Goldman Sachs | Economics Research

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Global Rates Trader

Accelerated normalization

Wave of hawkish central bank developments, elevated inflation spur further front-loading of rate hikes. US duration risks symmetric for now as markets oscillate on growth/inflation emphasis. Downward drift lower in SOFR likely temporary. US real money duration positioning still screens underweight. New sovereign credit backstop to push 10y bund yields to 2% range. Hurdle for 50bp hikes in the UK lower, but elevated front-end pricing still points to GBP steepeners relative to Europe. SNB may start asset sales to support the currency. Norges to hike next week, risk of faster tightening. As YCC-related interventions exacerbate JGB market function issues, we reiterate our upward bias for long-term JGB yields even after BoJ stays the course.

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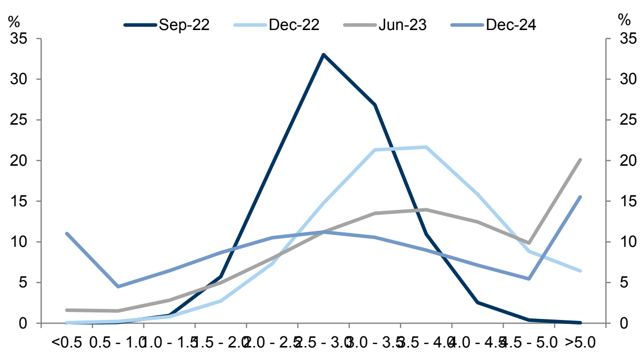
- **Front-loading goes global.** Over the past two weeks, a series of hawkish pivots by central banks amidst persistently elevated inflation has resulted in record repricing of terminal rates across G10, increasing by anywhere from 25-80bp. Starting with the ECB's revealed openness to 50bp hikes the prior week, followed up this week by the Fed's 75bp hike (more below), hawkish commentary from RBA Governor Lowe (which led our economists to now anticipate 50bp hikes at the next two meetings), a hawkish 25bp hike by the BoE (with an openness to larger increments at future meetings), and finally, a surprise 50bp hike by the SNB. Generally, regions where central banks have been the most aggressive with hawkish pivots have seen both the greatest extent of front-loading of hikes as well as some of the largest changes month-to-date to terminal rate repricing. Is there more to come? Barring a clear upward unanchoring of inflation expectations, for now, we think not. Additionally, we suspect low levels of liquidity have resulted in outsized moves—our estimate of the price impact coefficient of order flow at the front end in the US shows significantly impaired market microstructure—so at least some portion of these changes could locally reverse. While we expect a pause for now, at least in the case of the early hikers, over time, the trajectory of inflation remains the key macro variable that will determine the realized terminal rates, and continued persistence on that front presents the risk of another leg of upward repricing.

- **Elevated inflation, 75bp hike re-awakens the right tail.** The FOMC delivered a 75bp hike at its June meeting, with the median dot now implying a 3.25-3.5% target range by the end of this year. Our economists' expectations for 75bp, 50bp and two 25bp hikes for the remaining meetings this year would result in the same target range by year-end, though markets are slightly ahead, pricing around 3.7% at that time and a terminal rate around 3.9% by March next year. Option-implied Fed funds distribution at the June 2023 meeting (where the terminal rate was priced post-Fed) continue to show a sharp skew to higher policy rates, though the tails are more symmetric (and fat) by YE2024, as markets are likely contemplating sizable cuts in the event of recession over that horizon (Exhibit 1). When we last updated our yield forecasts, we acknowledged the presence of significant, but symmetric, tail risks around the modal scenario. Although recent inflation developments have put the focus squarely towards the right tail—a development that we noted would raise upside risks to yields and likely warrant deeper curve inversion than in our baseline—we continue to believe this is the case. On one hand, firmer spot news and/or further evidence of upward pressure on survey measures could see an extension of recent moves. On the other hand, a larger growth slowdown than we currently envisage could put downward pressure on risk premia. Additionally, under-delivery versus inflation market pricing could also justify some moderation from current market-implied terminal rate levels. Absent firm evidence in either direction, however, we are neutral on US duration at current levels.

Exhibit 1: Markets continue to be concerned about a skew to higher policy rates over the next year, though recession fears broaden the range of outcomes further out

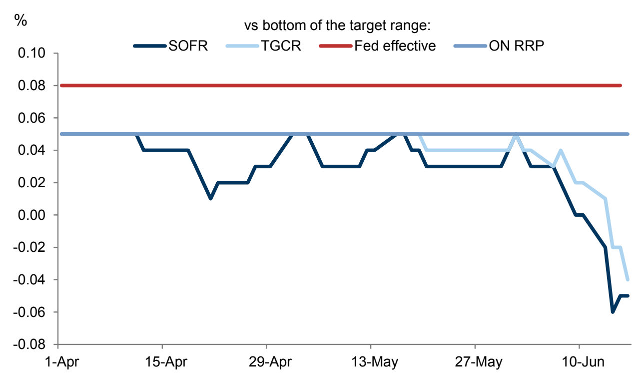
Post-June FOMC option-implied distribution of fed funds at various horizons



Source: Goldman Sachs Global Investment Research

Exhibit 2: Repo rates are trading through the floor of the Fed's target range, though we believe this is temporary

Overnight rates versus bottom of the target federal funds rate range

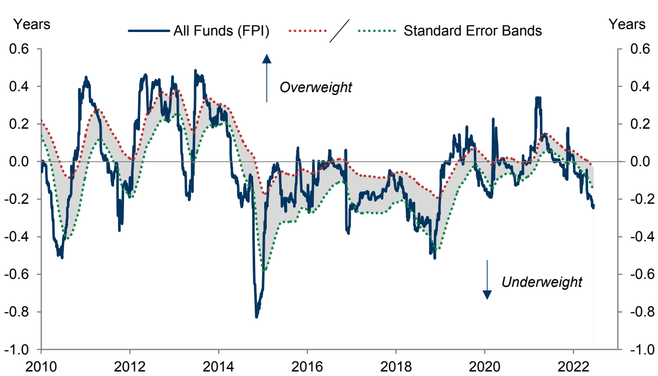


Source: Goldman Sachs Global Investment Research

- **Drift lower in SOFR rates likely temporary.** While the Secured Overnight Financing Rate (SOFR) has occasionally fixed a few basis points through the RRP floor over the last year, since the start of this month, it has seen a more pronounced drift lower, and is currently 10bp below the RRP offer rate. Although current levels put it below the lower end of the Fed target range of 1.5-1.75% (Exhibit 2), the FOMC did not make any changes to the relative position of the RRP rate within its target corridor. We believe this is because the current relative richness of SOFR is very likely temporary, and mainly reflective of two developments. First, the spread between the triparty GC rate (TGCR) and SOFR over the past two weeks suggested that Delivery-versus-Payment (DVP) repo levels are clearly setting lower on average. Given the counterparties identify specific securities to settle each DVP repo transaction, the difference between the two repo rates was likely the result of many securities trading special. The TGCR rate itself is also lower than the bottom end of the Fed's target range (and 9bp below the RRP rate), reflecting a scarcity of collateral as Treasury continues to pay down bills. However, as we've noted previously, the bills squeeze should be alleviated beginning the fourth quarter and through much of next year. Additionally, we expect demand for financing to rise next year as well, which in conjunction with declining excess liquidity and the aforementioned increase in bill supply should lead to upward pressure on repo rates. Indeed, we expect that the SOFR/Fed funds spread, currently -13bp to narrow considerably by middle of next year (the SOFR/FF futures curves reflect this expectation to some extent), and for SOFR to exceed Fed funds by late next year.

- **Real money positioning not yet inflecting.** We recently introduced a real money positioning indicator, the third in our series of UST market positioning metrics, and discussed here its potential value as a reversal indicator — identifying potential rallies (sell-offs) after a reversal from bearish (bullish) extremes in bond fund positioning. Through the sharp bout of rates market volatility we've seen, our implied fund positioning indicator (FPI) seems to suggest that real money accounts have increased their duration underweights in the current quarter, though we believe this is likely reflecting their carry-over of underweight positions in mortgages since Q1, given the significant extension in MBS duration. As seen in Exhibit 3, while the FPI has breached the lower standard error band, bond funds have not started adding long positions in size to generate a buy signal yet. For curves, our framework suggests real money accounts reduced steepeners in Q1 (relative to the Agg), but have since increased this exposure this quarter. Please see our note for more details on the indicator's construction.

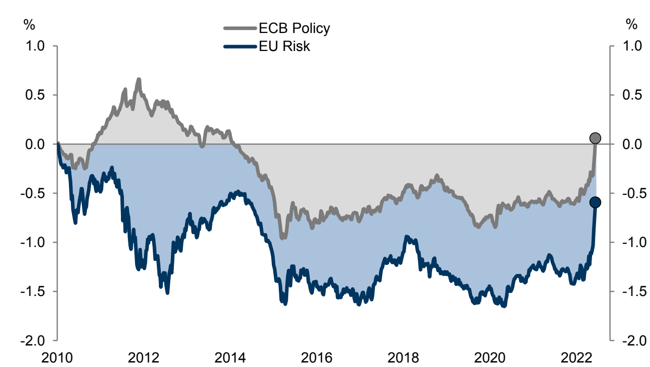
Exhibit 3: On the whole, bond funds' duration underweights increased over the second quarter
Fund Positioning Indicator with standard error bands vs. 3m ahead yield change (with standard error bands*)



*We show +/- 0.33 standard error bands, exponentially weighted with a 3m half-life. Green represents "buy signal" thresholds, red represents "sell signal" thresholds

Source: Goldman Sachs Global Investment Research

Exhibit 4: ECB hawkshiness and easing of sovereign credit risk in Europe will likely push up Bund yields
Sign restriction decomposition of 10y Bund yields into domestic growth and monetary policy



Source: Goldman Sachs Global Investment Research, Goldman Sachs

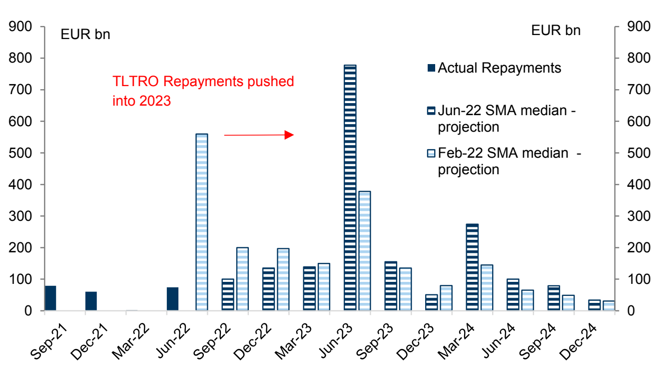
European Rates

- **A new range for Bund yields.** Following the ECB's pre-announcement of a new sovereign credit backstop, we revised up our end-2022 10y Bund forecasts to 2%. Bund yields have been depressed due to the ECB's dovish monetary policy as well as the safe asset scarcity caused by sovereign credit risk in Europe. In our view, the unwinding of both these factors will sustainably push up Bund yields into a new range symmetric around 2% (Exhibit 4). The ECB's backstop stems primarily from a need to raise core (and real) rates to control inflation—a backstop that attenuates the tightening signal from the credit channel will likely need to be offset via higher risk-free rates. And lastly, deploying PEPP reinvestments to buy BTPs is a form of Bund QT that points towards a preference for higher core rates rather than lower peripheral yields. Given the ECB's preference to retain some role for the market to differentiate between sovereign credits, we do not expect the ECB backstop to drive significant spread tightening from current levels, especially with further upward pressure in core yields likely. We now forecast 10y BTP-Bunds at 200bp by end-2022, from 235bp previously.

- **Money market bases skewed wider despite modest TLTRO repayments.** Last week, European banks voluntarily repaid €74.1bn of ECB financing provided under the TLTRO-III program. This modest amount suggests European banks are happy to retain TLTRO funding given elevated macro uncertainty as well as expectations for a rapidly increasing deposit facility rate. This strengthens our conviction that repayments will be low for 2022 as a whole, and correspondingly the liquidity drain will be sharper in 2023 (Exhibit 5) assuming no new TLTROs are rolled out. Money market bases over the last year or so have shown a strong correlation with general rate volatility. We expect this pattern to continue to prevail in upcoming months, and given large tails for EUR rates in the current context, this implies ESTR-BOR bases are skewed wider. With the bulk of the liquidity drain concentrated in 2023, we see 12m to 18m ahead ESTR-BOR bases as particularly vulnerable to a repricing higher of refinancing risk premium.

Exhibit 5: Low 2022 repayments point to sharper liquidity drain in 2023

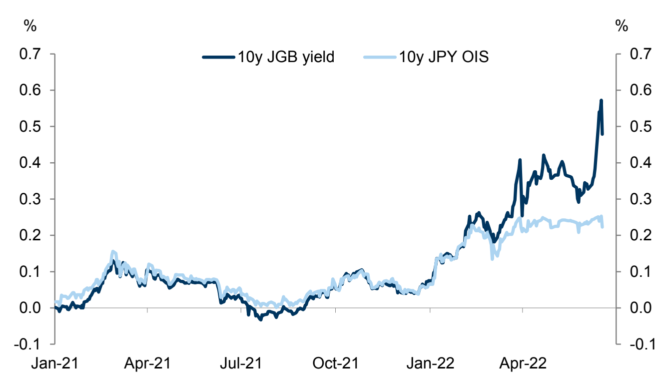
Repayments projections according to the ECB Survey of Monetary Analysts



Source: Haver, Goldman Sachs Global Investment Research, ECB

Exhibit 6: Despite the BoJ doubling down on YCC, 10y swaps remain cheap versus cash

10y cash benchmark yield vs swaps



Source: Bloomberg, Goldman Sachs Global Investment Research

- **BoE opens the door for 50bps hikes.** The BoE delivered a 25bp Bank rate hike at this week's MPC as expected, but also hinted at an acceleration of the pace of tightening by signaling a willingness to 'act forcefully' should inflationary pressures become more persistent. With the MPC revising up the near-term growth outlook on the back of the UK government's fiscal support package, combined with the highest inflation rate across the G10, we now think the hurdle to 50bp hikes is lower and our economists have accordingly revised their policy rate path to include 50bp hikes at the August and September meetings. But despite this risk to the front-end, with more than 150bp priced for the next three meetings we continue to think the UK curve is too flat relative to Europe and continue to recommend GBP 2s10s OIS steepeners vs Europe. Given our new BoE policy rate forecasts and Bund yield forecasts, we revise our 10y Gilt forecasts at end-2022 to 2.65%.

- **SNB surprises with 50bp hike, Norges next week.** The SNB's surprise 50bp hike catalyzed another leg higher in global rates this week. The SNB revised up its inflation forecast over the entire horizon and adjusted its currency intervention guidance, dropping the one-sided commitment "to counter upward pressure on the Swiss franc". This represents a break to the prior regime in which the SNB resisted CHF strength to one in which they will increasingly resist CHF weakness. For this reason, SNB policy may pivot from rates to the balance sheet as a means to support the currency. This form of QT is unique among major central banks—given that the SNB's assets are held abroad (i.e. there is no natural run-off as is the case of other G10s), this would require FX transactions to buy the CHF, but also potential asset sales, including holdings of EUR AAA bonds (predominantly Bunds). We expect three further 50bp hikes in September, December and March next year—slightly below market pricing. Elsewhere, the Norges Bank are expected to deliver another 25bp hike, although "prospects of persistently high inflation" could prompt them to raise rates more quickly. Recent upside surprises in inflation could see the Norwegian central bank speed up the pace of tightening.

Other G10 Markets

- **BoJ holds firm despite YCC maintenance challenges.** While speculation on potential YCC changes had mounted in recent weeks given hawkish pivots elsewhere and inflation that was already above 2%, the Bank of Japan ultimately made no changes to its policy settings, in line with our economists' expectations. Though the BoJ has leaned on economic fundamentals in maintaining a highly accommodative policy stance, market participants have instead focused on deteriorating JGB market functioning as a result of the BoJ's interventions, strong downward pressure on the yen, and continued pressure from foreign yields as potential forcing mechanisms for at least modest calibrations to the bank's YCC program. Indeed, bets on the BoJ either widening its tolerance band, or either shortening/removing its target altogether had surged in recent weeks, as evidenced by the un-anchoring of swaps versus the cash JGB curve (Exhibit 6). Governor Kuroda's post-meeting remarks revealed the bank is not looking to widen the tolerance band around its target and will seek to address market liquidity by other means (possibly via tweaks to its securities lending program). We had been recommending 6m20y JPY payer spreads as a way to position for continued foreign rate spillovers, as well as potential shifts in the YCC framework. While the latter seems less likely near-term, we think longer-term rates beyond the 10y point will remain highly sensitive to foreign spillovers and improving domestic economic fundamentals, and recommend holding this position.

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Introducing our Bond Fund Positioning Indicator (FPI) - 16 June 2022

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The Upcoming European Liquidity Drain - 19 May 2022

The authors would like to thank Tomas Pereira de Almeida for his contributions to this report.

Summary of Views

	Core Views	Recommendation	Entry Date
Duration	Rates markets grapple with potential growth headwinds versus elevated inflation pressure, with recent inflation news leading markets to resume pricing higher likelihood of the Fed having to tighten further. Risks remain two-way, with intensifying growth worries likely to be primarily a risk premia story as long as recession is avoided given the inflation picture. We are neutral on US duration.	--	--
	The prospect of 50bp hikes at the September and October ECB meeting points to hawkish risks to front-end pricing. Details of potential backstop suggest further upside to core European yields. We now see 10y bunds end the year at 2%.	--	--
	Despite BoE hinting at upsized hikes at coming meetings, given the amount priced, tactical risks tilt toward moderation in front-meeting pricing (and curve steepening).	--	--
	In Sweden we expect the front-end to drive further repricing. Combined with the potential for weakness in global duration, we think the 2s5s10s butterfly can continue to fall faster than the ~2bp per month priced into 1y forwards and recommend receiving 5s on the fly	*Receive 5s on 2s5s10s SEK OIS fly*	13-May-22
	Notwithstanding the BoJ's continued defense of its 10y YCC target, absent some moderation in the global yield move, longer maturity yields are likely to face continued upward pressure as improving growth and firming inflation will increasingly add to global spillover pressure.	*Buy 6m20y JPY A/A+25 payer spread*	29-Apr-22
Curve	While the curve has been volatile, we think it is still too early to take a more structural steepening view given the high inflation environment. Near-term we see scope for flattening if global growth slowdown concerns build further, as it could put downward pressure on longer term yields amid sticky front-end pricing. Reduction in recession concerns, meanwhile, could see resumed bear flattening as market refocuses on scope for more Fed hikes.	--	--
	The increasingly front-loaded ECB hiking cycle should support a flatter curve, in 2s10s in particular. The related tightening in financing conditions is a net negative for growth and contributes to reducing inflation risk premium at intermediate maturities; it should thus weigh more on long-end yields while 2s can reprice on policy rate expectations. Though we expect ongoing paying flows in the belly as institutional investors adjust to the policy outlook, we expect ECB policy action to be a stronger driver.	--	--
	In contrast to other major central banks, the BoE has signaled a focus on growth risks and as such we see risks skewed towards GBP front-end outperformance vs EUR and the US, especially in 2022 pricing.	*Enter 2s10s OIS steepeners in GBP vs EUR*	13-May-22
Spreads	Our issuance projections imply a fairly stable outlook for US duration supply, with balance sheet runoff impact likely felt only towards 2023. The scope for further supply cuts will be somewhat a function of the deficit trajectory, but a reasonable portion of funding needs via increased bill issuance. Weaker bank demand amid firmer loan growth and high volatility could see some further compression in intermediate spreads	--	--
	We expect the combination of recalibration of ECB balance sheet policy and accommodative fiscal stance to eventually support a German swap spread tightening. However, ongoing collateral scarcity and paying flows from banks suggests swap spreads will likely remain at wide levels for now.	--	--
	We see risks to sovereign spreads to as balanced in light of the pre-announcement of a backstop facility. This support is key to anchor sovereign credit, though we do not expect a clear "strike" level for spreads to be announced.	--	--
Vol	Liquidity metrics, particularly at short expiry tail curves in US rates, had deteriorated amid higher bouts of vol on Fed policy path reassessment and inflation concerns. Lack of Fed backstop and highly uncertain outlook suggests higher volatility likely to persist, with worse liquidity leaving market more vulnerable to newsflow. Higher yields should see callable supply diminish, which should be modest tailwind for deep vega from currently depressed levels.	*Buy 10y30y straddles vs 3y30y straddles (3:1 vega risk)*	20-May-22
Money Market	As Treasury continues bill paydowns to normalize cash balances, near-term risks around bill supply to the downside. Fed runoff and greater reliance on bill issuance should see net supply turn more sustainably positive late in 2H22, but impetus for wider front-end spreads likely to take time. Near-term we expect downward pressure on short term secured funding rates and bill yields to persist	--	--
Inflation	With the recent upside surprises in US inflation, continued stickiness in inflation and/or evidence of a wage/price spiral could lead to further rebuilding of risk premium. Indications of stickier high inflation should see markets continue to price greater risk of economy requiring more real rate tightening in the future.	--	--
	Repricing higher in UK RPI over recent months has been in equal part driven by expectations and risk premium components. We expect the premium component in particular to remain high in the first half of the year, and traded inflation to be sticky as a result.	--	--
	We continue to look for strength at the front-end of the HICP curve, which should remain supported at least until inflation prints reach their peak the second half of the year. The long-end of the curve should see relief over the medium term as inflation risk premium moderates from its current highs.	--	--

Source: Goldman Sachs Global Investment Research

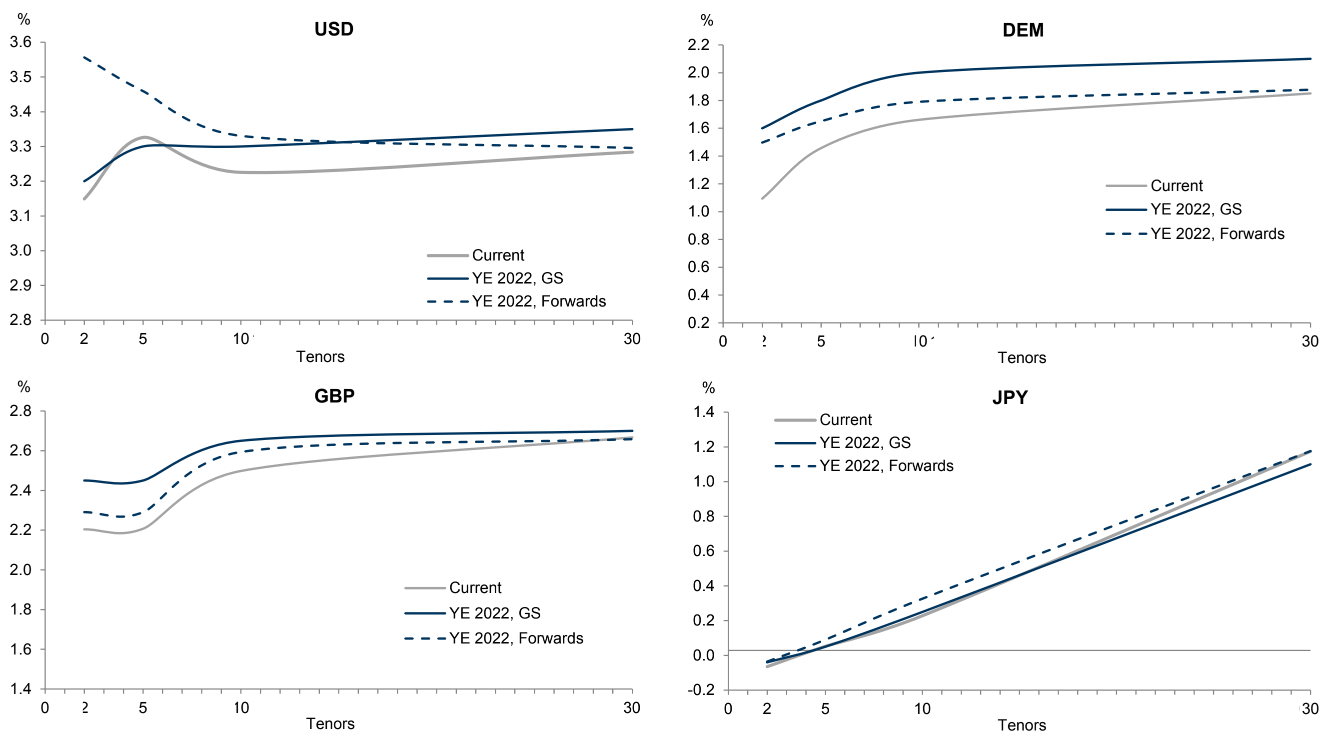
Forecasts

G10 Yield Forecasts

G10 10-Year Yield Forecasts										
	USD	DEM	GBP	JPY	CAD	CHF	SEK	NOK	AUD	NZD
spot	3.23	1.66	2.50	0.23	3.40	1.39	2.02	3.16	4.13	4.26
2Q22	3.20	1.80	2.50	0.25	3.15	1.00	1.90	2.90	3.70	3.95
3Q22	3.25	1.90	2.60	0.25	3.20	1.05	2.00	2.95	3.80	4.05
4Q22	**3.30**	**2.00**	**2.65**	**0.25**	**3.25**	**1.10**	**2.10**	**3.00**	**3.85**	**4.10**
1Q23	3.20	2.00	2.65	0.25	3.30	1.15	2.15	3.05	3.85	4.10
2Q23	3.15	2.00	2.50	0.30	3.35	1.20	2.20	3.10	3.85	4.05
3Q23	3.15	2.00	2.30	0.35	3.40	1.25	2.25	3.10	3.85	4.05
4Q23	**3.15**	**2.00**	**2.20**	**0.35**	**3.40**	**1.30**	**2.30**	**3.05**	**3.80**	**4.00**
1Q24	3.15	2.00	2.20	0.40	3.40	1.35	2.30	3.00	3.80	3.95
2Q24	3.15	2.00	2.00	0.40	3.40	1.30	2.25	3.00	3.75	3.90
3Q24	3.15	2.00	2.00	0.45	3.40	1.25	2.20	2.95	3.70	3.85
4Q24	**3.15**	**2.00**	**2.00**	**0.45**	**3.40**	**1.25**	**2.15**	**2.90**	**3.65**	**3.80**
1Q25	3.15	2.00	2.00	0.50	3.40	1.20	2.10	2.85	3.65	3.80
2Q25	3.15	2.00	2.00	0.55	3.40	1.20	2.05	2.75	3.60	3.80
3Q25	3.15	2.00	2.00	0.60	3.40	1.15	2.00	2.70	3.60	3.80
4Q25	**3.15**	**2.00**	**2.00**	**0.65**	**3.40**	**1.15**	**2.00**	**2.65**	**3.55**	**3.75**

Deviation from Forwards										
	USD	DEM	GBP	JPY	CAD	CHF	SEK	NOK	AUD	NZD
2Q22	-0.04	0.13	-0.01	0.01	-0.25	-0.34	-0.03	-0.26	-0.43	-0.35
3Q22	-0.06	0.15	0.03	-0.04	-0.24	-0.38	0.02	-0.25	-0.36	-0.32
4Q22	**-0.03**	**0.21**	**0.06**	**-0.08**	**-0.19**	**-0.36**	**0.10**	**-0.23**	**-0.35**	**-0.30**
1Q23	-0.14	0.17	0.04	-0.11	-0.13	-0.34	0.14	-0.20	-0.39	-0.31

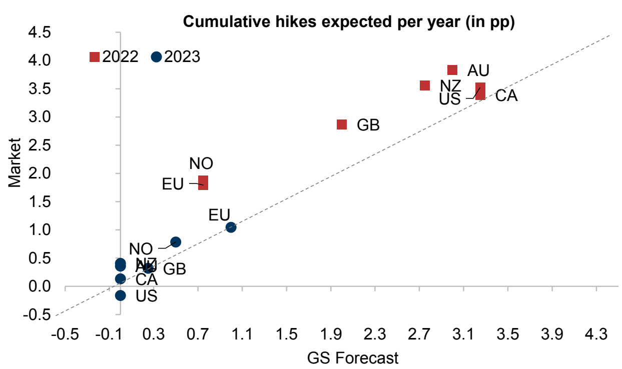
G4 Curve Forecasts



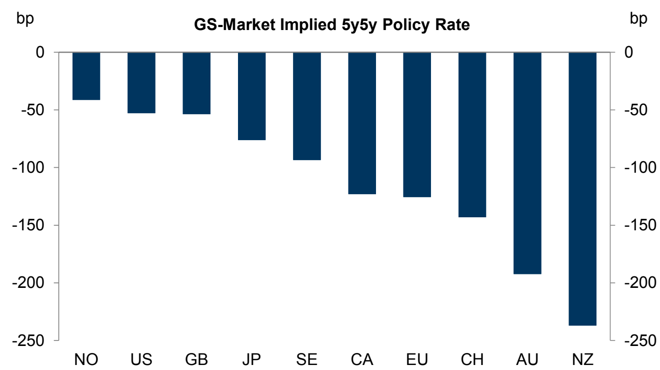
Source: Goldman Sachs Global Investment Research

Central Bank Dashboard

Expected hikes by year, GS vs. Market

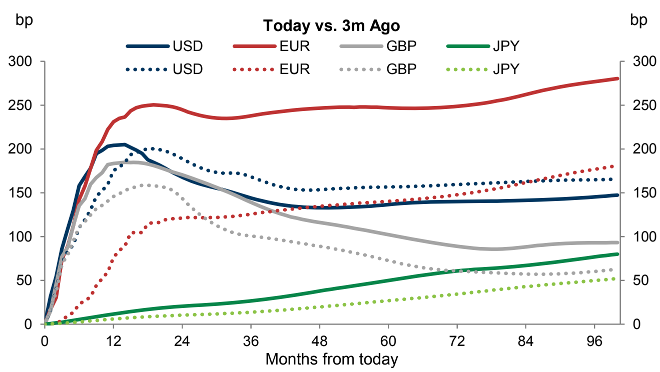


GS forecasts vs. market pricing of 5y5y average policy rate



Source: Goldman Sachs Global Investment Research

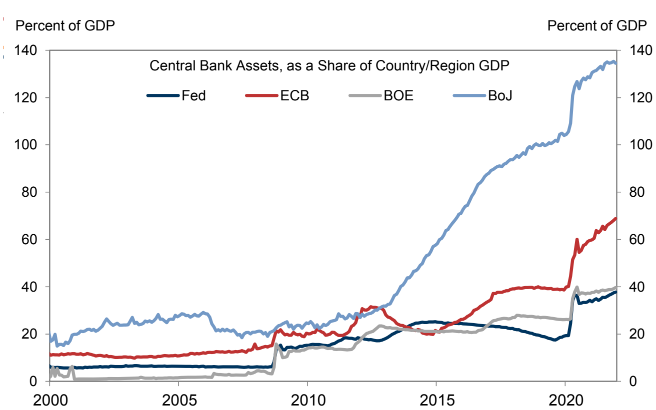
Cumulative amount of hikes/cuts priced from today



Central bank sovereign QE expectations

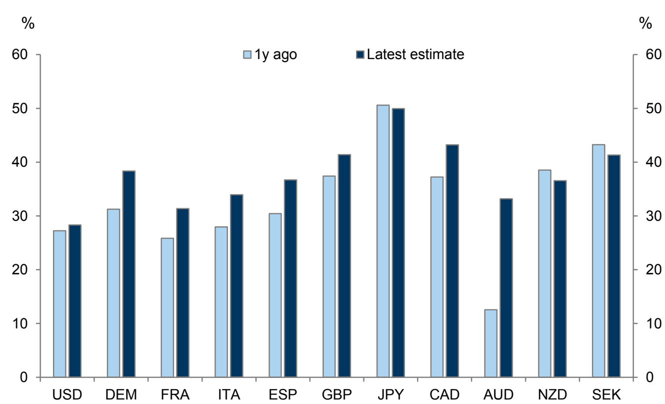
	Current purchase pace	Forward-looking expectations
Fed	$0	Runoff since May 2022
ECB	PSPP: ~€9bn/week	Expect APP to run at €20bn/month pace in June, and to be discontinued on July 1st. The launch of a contingent QE program is achievable if necessary to secure the policy rate normalisation.
BoE	£0	Expect outright Gilt sales to begin in November 2022 (at a pace of £20bn/quarter)
BoJ	Unlimited, but current pace of ~¥18-19tn y/y	Expect coupon buying to keep up with pace of issuance, as to prevent significant deviations in 10y JGB target
BoC	--	Passive runoff since April 2022
RBA	A$0	Asset purchases concluded in February 2022, and maturing bonds are no longer reinvested as of May 2022
RBNZ	NZ$0	Passive runoff as of Feb-22 meeting. Bank will commence active bond sale program starting in July-22 at a pace of NZ$5bn per fiscal year.
Riks	kr0	Purchases completed as announced kr700bn envelope was exhausted in December 2021

Central bank assets as a share of GDP



Source: Goldman Sachs Group Inc., Goldman Sachs Global Investment Research, Haver Analytics

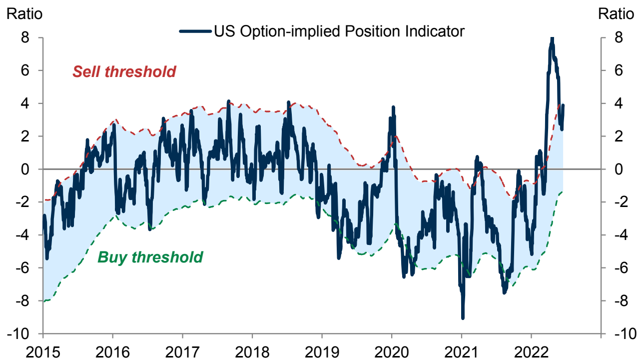
Central bank ownership of sovereign bonds, current* vs. 1y ago

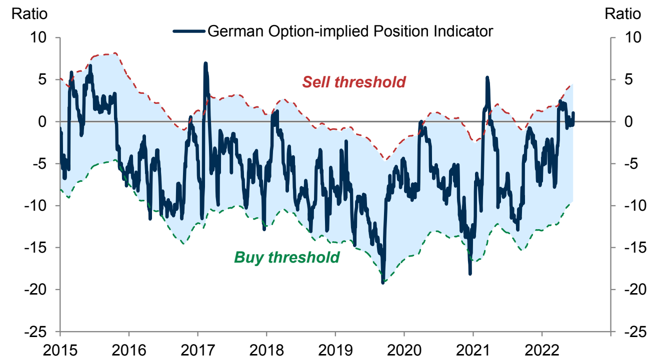


*End 4Q21

Positioning and Flows Monitor

Option-Implied Position Indicator

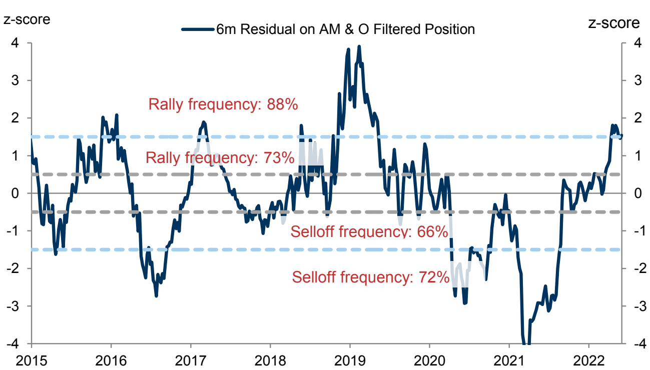




Source: Goldman Sachs Global Investment Research

Residual of 10y UST yield changes on filtered AM position vs 6m ahead change in 10y UST yield

Gray lines denote +/- 0.25 standard deviations



Note: 6m residual changes on yield in filtered position (z-score) and 6m ahead change in 10s

Source: CFTC, Goldman Sachs Global Investment Research

CFTC Commitment of Traders and Traders in Financial Futures

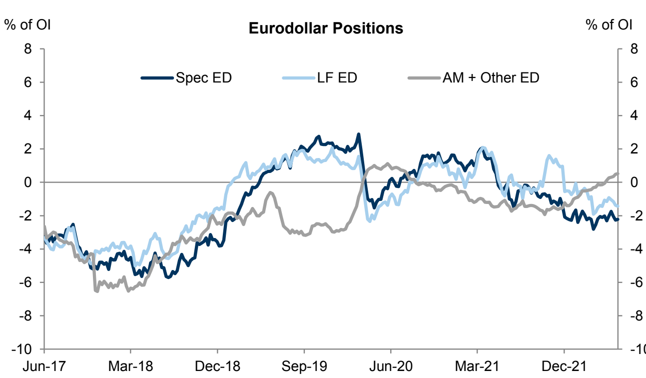
Duration-weighted net position by investor type

Duration-Weighted Positioning, by Contract

$mm/bp	ED	TU	FV	TY	TN	US	WN
Spec Current	-23.2	-4.6	-9.1	-12.9	-11.7	1.7	-85.1
Spec 1w Change	1.6	-3.3	-5.4	-1.6	-0.6	-2.7	1.1
LF Current	-19.9	1.6	-21.4	0.3	-2.5	-40.6	-155.8
LF 1w Change	0.2	-2.5	-1.9	-6.4	0.7	-2.6	15.1
AM + Other Current	8.2	5.1	46.3	26.6	11.2	60.7	162.4
AM + Other 1w Change	0.4	1.1	3.1	7.4	-3.7	0.0	-12.5
Dealer Current	21.7	-4.4	-18.0	-14.0	3.0	-16.5	-12.6
Dealer 1w Change	-0.4	1.1	-2.1	0.3	2.1	3.3	-3.6

Source: CFTC, Goldman Sachs Global Investment Research

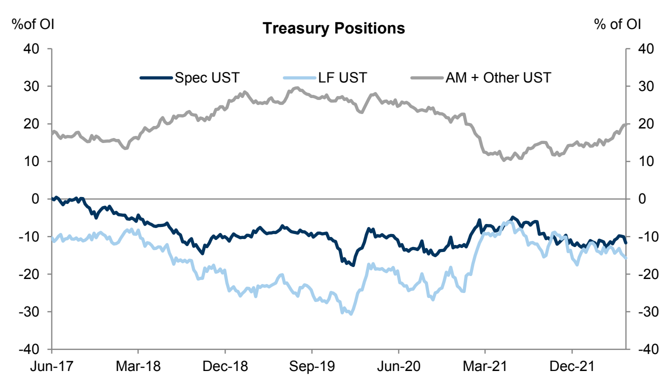
Net positions in Eurodollars



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

Source: CFTC, Goldman Sachs Global Investment Research

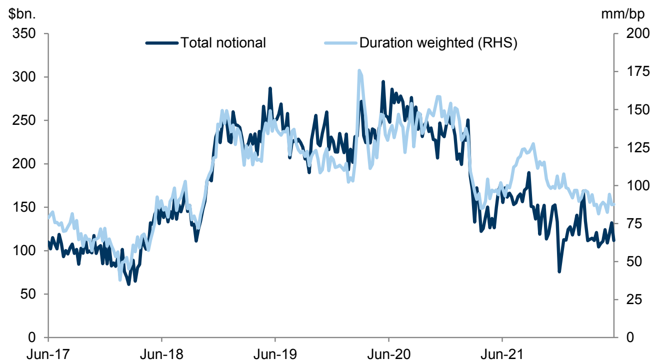
Net positions in UST futures



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

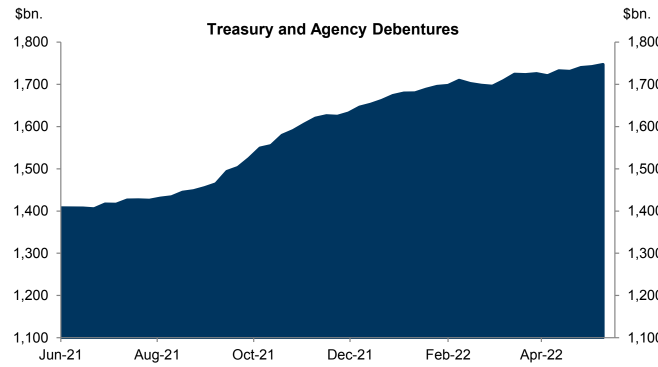
Source: CFTC, Goldman Sachs Global Investment Research

Primary dealer transactions
Net dealer position in US Treasuries



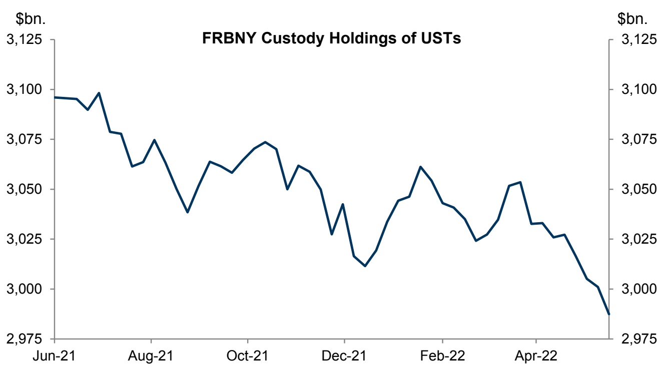
Source: Federal Reserve Bank of New York, Goldman Sachs Global Investment Research

US Commercial Banks' Holdings of Treasury and Agency Securities
Total domestic and foreign holdings, all commercial banks



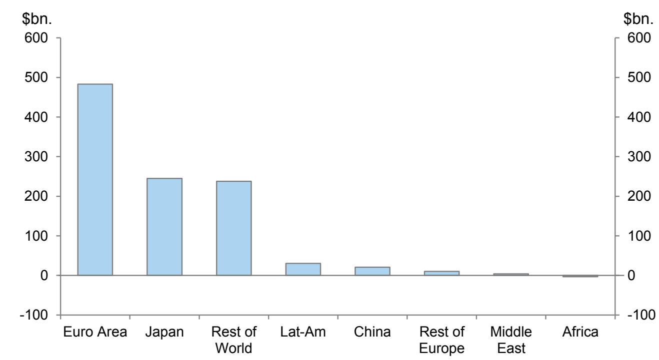
Source: Federal Reserve Board

NY Fed Custody Holdings
Marketable US Treasuries



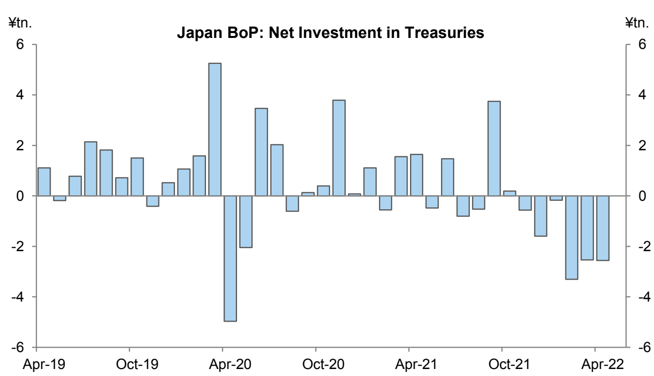
Source: Federal Reserve Bank of New York

US TIC Treasury Flows
12m change in valuation-adjusted holdings of USTs, by holder of debt



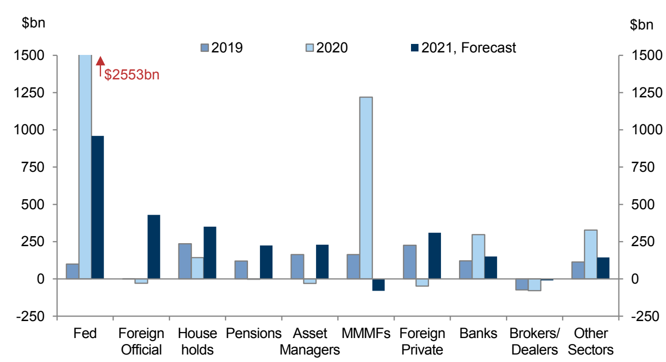
Source: US Treasury, Goldman Sachs Global Investment Research

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



Source: Bank of Japan, Haver Analytics

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

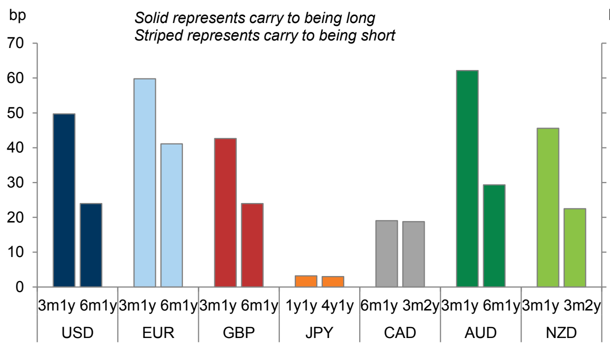


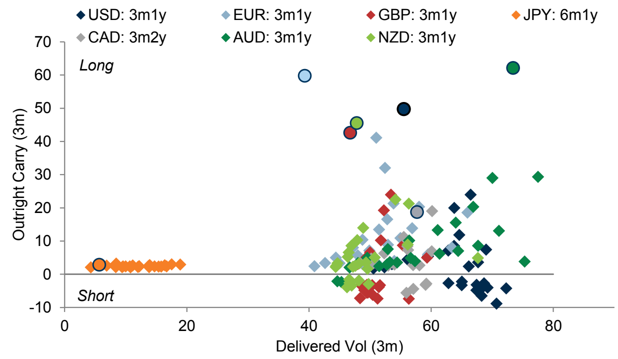
Source: Federal Reserve Board, Goldman Sachs Global Investment Research

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

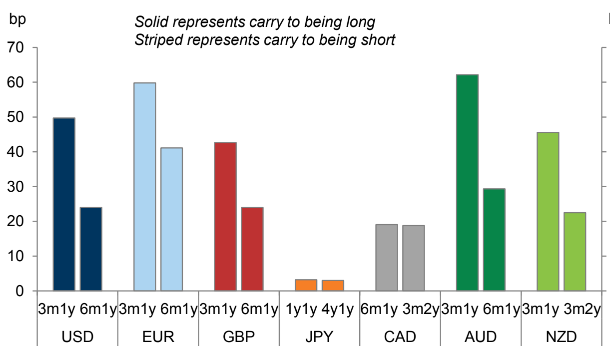


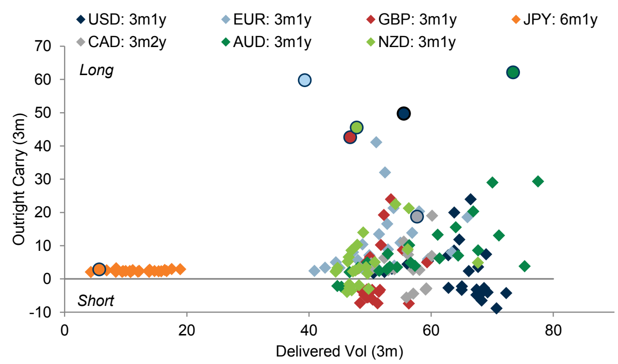


Source: Goldman Sachs Global Investment Research

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

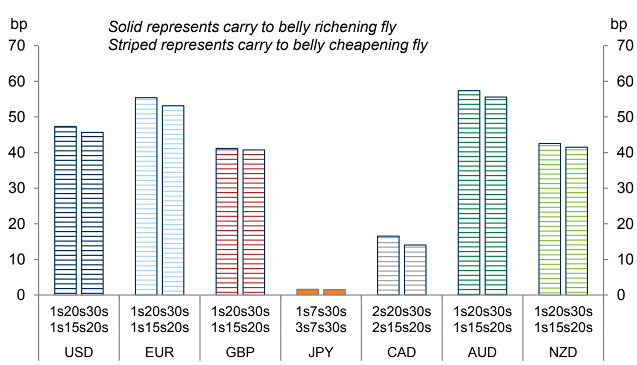


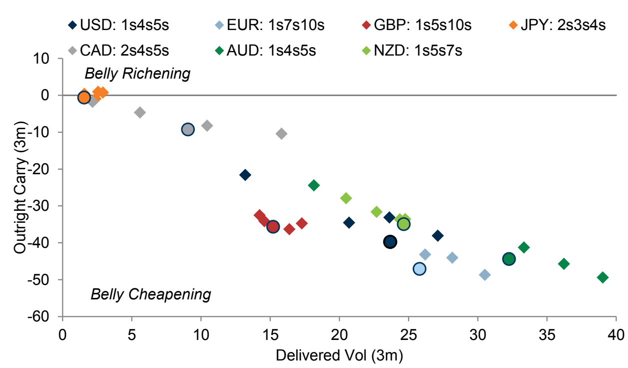


Source: Goldman Sachs Global Investment Research

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

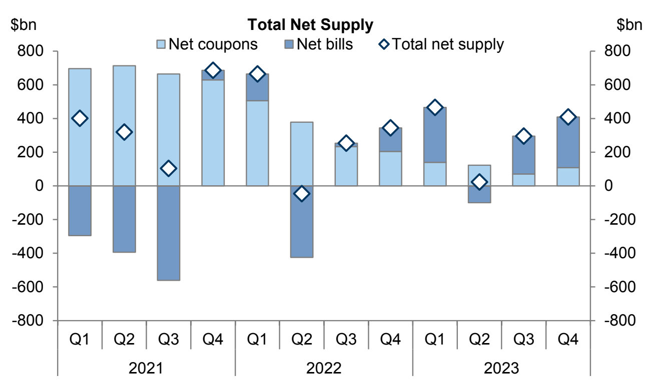
Monthly Auction Amounts at End of Calendar Year ($ billions)											
	2y FRNs	2y	3y	5y	7y	10y	20y	30y	5y TIPS	10y TIPS	30y TIPS
CY19	20 / 18 (r)	40	38	41	32	27 / 24 (r)	--	19 / 16 (r)	17 / 15 (r)	14 / 12 (r)	8 / 7 (r)
CY20	26 / 24 (r)	56	59	59	38	41 / 38 (r)	27 / 24 (r)	27 / 24 (r)	17 / 15 (r)	14 / 12 (r)	8 / 7 (r)
CY21	26 / 24 (r)	56	54	56	39 / 36 (r)	23 / 20 (r)	25 / 22 (r)	19 / 17 (r)	19 / 17 (r)	16 / 14 (r)	9 / 8 (r)
CY22, GS	24 / 22 (r)	45	43	46	38	36 / 33 (r)	17 / 14 (r)	22 / 19 (r)	21 / 19 (r)	17 / 15 (r)	9 / 8 (r)
CY23, GS	24 / 22 (r)	45	43	46	38	36 / 33 (r)	17 / 14 (r)	22 / 19 (r)	21 / 19 (r)	17 / 15 (r)	9 / 8 (r)

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

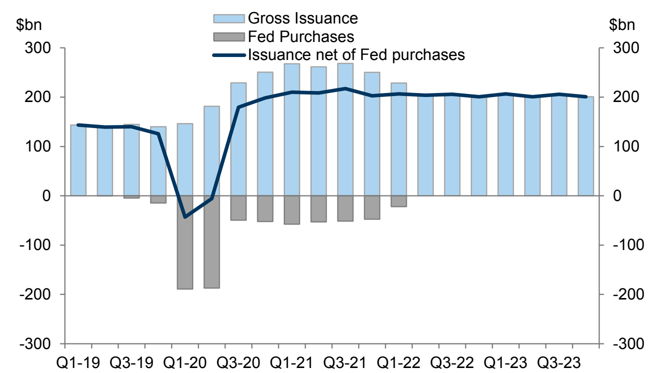
US Treasury Net Issuance by Calendar Year ($ billions)						
	Net Coupons	Fed	Net of Fed	Net Bills	Fed	Net of Fed
CY 2019	1107	77	1030	77	170	-93
CY 2020	1734	2184	-450	2547	157	2391
CY 2021,	2703	931	1771	-1194	0	-1194
CY 2022, GS	1321	-164	1486	-106	-39	-67
CY 2023, GS	441	-637	1078	750	-87	837

Duration supply ($bn 10y equiv)		
Gross supply	Fed	Net of Fed
1703	58	1645
2421	1434	987
3144	628	2517
2470	66	2404
2366	0	2366

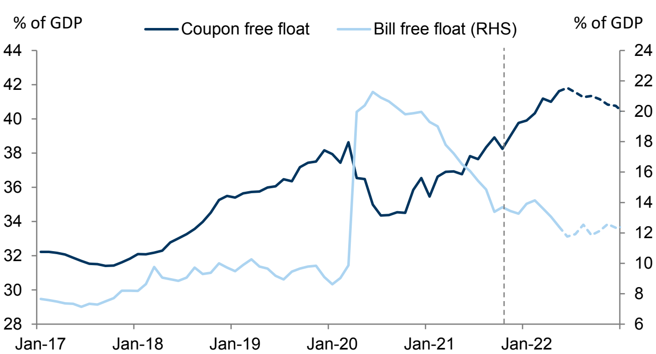
Net issuance per quarter



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

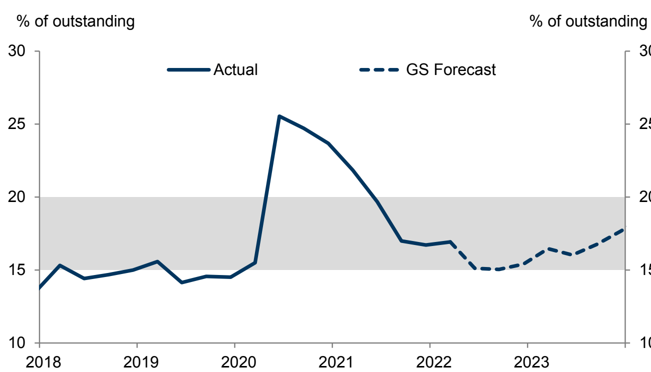


Free float (Treasuries outstanding less Fed and foreign official holdings) as % of GDP



Bills as a share of Treasuries outstanding with GS forecasts

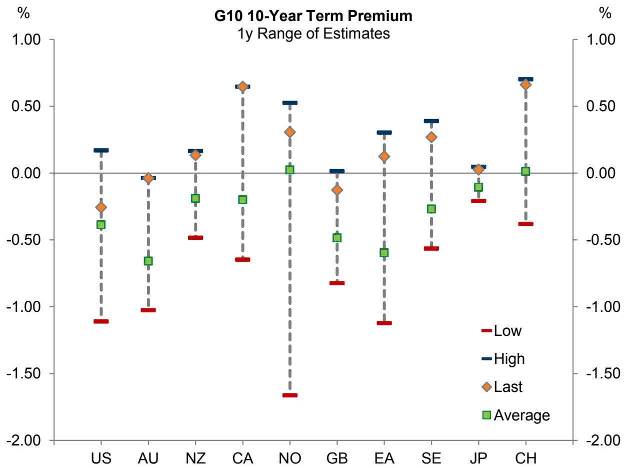
Gray shading denotes TBAC recommended 15-20% range

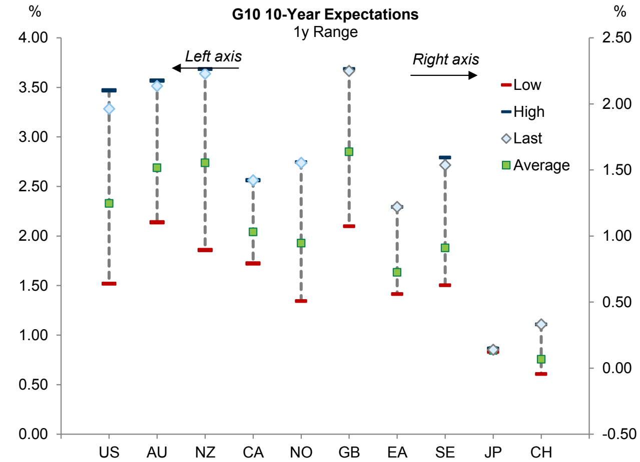


Source: Haver Analytics, Goldman Sachs Global Investment Research

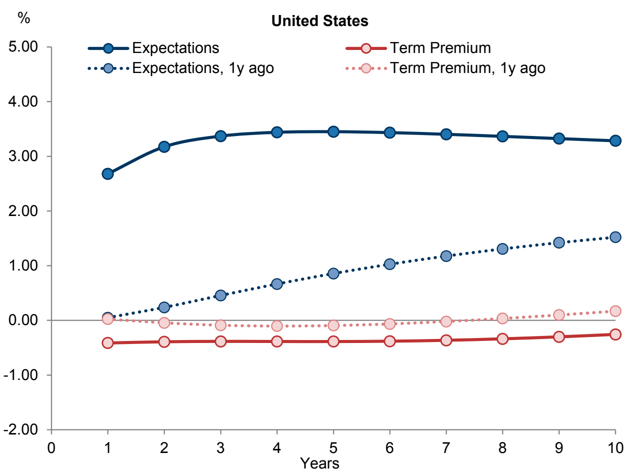
GS Term Premium Decomposition

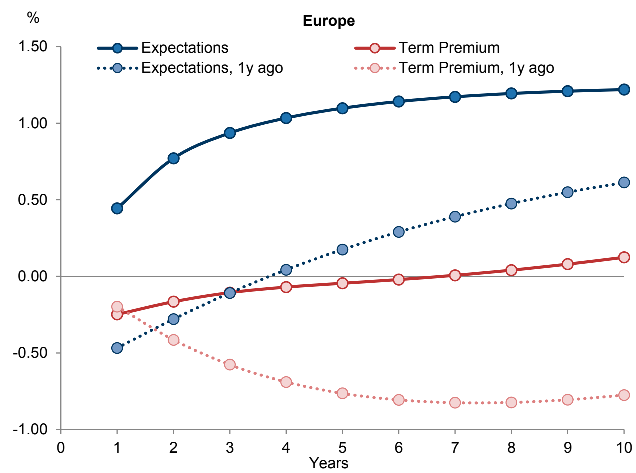
1y Range of G10 10y Yields, by Term Premium and Expectations Components

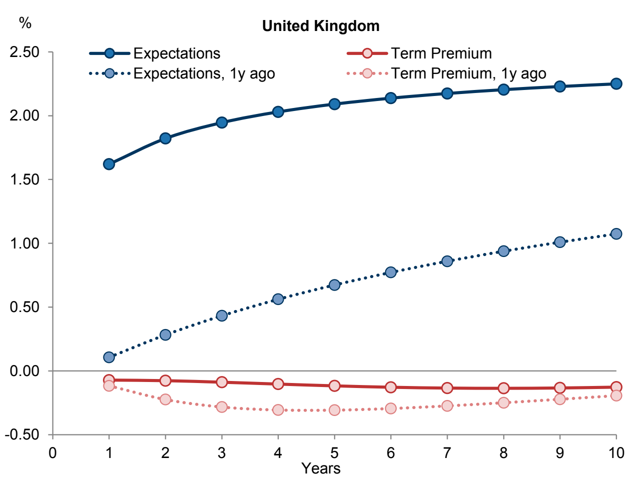


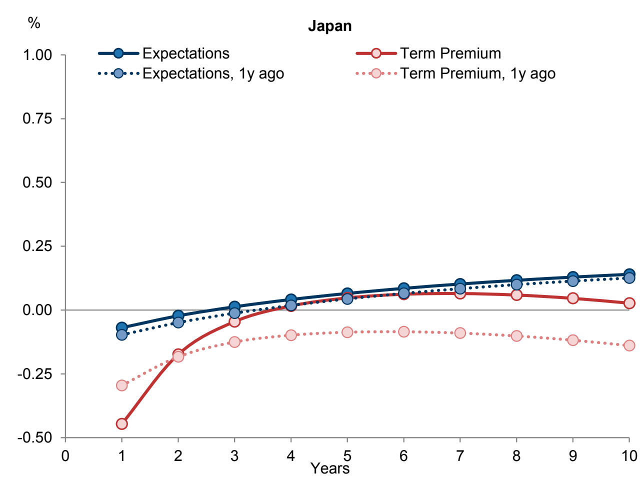


Term Structure of Fitted Yields, by Component









Source: Goldman Sachs Global Investment Research

2022 Trade Recommendations

GS Rates Trades						
Active	**Entry Date**	**Opened**	**Latest**	**Stop**	**Target**	**Performance**
1. Buy 6m20y JPY A/A+25 payer spread (levels in total return, %)	29-Apr-22	0.00	0.07	-0.07	0.15	+7 bps
2. Receive 5s on 2s5s10s SEK OIS fly	13-May-22	0.22	0.28	0.32	0.07	-6 bps
3. Enter 2s10s OIS steepeners in GBP vs EUR	13-May-22	-1.05	-1.03	-1.20	-0.80	+2 bps
4. Buy 10y30y straddles vs sell 3y30y straddles (3:1 vega risk)	20-May-22	30abp	32abp	27abp	35abp	+2 bps
Closed	**Entry Date**	**Closed**	**Performance**			
1. Sell 10y Gilts	17-Dec-21	05-Jan-22	+32 bps			
2. Sell USD 6m10y Straddles (levels in premium, % running)	08-Oct-21	07-Jan-22	+7 bps			
3. Receive 2y vs pay 10y EUR OIS	09-Nov-21	14-Jan-22	+15 bps			
4. Pay 5y SEK Swaps	09-Nov-21	14-Jan-22	+21 bps			
5. US 2s5s10s belly cheapening butterflies via 3m ATM payers	09-Nov-21	14-Jan-22	+5 bps			
6. Long Jan-23 TIPS (levels in total return, %)	06-Jan-22	21-Jan-22	-7 bps			
7. 5s30s TIPS flatteners	21-Jan-22	28-Jan-22	+5 bps			
8. Short 5y BTPs vs Bonos	14-Jan-22	31-Jan-22	-7 bps			
9. Short 30y bunds vs OIS	14-Jan-22	11-Feb-22	-3 bps			
10. Sell 3m10y USD straddles (delta hedged)	14-Jan-22	14-Feb-22	-25 bps			
11. Jun/Dec-22 FOMC OIS steepener	28-Jan-22	01-Mar-22	+13 bps			
12. Long NOK 2s10s steepeners	21-Jan-22	04-Mar-22	-10 bps			
13. Long BAZ2/Z3 steepeners	28-Jan-22	09-Mar-22	-16 bps			
14. Belly tightening 3s10s30s UST spread fly	11-Mar-22	24-Mar-22	+12 bps			
15. Sell 5y TIPS hedged with Brent futures	18-Mar-22	11-Apr-22	+53 bps			
16. Sell 6m5y5y USD midcurve receivers	28-Jan-22	14-Apr-22	+24 bps			
17. Buy 3m1y USD A/A+20 payer spread	18-Mar-22	14-Apr-22	+8 bps			
18. Long 2s10s EUR OIS flatteners	25-Mar-22	14-Apr-22	-10 bps			
19. Short 5y OAT vs EU	01-Apr-22	25-Apr-22	-4 bps			
20. Sell 1y1y TIPS	14-Apr-22	27-Apr-22	-25 bps			
21. 2s3s UST swap spread curve steepeners	25-Mar-22	13-May-22	-4 bps			
22. Buy 3m 2s10s USD curve floor vs sell 3m2y A+30 payer	20-May-22	07-Jun-22	-6 bps			
23. Sell ATM 6m expiry 2y2y midcurve receivers (levels in total return, %)	01-Apr-22	10-Jun-22	+30 bps			

Note: Potential profit/loss estimates are given as per unit of duration risk, through yesterday's close.

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, Praveen Korapaty, George Cole, William Marshall, Avisha Thakkar, Simon Freycenet and Ravi Raj, 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.

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