

Global Rates Trader

Less Room To Rally

We raise our end-2025 US 10y yield forecasts to 4.5% (from 4.0% previously) following the larger and faster de-escalation in US-China tariffs, which has trimmed the downside tail that we expected would be the potential catalyst to a broader move lower in US yields this year. A later and slower baseline for Fed cuts, a still challenging (if less severely so) growth versus inflation trade-off, and the broader fiscal trend all underpin our upward revision to US yields. Re-emergence of downside risks following the recent relaxation can bring yields lower across the curve, but we see more balanced risks around our baseline at longer maturities than at the front end. In Europe, we have left our forecasts unchanged, implying modestly higher Bund yields as the market navigates near-term cuts but future fiscal expansion. We remain bullish Gilts and expect a substantial rally at the 10y point and expect long-end risk premium to compress vs the US. In Japan, we revised up the path for yields in the belly of the curve given room for diminished global growth risks to allow for a rebuild in BOJ hike pricing. We have also raised our CAD, AUD, and NZD yield forecasts, reflecting a mix of domestic and global factors.

George Cole
+44(20)7552-1214 |
george.cole@gs.com
Goldman Sachs International

William Marshall
+1(212)357-0413 |
william.c.marshall@gs.com
Goldman Sachs & Co. LLC

Bill Zu
+1(212)357-8230 | bill.zu@gs.com
Goldman Sachs & Co. LLC

Simon Freycenet
+44(20)7774-5017 |
simon.freycenet@gs.com
Goldman Sachs International

Friedrich Schaper
+44(20)7774-7906 |
friedrich.schaper@gs.com
Goldman Sachs International

This report is intended for distribution to GS institutional clients only.

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.

Exhibit 1: Revised G4 Government Bond Yield Forecasts

	G4 Curve Forecasts															
	USD				DEM				GBP				JPY			
	2y	5y	10y	30y	2y	5y	10y	30y	2y	5y	10y	30y	2y	5y	10y	30y
Current	3.94	4.03	4.41	4.87	1.86	2.16	2.59	3.03	3.99	4.13	4.63	5.37	0.72	0.99	1.46	2.97
2Q25	4.00	4.10	4.50	4.90	1.80	2.30	2.80	3.00	4.00	4.10	4.40	4.90	0.80	1.10	1.60	2.90
3Q25	3.95	4.05	4.50	4.90	1.75	2.30	2.80	3.10	3.90	4.00	4.30	4.70	0.90	1.20	1.70	2.85
4Q25	3.90	4.00	4.50	4.90	1.75	2.40	2.80	3.20	3.85	4.00	4.25	4.50	1.00	1.30	1.80	2.80
1Q26	3.85	4.00	4.50	4.95	1.75	2.50	2.90	3.25	3.80	4.00	4.25	4.50	1.10	1.40	1.80	2.80
2Q26	3.85	4.00	4.50	4.95	1.80	2.60	3.00	3.30	3.75	4.00	4.25	4.50	1.25	1.45	1.85	2.75
3Q26	3.85	4.10	4.55	5.00	1.90	2.75	3.15	3.35	3.75	4.00	4.25	4.50	1.35	1.50	1.90	2.70
4Q26	3.85	4.10	4.55	5.00	2.00	2.75	3.25	3.40	3.75	4.00	4.25	4.50	1.40	1.60	1.90	2.70
1Q27	3.85	4.15	4.60	5.00	2.00	2.75	3.20	3.40	3.75	4.00	4.25	4.50	1.45	1.65	2.00	2.70
2Q27	3.85	4.15	4.60	5.00	2.00	2.75	3.15	3.30	3.75	4.00	4.25	4.50	1.45	1.65	2.00	2.70
3Q27	3.85	4.20	4.65	5.00	2.10	2.75	3.10	3.30	3.75	4.00	4.25	4.50	1.45	1.65	2.00	2.70
4Q27	3.85	4.20	4.65	5.00	2.10	2.75	3.00	3.20	3.75	4.00	4.25	4.50	1.45	1.65	2.00	2.70

Source: Goldman Sachs Global Investment Research

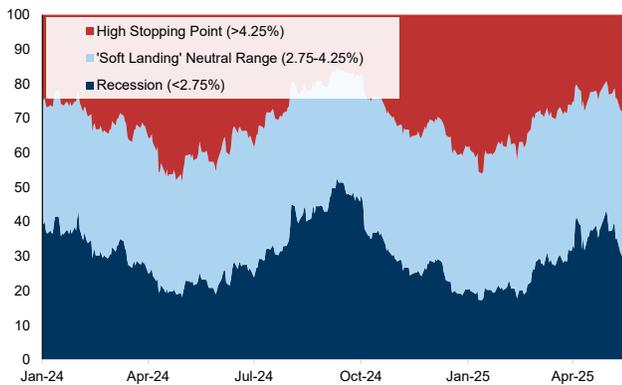
United States and Canada

- Taking down the left tail, expect US 10y yields at 4.5% at YE25.** Monday's larger-than-expected reduction in US-China tariffs prompted a reassessment of our US outlook. The combination of a smaller mechanical tariff headwind and a meaningful reversal in financial conditions from the early-April peak has trimmed the downside risk around growth. With inflation still likely to reaccelerate meaningfully—albeit to a slightly lower peak than before—the baseline for further Fed cuts has shifted later and slower, with a quarterly cadence of cuts beginning in December reaching an unchanged terminal rate projection of 3.50-3.75% in June 2026. The less severe but still unresolved fundamental conflict between below-trend growth and above target inflation, diminished scope for near-term policy rate relief, and broader fiscal trajectory leave in place drivers that can see the reset higher in longer-term yields sustain. Taking on board these shifts, we have revised up YE 2y and 10y yield forecasts to 3.90% and 4.50% respectively (from 3.30% and 4.00% previously).

For shorter maturity rates, we think that the absence of a clear growth catalyst may keep yields trade somewhat range-bound from here, but the vulnerability for now is closer to a carry drag than a clear case for substantial cheapening. The asymmetry is still to a sharp rally on bad news, with the market-implied probability of recession-type cuts having retreated significantly since the end of April (Exhibit 2). Assuming the bar to reopening the right tail remains elevated, it should contain the risk of the type of acute flattening that would arise from a decisively hawkish Fed. Instead, a Fed that is content to remain on hold into high spot inflation and not-weak-enough growth raises the potential that the market may go through episodic worries about higher term premia amid an accumulating debt stock and curtailed policy rate relief—growth is softer, and some of the underlying considerations different, but there is potential for parallels to August-October 2023 to build. While valuations out the curve already incorporate some amount of premium for these risks, we think the most likely path to meaningfully lower longer-term yields is cyclical weakness or greater evidence of appetite for near-term fiscal restraint.

Exhibit 2: The market-implied probability of recession-type cuts has retreated significantly since the end of April

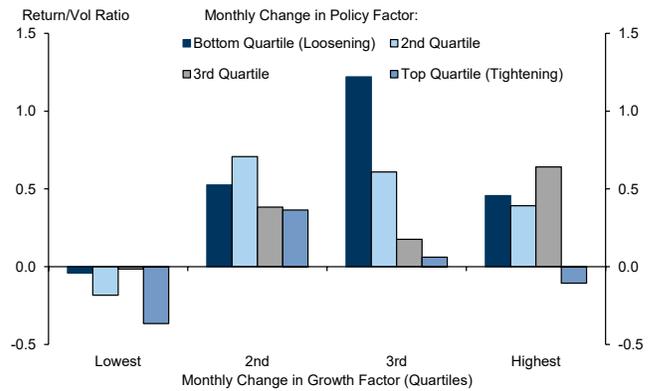
Options-implied distribution of 2y1m SOFR, by yield ranges



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

Exhibit 3: Vol-carry strategies perform the best in modest-to-high growth and relatively loose policy environments

Average return-to-vol ratio of vol-selling strategies (average across selling of 1m delta-hedged straddles on 5y/10y/20y/30y tails), by quartile of growth and policy shocks derived from macro PCA framework



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

- **Catalysts creep closer for spreads.** We have been constructive on swap spreads from a carry perspective, favoring longs at the 3y point given valuation and carry-to-vol considerations. The near-term vol environment discussed below can, in our view, be a carry-supportive one, while spread levels remain modestly tight to fair across most of the curve despite the month-to-date recovery (2s are the exception, sitting right around our model-implied fair value). Beyond the next month or so, the path for spreads is likely to be heavily influenced by the sequencing of potential catalysts. The progression of the fiscal discussions and administration’s debt limit timeline leave the back half of the summer as a potential pressure point, particularly if the fiscal package proves more expansionary than our economists’ baseline. We have observed that spread tightening typically materializes starting about a month or so ahead of an eventual debt limit resolution as markets anticipate the eventual accumulation of bill supply and TGA rebuild, with the relatively mature point of QT another potential risk factor. Though timing remains up in the air, the potential for news on deregulation is a potential offset that could help to mitigate pressure from the twin headwinds of rising supply and dwindling system-wide liquidity. While formal implementation of any rule change seems unlikely to precede a debt limit resolution at this point, clarity on the contours and timeline for changes to the SLR calculation or other capital requirements could nonetheless prompt a behavioral shift on the anticipation of more flexible balance sheet and intermediation capacity ahead.
- **Moderate growth and easing policy a friendly mix for vol carry.** The swift normalization in vol premium following the tariff de-escalation has more room to run, in our view. In the near term, the range of near-term policy rate outcomes has likely compressed, while risk premia is also stuck between competing drivers of diminishing recession fears and continued fiscal concerns. This combination, plus an expected macro backdrop of moderate—but not outright weak—growth and relatively friendly policy, has historically presented a good opportunity for harvesting vol carry in rates. This makes a stronger case for gamma selling at least over the next few months particularly in shorter tails. For more details on our rates vol

outlook, please see the latest *Rates Vol Monitor*.

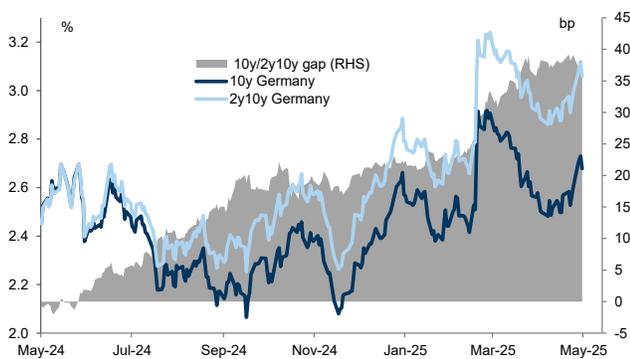
■ **Shift in spillovers, domestic support point towards a steeper CAD curve.**

Attending our US yield forecast adjustment, we have also revised higher our CAD 10y yield forecast by 40bp to 3.50% for YE25. The mix of a more bearish profile for UST yields amid reduced downside risks coupled with a more supportive post-election domestic fiscal backdrop and a baseline for further BoC cuts to a 2.25% terminal rate can all sustain a steeper CAD curve, in our view. And while the gap is less pronounced relative to historical standards, intermediate CAD forward yields are on the rich side of fair value in our global 5y5y model, leaving in place a valuation case for some bearish pressure out the curve on a relatively benign resolution of global risks.

Europe

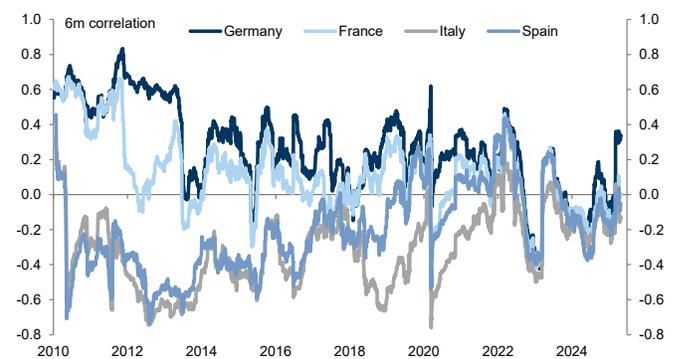
■ **Shifting risks for the EUR front-end.** Although the improvement in Europe has been modest, and our economists' expectations for US tariffs on Europe have remained largely unchanged, the risks around the European front-end have shifted. Despite the near-term downside risks to growth—that in our view will result in two more ECB cuts—the path beyond the first of those (a likely June cut) is less clear. With a lower left tail on growth globally and in Europe, the ECB is less likely to go deep into accommodative territory—our economists now see the terminal rate at 1.75% vs 1.50% before. As a result, we think risk-reward for longs has deteriorated. Eventual fiscal expansion in Germany could ultimately provide a way out of the cyclical weakness, and in our view justifies a steep EUR front-end. The German curve reflects this dynamic, with the overall level of yields fluctuating on risk sentiment and near-term growth, while the trend over time bears the hallmark of fiscal expectations (Exhibit 4). We leave our Bund yield forecast unchanged at 2.80% for end-2025 and 3.25% for end-2026.

Exhibit 4: Yields fluctuating around risk sentiment, but trend captures fiscal expectations
10y vs 2y10y Germany



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

Exhibit 5: Hedge value of EMU-4 bonds has improved recently
Bond/Equity Correlation, 6m Rolling



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

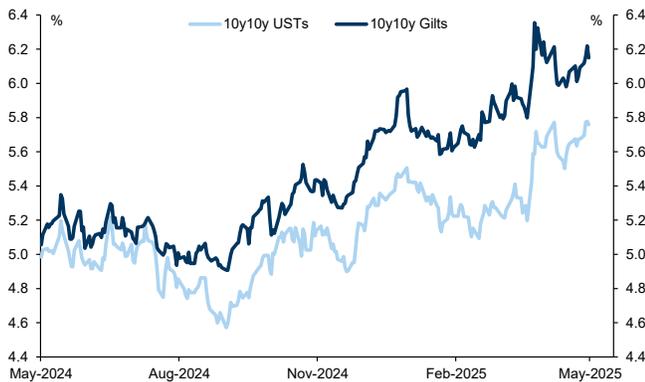
■ **EMU yield convergence.** EGB spreads continue to tighten across Europe, at times via both legs as global risk sentiment improves. We continue to think sovereign credit longs are preferable to core rates longs, and in our view this dynamic can

continue. Even if the modal outcome for the terminal ECB policy rate is higher than before, the ECB still has the policy space to support growth should hard data weaken by more than expected or tariffs prove more aggressive. This, combined with fiscal policy space and a fresh willingness to spend in Germany, should help dampen volatility from economic shocks. In our view this helps to justify the recent decline in EUR rates volatility vs USD, as well as support the ongoing outperformance of Southern Europe among EGBs. We have kept end-2025 targets for 10y BTP-Bund, Bonos-Bunds, and OAT-Bunds at 120bp, 60bp, and 70bp, respectively, though expect tighter outcomes into the summer. From a more medium-term perspective, further tightening would likely only follow accumulating evidence of global portfolio flows towards Bonos and BTPs—including by the official sector—to support a build-up in foreign ownership and offset the impact of ECB QT. And for this, lower political risk in France is likely needed to incentivise carry-seeking through credit longs. One element that has shown notable improvement already is the hedge value of EMU-4 bonds, which has looked increasingly similar across countries over the past decade or so (Exhibit 5).

- **Better macro combination, lower Gilt risk premia.** UK yields crept higher this week alongside an upside surprise to growth. Given ongoing evidence of labour market loosening and our expectation of a more rapid disinflation in the coming quarters, the UK is showing progress in moving out of the “low-growth, high-inflation” quadrant of the past years. Over recent years, and especially since the 2022 Gilt crisis, this macro combination had led to higher risk premia vs peers and a distorted Gilt curve. But improved fiscal credibility and a better macro environment suggest the forward outlook for relative Gilt risk premia is improving. We think that 10y10y Gilt yields in particular look elevated relative to the US (Exhibit 6) and that the risk of upcoming fiscal events (the US budget reconciliation process and the UK’s Autumn Statement) skew towards relative Gilt outperformance. We recommend long 10y10y Gilts vs USTs (Entry: 51bps, Target: 10bps, Stop: 71bps). The main risk to this trade is that the beta of spillovers from the US to the Gilt curve remains high, but we think that as the inflation and monetary policy actions differ through H2, the beta of Gilts to USTs will diminish.

Exhibit 6: 10y10y Gilts-USTs too wide amid reversing risk premium dynamics

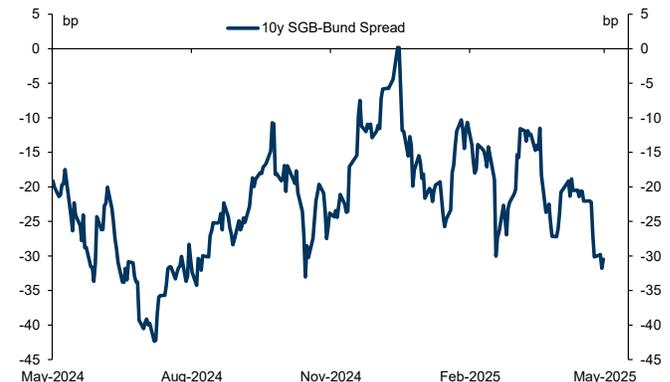
10y10y UST, Gilt Constant Maturity Yield



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

Exhibit 7: Recent SGB outperformance vs Bunds introduces catch-up risks

10y Sweden-German Constant Maturity Yield



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

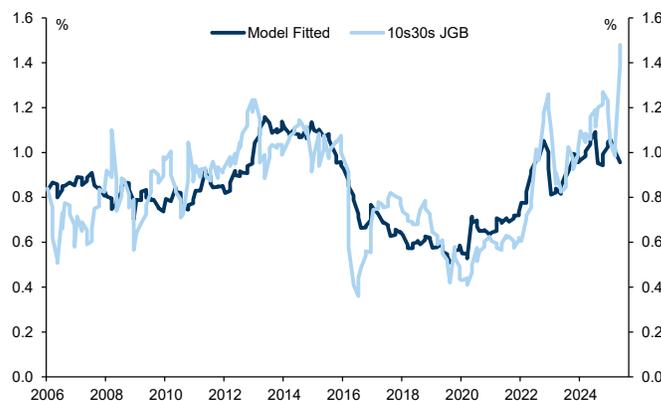
- Better growth delays Norges Bank cuts; SGBs vulnerable to German fiscal news.** The improved global growth outlook caused by lower trade disruptions than expected have alleviated near-term growth concerns in the European satellites. After very strong Q1 GDP growth our economists now expect Norges Bank to start the cutting cycle in September, given the lack of hard data before the June meeting. We view it as unlikely that the first cut comes at a non-projection meeting, and as more G10 central banks are in wait-and-see mode, we think Norges Bank can afford to wait until September, then potentially go forcefully if need be. Similarly, our economists have upgraded growth in Sweden in 2025 to 1.5%, but, given a dovish shift in Riksbank speak and benign inflation dynamics, continue to expect two more cuts, below market pricing. We think the near-term risks to duration are for higher yields given the better Scandi growth outlook and medium-term fiscal risks in Germany, and relative SGB outperformance vs Bunds recently points to higher spillovers as Scandi yields catch up to the improved macro outlook (Exhibit 7).

Japan

- Tariff de-escalation revives pressure on higher JPY belly yields.** While Japan has yet to announce its own trade deal with the US, the removal of a deep left tail on US growth following the US-China de-escalation should allow the BOJ to relax about recession risks. Such risks were the key catalyst for a dovish turn by the BOJ a couple of weeks ago, and while the next hike may still need to wait till early 2026 given the uncertain extent of a growth slowdown, the risk that a deep recession would derail the hiking cycle altogether has greatly diminished. This argues for a return to belly cheapening on the JPY curve, and we boost our forecasts for 5y/10y JGB yields by 20/30bp to 1.3/1.8% by end-2025 to reflect this. Our forecasts for both the terminal BOJ policy rate (of 1.5%) and JGB yields are more hawkish than market pricing, with continued tapering of JGB purchases by the BOJ—which our economists expect will extend beyond March 2026—adding another source of upward pressure on belly yields. The other key question surrounding the JPY curve is in the long end, where supply indigestion has kept 10s30s volatile this week. While technical factors may continue to be the near-term dominant driver, the

prospect of a more sustained inflationary cycle in Japan (as evident in 5y5y inflation swaps breaking to new cycle highs this week) could also be contributing to term premia extending out the curve. Even so, it is hard to envision a scenario where this term premium pricing remains contained just to the long end—we note that at current levels 10s30s appears roughly 50bp steeper vs our fair value model ([Exhibit 8](#)), and we expect this segment to flatten via a combination of cheaper 10s and some relief rally in 30s as liquidity conditions improve.

Exhibit 8: Fitted fair value model regresses curve on unemployment rate, effective policy rate, free float debt/GDP, and USDJPY



Source: Goldman Sachs Global Investment Research, Goldman Sachs FICC and Equities

Latest Thematic Research:

[Rates Vol Monitor: A Stronger Near-Term Case For Vol Carry](#) — 16 May 2025

[Global Markets Analyst: The Long Shadow Of the 2022 Gilt Crisis](#) — 14 May 2025

[Global Markets Comment: Market Stress Monitor](#) — 14 May 2025

[Global Rates Notes: 2Q25 Treasury Refunding Recap](#) — 30 April 2025

[Global Markets Analyst: UK Real Rates — Backcast To The Future](#) — 29 April 2025

Latest Global Markets Dailies:

[A Macro Rates View of the Dutch Pension Reform](#) — 08 May 2025

[Drivers of and Risks to Foreign Demand for USTs](#) — 25 April 2025

[Making Sense of the Moves in Treasury Yields](#) — 09 April 2025

[Lowering Yield Forecasts on a More Severe Tariff Baseline](#) — 01 April 2025

[The Treasury Curve's Competing Drivers](#) — 18 March 2025

The authors would like to thank Loïc Mathys for his contribution to this report. Loïc is an intern in the Markets team.

Summary of Views

	Core Views	Recommendation	Entry Date
Duration	The move lower in US yields has not yet taken the market into clear overshoot territory in our view. We think near-term risks are asymmetric to downside surprises in activity data, with the case for a yield reversal likely a function of time and accrued benign news.	--	--
	With the theme of trade tension relief increasingly priced into European rates, we believe risk-reward has become more balanced for duration. On the one hand, we continue to think building fiscal support led by Germany will support a gradually higher level of yields, above 3% in 2026. On the other hand, the recent reset higher also creates room to rally should hard data weaken by more than expected, or US tariff prove more aggressive.	--	--
	Global growth concerns will cap Gilt yields in the near-term, but ongoing worries about supply indigestion and risk premium remain hurdles towards our YE-25 target of 4.25%. Near-term risks center around relaxation of these growth worries, either due to better cyclical activity or an exemption from tariffs.	<i>Long 10y10y Gilts vs USTs</i>	16-May-25
	We expect the BOJ normalization cycle to be prolonged, with a medium-term neutral rate of 1.25-1.5%. This should lift yields across the curve, although in the near-term rising US recession risk presents a headwind to this view. Reduction in BOJ's JGB holdings should put most upward pressure on belly yields.	--	--
	We expect the Bank of Canada to continue to prioritize growth downside risks in its reaction function, with additional risk of front-loading to come from tariffs.	--	--
Curve	A difficult activity-inflation tradeoff for Riksbank means risks around the front end remain balanced, but in light of a weak labour market we would fade excessive selloffs. Higher defence spending and hence, issuance, biases duration higher and points to further steepening in the SEK curve.	--	--
	While we see a path to steeper curves if growth disappoints more meaningfully, tariff risks will likely constrain the Fed's ability to fully front-load cuts and exert a flattening bias in the near-term. Exposure towards steepeners in a tail scenario makes sense, but in the baseline we think belly richening has greater value, providing insulation against tariffs while maintaining exposure to a lower terminal rate out the curve.	<i>Buy SFRZ5 96.25 put vs sell 0QZ5 96.25 put</i>	7-Mar-25
	Our economists now think the ECB will cut to a terminal rate of 1.75% (against 1.5% before), on modestly higher growth and inflation due to US-China trade de-escalation. That being said, we still think the ECB has the policy space to provide more easing if necessary to support growth. Taken together with the boost to bond supply and medium term growth from German fiscal, we see limited room for the curve to flatten in 2s10s.	--	--
	As markets have converged, and overshoot, our baseline of three more cuts from the BoE, while a more activist DMO supports a more constructive duration view, near term risks are skewed towards a flattening of the curve in case growth realizes better than expectations.	--	--
	We see less room for the SEK front-end to outperform in the near-term, as much easing is already priced. As long as the Norges Bank is holding onto their hawkish guidance the NOK curve has no room to steepen much, so we would await the eventual pivot towards growth before engaging again.	--	--
	Growth emphasis by the BoC and persistent slack in the Canadian economy remain consistent with some runway for further cuts, with the option of moving aggressively on softer data. We see scope for the implementation of tariffs to catalyze deeper cuts.	--	--
Spreads	The recent global bond selloff has seen 30y JGBs clearly underperforming both its beta to USTs as well as on a relative basis to other curve points. We think there is room for 10s30s JPY curve to unwind some of the recent steepening as liquidity conditions normalize, while any discussion of continued BOJ QT could put further pressure on the belly of the JGB curve.	--	--
	The dramatic tightening in US swap spreads since April 2nd has taken spreads to levels that generally screen cheap relative to fair value. The combined picture in funding and spread behavior suggests unwinds of levered longs played a role. We see risks as two sided. On the one hand, a more pronounced shift in the buyer mix from price-insensitive investors towards the levered community could drive significant further tightening. On the other hand, a material improvement in the risk picture, or greater visibility into the contours of potential regulatory reform, could provide further support for spreads from here.	<i>Long 3y SOFR-UST swap spreads</i>	2-May-25
	We think conditions are in place for sovereign credit to outperform core rates into the summer. This is based on the good resilience of the asset class in recent months, the backdrop of ECB cuts, and the possibility of portfolio flows into EGBs. On this latter point, we note that foreign ownership in BTPs and Bonos has lagged the improvement in fundamental for Spain, and that in correlation to risky assets for BTPs.	--	--
	We expect continued Bund spreads tightening as ECB QT increases the Bund free-float and repo costs drift higher. Though constrained German issuance is a risk, we think it is manageable and unlikely to derail the tightening trend, especially as France and the EU continue to issue heavily.	--	--
Vol	Though Gilt spread tightening has run some way, we think the trend can extend as the BoE remains intent on shrinking its balance sheet, and fiscal policy remains accommodative.	--	--
	A relatively benign macro environment should be conducive for implied vols to reset lower, but trade uncertainty and tariff risks may act as an impediment to how far this reset can go, with increases in trade policy uncertainty generally corresponding to higher vol levels. Implied vols on 10y tails have lagged the rest of the tail curve in the April vol spike, driven by push-pull factors from deeper Fed cuts vs term premium reset.	<i>Long 3m10y USD payer on 3m 5s10s30s payer fly</i>	2-May-25
Money Market	The case for outright vol shorts appears stronger in Europe. Our baseline for tariffs imply only limited risk of abrupt ECB cuts, and the possibility of a gradual return to accommodative policy settings lowers the hurdle for outright vol shorts to work.	--	--
	We expect elevated coupon issuance to be absorbed in large part by levered investors, with the resulting leverage demand likely to pressure financing spreads wider. We expect repo rates to continue drifting higher relative to OIS and bill yields.	--	--
Inflation	While high frequency measures still point to relatively abundant liquidity, we see the upward trend in overnight repo spreads to IOR as indicative of the system moving from abundant to ample. We expect the Fed to taper QT again in May and end QT in September; the debt limit presents a source of volatility through this process.	--	--
	Inflation forwards have compressed by more than justified by growth and policy reassessments. Relaxation about growth concerns and market functioning could see forward inflation reprice higher especially in the long-end.	<i>Long 30y TIPS vs short 0.75x 30y nominal USTs</i>	17-Apr-25
Inflation	With pricing in Europe already below the ECB's target out to the belly of the HICP curve, we see limited scope for a sell-off in inflation swap, although the recent stabilisation in energy prices may pose some modest pressure on breakevens. Instead, we think nominal rates will be pushed lower by the real component of rates, as markets price more ECB support to the economy through rate cuts.	--	--

Source: Goldman Sachs Global Investment Research

Forecasts

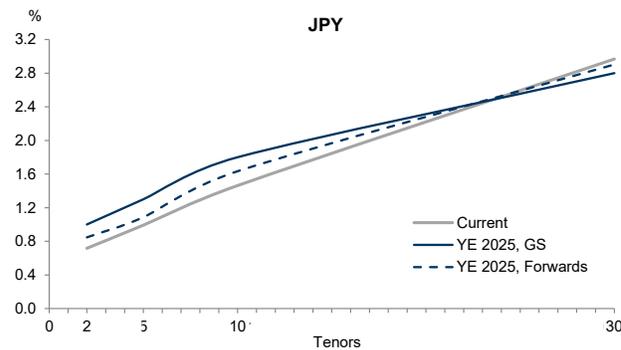
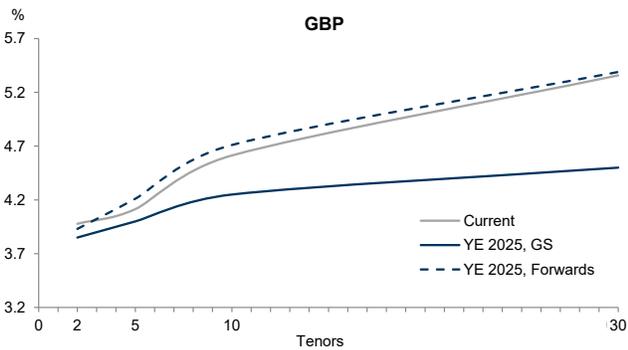
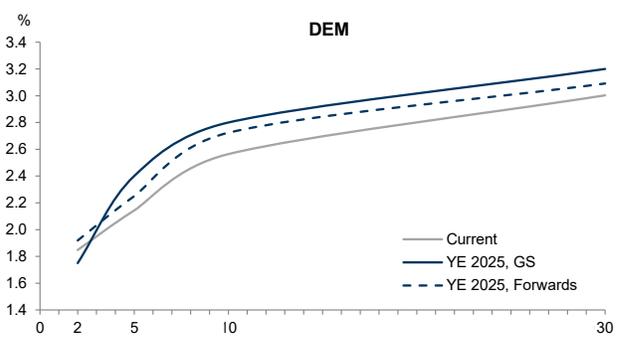
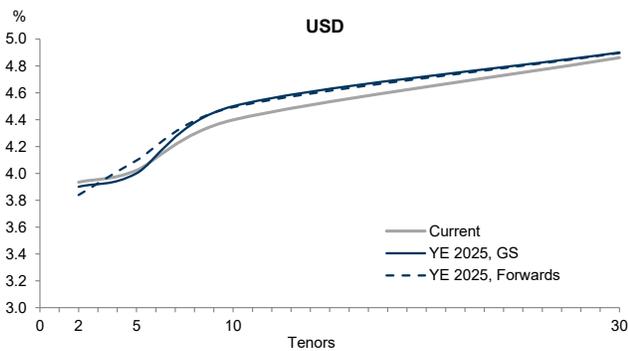
G10 10y yield forecast

G10 10-Year Yield Forecasts										
	USD	DEM	GBP	JPY	CAD	CHF	SEK	NOK	AUD	NZD
Spot	4.40	2.56	4.61	1.46	3.15	0.32	2.35	4.08	4.45	4.61
2Q25	4.50	2.80	4.40	1.60	3.25	0.50	2.75	3.85	4.50	4.70
3Q25	4.50	2.80	4.30	1.70	3.40	0.50	2.75	3.75	4.50	4.70
4Q25	4.50	2.80	4.25	1.80	3.50	0.50	2.80	3.75	4.50	4.70
1Q26	4.50	2.90	4.25	1.80	3.50	0.50	2.90	3.75	4.50	4.70
2Q26	4.50	3.00	4.25	1.85	3.50	0.55	3.15	3.75	4.50	4.70
3Q26	4.55	3.15	4.25	1.90	3.60	0.70	3.20	3.75	4.55	4.75
4Q26	4.55	3.25	4.25	1.90	3.70	0.75	3.25	3.75	4.55	4.75
1Q27	4.60	3.20	4.25	2.00	3.80	0.80	3.25	3.75	4.60	4.80

Deviation from Forwards										
	USD	DEM	GBP	JPY	CAD	CHF	SEK	NOK	AUD	NZD
2Q25	0.05	0.18	-0.26	0.10	0.06	0.22	0.41	-0.23	0.03	0.06
3Q25	0.03	0.13	-0.39	0.13	0.17	0.18	0.38	-0.31	0.00	-0.01
4Q25	-0.01	0.09	-0.48	0.17	0.24	0.15	0.40	-0.31	-0.04	-0.08
1Q26	-0.05	0.14	-0.53	0.11	0.20	0.12	0.47	-0.32	-0.09	-0.16
2Q26	-0.09	0.20	-0.58	0.10	0.17	0.15	0.69	-0.34	-0.14	-0.22

Source: Goldman Sachs Global Investment Research

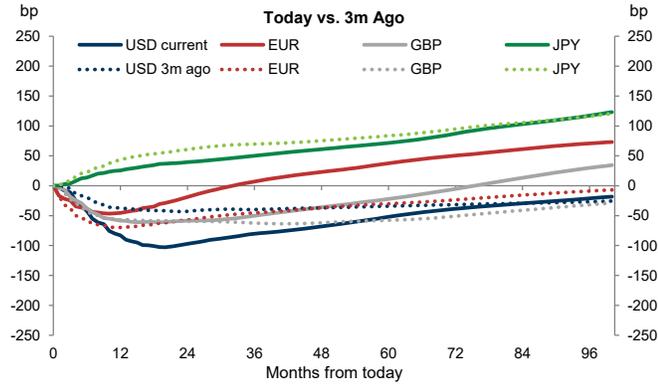
G4 Curve Forecast



Source: Bloomberg, Goldman Sachs Global Investment Research

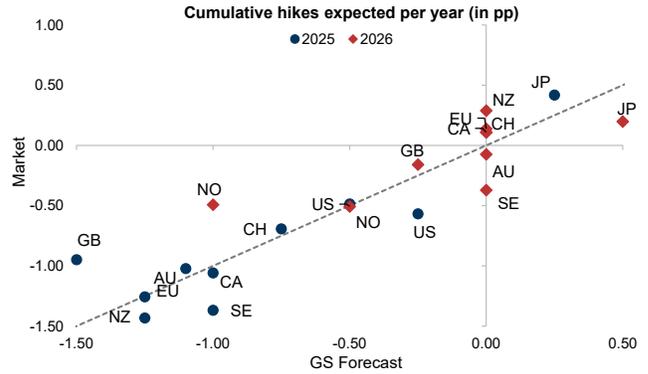
Central Bank Dashboard

Cumulative amount of hikes/cuts priced from today



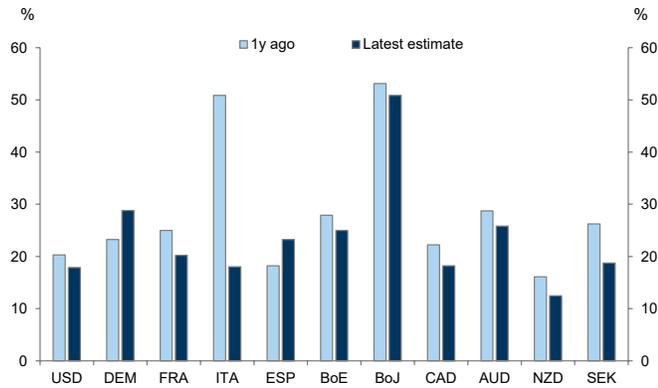
Source: Goldman Sachs Global Investment Research

Expected hikes by year, GS vs. Market



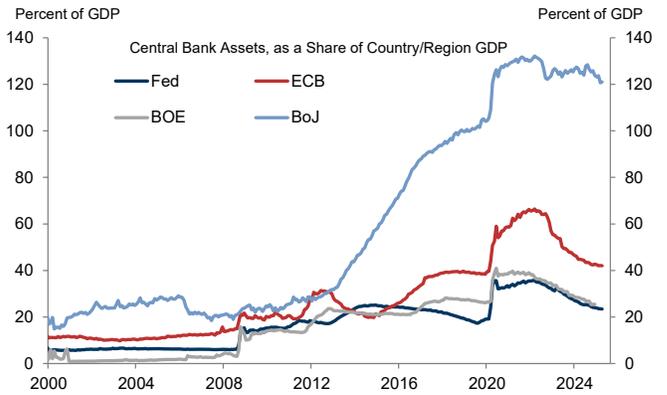
Source: Goldman Sachs Global Investment Research

Central bank ownership of sovereign bonds, current vs. 1y ago



Source: Haver Analytics

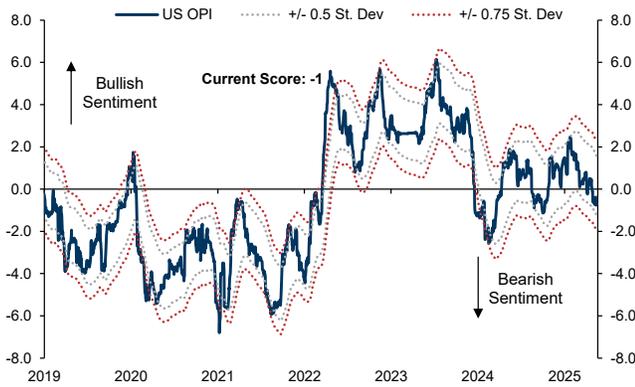
Central bank assets as a share of GDP



Source: Haver Analytics

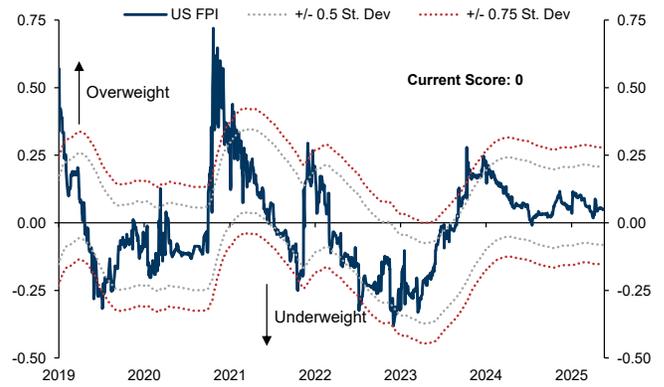
Positioning and Flows Monitor

Option implied position indicator



Source: Goldman Sachs Global Investment Research

GS Fund Positioning Indicator



Source: Goldman Sachs Global Investment Research

US Data Response Indicator (DRI)



Source: Goldman Sachs Global Investment Research

CFTC Commitment of Traders and Traders in Financial Futures

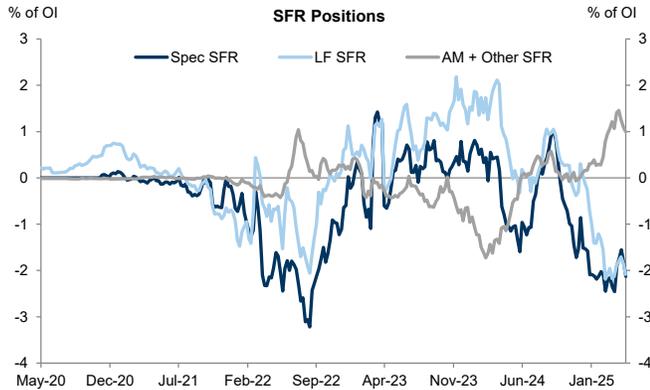
Duration-weighted net position by investor type

Duration-Weighted Positioning, by Contract

\$mm/bp	SFR	TU	FV	TY	TN	US	WN
Spec Current	-27.9	-41.3	-96.0	-60.1	-24.6	-12.5	-49.3
Spec 1w Change	-4.2	-0.2	0.1	-6.7	-5.1	-0.5	-0.8
LF Current	-31.3	-63.1	-153.2	-128.4	-31.7	-71.3	-105.1
LF 1w Change	-3.9	0.8	-1.5	-13.1	-3.3	-0.4	3.4
AM + Other Current	19.8	66.5	174.1	143.5	55.9	79.9	124.0
AM + Other 1w Change	-2.0	-1.6	-0.7	12.9	1.6	-3.3	-3.8
Dealer Current	11.4	-8.4	-30.3	-24.1	-20.7	-21.2	-23.8
Dealer 1w Change	5.8	0.3	1.5	1.0	3.7	3.2	1.9

Source: CFTC, Goldman Sachs Global Investment Research

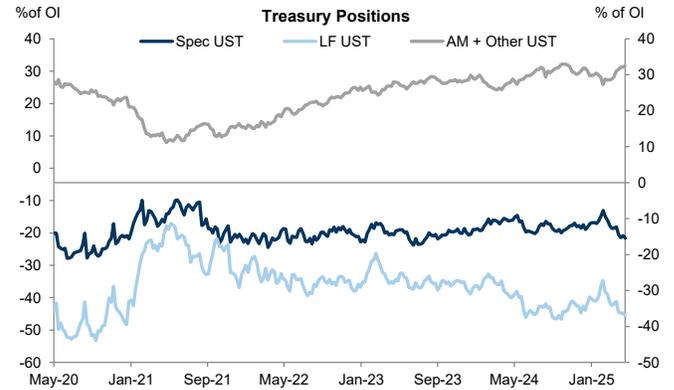
Net positions in Eurodollars



Note: Duration-weighted net position (long - short) as a % of duration-weighted gross exposure (long + short + spreading)

Source: CFTC, Goldman Sachs Global Investment Research

Net positions in UST futures

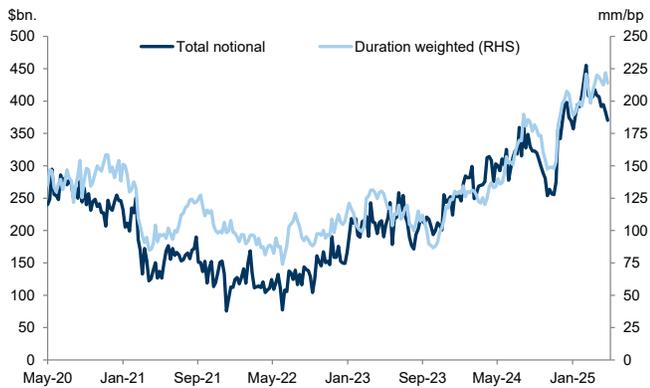


Note: Duration-weighted net position (long - short) as a % of duration-weighted gross exposure (long + short + spreading)

Source: CFTC, Goldman Sachs Global Investment Research

Primary dealer transactions

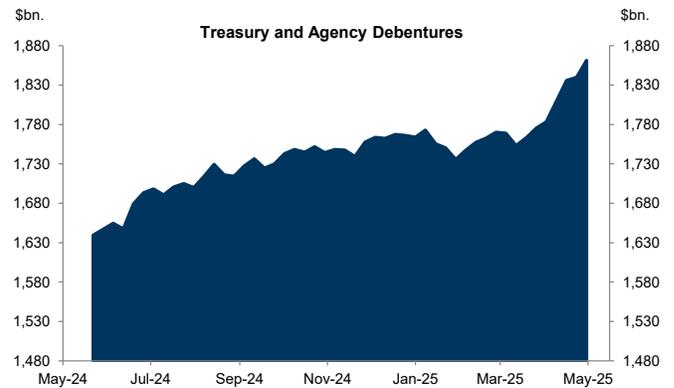
Net dealer position in US Treasuries



Source: Federal Reserve Bank of New York, Goldman Sachs Global Investment Research

US Commercial Banks' Holdings of Treasury and Agency Securities

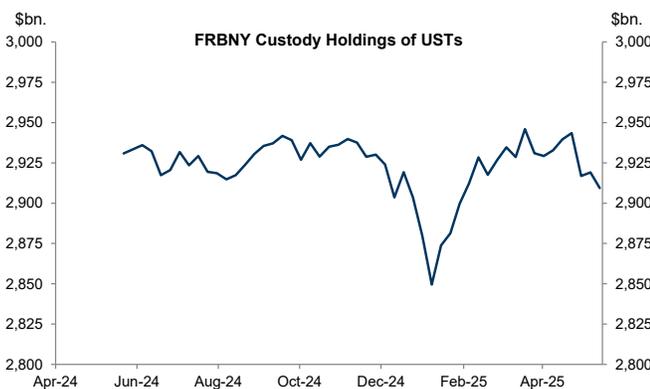
Total domestic and foreign holdings, all commercial banks



Source: Federal Reserve Board

NY Fed Custody Holdings

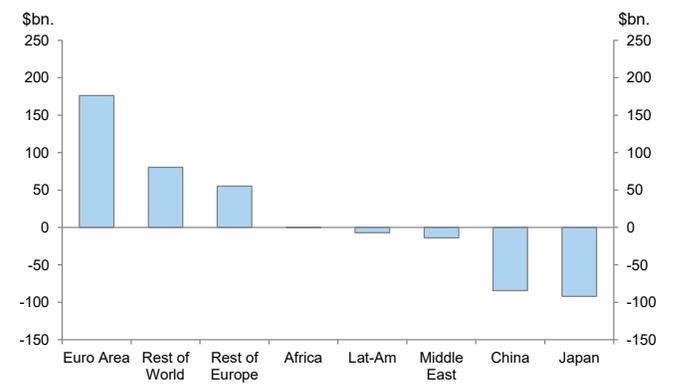
Marketable US Treasuries



Source: Federal Reserve Bank of New York

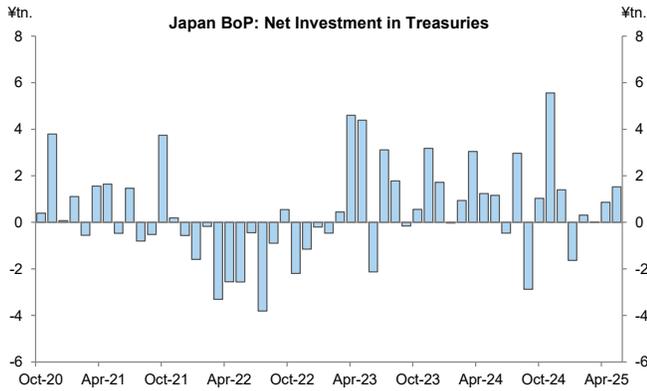
US TIC Treasury Flows

12m change in valuation-adjusted holdings of USTs, by holder of debt



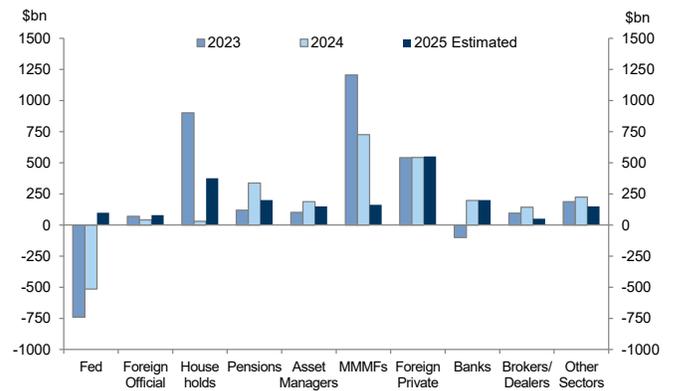
Source: US Treasury, Goldman Sachs Global Investment Research

Net monthly purchases of short and long term US Treasuries by Japanese investors



Source: Bank of Japan, Haver Analytics

Flow of Funds annual net purchases of US Treasuries, by sector

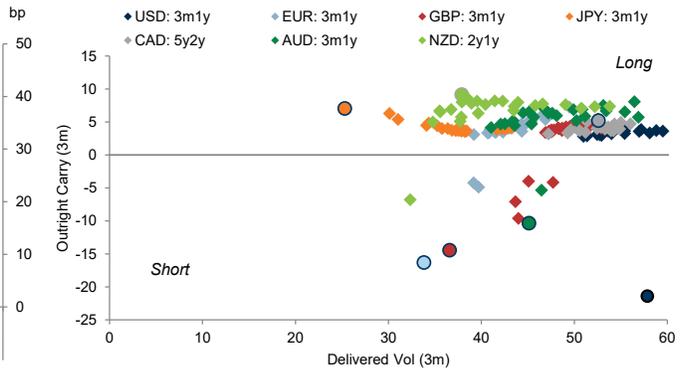
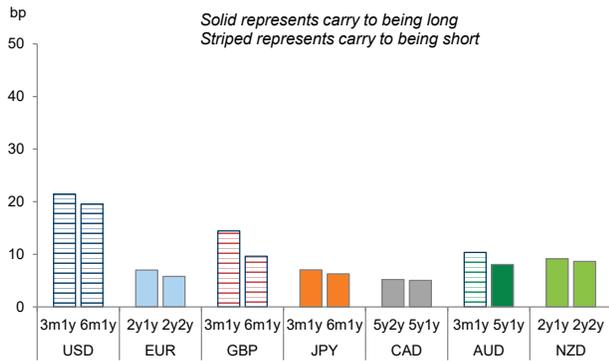


Source: Federal Reserve Board, Goldman Sachs Global Investment Research

Carry/Rolldown Monitor

Outright Carry

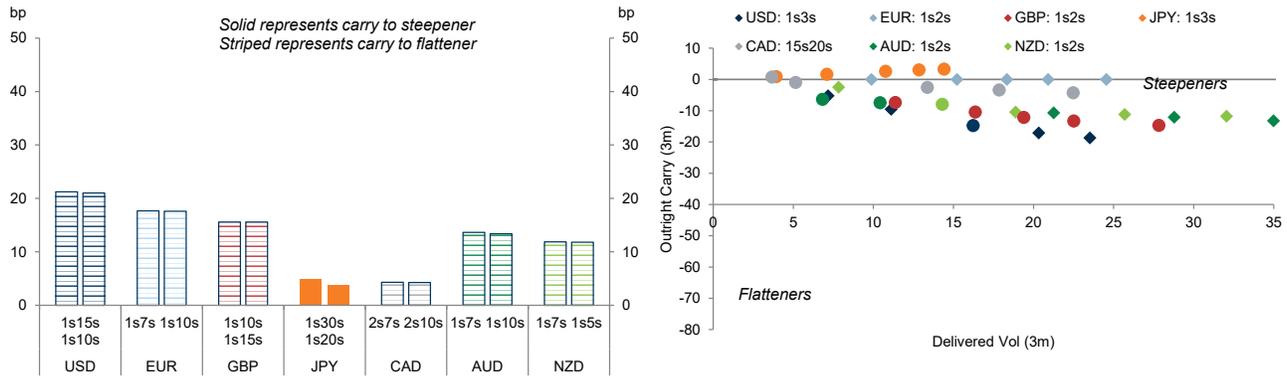
Bar chart shows top two carry points by currency, with solid reflecting carry to a long position and striped carry to a short position. Scatter illustrates top 25 carry/vol points by currency, with top point by currency noted



Source: Goldman Sachs Global Investment Research

Curve Carry

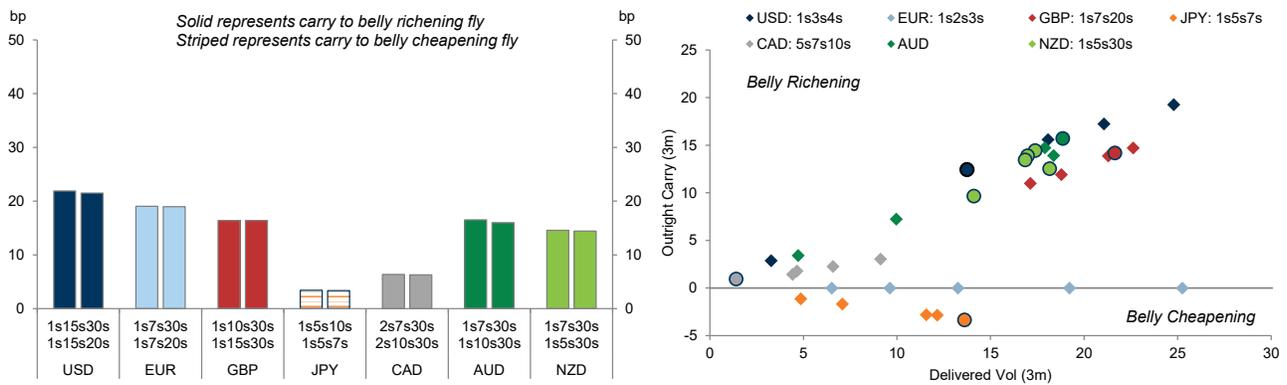
Bar chart shows top two carry curves by currency, with solid reflecting carry to a steepening position and striped carry to a flattening position. Scatter illustrates top 5 carry/vol curves by currency, with top curve by currency noted



Source: Goldman Sachs Global Investment Research

Fly Carry

Bar chart shows top two carry flies by currency, with solid reflecting carry to a belly-richening fly and striped carry to a belly-cheapening fly. Scatter illustrates top 5 carry/vol flies by currency, with top fly by currency noted.



Source: Goldman Sachs Global Investment Research

Treasury Supply Monitor

Gross Treasury auction size estimates by year end, with GS projections

Monthly Auction Amounts at End of Calendar Year (\$ billions)											
	2y FRNs	2y	3y	5y	7y	10y	20y	30y	5y TIPS	10y TIPS	30y TIPS
YE-21 (CY)	26 / 24 (r)	56	54	57	56	39 / 36 (r)	23 / 20 (r)	25 / 22 (r)	19 / 17 (r)	16 / 14 (r)	9 / 8 (r)
YE-22 (CY)	24 / 22 (r)	42	40	43	35	35 / 32 (r)	15 / 12 (r)	21 / 18 (r)	21 / 19 (r)	17 / 15 (r)	9 / 8 (r)
YE-23 (CY)	28 / 26 (r)	57	50	58	40	40 / 37 (r)	16 / 13 (r)	24 / 21 (r)	22 / 20 (r)	17 / 15 (r)	9 / 8 (r)
YE-24 (CY)	30 / 28 (r)	69	58	70	44	42 / 39 (r)	16 / 13 (r)	25 / 22 (r)	24 / 22 (r)	19 / 17 (r)	9 / 8 (r)
YE-25 (CY, GS)	30 / 28 (r)	69	58	70	44	42 / 39 (r)	16 / 13 (r)	25 / 22 (r)	26 / 24 (r)	21 / 19 (r)	9 / 8 (r)
YE-26 (CY, GS)	32 / 30 (r)	79	68	80	54	46 / 43 (r)	18 / 15 (r)	27 / 24 (r)	27 / 25 (r)	23 / 21 (r)	10 / 9 (r)

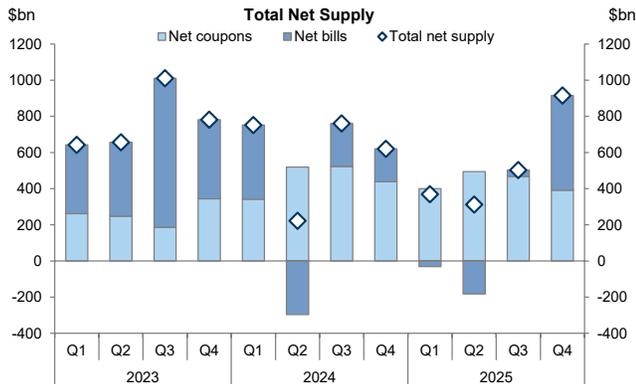
* Original Issue / Reopening listed for FRNs, 10s, 20s, 30s, and TIPS.

US Treasury Net Issuance by Calendar Year (\$ billions)						
	Net Coupons	Fed	Net of Fed	Net Bills	Fed	Net of Fed
CY 2023	391	-648	1039	1978	-74	2053
CY 2024	1346	-475	1821	511	-23	534
CY 2025, GS	1686	-78	1764	347	12	335
CY 2026, GS	1584	198	1386	687	354	333

Duration supply (\$bn 10y equiv)		
Gross supply	Fed	Net of Fed
2284	0	2284
2765	0	2765
2801	49	2752
2914	208	2707

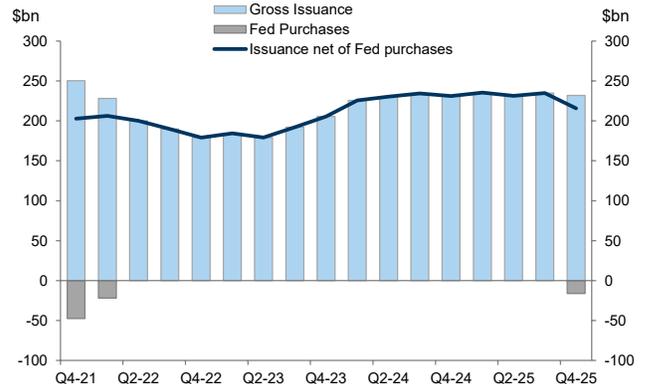
Source: Goldman Sachs Global Investment Research, US Department of the Treasury

Net issuance per quarter



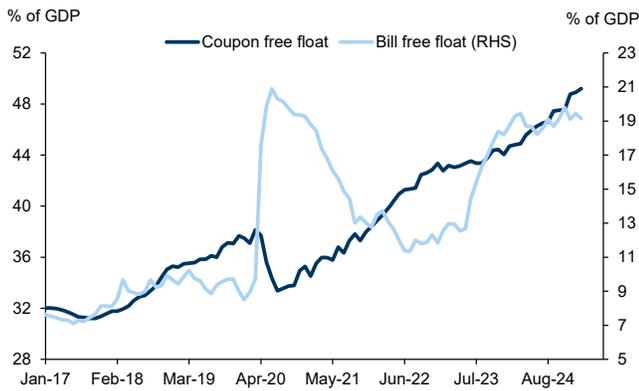
Source: Goldman Sachs Global Investment Research, US Department of the Treasury

Average monthly UST issuance, gross and net of Fed purchases; \$bn 10y equivalents



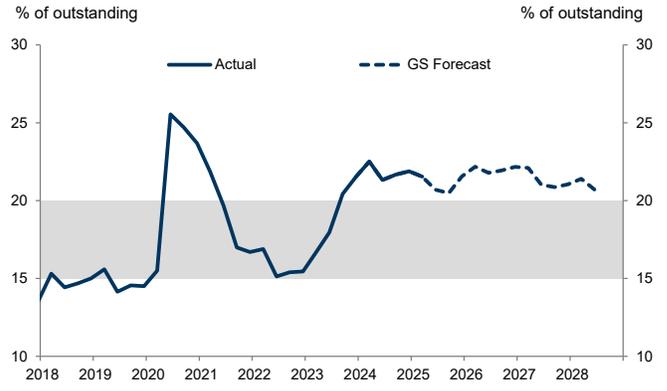
Source: Goldman Sachs Global Investment Research, US Department of the Treasury

Free float (Treasury's outstanding less Fed and foreign official holdings) as % of GDP



Source: Haver Analytics, US Treasury, Goldman Sachs Global Investment Research

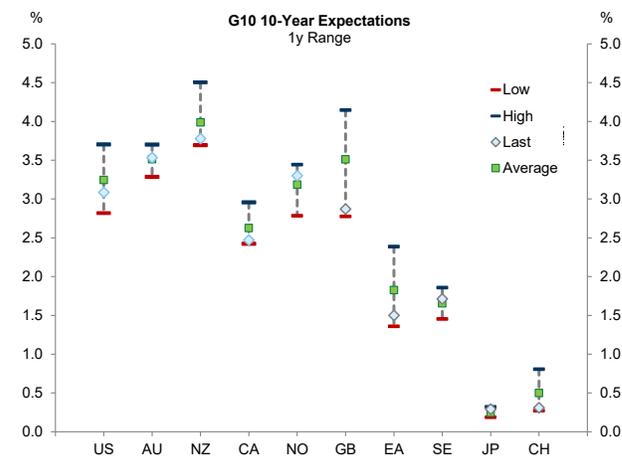
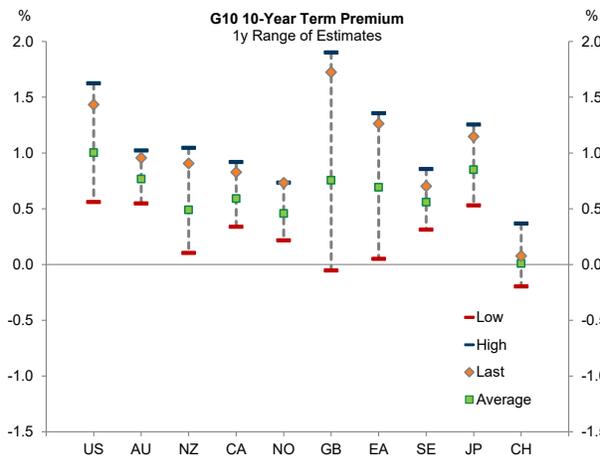
Bills as a share of Treasuries outstanding and GS forecast
Gray shading denotes TBAC recommended 15-20% range



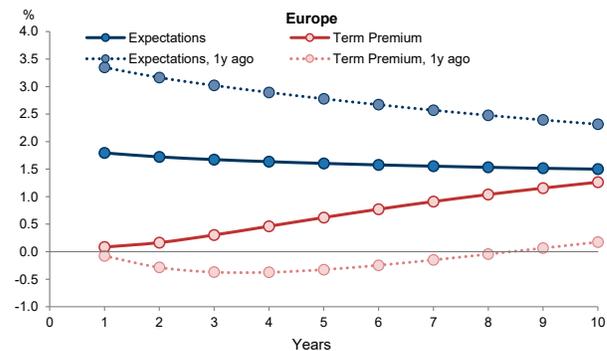
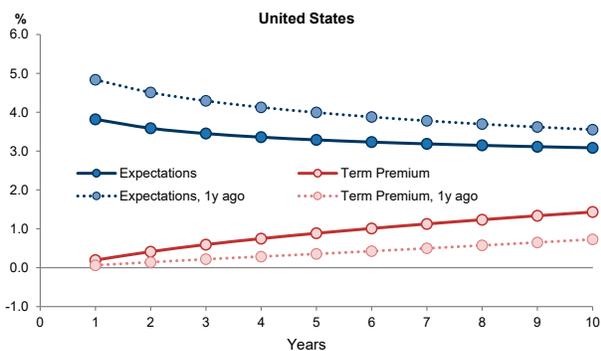
Source: US Treasury, Goldman Sachs Global Investment Research

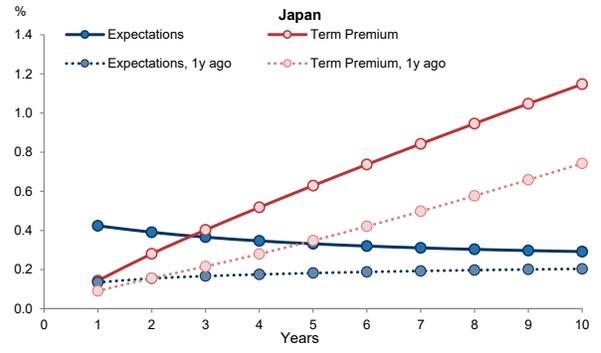
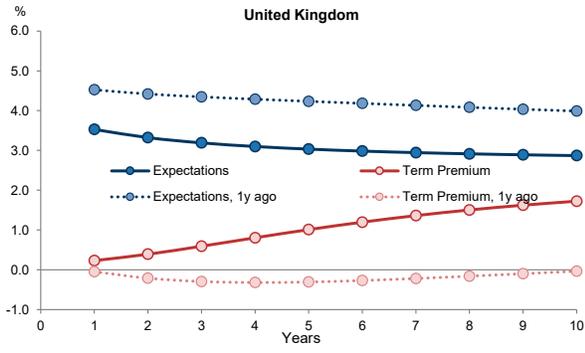
GS Term Premium Decomposition

1y Range of G10 10y Yields, by Term Premium and Expectations Components



Term Structure of Fitted Yields, by Component





Source: Goldman Sachs Global Investment Research

For the exclusive use of MAFALDA.LAGALA@COMMUNITY.IT

2025 Trade Recommendations

GS Rates Trades							
Active	Entry Date	Opened	Latest	Stop	Target	Performance	
1. Buy SFRZ5 96.25 put vs sell 0QZ5 96.25 put (in net premium)	07-Mar-25	-0.03	0.10	0.06	0.20	+13 bps	
2. Long 30y TIPS vs short 0.75x 30y nominal UST	17-Apr-25	-0.77	-0.84	-0.77	-0.97	+7 bps	
3. Long 3m10y USD payer on 3m 5s10s30s payer fly (return in bp running)	02-May-25	0.00	0.00	-0.05	0.10	+0 bps	
4. Long 3y SOFR-UST swap spreads	02-May-25	-0.30	-0.28	-0.30	-0.23	+2 bps	
5. Long 10y10y Gilts vs USTs	16-May-25	0.51		0.71	0.10		
Closed	Entry Date	Closed	Performance				
1. Own 3y USTs vs SOFR	18-Nov-24	02-Jan-25	+5 bps				
2. Buy JPY 6m5y payer on 6m 2s5s10s payer fly	09-Aug-24	08-Jan-25	+7bps				
3. Sell USD 3m 2s10s curve cap	03-Jan-25	10-Jan-25	-6 bps				
4. Own 2y3y USTs vs SOFR	02-Jan-25	24-Jan-25	+4bps				
5. Own CORU5	17-Jan-25	31-Jan-25	+13bps				
6. Long 2y SEK IRS	17-Jan-25	31-Jan-25	+9bps				
7. Receive 5y5y AUD IRS vs pay CAD 5y5y	18-Nov-24	31-Jan-25	+1bp				
8. ERM5/Z5 flatteners	17-Jan-25	07-Feb-25	+5bps				
9. Buy USD 3m2y A-5/A-35bp receiver spreads (return in bp running)	19-Dec-24	13-Feb-25	-5 bps				
10. Pay 10s on weighted JPY 5s10s30s swap fly (weights 1.1x : 2x: 0.9x)	10-Jan-25	13-Feb-25	+10bps				
11. SFRZ5/Z6 flatteners	17-Jan-25	13-Feb-25	+7bps				
12. Receive June 2025 ECB OIS	07-Feb-25	18-Feb-25	-7 bps				
13. 2s5s CORRA steepeners vs 2s5s SOFR flatteners	31-Jan-25	28-Feb-25	+5bps				
14. Receive 2y1y on 1y1y/2y1y/5y5y SOFR fly	21-Feb-25	05-Mar-25	+7bps				
15. Long USD 5y5y ZC inflation swap and long 0.2x USD 5y5y OIS	06-Dec-24	06-Mar-25	-10 bps				
16. 10s30s TIPS breakeven steepeners	28-Feb-25	07-Mar-25	+2 bps				
17. UST-SOFR 3s5s30s belly cheapening flies	07-Mar-25	21-Mar-25	+2 bps				
18. Buy USD 6m5y A/A+30/A+60 payer fly	20-Sep-24	25-Mar-25	-5 bps				
19. Buy USD 6m5y straddle on 6m 2s5s10s straddle fly	08-Nov-24	28-Mar-25	0 bps				
20. 10s30s Gilt flatteners	31-Jan-25	28-Mar-25	-5 bps				
21. Long JPY 3m10y A/A+25bp payer spread (return in bp running)	14-Feb-25	01-Apr-25	+1 bps				
22. Pay 20s on 10s20s30s SOFR fly	18-Nov-24	04-Apr-25	+6 bps				
23. CORZ5/Z6 steepeners	07-Mar-25	04-Apr-25	+0 bps				
24. Buy 5y TIPS on a beta weighted basis versus nominals (1:0.75x)	21-Mar-25	04-Apr-25	+4 bps				
25. JPY 1y1y/2y1y swap steepener	21-Feb-25	04-Apr-25	-6 bps				
26. JGB 10s30s flattener	25-Apr-25	02-May-25	-14 bps				
27. Receive 5y AUD IRS vs pay 5y NZD	21-Feb-25	02-May-25	+1bp				
28. Pay 2y2y CORRA vs receive 2y2y SOFR	04-Apr-25	09-May-25	+8bps				
29. Sell 1x2 A/A+17 3m 2s10s curve cap spread	21-Mar-25	13-May-25	+2bps				

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, George Cole, William Marshall, Bill Zu, Simon Freycenet and Friedrich Schaper, 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.

Disclosures

Option Specific Disclosures

Price target methodology: Please refer to the analyst's previously published research for methodology and risks associated with equity price targets.

Pricing Disclosure: Option prices and volatility levels in this note are indicative only, and are based on our estimates of recent mid-market levels (unless otherwise noted). All prices and levels exclude transaction costs unless otherwise stated.

General Options Risks – The risks below and any other options risks mentioned in this research report pertain both to specific derivative trade recommendations mentioned and to discussion of general opportunities and advantages of derivative strategies. Unless otherwise noted, options strategies mentioned in this report may be a combination of the strategies below and therefore carry with them the risks of those strategies.

Buying Options – Investors who buy call (put) options risk loss of the entire premium paid if the underlying security finishes below (above) the strike price at expiration. Investors who buy call or put spreads also risk a maximum loss of the premium paid. The maximum gain on a long call or put spread is the difference between the strike prices, less the premium paid.

Selling Options – Investors who sell calls on securities they do not own risk unlimited loss of the security price less the strike price. Investors who sell covered calls (sell calls while owning the underlying security) risk having to deliver the underlying security or pay the difference between the security price and the strike price, depending on whether the option is settled by physical delivery or cash-settled. Investors who sell puts risk loss of the strike price less the premium received for selling the put. Investors who sell put or call spreads risk a maximum loss of the difference between the strikes less the premium received, while their maximum gain is the premium received.

For options settled by physical delivery, the above risks assume the options buyer or seller, buys or sells the resulting securities at the settlement price on expiry.

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.