the weak 3-year Treasury note auction on April 8 was interpreted by many market participants as a signal that foreign investors are stepping back. Either way, the risk of waning foreign support for the Treasury market in and of itself can justify higher term premia.

Regardless of the drivers of the recent price action in the Treasury market, the value proposition of owning nominal bonds as a hedge against downside growth risks has clearly come under pressure, which has knock-on implications for investors in adjacent fixed income markets, such as the corporate bond and agency MBS markets. Simply put, this diminished protection leaves multi-asset investors vulnerable to a "double whammy" of higher rates and wider spreads, which would weigh on bond total returns.

The one silver lining is that the Trump Administration appears to be more responsive to the risk of an abrupt rise in Treasury yields than to a sharp decline in equities. That said, the erosion of Treasuries' hedge value and concerns about an increasingly negative Treasury supply/demand balance—which could drive yields higher—are unlikely to resolve quickly. Ultimately, we think clear evidence of growth weakness should lead yields lower across the curve, but the path to that may be a bumpy one depending on the sequencing of growth and inflation news. Although it remains to be seen whether the recent policy gyrations have caused permanent damage to US institutional credibility, the combination of elevated recession risk, rising inflation, and an over-leveraged public sector does not spell good news for term premia and long-end volatility.

...but the bar for a UK-style LDI crisis remains high

Amid these fundamental concerns, signs of pressure on liquidity conditions in the Treasury market have emerged, fueling worries about the microstructure of fixed income markets and a potential repeat of the September 2022 UK LDI crisis. We think these worries are overblown. While various measures of Treasury market depth have deteriorated to levels

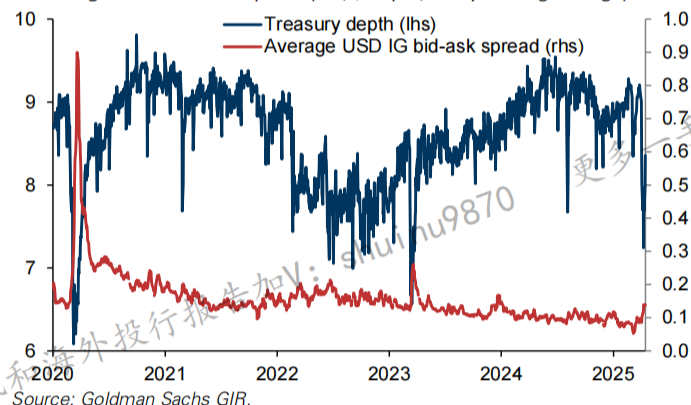
consistent with thinner-than-normal liquidity, the magnitude of the deterioration was closer to that of early August 2024 than the stress episodes of March 2020 (Covid) or March 2023 (the regional banking crisis). More importantly, measures of dollar funding costs have been relatively well-behaved, widening modestly but remaining well within the norms of recent years.

Rather than a scramble for dollars, we think the recent rates volatility has thus far been more consistent with unwinds of leveraged positions, particularly in swap spreads (which are the yield differential between interest rate swaps and Treasury bonds). From a system-wide perspective, while one-sided selling can strain dealer inventories, the transfer of positions from one levered investor (e.g. hedge funds) to another (dealers) is less of a stress event than if unleveraged investors were the ones selling—which could see a sudden rise in demand for dollars, potentially disrupting financial markets.

The "plumbing" of the corporate bond market has also remained resilient, all things considered. The ETF NAV basis, the difference between the value of an ETF and the underlying bond constituents and a good proxy for investors' ability to efficiently deploy capital, has remained much better behaved than in March 2020 or March 2023. Other measures of liquidity have also deteriorated but have failed to meet levels that would indicate market stress. Indeed, while bid-ask spreads in the investment grade corporate bond market have risen, they remain well below Covid levels.

Bond market liquidity has deteriorated, but not to crisis levels

Treasury market depth (top 3 levels of order stack) (lhs, # contracts, log level) vs. average USD IG bid-ask spread (rhs, \$ of par, 5-day moving average)



Where to from here? The recent signs of fragility in the Treasury market, while not nearly as severe as recent episodes of stress, point to some vulnerabilities should risk appetite deteriorate again. More significant pressure on funding costs or a more severe breakdown in market function—likely driven by broader liquidation—would likely warrant a Fed response, either in the form of liquidity injections (e.g. repo operations) or financial stability purchases along the lines of the BoE during the LDI crisis. So, while concerns about a financial crisis look overblown for now, how Treasury markets behave from here will be important to watch.

Lotfi Karoui, Chief Credit Strategist

Email: lotfi.karoui@gs.com
Tel: 917-343-1548

Goldman Sachs & Co. LLC

William Marshall, Head of US Rates Strategy

Email: william.c.marshall@gs.com
Tel: 212-357-0413

Goldman Sachs & Co. LLC

Hedging recession: a guide

Christian Mueller-Glissmann discusses how to hedge current recession risk

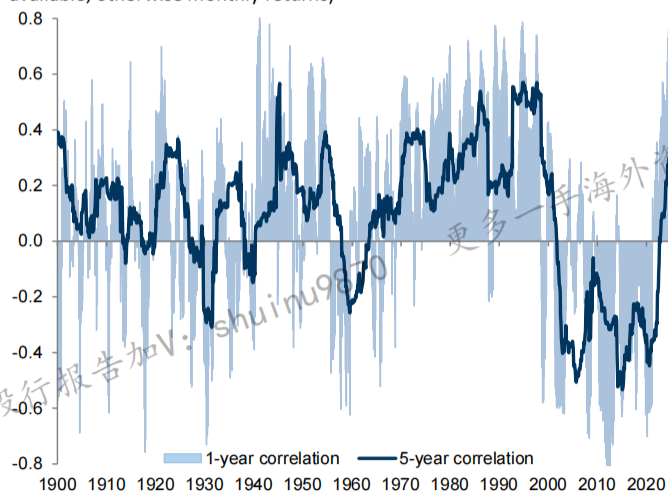
The Trump Administration's desire to rewire international trade through high tariffs has fueled worries about the US and global growth outlook, raising the question of how multi-asset investors should steel their portfolios for a potential recession. For decades, bonds served as the key buffer against recessions and equity bear markets, though their effectiveness as a growth hedge has since diminished (see pg. 17). As such, investors need to look beyond bonds to protect their portfolios—to traditional safe haven assets like the JPY, CHF, and gold, option overlays, and regional and style diversification.

Bonds: no longer a great diversifier

For this generation of investors, bonds served as a reliable diversifier in multi-asset portfolios. While bonds had a mixed track record as a diversifier prior to the 1990s, equity/bond correlations turned negative in the late 1990s and remained negative for over two decades as low and anchored inflation allowed global central banks to buffer business cycle slowdowns. Bonds rallied during the Tech Bubble and the Global Financial Crisis (GFC), mitigating the impact of equity losses. However, equity/bond diversification faltered during the Covid pandemic, especially in 2022 when equities and bonds sold off together, causing major drawdowns in global 60/40 portfolios. Even after the pandemic, bonds failed to return to their role as key diversifiers, and that trend seems likely to persist as the US stares down the barrel of potential stagflation. Indeed, equity/bond correlations tend to be more positive in periods of high inflation, and bonds provided little hedging value in past stagflationary periods.

Equity/bond correlations have turned more positive since the Covid crisis

5-year rolling S&P 500 vs. US 10-year bond correlation (daily returns where available, otherwise monthly returns)



How to hedge: look to safe havens...

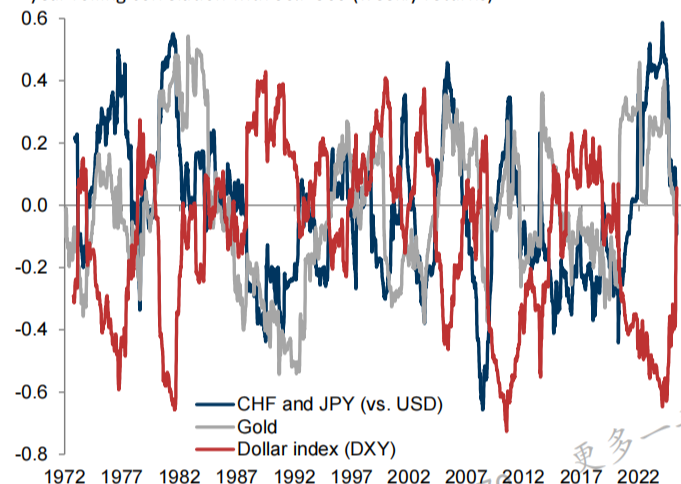
As such, investors should look beyond bonds to hedge their portfolios against recession and stagflation risks. One option is the traditional safe havens—JPY, CHF, and gold. Gold has a strong long-term track record of diversifying stagflation risk as

well as fiscal and geopolitical risks. Since 1950, gold has offered the highest average return during S&P 500 bear markets even as bonds proved a better buffer against such drawdowns in the 1990s and 2000s. More recently, increased central bank demand and growing fiscal concerns have further boosted gold's value.

In FX, what is considered "safe" has changed recently as the Dollar has come under pressure. After the Covid crisis, the Dollar diversified US 60/40 portfolios by countering negative rate shocks as the Fed tightened policy. But the Dollar has now become more correlated with equities amid rising recession risk and diminishing US exceptionalism, making traditional safe havens like the Yen and Swiss Franc crucial diversifiers. While the Dollar may once again serve as a "risk-off" asset should the US fall into a severe recession, the risk reduction/cost trade-off to using the Dollar to diversify portfolios may be less favorable compared to using other safe currencies.

The Dollar has once again become more positively correlated with equities

1-year rolling correlation with S&P 500 (weekly returns)



...option overlays...

Option overlays—strategies that use options contracts to change a portfolio's risk/reward profile without altering the underlying asset composition—can also offer effective, convex hedges against recession risk. However, they come at a cost. For example, the negative carry from a simple 1m S&P 500 put option can be large, meaning that investors need to time hedges properly, which can be just as difficult as timing the market. Equity drawdowns around recessions also need to be sharp and persistent to make option protection strategies successful. And the sharp spikes in volatility that typically precede such drawdowns point to the need to be selective on option hedges. In the current environment, we think convexity on shorter-dated US rates appears attractive as the risk of a rapid Fed cutting cycle looks underpriced.

...and regional and style diversification

Regional diversification can also provide protection for multi-asset portfolios. US equities mostly outperformed non-US markets following the GFC, primarily owing to the exceptional performance of large-cap technology stocks.

What is considered safe depends on the type of bear market and recession

Total return performance during S&P 500 bear markets (in \$, data since 1950)

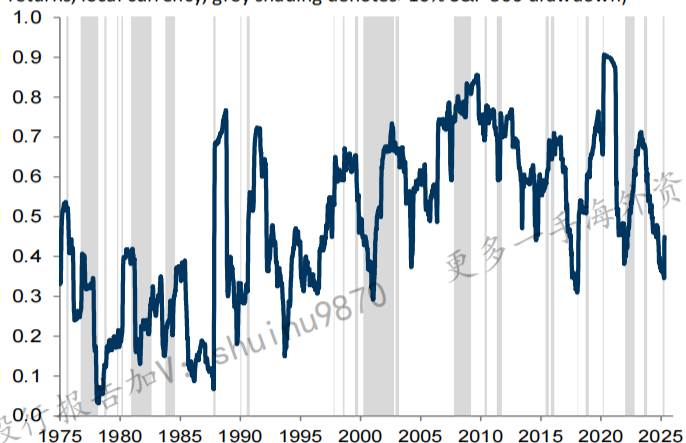
S&P 500 bear markets						Performance of 'safe assets' (nominal return)									
Start	End	Months	Recession	Average Inflation (YoY)	Nominal return	US 10Y	US 30Y	US 10Y TIPS	Germany 10Y	Japan 10Y	T-Bills	Gold	JPY/ USD	CHF/ USD	DX/ Y
Aug-56	Oct-57	15	Yes	3.0%	-18%	-4%	-7%	-4%	3%	8%	4%				
Dec-61	Jun-62	6	No	1.1%	-27%	2%	4%	4%	4%	19%	1%				
Feb-66	Oct-66	8	No	3.0%	-20%	1%	-5%	2%	-1%	9%	3%				
Nov-68	May-70	18	Yes	5.5%	-33%	-7%	-4%	-4%	-1%	10%	10%	-14%	0%	-1%	-7%
Jan-73	Oct-74	21	Yes	8.3%	-45%	1%	-23%	33%	11%	-5%	13%	139%	1%	27%	-7%
Sep-76	Mar-78	17	No	6.2%	-14%	7%	7%	11%	47%	59%	8%	55%	22%	34%	10%
Nov-80	Aug-82	21	Yes	9.3%	-20%	19%	16%	6%	-23%	0%	27%	-47%	-19%	-20%	36%
Oct-87	Dec-87	2	No	4.5%	-31%	6%	8%	4%	14%	21%	1%	6%	10%	13%	-8%
Jul-90	Oct-90	3	Yes	5.7%	-19%	-1%	-4%	10%	5%	8%	2%	7%	14%	10%	-8%
Jul-98	Aug-98	1	No	1.6%	-19%	4%	7%	1%	5%	3%	1%	-6%	-1%	4%	0%
Mar-00	Oct-02	31	Yes	2.6%	-47%	38%	32%	36%	24%	-4%	11%	12%	-13%	11%	2%
Oct-07	Mar-09	17	Yes	3.2%	-55%	21%	30%	5%	4%	25%	3%	24%	18%	2%	14%
Apr-11	Oct-11	5	No	3.6%	-19%	15%	37%	10%	3%	8%	0%	7%	6%	-5%	9%
Sep-18	Dec-18	3	No	2.2%	-19%	3%	3%	0%	1%	3%	0%	5%	2%	-3%	3%
Feb-20	Mar-20	1	Yes	1.9%	-29%	4%	5%	-6%	-1%	2%	0%	-7%	3%	1%	1%
Jan-22	Oct-22	9	No	8.3%	-24%	-14%	-24%	-16%	-32%	-22%	0%	-7%	-22%	-8%	18%
Feb-25	Apr-25	2	?	3.4%	-19%	3%	1%	1%	4%	5%	1%	3%	4%	5%	-4%
Average						-6%	5%	6%	4%	9%	5%	13%	2%	5%	4%
Median						-22%	3%	4%	3%	8%	2%	6%	2%	2%	2%
Average before 1990						-26%	3%	-1%	8%	7%	15%	8%	28%	3%	11%
Average since 1990						0%	9%	11%	5%	1%	3%	2%	4%	1%	2%
Hit ratio						0%	75%	63%	73%	69%	81%	100%	62%	69%	58%

Source: Datastream, Haver Analytics, Goldman Sachs GIR.

Regional equity correlations also broadly trended higher in the post-GFC period, partly due to increasing global economic and capital markets integration. So, regional diversification during this period wouldn't have provided higher returns or significant hedging value. However, the benefits of international equity diversification have increased since the Covid crisis, with average pairwise correlations between equity indices across countries trending down to their lowest level since the late 1990s prior to the recent market selloff. As diverging inflation pictures across countries open the door for potential policy divergence, business cycles globally likely become less synchronized as the world deglobalizes, and US exceptionalism fades, international equity diversification should provide more of a hedge against a US recession.

Correlations between international equity markets have declined

Average pairwise 1-year rolling correlation of equity markets (monthly returns, local currency, grey shading denotes >10% S&P 500 drawdown)



Note: Chart includes Australia, Austria, Belgium, Canada, Denmark, France, Germany, Hong Kong, Ireland, Italy, Japan, Malaysia, Netherlands, Norway, Singapore, South Africa, Sweden, Switzerland, UK, and US equity markets.

Source: Datastream, Goldman Sachs GIR.

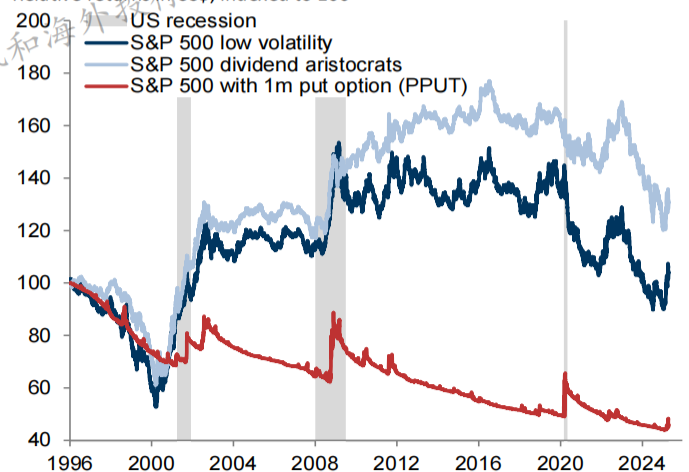
Regional diversification is not just an equity story. While bonds have become less attractive as a recession hedge, we still see a role for them in multi-asset portfolios. Treasuries offered less buffer than non-US bonds, such as Bunds and JGBs, during the recent equity drawdown. Markets have been reluctant to price an aggressive 'Fed put' given tariff-induced US inflation risks, with only around 3.5 Fed cuts currently priced in for 2025.

Steeper yield curves due to lingering inflation risks, coupled with US asset outflows from global investors and the US' large fiscal deficit as it heads into a potential recession, may prevent large declines in long-dated bond yields. Non-US bonds should continue to help diversify that risk, as they did in the 1970s.

Finally, style diversification may offer protection in a recession, and with less negative carry than option overlays. The S&P 500 Low Volatility Index, which consists of the 100 least volatile stocks in the S&P 500 based on historical volatility, and the S&P 500 Dividend Aristocrats Index, which is composed of the S&P 500 companies that have increased their dividends in each of the last 25 years, have outperformed ytd. Historically, these indices have performed well during major bear markets associated with recessions, partly owing to their lower market beta. They also did well in 2022 despite rising bond yields. In fact, these indices tend to outperform broad benchmark indices on a risk-adjusted basis through various economic cycles, exemplifying the well-known 'low volatility anomaly'.

Low-vol and dividend stocks have materially outperformed ytd

Relative returns in US\$, indexed to 100



Source: Datastream, Goldman Sachs GIR.

Christian Mueller-Glissmann, Head of Asset Allocation Research

Email: christian.mueller-glissmann@gs.com
Tel: 44-20-7774-1714

Goldman Sachs International

LatAm: trade lessons learned the hard way

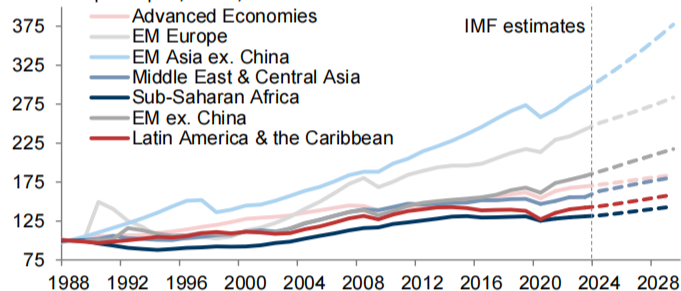
Alberto Ramos discusses the lessons learned from decades of trade protectionism in LatAm

While the speed and scale of the Trump Administration's trade policy shifts is unprecedented, Latin America (LatAm) has long been fertile ground for unconventional policies and a virtual lab experiment of the (costly) macro and social consequences of heterodox, inward-looking, import substitution, trade protectionist policies. Free(r) trade is still a hard bargain in many places across the region, particularly in its largest highly-closed economies, Brazil and Argentina, where exports account for just 18% and 13% of GDP, respectively.

So, what has the LatAm protectionist experiment revealed that could prove a useful guide for what might be in the store for the US ahead? Despite decades of protectionist policies, the performance of the manufacturing/tradable sectors of the economy has been notoriously poor. High costs and low innovation, low/negative total factor productivity (TFP), low export complexity, and low integration into global value chains attest to the most obvious shortcomings of protectionist policies. And these protectionist and inward-looking policies have resulted in an exceptionally volatile macro-financial environment characterized by boom-bust economic cycles amid a highly volatile inflation, rates, and FX backdrop. All told, LatAm, and the largest regional economies in particular, have been caught in a low-productivity, low-investment/savings trap, unable to close the productivity and per-capita real GDP gap with more capital-intensive and productive DM and EM regions.

LatAm real GDP growth has long lagged behind other regions

Real GDP per capita, index, 1988=100



Source: IMF, Goldman Sachs GIR.

Trade protectionism has been a costly experiment

An extensive body of research [demonstrates](#) the extreme costs of protectionist policies across LatAm, including growth rates below those of DM or East Asian economies, a highly inefficient and shrunken industrial sector, the development of a segmented/dual labor market, and stagnant social conditions. In fact, the record indicates that protectionism was one of the most important causes—if not the most important one—of LatAm's relative decline during the second half of the 20th century. Protectionism and broader import substitution policies also led to low degrees of trade openness/integration, often overvalued currencies, and rising labor market informality as high trade and non-trade barriers shielded inefficient domestic manufacturing industries from external competition.

Lessons can also be drawn from the experience of the Mercosur trade bloc—a customs union between Argentina, Bolivia, Brazil, Paraguay, and Uruguay—which imposed high *Common External Tariffs* (CET) on non-member countries. This arrangement protected uncompetitive local industries and, over

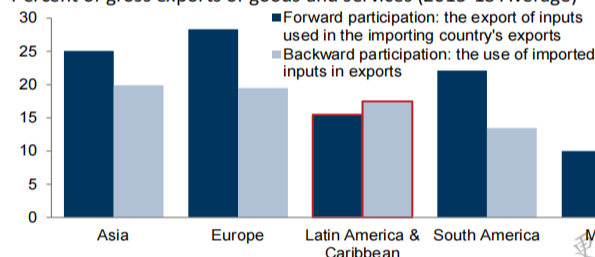
the years, drove costly trade diversion. Among the 30 sectors in which intra-trade expanded more quickly, [28 were not internationally competitive](#). This is consistent with trade diversion from lower-cost sources outside Mercosur to higher-cost sources within the trading bloc and discriminatory clauses against non-members (anti-dumping safeguards, proliferation of temporary trade barriers). [Studies](#) have also found that trade diversion has harmed productivity growth by limiting member countries' access to technological advances from non-members and that [trade liberalization stalled](#) in Argentina and Brazil after they joined Mercosur, with the level of most-favored nation tariffs applied by each roughly the same in 2014 as in 1995.

Low integration in global value chains

Decades of trade protectionist policies have also left LatAm lagging behind other regions in integration into global value chains (GVCs), putting it at a distinct disadvantage. The Inter-American Development Bank estimates that a 10% increase in a country's level of participation in a GVC can lead to a 1.6% rise in average labor productivity and 11-14% rise in per capita GDP. Deeper integration into GVCs is also associated with higher job creation and better pay as companies that are part of GVCs tend to hire more skilled labor and pay higher wages. However, the number of firms in LatAm that are part of a GVC is low versus other regions, and LatAm economies tend to be involved mainly in the early low-value-added stages of GVCs.

LatAm lags in integration in global value chains

Percent of gross exports of goods and services (2015-18 Average)



Source: IMF, Goldman Sachs GIR.

Less technology/knowledge-intensive activities

Trade protectionism has also held back the accumulation of productive knowledge and its deployment in more complex activities and industries. LatAm's exporting manufacturing operations are largely labor-intensive rather than knowledge/technology-intensive. And LatAm is significantly lagging in Harvard Growth Lab's Economic Complexity Index, which ranks a country's productive knowledge by the number and complexity of its exports. Brazil has fallen from 31st to 95th in the global rankings over the last 30 years and Argentina from 61st to 86th. By contrast, China has improved the complexity of its exports, rising from 38th to 15th place over the same period.

A harsh lesson to be heeded

All told, the scorecard on longstanding trade protectionist policies in LatAm, and in the large South American economies in particular, is quite telling. Protectionism is addictive and, in the process, weakened the region's competitive edge and the economic and social fabric of the societies that became increasingly less integrated into the global economy. Ultimately, these long-standing inward-looking protectionist policies built an island, not pathways to prosperity and social well-being.

Alberto Ramos, Head of LatAm Economics Research

Email: alberto.ramos@gs.com
Tel: 212-357-5768

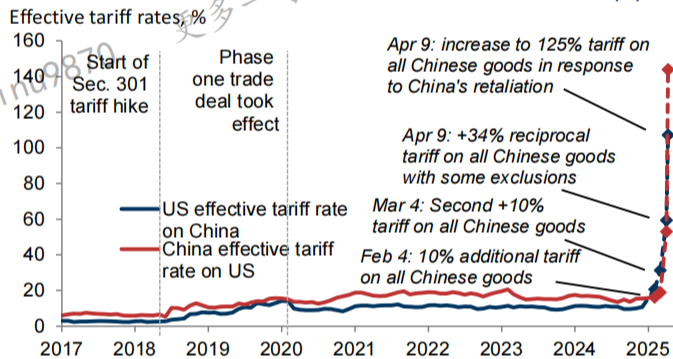
Goldman Sachs & Co. LLC

US-China trade: same game, new rules

Hui Shan assesses the implications of substantially higher US tariffs for China

Since the Trump Administration's April 2 reciprocal tariff announcement, the Chinese government appears to have adopted a tit-for-tat approach to bilateral trade with the US, marking a clear departure from its relatively restrained reactions in [February](#) and [March](#). This shift likely [reflects](#) a belief that US tariffs expressly target China and that decoupling may be irreversible. A lack of mutual trust may make Beijing doubt that any tariff relief tied to cooperation on issues like fentanyl or TikTok would last. After several rounds of escalation—and the (likely temporary) [exemption](#) of consumer electronics from reciprocal tariffs—the US effective tariff rate on China stands at 107% versus the 144% Chinese effective tariff rate on the US. While such tariffs rates are likely unsustainable, the path to de-escalation remains unclear and, in the meantime, the implications of tariffs will continue to reverberate.

Effective tariff rates between US and China have risen sharply



A non-linear tariff economic impact

The economic impact of tariffs is likely to be [nonlinear](#). For instance, a 2000% tariff would likely have no greater effect on trade flows than a 1000% tariff rate. We've [found](#) that a 60% US tariff on Chinese imports would reduce China's real GDP by ~2pp. But doubling that tariff to 120% wouldn't necessarily result in a 4pp GDP reduction given that US-bound exports contribute only an estimated 3pp to China's total GDP¹. We estimate that the cumulative increase in the effective US tariff rate on Chinese goods since President Trump's inauguration will reduce the level of Chinese real GDP by 2.6pp, with about 2.2pp of that impact occurring in 2025. This, together with a 0.2pp growth drag from slowing ex-China growth, now points to a 2.4pp growth headwind this year from external shocks, well above the 0.7pp drag we [envisioned](#) prior to April 2.

An aggressive (but potentially insufficient) policy offset

[Recent communications](#) from Chinese policymakers indicate a commitment to ramping up monetary, fiscal, and other policy easing measures to mitigate the tariff impact, and we have [revised](#) our policy assumptions accordingly. We now expect 100bp of RRR cuts and 60bp of policy rate cuts in 2025 (vs. the 40bp of policy rate cuts we expected previously). On the fiscal side, we expect the augmented fiscal deficit (AFD) to widen by 4.1pp of GDP to 14.5% in 2025, equivalent to RMB6tn in

additional net government spending compared to 2024. We also anticipate a 1.5pp pickup in total social financing (TSF) stock growth, alongside supportive housing policies and targeted social relief. That said, we caution that these easing measures are unlikely to be sufficient to fully offset external shocks if the current elevated US tariff rates remain in place. As such, we [recently cut](#) our 2025 and 2026 real GDP growth forecasts by 0.5pp each, to 4.0% and 3.5%, respectively.

A rerouting of trade

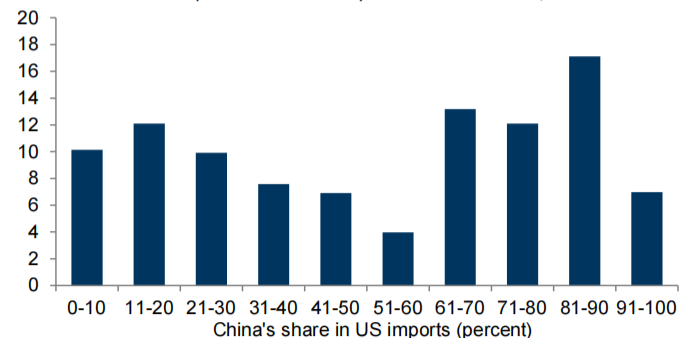
Because the US tariff rates differ dramatically across countries—145% for China and 10% for other countries for many products—Chinese manufacturers have strong incentives to redirect exports to the US through other countries. In response to escalating US tariffs, the Chinese government also wants to deepen ties with other trading partners, as reflected in President Xi's recent [meeting](#) with the Spanish prime minister, [visits](#) to ASEAN countries, and a potential [meeting](#) with EU leaders. However, building stronger relations, particularly with the EU, may require substantive efforts, including reducing trade barriers, increasing imports, and avoiding export surpluses that could disrupt the EU market.

An uncertain path ahead

The path ahead remains highly uncertain. Despite tariff hikes, US importers remain heavily reliant on Chinese goods. And short-term substitution remains limited as many of the goods the US imports from China are in markets that China dominates; we estimate 36% of US imports from China are in categories where China accounts for over 70% of total US imports. This US dependence on China suggests triple-digit tariff rates may not be sustainable, but when and by how much they will decline remains unclear. China's policy reaction function is also uncertain. If external shocks prove too great, policymakers may focus entirely on ensuring employment stability, echoing the 2020 Covid response. Support measures will likely include retraining programs for workers displaced from export-oriented manufacturing, waivers on taxes and social security contributions for exporters to retain workers, and enhancements to unemployment insurance programs. So, there is much to watch in both the US and China to gauge how the trade war—and its impact on China's economy—will unfold.

US import reliance on China is high

Distribution of US imports from China by China market share, %



Hui Shan, Chief China Economist

Email: hui.shan@gs.com
Tel: 852-2978-6634

Goldman Sachs (Asia) L.L.C

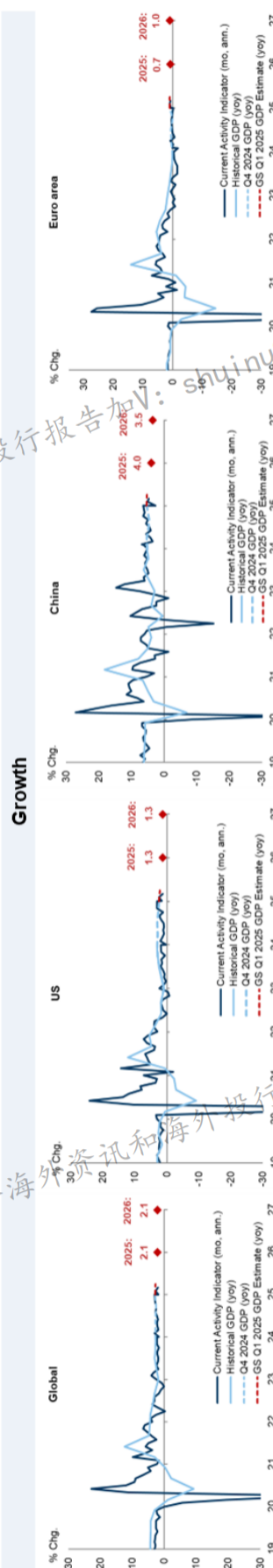
¹ The 3pp estimate includes 2.35pp from domestic value add of such exports and 0.65pp from associated manufacturing investment. It does not include potential FCI tightening, trade policy uncertainty, or other spillovers to the broader economy.

Summary of our key forecasts

Watching

- **Globally**, we expect real GDP growth will slow to 2.1% 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 2.7% as further declines in shelter inflation and wage inflation are offset by a boost from higher US tariffs.
- **In the US**, we expect real GDP growth to slow to a below-consensus 0.5% yoy in 2025 on a Q4/Q4 basis as higher tariffs and a spike in policy uncertainty weigh on disposable income, consumer spending, and business investment as well as tighten financial conditions and now see a 45% probability of entering a recession over the next 12 months. We expect core PCE inflation to rise to around 3.5% yoy by end-2025 reflecting a boost from higher tariffs. We expect the unemployment rate to rise moderately to 4.7% by end-2025.
- **We expect the Fed** to deliver three consecutive 25bp cuts this year, in June, July, and September to a terminal rate range of 3.5-3.75%.
- **In the Euro area**, we expect real GDP growth of 0.7% yoy in 2025, reflecting higher US tariffs and the uncertainty around them as well as continued headwinds to domestic manufacturing, although we expect growth to improve further out as Europe scales up its defense spending, Germany increases infrastructure investment, and some of the negative effects of trade uncertainty unwind. We expect core inflation to fall to 1.9% by end-2025 amid a further cooling in services inflation and lower demand, but a slight boost from higher tariffs.
- **We expect the ECB** to continue delivering sequential 25bp cuts until the policy rate reaches 1.5% in September 2025.
- **In China**, we expect real GDP growth to slow to 4.0% yoy in 2025 given the substantial rise in US tariffs alongside continued domestic headwinds including weak consumption and the property market downturn. We expect policymakers to further intensify policy easing but anticipate that even these significant easing measures are unlikely to fully offset the negative effects of the tariffs.
- **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.



Forecasts

Economics					Markets							Equities																	
GDP growth (%)		2025			2026		Interest rates 10Yr(%)		Last	E2025	E2026	FX	Last	3m	12m	S&P 500	E2025		E2026		Returns (%)		12m	YTD	E2025 P/E				
GS (Q4/Q4)	Cons. (Q4/Q4)	GS (CY)	Cons. (CY)	Cons. (CY)	GS (CY)	Cons. (CY)	US	Germany	Japan	UK	Commodities	Crude Oil, Brent (\$/bbl)	Last	3m	12m	Consumer	CPI (% yoy)	Unemp. Rate	CPI	Unemp. Rate	GS	Cons.	GS	Cons.					
1.4	--	2.1	2.4	2.1	2.5	1.8	US	Germany	Japan	UK	Commodities	Crude Oil, Brent (\$/bbl)	66	64	60	Consumer	3.3	4.7	2.8	4.5	5,700	\$269	\$266	\$269	11.8	-10.3	20.1x		
0.5	1.6	1.3	1.8	1.3	1.8	1.8	Germany	Japan	UK				1.32	1.32	1.39	EPS	3.3	6.5	1.8	6.6	\$253	3%	8%	6%	14%	11.1	-10.3	13.3x	
2.8	4.2	4.0	4.5	3.5	4.2	4.2	Japan	UK					143	138	135	Growth	2.1	6.5	1.8	6.6	\$253	3%	8%	6%	14%	11.1	-10.3	13.4x	
China							UK						7.28	7.30	7.35	STOXX 600	2.5	-0.1	2.5	-0.1	5,700	\$269	\$266	\$269	11.8	-10.3	13.5x		
Euro area																													
Policy rates (%)		2025		2026		Last		3m		12m		Last		2025		2026		2025		2026		Wage Tracker 2025 (%)		Q1	Q2	Q3	Q4		
US		GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.	GS	Mkt.
US		3.63	3.42	3.11	3.11	3.25	3.90	4.50	4.50	USD	IG	111	110	115	US	3.3	4.7	2.8	4.5	3.8	4.5	--	--	--	--	--	--	--	--
Euro area		1.50	1.58	1.50	1.70	35.57	39	29	29	EUR area	HY	412	380	400	Euro area	2.1	6.5	1.8	6.6	--	--	--	--	--	--	--	--	--	--
China		0.90	1.20	0.90	--	9,171	8,150	10,000	10,000	EUR	IG	125	105	105	China	0.0	--	1.0	--	--	--	--	--	--	--	--	--	--	--
Japan		0.75	0.72	1.25	0.74	3,323	3,370	3,920	3,920	JPY	HY	391	345	355	Japan	0.0	--	1.0	--	--	--	--	--	--	--	--	--	--	--

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

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 137
Europe's shifting security landscape
March 13, 2025



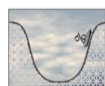
Issue 121
Corporate credit concerns
August 10, 2023



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



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



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



Issue 119
Daunting debt limit dynamics
May 22, 2023



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



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



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



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



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



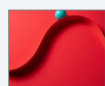
Issue 116
(Japanese) Bonds, Bonds, Bonds
February 23, 2023



Issue 132
Post-election economic policies
October 21, 2024



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



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



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



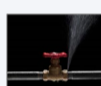
Issue 130
How investable is Europe?
August 1, 2024



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



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



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



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



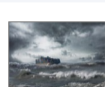
Issue 112
China's Congress: an inflection point?
October 11, 2022



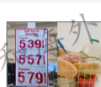
Issue 127
Weighing the GLP-1 market
April 12, 2024



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



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



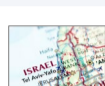
Issue 110
Food, Fuel, and the Cost-of-Living Crisis
July 28, 2022



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



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



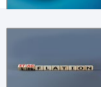
Issue 124
Middle East risks
December 5, 2023



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



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



Issue 107
Stagflation Risk
March 14, 2022



Issue 122
Commercial real estate risks
October 9, 2023



Issue 106
Russia Risk
February 24, 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, Jan Hatzius, Lotfi Karoui, Dominic Wilson, William Marshall, Christian Mueller-Glissman, Alec Phillips, Alberto Ramos, Hui Shan, and Vickie Chang 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.

Marquee disclosure

Marquee is a product of Goldman Sachs FICC and Equities. Any Marquee content linked in this report is not necessarily representative of GS Research views. If you need access to Marquee, please contact your GS salesperson or email the Marquee team at gs-marquee-sales@gs.com.

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 résolution ("ACPR") and regulated by the Autorité de contrôle prudentiel et de résolution and the Autorité des marchés 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 (Finansinspektionen) 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/character->

[risks.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.

© 2025 Goldman Sachs.

You are permitted to store, display, analyze, modify, reformat, and print the information made available to you via this service only for your own use. You may not resell or reverse engineer this information to calculate or develop any index for disclosure and/or marketing or create any other derivative works or commercial product(s), data or offering(s) without the express written consent of Goldman Sachs. You are not permitted to publish, transmit, or otherwise reproduce this information, in whole or in part, in any format to any third party without the express written consent of Goldman Sachs. This foregoing restriction includes, without limitation, using, extracting, downloading or retrieving this information, in whole or in part, to train or finetune a machine learning or artificial intelligence system, or to provide or reproduce this information, in whole or in part, as a prompt or input to any such system.