

US Rates Weekly

2026 Outlook – Battle for Accommodation



CITI'S TAKE

We hold a bull steepening bias into 2026 due to growing risks for the unemployment rate to move higher either due to increased layoffs or a continued bounce back in the labor force participation rate. A more dovish Fed Chair will take the lead at the same time seasonally adjusted continuing claims tends to move higher. The market should price in more cuts for H2 2026, which will keep the belly anchored. The curve should steepen further with the strong economic backdrop, combined with a dovish Fed and increasing concerns around supply. We continue to see room for more widening in front-end and belly swap spreads on the back of the Fed's large Reserve Management Purchases, which may drive more UST ASW buying by bank portfolios over time.

TIPS — Real rates look attractive heading into 2026 on the back of the recent selloff. Breakevens look cheap but can move lower initially if the unemployment rate continues to move higher. We expect the inflation curve to steepen as we head deeper into the cutting cycle.

Supply and Demand — We examine supply and demand for USTs in 2026.

Short-end — What impact will the Fed's Reserve Management Purchases (RMPs) have on repo and T-bills into 2026? The reserve creation, on the back of this, keeps us relatively optimistic on front-end markets, especially in H1.

Vol — Vol can stay suppressed initially, but we see scope for modest rebound under a new dovish Chair and unresolved tail risks. We are mildly constructive on long-dated vol and see room for intermediate left-side receiver skews to outperform. 5s30s curve vol can stay rich relative to 2s10s through early next year.

Agency Debt — Agency benchmark spreads can stay tight with net agency supply nearly unchanged or only marginally higher.

\$SSAs — Demand for \$ SSAs is likely to remain strong in 2026 owing to attractive swap spreads, elevated outright yields, and even more negative NCR. Their swap and Treasury spreads are likely to stay in right range though the decline of bank treasury demand at longer maturities might pose a challenge for their swap spreads in 5y+.

* Watch for our recommended trades for 2026 in our next weekly in early January.

Please join us for a 30-minute call Dec. 15, 2025, at 10am NY time/3pm London time to summarize key 2026 views from our global rate strategists: [Global Rates 2026 Outlook Call](#).

Note: Clients subject to MIFID II unbundling should have a full-service research agreement in place to participate. If unsure about your agreement, please check with your in-house, sell-side research coordinator, or with the event organizer.

Note: Futures trading involves substantial risk of loss

Jason Williams^{AC}

+1-212-723-1837
jason1.williams@citi.com

Mike Chang^{AC}

+1-212-816-8718
mike.chang@citi.com

Raghav Datla^{AC}

+1-212-723-4813
raghavendra.varma.datla@citi.com

Alejandra Vazquez Plata^{AC}

+1-212-723-0486
alejandra.vazquezplata@citi.com

Jabaz Mathai^{AC}

+1-212-723-1839
jabaz.mathai@citi.com

*With thanks to
Simran Bedi*

See Appendix A-1 for Analyst Certification, Important Disclosures and Research Analyst Affiliations.

Citi Research is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Certain products (not inconsistent with the author's published research) are available only on Citi's portals.

Contents

Contents	2
Summary of Rate Expectations	3
Overview: Outlook 2026	4
Is the easing cycle over?	4
2026 Rates Forecasts	9
5s30s still has room to run	10
How much pension fund demand is there terminally?	12
If the Fed buys T-bills, won't Treasury just issue more?	13
Our bullish case for swap spreads into 2026	14
TIPS: From TIPS to breaks	21
TIPS supply-demand dynamics	21
Inflation expectations in 2026	23
Supply and Demand for Treasuries	30
Supply Outlook	30
No easy supply solution for Treasury	30
In the future, Treasury will have to lean on 3y and 7y paper	31
Path for T-bills and the TGA balance still somewhat unclear	31
Supply projections and fiscal expectations	32
Demand Outlook	34
Short-end Outlook	39
What drove repo higher in 2025?	39
Reserves set to move higher with the Fed's new RMPs	39
SOFR/IOB upside pressure likely to return in H2-26	42
Fed Funds likely to stay at IOB in H1-26	43
Will the Fed adopt a new target rate?	44
Other Fed tools into 2026	46
eSLR reform and other long-term regulation changes	46
Vol Outlook: Mind the tail risks	48
2026 US Agency Debt Outlook	57
US Agency Chart pack	61
Agency Bullets	61
Agency Callable Bonds	61
\$ SSA Outlook	63
\$ SSA net supply to turn even more negative	63
RV thoughts	69
US Rates Strategy Model Portfolio Update	72
Outstanding Trade Recommendations	73
Appendix I: Model Portfolio Closed Trades	75
Appendix A-1	76

Summary of Rate Expectations

Figure 1. Summary of views

Factor	View	Recommended Positions
Duration	Lightly Bullish	Long Z6 SOFR vs selling midcurve calls
Yield Curve	Steeper	5s30s steepeners
Swap Spreads	Wider	Long 2y spreads, 20s30s spread flatteners
Gamma	Neutral	Long 2s5s10s conditional fly, 5s30s calendar spread steepener
Vega	Long	Long 10y10y vol hedged with rec swap, Long 1y10y straddle and short 3m10y straddle
Inflation	Lower	
Front-end	Higher repo	Z5/Z6 conditional bull steepener

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Note: See Figure 142 for trades pricing.

Note: Futures trading involves substantial risk of loss.

Figure 2. Rates forecasts for 2026

US Rates	Spot	Forwards	Base Case	Bull Case	Bear Case
2y	3.54%	3.61%	2.90%	2.45%	3.80%
5y	3.73%	3.93%	3.20%	2.90%	4.10%
10y	4.16%	4.38%	3.75%	3.50%	4.45%
30y	4.80%	4.88%	4.45%	4.10%	4.75%

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research.

Note: Spot and YE forwards as of December 11, 2025.

Figure 3. Supply forecasts for 2026

	FRN	Nominal Treasuries								TIPS			Gross Supply to pvt (A)	Redemption (from pvt) (B)			Net Issuance (A-B)	Treasury Buybacks (C)		Net Issuance incl. buybacks (A-B-C)
	2y	2yr	3yr	5yr	7yr	10yr	20y	30yr	5y	10y	30y			Nominals	TIPS	FRNs		Liquidity Support	Cash Management	
2026																				
Jan-26	30	69	58	70	44	39	13	22	0	21	0		366	40	55	0	271	15	0	256
Feb-26	28	69	58	70	44	42	16	25	0	0	9		361	232	0	84	45	15	0	30
Mar-26	28	69	58	70	44	39	13	22	0	19	0		362	317	0	0	45	13	26	7
Apr-26	30	69	58	70	44	39	13	22	26	0	0		371	184	31	86	70	13	43	15
May-26	28	69	58	70	44	42	16	25	0	19	0		371	84	0	0	287	12	0	276
Jun-26	28	69	58	70	44	39	13	22	24	0	0		367	326	0	0	41	13	25	3
Jul-26	30	69	58	70	44	39	13	22	0	21	0		366	178	38	86	64	15	0	49
Aug-26	28	69	58	70	44	42	16	25	0	0	8		360	247	0	0	113	12	0	101
Sep-26	28	69	58	70	44	39	13	22	0	19	0		362	187	0	0	175	10	25	141
Oct-26	30	69	58	70	44	39	13	22	26	0	0		371	45	43	0	283	18	0	265
Nov-26	30	71	60	71	46	44	17	26	0	19	0		384	398	0	86	-100	9	0	-109
Dec-26	30	73	62	72	48	41	14	23	24	0	0		387	198	0	0	189	9	25	156
Total	348	834	702	843	534	484	170	278	100	118	17		4,428	2,435	167	342	1485	152	143	1,190

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Note: Liquidity support utilizes securities of all maturities across nominals and TIPS, while cash management generally utilizes one-month to two-year maturities.

Overview: Outlook 2026

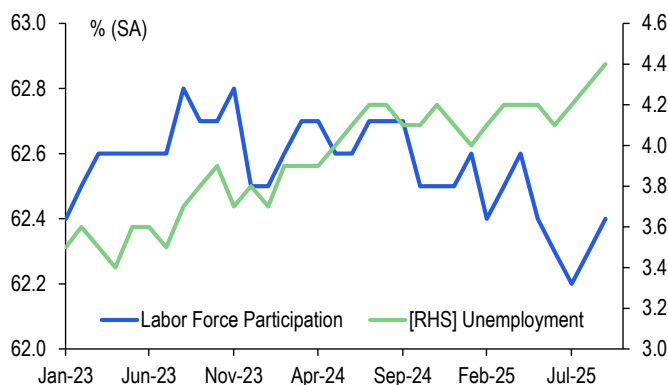
Jason Williams

We hold a bull steepening bias into 2026 due to growing risks for the unemployment rate to move higher either due to increased layoffs or a continued bounce back in the labor force participation rate. A more dovish Fed Chair will take the lead at the same time seasonally adjusted continuing claims tends to move higher. The market should price in more cuts for H2 2026, which will keep the belly anchored. The curve should steepen further with the strong economic backdrop, combined with a dovish Fed and increasing concerns around supply. We continue to see room for more widening in front-end and belly swap spreads on the back of the Fed's large Reserve Management Purchases, which may drive more UST ASW buying by bank portfolios over time.

Is the easing cycle over?

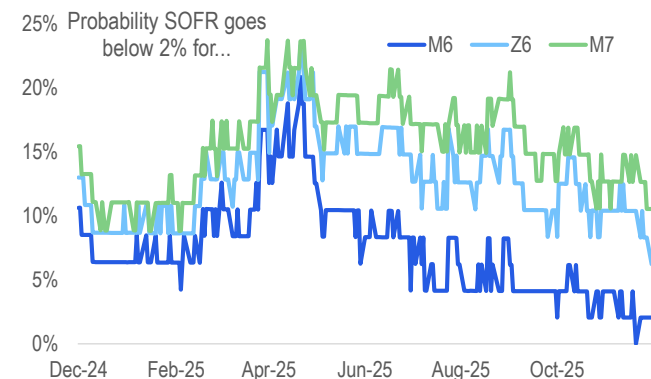
We are biased for the Treasury curve to lightly bull steepen next year against forwards, roughly in line with our views over the past two months (see [US Rates Weekly - Trade picking 2025](#) and [US Rates Weekly - Pausing the pause?](#)). The market is underappreciating the risk of a non-linear rally in the front-end that a more dovish Fed chair can muster with a lightly rising unemployment rate. A generally dovish Fed Board will be able to push Fed funds into accommodative territory (sub 3%). Risks remain skewed due to a weakening labor market. Indeed, Fed Chair Powell clearly summarized our view saying it *"doesn't feel like a hot economy that wants to generate Philips curve inflation"*, at the December FOMC presser. The recent rise in the unemployment rate, to unrounded 4.44%, likely pushed the committee to cut this week. More importantly, the recently rising labor force participation (LFP) rate sets up a possible omen for next year (Figure 4). Normally a rising LFP is 'good', but the recent increase is simply a rebound, with significant room to go until reaching levels from earlier this year. This implies multiple paths to a higher UR, either via layoffs or a rise in LFP.

Figure 4. The labor force participation rate started to rebound in September which could push UR up in 2026



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 5. We expect downside tail risk pricing to move higher which can pull forwards down throughout 2026



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

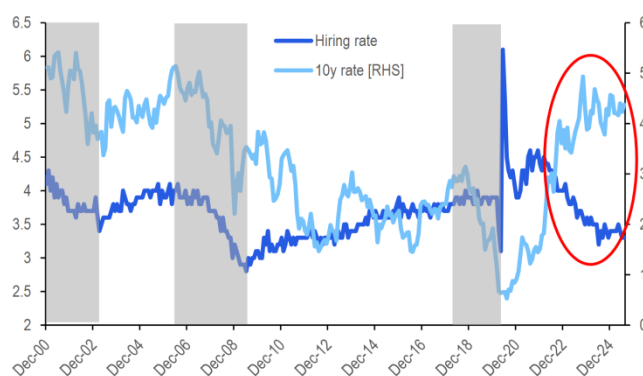
We see an asymmetry where there is little to no upside risk for future Fed hikes, but there are multiple paths for further cuts to be priced, with much of this materializing in the second half of 2026/early 2027. Or, in other words, the market thinks the inflation side of the mandate still matters but we believe the unemployment rate will dominate the FOMC in the year ahead. See our inflation section for why we see a relatively orderly 2026 in store. Hence, forward rates, including 10y USTs, should price in more downside tails during the year due to

rising unemployment risks (Figure 5). To be clear, we do not expect rates to trend only one way in 2026. Increased fiscal stimulus and growth on the back of AI, combined with somewhat challenging inflation prints in Q1, will add turbulence to the rates path ahead. Indeed, the sell-off over the past few weeks, up to the FOMC, is a reminder that the path will be volatile. We think the recent move has been driven by a perfect storm of global inflation fears, seasonally bearish trends in USTs in December (which tend to revert in January), and few bullish catalysts in the next few weeks, including the January FOMC. We entered a covered call (Jan expiry 2y midcurve calls) to hedge our core long view last week in anticipation of weakness, which could continue through Q1 (see [US Rates Weekly - December FOMC Preview](#)). Note: Futures trading involves substantial risk of loss.

Below we highlight the key themes for 2026 that will drive Treasury yields:

- **The next Fed chair may not be able to take their foot off the gas pedal.** There is a strong possibility that Chair Powell has delivered the final rate cut of his term (note our economists' base case is for the UR to move higher, justifying sequential rate cuts down to 3%). However, it will not be that easy for the next Fed Chair to continue a possible pause through year-end 2026. The slowing hiring rate, which started long before the April tariffs, is unlikely to rebound due to the marginal decline in yields so far (Figure 6). The only way for the Fed to control 5y and 10y yields, especially with a bull steepening backdrop, is via more cuts not less. Or in other words, more cuts will likely be required, or at least the expectation of future cuts at a minimum, to help stimulate the jobs market in 2026. Even if rate cuts are not rapidly delivered in H2 2026, cuts will likely need to be guided into 2027. This anchors the belly of the Treasury curve, which is our favored position for longs.

Figure 6. Typically, the hiring rate does not bottom out without a contraction in yields – we are likely far off



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 7. Markets are pricing in ~30bp of hikes in 2027 and 2028 – these forwards should realize lower by YE26



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

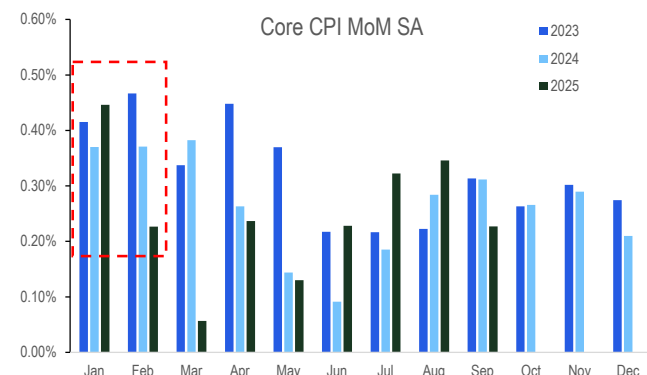
Source: Citi Research, Bloomberg; Note: The zero point in the x-axis represents YE24 for the dark blue line (Z5/Z7). This is the analog of where Z6/Z8 is today. We expect it to move lower into 2026 (e.g. this curve should invert).

- **A possible Kevin Hassett-led Fed limits upside risks for front-end.** As we go to print, Kevin Hassett is likely to be the next Fed chair based on prediction markets and recent commentary from President Trump. While he is only one voice on the committee, he is a powerful one. The Chair delivers testimony to congress (Monetary Policy Report) and runs the press conference following the FOMC meetings. Indeed, the [Cleveland Fed](#) has done research showing there is an impact from the congressional testimony. In another example, [NBER recently](#) argued that political pressure from President Nixon increased price pressure due

to an overly dovish stance. A more dovish Chair should be able to influence policy towards accommodative, from neutral, if the unemployment rate moves higher. More importantly, we struggle to see plausible economic backdrops where a Hasset led Fed would hike rates. For instance, the SOFR Z6/Z8 curve is roughly 30bp positive, which we expect to be materially flatter, or inverted, by the end of 2026. For example, the Z5/Z7 curve was also positive entering 2025 and about to end the year deeply negative (Figure 7). *Note: Futures trading involves substantial risk of loss.*

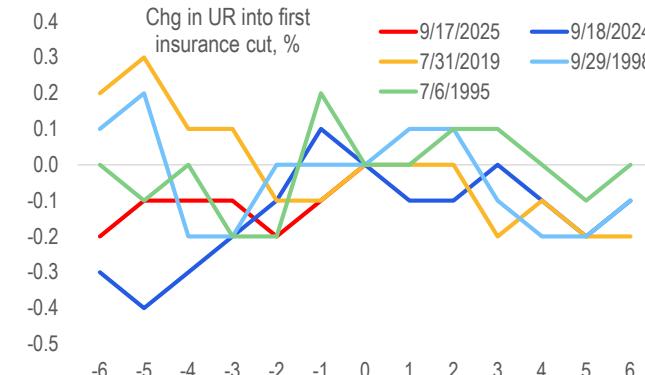
- **Tariffs have not materially passed through into prices – implies risks for a higher UR.** Weakening consumers may be unable to accept large price increases, which is why goods inflation has been somewhat contained post-tariffs. Therefore, tariffs have likely been paid for by corporates which means more margin compression and some risk of job loss into 2026. Indeed, we've shown before that a 1% increase in taxes, relative to GDP, can justify a 50bp increase in the unemployment rate, at least historically (see [US Rates Weekly - Lower Yields, But At What Cost?](#)). Some corporates may try to pass price increases in January given the start of the new year, and inflation has tended to be high that month on a residual basis, which may pressure consumers further (Figure 8).
- **The market is over indexed on an insurance cycle.** The market is downplaying the risk of a slowdown worthy of more rate cuts than a typical insurance cycle in our view. The insurance rate cuts in the '90s, '19, and '24 were relatively easy for the Federal Reserve since the unemployment rate did not move materially higher once they started easing (Figure 9). The full cycle adjustments, such as '01 and '07-'08, were also straightforward since data clearly justified a quick succession of cuts. But a middle ground, where UR can grow but slightly, reaching a high 4% or low 5% handle seems very plausible to us and is underappreciated by the market. This, combined with a more dovish Fed chair, should drive the belly to outperform and push forward 2027 Fed pricing towards and below 2.5%.

Figure 8. Core CPI has tended to be strong at the start of the year the past few years -this could push rate H2 2026 cuts into H2 2026 / H1 2027



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 9. The Fed was not put in a challenging position in previous 'insurance' rate easing cycles. This time will likely be different – UR can move up and force further easing.



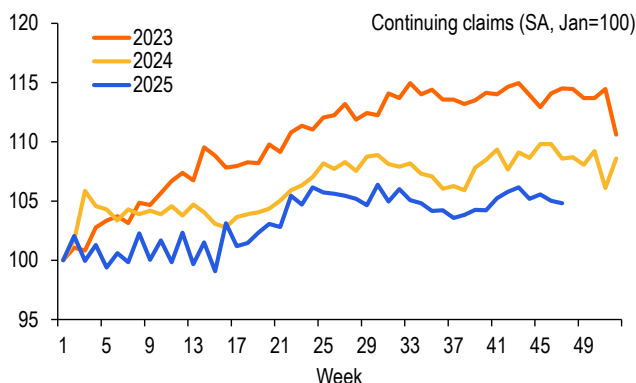
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg; Note: A positive number to the left of zero represents a drop in UR into the first cut. A positive number to the right of zero represents an increase in the UR relative to the first cut. We report the latest UR release at time of the FOMC meeting.

- **Next Fed Chair comes in with seasonally higher continuing claims.** The more hawkish Powell acts today give room for his successor to cut rates more. Strong residual seasonality in CPI in Q1 may force Powell's hand to pause (Figure 8). This

has us leaning for more cuts to be priced into H2 2026. Indeed, residual seasonality in continuing claims data should give strong support for the next Fed chair to cut rates entering the June FOMC (Figure 10). This year, 10y yields followed the residual seasonality in weak claims data entering the end of the US school year and rebounded as the new school year started at the end of August.

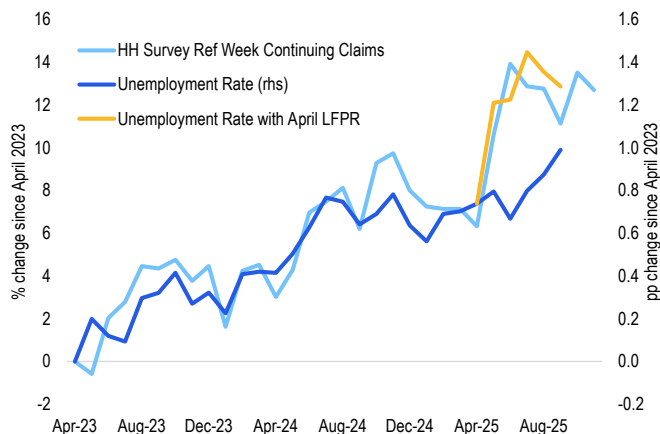
- **Continuing claims implies a much higher unemployment rate as participation normalizes.** The unemployment rate can move higher next year due to a normalization of the labor force participation rate. The LFP likely fell in the spring due to slowing new immigration (lowering the average participation rate) and due to seasonal adjustments due to weak hiring. However, one of our economist's favorite charts is ours too – the drop in LFP masked the weakness in the claims data. In Figure 11, we report the divergence between UR and claims was mostly due to the, we think, temporary drop in LFP. Hence some normalization implies maybe up to a 40bp increase in UR next year (if not more with claims likely to continue rising).

Figure 10. The new Fed Chair in 2026 will come online right when continuing claims (SA) tends to go higher due to residual seasonality and the weak hiring backdrop



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 11. Continuing claims suggest the unemployment rate should be much higher as labor force participation normalizes in the months ahead



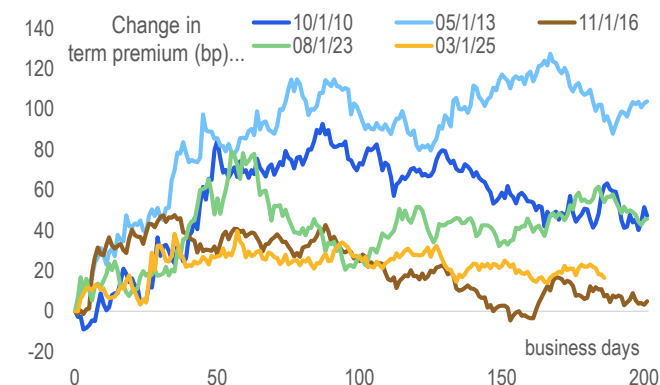
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, BLS; Note: For more details see [US Economics - NFP Preview – Unemployment rate to rise again in November](#)

- **Term premium is unlikely to go materially lower next year.** Term premium moved higher in April after the tariff VaR shock and based on some models, this has started to normalize. In Figure 12, we show an illustrative example of how term premium tends to take a year, if not more, to normalize after a “shock.” For “term premium” we report the residual between the 2s10s curve and 2y yields on a sample from 1995. Note that the residual has been declining since April despite 2s10s curve trading sideways due to the rally in 2y yields. From here, we struggle to see a large compression in term premium in 2026. For instance, the large term premium compression from 2010 to 2020 could be somewhat blamed on the decline in the EUR/strengthening of the dollar. At the same time, global yields compressed materially as the ECB went to zero and then negative (Figure 13). This likely pushed investment into the US to chase positive yields. Now, with the dollar weakening, there are risks that term premium can remain elevated, especially with globally steep yield curves.

- **Treasuries may be a better equity hedge under the next Chair.** 10y USTs were a poor equity hedge in the April tariff VaR shock since the inflation shock tied the

Fed's hands to ease. Presumably, this risk remains in the first half of 2026 given the Fed's growing reluctance around further cuts, combined with the inflation backdrop. However, this risk should dissipate under the next Fed chair. We are not arguing this would be a large flattener. But presumably, the beta in the long end to equity weakness may grow from last year. Still, we think the front-end and belly of the curve remain the best part for equity hedges.

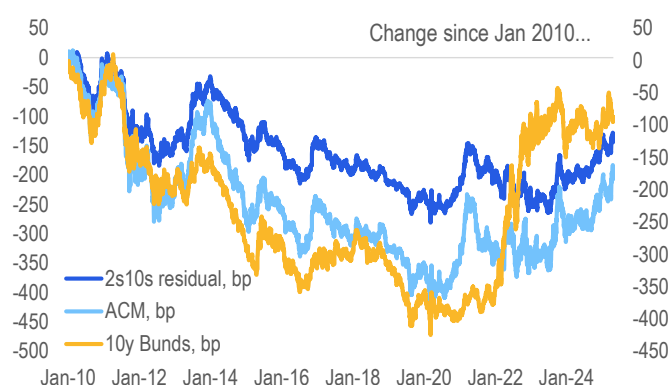
Figure 12. Term premium in 2s10s is not that high post the tariff shock as 2y yields rallied. Typically, term premium takes a long time to revert after a shock, but we struggle to see term premium moving below April 2nd levels next year



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 13. The EUR depreciation of 2014–2015 helped compress UST term premium. Will the reverse keep term premium more elevated?



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

- **Coupon supply will go higher at some point.** Auctions have tended to push up yields, all else equal, over the past two years (Figure 14). Yields in aggregate have moved higher on 'supply' days while yields have cumulatively fallen on 'non-supply' day (we define a supply day as any coupon auctions except FRN). This has been less true recently, but we fear this can return in 2026. For instance, we continue to expect coupon auction size increases at the Nov26 refunding, with a risk at the Feb27 meeting. The Treasury should focus on increasing 3y and 7y notes, which have significant room to grow, in our view. Regardless of the absolute tenor, discussion of coupon increases will be in the background throughout 2026, which increases the risk for a buyers' strike and thus justifies more term premium. Having said this, net supply (including buybacks) for CY26 is lower than CY25 due to increased redemptions, specifically the 2y notes, which were increased under Treasury Secretary Yellen (see the supply section).
- **Fiscal backdrop supportive for a steeper curve.** We expect the IEEPA tariffs to be overruled at some point, which may turn attention back towards the poor fiscal backdrop. While the administration can substitute some of the tariff revenues from IEEPA, we don't think much is needed to drive increased term premium. There is also the possibility for another Republican reconciliation bill, although magnitude would likely be much smaller than the OBBA.
- **Could the Fed or Treasury flatten the curve?** Will a Kevin Hassett-led Fed try to flatten the curve, perhaps with a QE5 type program? We strongly disagree with such a view. The board members appointed by President Trump appear strongly against growing the Fed's balance sheet, as we mentioned earlier. Buying long-end USTs, perhaps to bring down mortgage rates to stimulate the economy at some point, would likely be a last resort after cutting below 2%, perhaps requiring cutting to the zero lower bound first. Turning to Treasury, their interest

expense will only come down if the Fed materially cuts rates. For instance, a 100bp cut in Fed funds can save Treasury (+Fed due to paying interest on reserves) ~\$100bn a year in deficits. Lowering 10y yields would have a much smaller effect. Indeed, if Treasury Secretary Bessent wanted to flatten the curve, he would likely have discussed cancelling the 20y bond or shifting long-end issuance into the front-end. Instead, Treasury opened the door for coupon auction sizes increases in late 2026/early 2027 at the last refunding (see the supply section further below and [US Rates Strategy - Q4 refunding – coupon increases late next year?](#)).

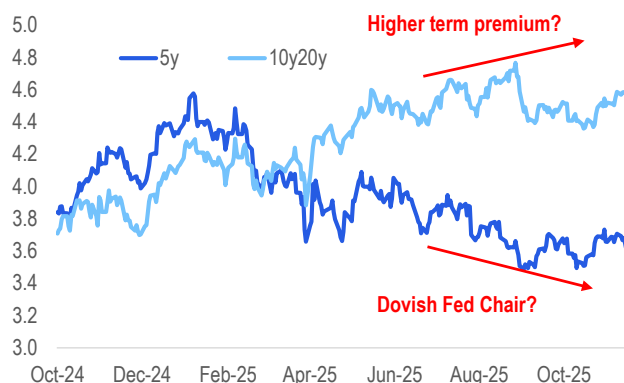
Figure 14. Until recently, when presumably some steepening positions covered, the long-end sold off on supply days



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 15. 5y has outperformed while long-end rates have struggled to find a sustainable bid – we think this pattern can continue into 2026



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

2026 Rates Forecasts

One theme we expect to continue into 2026 is belly outperformance combined with a light steepening (Figure 15). The market should price in the risk for a higher unemployment rate combined with a dovish Fed Chair. Reasonably strong economic growth sets up the curve to steepen further still. In Figure 16, we report our 2026 rates scenarios, including a bull and bear case. Our base case assumes that 1y Fed funds swaps will move down to ~2.5%, with forwards for 1y1y currently at ~3.2%. Mechanically, this can be accomplished via more Fed cuts than forwards imply for H2 of 2026. Or more likely, a combination of rate cuts next year to 3% or 2.75% with the market pricing an additional cut in 2027, for a trough of around 2.5%. Our base case assumes a lightly steeper curve than forwards, which is driven by historical relationships combined with increased risks for term premium to move higher (Figure 17). Note that 1y10y swaps is roughly 10bp above spot as we go to print.

For our bull scenario, we assume 1y Fed funds swaps would move towards 2% by year-end 2026, roughly 100bp beyond current forwards. The driver would be an unemployment rate moving above 5% along with generally contained core inflation prints. This scenario would not need a full recession to be realized, but merely increased risks to tilt front-end forwards lower. A greater than 5% UR would allow a dovish Fed chair significant leeway to cut rates into accommodative territory. We are not saying all cuts need to be done in 2026, merely that forward Fed fund expectations would converge towards 2%. The curve would be steeper in this scenario as well. There is a risk for a bull flattening, but we generally see this as an orderly economic scenario, which would not warrant a sharp flattening.

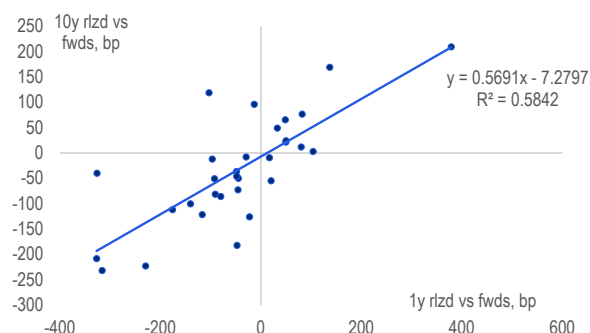
Figure 16. 2026 US Rates Forecast

YE 2026

Tenor	Base Case	Bull	Bear
2y	2.90	2.45	3.80
5y	3.20	2.90	4.10
10y	3.75	3.50	4.45
30y	4.45	4.10	4.75

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 17. Typically, 10y yields do not rally as much as front-end when front-end realizes below implied forwards



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Our bear scenario assumes the Fed easing cycle is already over, which pushes up front-end Fed expectations above forwards. This should drive the curve flatter. We struggle to see 10y yields moving well north of 4.5% on a structural basis. For instance, 10y USTs reached 5% in late 2023 when there was significant risk the Fed would hike to or above 6%. This time, it is challenging to find a Fed path for 2026 that would require rate hikes. Still, the path for 2027/2028 can include more term premium. For instance, there are risks to a bear steepening especially towards the back half of next year as coupon size increases get closer. Asset managers could decide to step back and drive a light buyers' strike, like in August 2023.

Turning to real yields, we expect 10y TIPS breakevens to head towards 2.4% next year, which implies real yields look particularly attractive entering 2026. There is scope for the TIPS breakeven curve to steepen from here which could put downward pressure on long-end real yields relative to nominals. Presumably if the economy does not fall in a recession, there is scope for breakevens to remain somewhat supported, as recession tails weigh down inflation expectations. This is supportive for TIPS in our base case. Still, our bull case may bring in heightened risk of recessionary fear, which is a risk to tighten TIPS BEs, implying TIPS underperformance. Having said that, long-run growth is likely to remain high in our base case, even with a small increase in UR, this should keep 5y5y or 10y20y real yields high to some extent (see the TIPS section below for more).

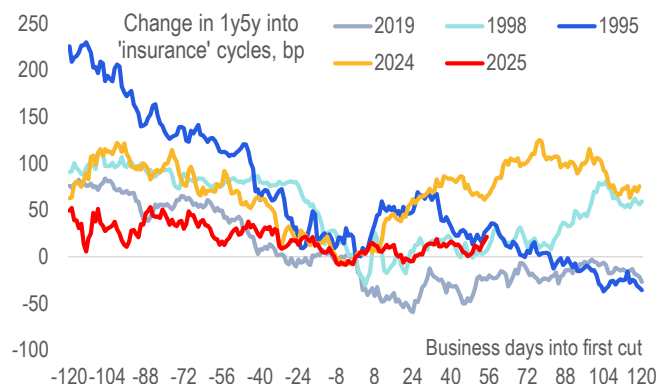
5s30s still has room to run

An economy with strong growth, an overly dovish Fed chair, and increasing Treasury supply should drive a steeper curve. It is also challenging to see global term premiums materially compress from here, which should add some upward pressure on the long bond. The key pushback we've received on our steepener view is the historic flattening that is usually associated with 'insurance' Fed cycles. Typically, that flattening is due to a large selloff in front-end yields (Figure 18). However, this time is different – a sustained selloff will be challenging with the Fed composition.

We prefer 5s30s steepeners over 2s10s, due to the less punitive carry compared to 2s10s. This is especially true now that we may have had the last cut of Chair Powell's term. In our economic view, 5s30s steepeners do not give up much upside compared to 2s10s, unless we are wrong and a recession is imminent. For instance, in Figure 19, we report the 1m contemporaneous change in 2s10s, 5s30s, and 10s30s curves on a 25bp, 50bp, 75bp, and 100bp rally in 2y yields. We find that 5s30s curves tend to steepen relatively in-line with 2s10s on large moves in 2y

yields; this is also true risk-adjusted. Or in other words, 5s30s should steepen if data turns at some point in late 2026 or there are expectations for a turn in 2027.

Figure 18. Typically, the curve flattens in insurance cycles, led by the front-end selling off. We see little scope for a front-end selloff this time around.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 19. 5s30s has historically steepened in large bullish moves, at a similar magnitude as the 2s10s curve.

1m steepener returns when 2y rallies by...

Average, bp (Risk-adj)

Avg	25bp	50bp	75bp	100bp
2s10s	5.7 (0.3)	15.4 (1.0)	25.6 (1.9)	35.1 (1.5)
5s30s	11.6 (0.9)	16.6 (1.4)	24.7 (1.9)	33.4 (0.9)
10s30s	6.7 (0.8)	7.9 (0.9)	12.4 (1.2)	16.7 (0.7)

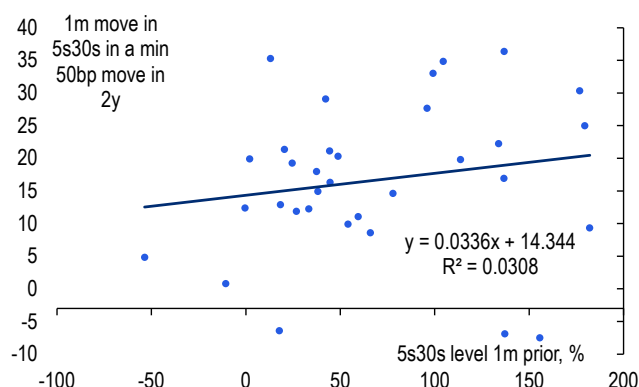
Median, bp (hit rate %)

	25bp	50bp	75bp	100bp
2s10s	4.6 (64%)	16.1 (82%)	27.5 (92%)	45.0 (100%)
5s30s	10.8 (86%)	16.9 (91%)	25.1 (92%)	50.9 (75%)
10s30s	6.6 (88%)	8.2 (88%)	14.3 (92%)	26.9 (75%)

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg; Note: Returns are rolling using 3m forward starting swaps which are rolled every three months. Sample is 1995 to present.

We have also received some pushback given that 5s30s is now back over 100bp. However, we found that the starting curve level had no bearing on how much 5s30s steepened in bullish moves. In Figure 20, we regress the 1m contemporaneous move in 5s30s conditioned on a 50bp move lower in 2y yields against the starting level of the 5s30s curve. There is no statistical evidence to indicate that the curve is less likely to steepen at a higher starting level. We found similar results in other bullish moves in 2y yields. Our analysis is done on swap rates going back to 1995. We account for carry and roll by using a rolling return series of 3m forward starting curves (i.e., the series is generated by rolling 3m forward 5s30s curves every three months). We identify episodes as the first occurrence of the 2y rally using daily data and keep the samples independent. Once a month passes, the event can then be retriggered. Presumably, the UST curve has even more room to steepen, relative to swaps, if 30y spreads widening move comes to an end at some point in 2026.

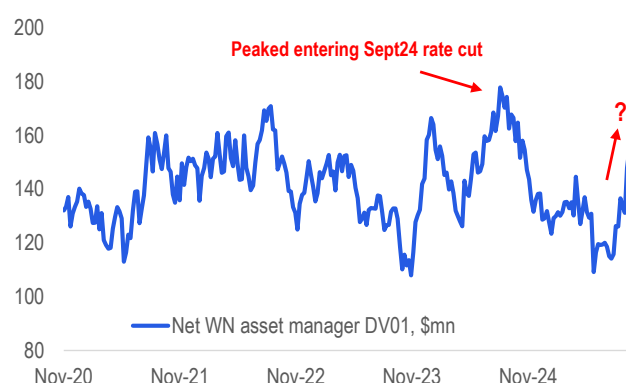
Figure 20. Bull steepening moves, historically, have not been a function of starting curve level



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 21. The asset manager increase in their net long position in WN futures may be topping out entering 2026



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Note: Last data print is October 14th due to the government shutdown

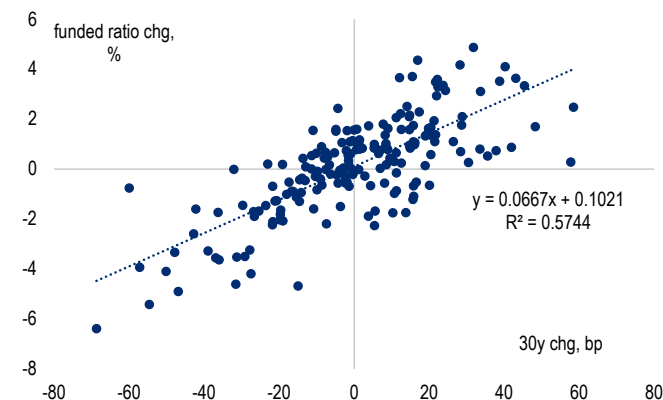
Source: Citi Research, Bloomberg

Finally, on the curve, we want to highlight how we think the risks of a continued bull flattening are somewhat limited. We viewed the flattening in 5s30s after the end of August, when it moved from ~125bp to sub 100bp by October, to be driven by steepener covering and presumably asset managers, who were likely underweight duration, moving to neutral. Indeed, asset manager positioning in WN futures has been sideways since the recent short covering. The risk of a bull flattening likely requires a large duration extension by AMs, but we do not expect this. Asset managers closed longs after the September 2024 'insurance' cycle was cemented, although the 2024 election win of President Trump was also part of the equation. Presuming we are not entering a full recessionary environment, we think asset managers will continue to put cash to work on extending out the risk curve as opposed to the duration curve in 2026.

How much pension fund demand is there terminally?

One large structural buyer of long-end USTs is corporate defined benefit pension plans, presumably holdings STRIPS. For some background, the top 100 corporate DB plans hold ~\$1.3tn in assets, per [Milliman](#). As of November, Milliman reported a funded ratio of 107.1%, and earlier in the year they estimated that ~25% of assets were held in equities. We think roughly two-thirds of these types of plans follow a glide-path, which means they would rotate from equities to fixed income on a preset schedule as funded ratios move higher. The entire corporate DB universe is around \$2.5tn to \$3tn, per the Federal reserves' flow of funds report.

Figure 22. Typically, corporate defined benefit plan funded ratios decline in rates rallies.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg; Note: Data is monthly changes back to 2010.

Figure 23. Below are some rough estimates for where the funded ratio would go in a rally/sell-off UST scenario as a function of equities

30y/SPX	6,100	6,300	6,500	6,700	6,901	7,100	7,300
4.25	102.0	102.6	103.1	103.7	104.3	104.8	105.4
4.50	103.6	104.2	104.7	105.3	105.9	106.4	107.0
4.80	105.5	106.1	106.7	107.2	107.8	108.3	108.9
5.00	106.8	107.4	107.9	108.5	109.1	109.6	110.2
5.25	108.4	109.0	109.5	110.1	110.7	111.2	111.8
5.50	110.0	110.6	111.1	111.7	112.3	112.8	113.4

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg, Milliman. Note: we regress m/m chg in funded ratio vs m/m chg in 30y UST and SPX, we then use end of Nov-25 levels and the regression coefficients to estimate funded ratio levels for various 30y/SPX combinations. Red cells show funded ratios above 107.1% (last level).

We see roadblocks for further pension fund demand over the next two years which could steepen the curve. First, most 'glide-path' type targets will not bring the equity allocation to zero but somewhere around 15-20%. This implies only a 5% rotation from equities to fixed income in the coming years, which equates to only \$65bn to \$130bn in fixed income demand. Second, corporate DB pension plans typically allocate their fixed income position using a 2:1 ratio for corporate bonds and USTs. This implies rather limited demand for long-end USTs. This is generally paltry relative to Treasury's \$276bn 30y gross supply. Third, some corporate plans are reopening, having previously been closed to new entrants, to help alleviate wage pressure and given funded ratios are well over 100%. This would lower funded ratios, meaning further risk reduction is limited for some fraction of the universe.

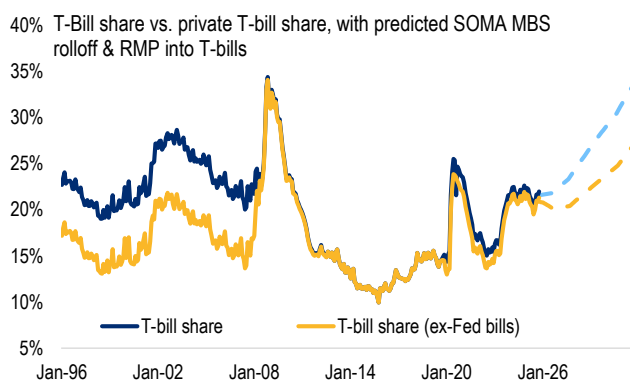
Finally, in a UST rally, we think demand will be significantly reduced as funded ratios will fall from the liability side, although this is a function of stock returns which has offset much of the yield decline (Figure 19). This we think is underappreciated by the rates market.

If the Fed buys T-bills, won't Treasury just issue more?

The Fed ceased balance sheet normalization (QT) this month (Dec25) and now MBS prepayments are rolling into T-bills (~\$17bn/month). In addition, the Fed announced and started Reserve Management Purchases (RMPs), where they will be growing the SOMA portfolio with a combination of T-bills and possibly short-dated coupons out to the 3y point. The size starts at \$40bn/month into the April 15th tax date at which point we expect them to cut down to \$20bn/month. This will grow bank reserves in the system, which we forecast to move back above \$3tn by year-end 2026 (see the Short-End section). All else equal this could increase bank appetite for UST ASWs if large banks see an inflow of reserves. Generally, we see this supportive for asset swaps (see below for our spreads discussion).

There are two questions given the large size of the Fed's RMP. First, wouldn't the Treasury only lean on T-bills going forward? Second, would the Fed want to increase T-bill share even faster? On the former, we think there is a limit to Treasury leaning on growing T-bill outstanding, even if the Fed's share of T-bill ownership grows. For example, in Figure 24, we report how T-bill share would grow, if coupon sizes were not increased, and we project out how the share looks if the Fed holdings are excluded (gold line). We think Treasury should look at the full T-bill share, as presumably there is rollover risk should the Fed ever look to run an operation twist via selling or rolling off T-bills (we did a further deep dive in [US Rates Weekly - Pausing the pause?](#)).

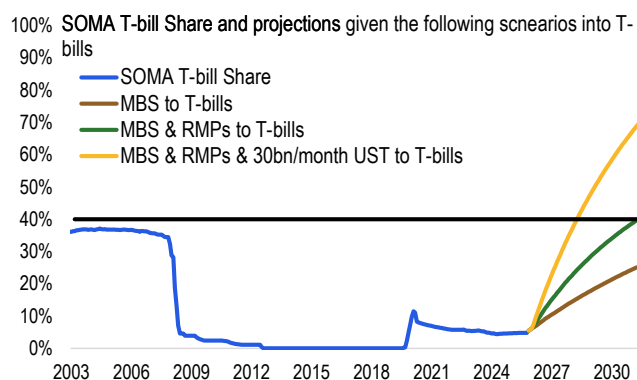
Figure 24. T-bill share is already historically high, but there is clear scope for the Fed to increase their ownership.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Treasury, NY Fed

Figure 25. The Fed could quickly increase T-bill share by reinvesting rolled-off coupon USTs.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: The blue line represents the current SOMA portfolio T-bill share. The brown line is if SOMA only rolled off MBS into T-bills. The green line is RMPs (sizes outlined above) into T-bills in addition to MBS roll-off into T-bills. The yellow line is 30 billion per month of coupon USTs rolled into T-bills in addition to MBS and RMPs into T-bills.

Source: Citi Research, Treasury, NY Fed

On our latter point, the Fed may be incentivized to move their T-bill holdings above the ~20% proportional allocation. For example, the October FOMC minutes highlighted that "Some participants indicated that they favored a larger-than-proportional share of Treasury bills, citing the benefits of having even greater flexibility than available under a proportional allocation." This helps the Fed's asset

liability mismatch, as they pay out an overnight rate and earn interest from the SOMA portfolio. Further, there have been discussions, for example, a recent [Fed paper](#), around how this would allow the Fed flexibility to hold a “war chest” for future operation twists without expanding the Fed balance sheet. Indeed, this paper found there are benefits for the Fed to hold up to 40% of their USTs in T-bills, relative to the Treasury’s ~20% of outstanding. Operationally, to achieve this in any reasonable timeframe the Fed may let some percentage of their coupon USTs roll-off to be reinvested into T-bills (Figure 25). When the Fed rolls off a coupon UST, this creates a new private funding need for Treasury, and again we question if Treasury would be comfortable pushing up T-bill share dramatically instead of increasing coupons at some point. Note we do not expect any action on this point in 2026, but we think discussions could pick-up.

Our bullish case for swap spreads into 2026

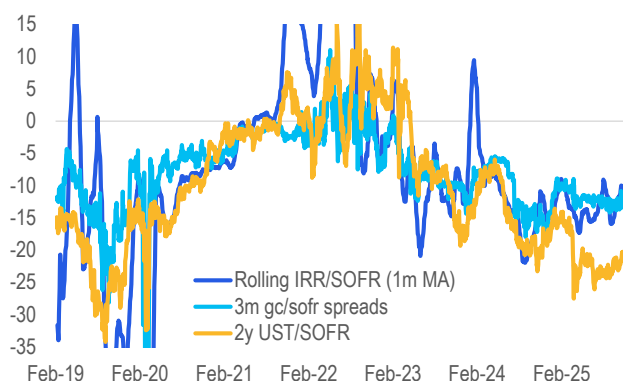
Entering 2025, we were bearish swap spreads, especially the long-end (see [US Rates Weekly – 2025 Outlook – Embracing uncertainty](#)). The crux of our bearish argument for front-end and belly spreads was that funding premiums were not fully priced in. We turned more constructive after the April VaR shock when 30y spreads went past our 2025 target of -95bp, specifically seeing value in front-end spreads for the attractive carry and roll (see [US Rates Weekly – Flattening risk into the refunding?](#)). After Fed President Lorie Logan’s August speech, we began turning more bullish swap spreads, specifically front-end and belly spreads (see [US Rates Weekly – Trade picking 2025](#) and [US Rates Weekly – Holding steady into the FOMC](#)). The idea here is that the Fed will, over time, improve their backstop facilities, such as the standing repo facility (SRF), and backstop the T-bill market (RMPs started this month). We have been in a core 2y spreads long as a carry trade, and we continue to hold this into 2026.

Figure 26. 2026 swap spreads forecast

Spreads	2y	5y	10y	20y	30y
Current	-18	-28	-42	-68	-72
YE26	-16	-23	-34	-60	-70

© 2025 Citigroup Inc. No redistribution without Citigroup’s written permission.
Source: Citi Research

Figure 27. 2y spreads are tied to term repo markets



© 2025 Citigroup Inc. No redistribution without Citigroup’s written permission.
Source: Citi Research, Bloomberg

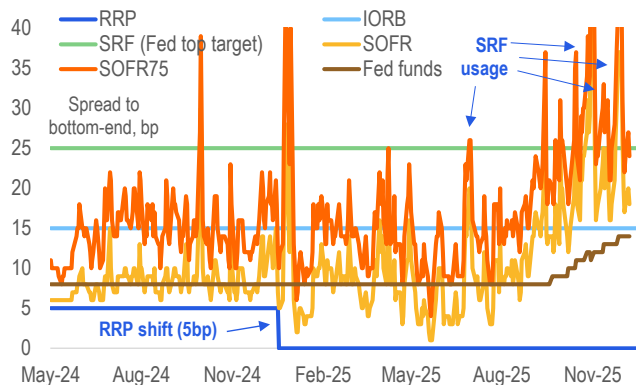
In Figure 26, we report our SOFR swap spreads forecast for 2026. At a high level, we think 2y spreads will be anchored throughout much of 2026 now that the Fed is growing the SOMA portfolio outright, driving bank reserves higher, and this should presumably lightly cap term repo. From there, we think belly spreads will see increased demand for carry positions driven by increased leveraged hands, on the assumption that SRF will be cleared at some point in the next year or two. Higher reserves may encourage banks to expand their UST ASW holdings as well. One risk to our view is how the coupon auction size increases will play out later in 2026 (or early 2027) and the possible lack of real money demand for USTs. In the long-end, we are generally bearish, but cautious, given the unanchored nature of the product.

AI datacenter paying flow could put some upward pressure on long-end spreads, although we struggle to see the impact on swap flies and 15y-20y spreads so far.

Below we walk through our bullish case for belly spreads into 2026 and discuss risks further below:

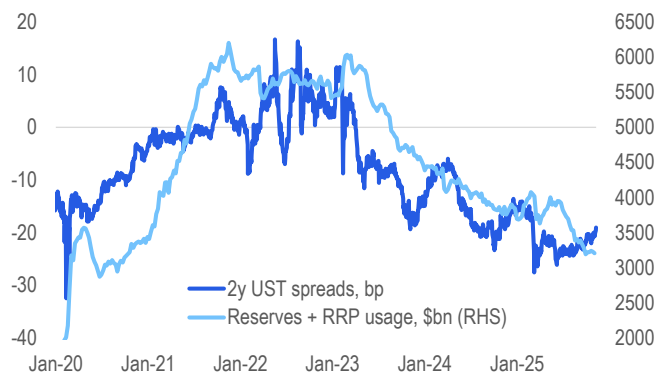
- **Front-end spreads should be anchored next year.** We have frequently argued that front-end swap spreads, 2y and 3y for instance, are anchored by term repo rates. For example, bank portfolios have a choice between investing cash at IORB, O/N repo, term repo (or T-bills), or buying USTs on ASW. Each offers a different return and liquidity profile. Hedge funds also can buy ASWs on leverage. This is typically done with invoice spreads, which are Treasury futures vs. matched-maturity swaps. Bond basis books can also lean overweight spreads by shifting out of short futures for paying in swaps. Treasury futures trade rich to regular cash bonds, meaning that repo financing longs are more expensive than in cash and done at a higher term rate (than O/N). In Figure 27, we show this relationship. Indeed, H6 Treasury futures, IRRs around SOFR+18bp appear contained. We currently think front-end forwards are pricing a too pessimistic picture, as term repo is likely to remain in this region in 2026, if not better. Finally, Treasury continues to support front-end spreads via the Treasury buyback program, which should keep front-end anchored.
- **The Fed has now started to monetize front-end debt via T-bill purchases, clearing SRF could add more fuel.** The Fed stopped QT in December and started growing the SOMA portfolio given the sharp rise in repo rates above IORB (Figure 28). We have argued the repo stress over the past two months has been exacerbated by the large amount of T-bill issuance, combined with continuous coupon issuance (part of which needs to be funded). Front-end collateral (combination of T-bills and financed coupons) will only grow in the coming years, and it now appears that the Fed is a backstop for the overabundance of collateral. This reduces financing vol. More dynamic usage of SRF could be another manor of the Fed backstopping Treasury supply. The [Lorie Logan speech](#) we earlier referenced, in some sense, indicates this possibility of more SRF usage, although with such large T-bill purchases, this may not be as needed.

Figure 28. Cleared SRF would likely help cap repo rates (specifically end user funding at 75th)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 29. Front-end spreads were at their widest when reserves were "super abundant" (note that the hawkish Fed in 2022 played a part as well)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg; Note: RRP includes domestic and foreign

- **Fed may overcorrect next year.** Fed President Lorie Logan has also supported the idea that TGCR (tri-party repo rates) should fix slightly under IORB. In our view, this would be exceptionally bullish for spreads, as we do not think that steady state is achievable. In a steady state, we think TGCR should fix slightly over RRP or slightly at or over IORB. For example, when RRP usage reaches zero, bank portfolios will lend 5 to 10bp (or more) over IORB, which effectively forces TGCR to be at or above IORB (given the spread is not too wide). If the Fed attempts to keep TGCR below IORB, this would be very bullish spreads as the Fed would likely buy too many T-bills. This could be the path the Fed is on currently. The argument being we could see a quick overabundance of reserves, which is usually when spreads are widest, historically speaking (Figure 29).
- **Clearing SRF will happen at some point.** The SRF will be cleared at some point, regardless of if the Fed decides to contain front-end repo via buying T-bills or via clearing SRF. This will turn the facility into a harder cap on repo rates, and we think this will effectively cap term repo rates. For example, it is hard to see term repo trading well north of SOFR+15bp in a world where SRF is a hard cap on repo while SOFR fixes ~5bp below SRF. This month, the Fed also uncapped SRF, which may increase bank demand for USTs. The idea is that some banks, especially the larger ones, may be hesitant to utilize SRF in their resolution planning given it is a capped facility and therefore may not be available in an emergency. Or, in other words, a cleared and uncapped SRF facility more equates USTs and cash.
- **Deregulation is a tailwind and may reduce VaR shock risks.** We concluded there would not be a large amount of UST buying by bank portfolios and/or the dealer arm based on the Fed's updated SLR regulation (see our original argument in [US Rates Weekly - Don't fight the Fed... for now](#)). However, front-end spreads could still be lightly supported now that bank holding companies are capped at 4% SLR. Effectively, the left-hand tail of VaR shocks would be reduced as front-end spreads offer attractive carry, and dealers can sell these to MMFs when paper rolls down to 1y maturity. Still, we do not see much impact here as only perhaps one or two banks are close to the 4% cap.

Figure 30. Forward spreads look too cheap to us with eventual SRF clearing, RMPs and anchored 2y spreads



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 31. Most term repo lending in USTs is done via Treasury futures – improved margin would put downward pressure on leverage costs



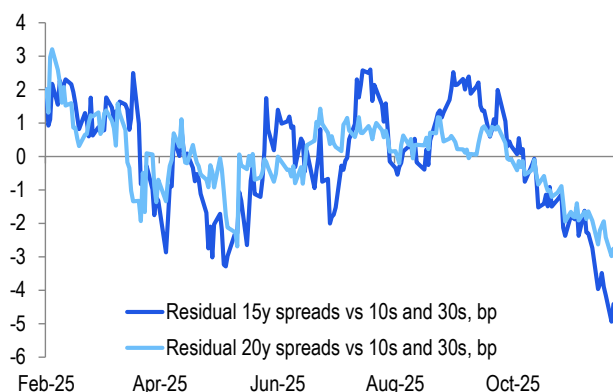
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

- **Belly spreads will benefit due to rolldown.** It is never clear if rolldown for swap spreads will be realized over long-dated horizons. However, forward spreads

such as 2y2y and 3y2y should roll very strongly, especially if SRF is cleared in that timeframe, which is very likely (Figure 30). Indeed, these forward rates are deeply inverted. This can drive increased real money and levered demand for belly swap spreads (e.g., total returns look better).

- **Fed could end up targeting SOFR (over TGCR or FF).** Fed President Lorie Logan recently discussed her preference for the Fed to target tri-party repo (TGCR) instead of FFs. We have argued a SOFR target is more practical and the future state of TGCR is not obvious in a cleared world (post mid-27; see [US Rates Weekly - Fed Funds Shutdown](#)). A SOFR target could imply a Fed that eventually brings down SRF, from top-end, which would put a stronger cap on term repo and presumably reduce tail risks in o/n repo – both beneficial for spreads. Regardless, a TGCR target could also bode well for swap spreads especially if the Fed's goal is to push TGCR below IORB. This would need a large increase in bank reserves, likely pushing term repo rates lower while increasing bank demand for UST ASWs in the process. To be clear, we do not expect news on this target soon, this is likely more a 2027 story than 2026, but presumably discussions will be occurring next year, which could push spreads wider.
- **CME/DTCC cross margin can improve intermediation.** Treasury futures may trade less rich in a world where bond basis books hold less margin due to possible CME/DTCC cross margining. Presumably, this would reduce premiums in Treasury futures, improving intermediation. This would make long invoice spreads positions more attractive. More importantly, most of the maturity transformation between o/n and term repo is via fast money accounts selling futures (Figure 31). This would better support the term repo market (i.e., reduce term premiums), which is supportive for front-end/belly spreads.

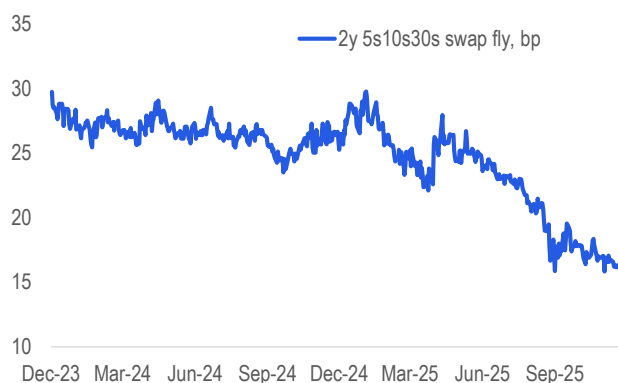
Figure 32. 15y and 20y spreads have not richened against the spreads curve as one may have expected if paying flow was isolated in these sectors



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 33. The 10y point has richened (lower yield) on the fly the past few months



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

- **Rate lock flow from AI lending/build out?** It is possible that the widening in long-end spreads recently has been exacerbated by paying flow to hedge datacenter type infrastructure loans. The idea is that receivers of long-dated bank loans, for the construction and operations of these large infrastructure projects, may look to hedge out rate risk by paying in 10y to 20y swaps. This paying flow would presumably push the swap rate higher towards UST yields. Curiously, while the level of long-end spreads has moved less negative, we do

not see any dislocations in the swap curve around these points. For instance, the 15y and 20y spreads point has only cheapened over the past two months relative to 10y and 30y (Figure 32). At the same time, 10y swaps have richened against 5s and 10s, which seems counter-intuitive to us, although there are many cross currents (Figure 33). Hence, it is hard to say what fraction of AI loans has really been hedged. We have found the best historical example of paying flow in recent memory to be the Fed-driven selloff in 2022. Presumably in early/mid 2022, there were hundreds of billions of 10y-15y paying flow in swaps due to mortgage hedging (Figure 34). To be clear, the dislocation was also likely driven by some receiving in 30y swaps as equities fell as well, and the paying we outlined was likely just some of the overall flow. Putting this together, we do not see a move anywhere near what was seen in 2022. Increased IG issuance on the back of this narrative could also put downward pressure on spreads via some light crowding out.

Figure 34. Material paying flow in the first half of 2022 drove large richening in belly spreads. We don't expect a similar magnitude of move in any infrastructure paying flows although they may add light support to spreads.

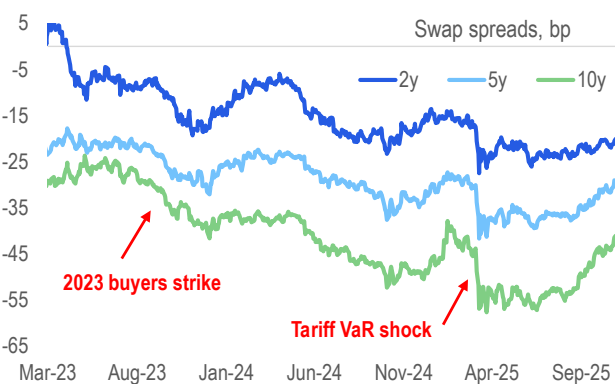


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: We report the regression residual for 10y against 5y and 30y spreads, full sample. The red arrow shows where we think there was roughly \$200bn to \$400bn in paying flow just from bank portfolios hedging ~1tn to 1.5tn of MBS in AFS books and ~\$200bn in REITs. At the same time many other accounts likely paid as a hedge on top of these estimates.

Source: Citi Research

Figure 35. The buyer's strike of 2023 is a risk for spread longs entering 2026, although we don't see a perfect storm coming



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

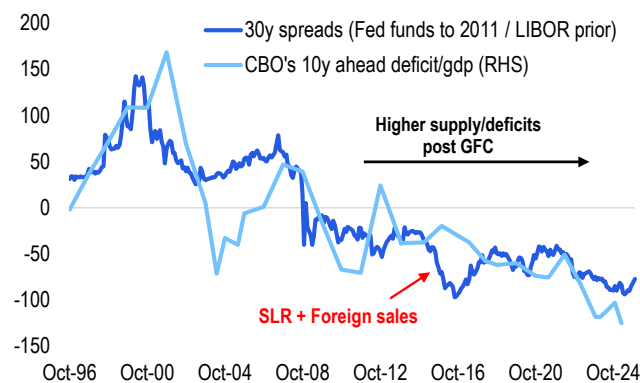
Source: Citi Research

Below we discuss the risk case to our core long spreads view:

- **Could a buyers strike occur again?** One risk to our view is how real money demand will play out. Many of our bullish arguments rely on: 1) fair value due to contained term repo and 2) increased leveraged demand due to increasingly attractive rolldown. At the November refunding, Treasury opened the door for coupon auction sizes to increase at some point in FY27 (base case is Nov26). The 2023 buyers strike, kicked off by abnormally large coupon increases at the Aug23 refunding, cheapened spreads across the curve (Figure 35). However, we do not expect a repeat later this year when they may increase coupons again. First, in 2022, the Fed was hiking rates with a large risk of Fed's moving over 6%. Second, the Treasury had increased sizes larger than the Street (and ourselves) expected. Both are not going to be repeated this cycle. We see the risk more on 30y spreads and prefer longs in the belly.

- **Price insensitive demand could remain weak.** Foreign official demand for USTs has remained tepid over the past two years, likely exacerbated as of late post the April tariffs (see the demand section for more detail). A risk to any long spreads view is if reserve managers sell USTs. We generally do not see this outcome and discuss further below how the drop in Fed custody data is likely a custodial story, not a story around reserve manager sales. Furthermore, we think bank demand for UST ASWs may increase now that the Fed has started RMPs, which drives more cash into large banks. However, for now, we struggle to see a large bid by real money in the very short term.

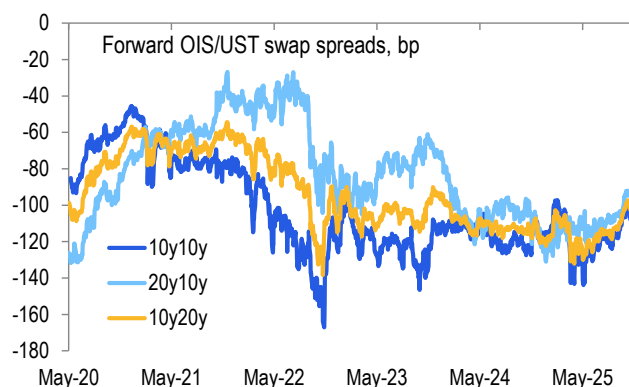
Figure 36. 30y swap spreads have been directional with deficit expectations over a long period. We would see 30y spreads around -100bp if def/GDP grew towards 7%/year. We question how much more room there is for 30y spreads to go.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, CBO

Figure 37. 20y spreads remain undervalued in our view although timing for an eventual rebound is challenging. Structurally we think 10y10y should trade wider than 20y10y.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

- **Cash in the RRP facility was a shock absorber, which is empty now.** The April tariff-driven VaR shock may have been worse if the RRP facility had been empty at the time. For instance, RRP usage drew down to \$50bn from \$200-\$400bn usage in March (the high was due to quarter-end). This helped inject some reserves into the financial system which saw a large increase in repo needs, presumably due to outright sales by real money accounts. Going forward, there is not more 'spare' cash sitting outside the financial system except for dealers/banks tapping the costly SRF. However, the new RMPs will add cushion to bank reserves/front-end markets.
- **Positioning is likely long as carry is bid lower.** Carry structures have been in high demand as evidenced in both the curve, xccy markets, and the collapse in vol. Thus, it is safe to say long spread positions for carry may be bid as well. However, we think positioning is not as long as entering the April VaR shock.
- **Long-end spreads remain unanchored.** Unlike front-end spreads, long-end spreads are relatively unanchored. In theory, long-end spreads should be directional with deficit expectations, although this is only true over long periods of time (Figure 36). Here we use the CBO's 10y ahead on-budget (excludes Social Security) deficit expectations going back to 1999 and, prior to that, we use actual deficit/GDP. Presumably, the IEEPA tariffs being overruled could refocus the market's attention to the still challenging fiscal backdrop of Treasury.

Looking at the 20y point, we generally still think that over time, 10y10y forward spreads will trade wider than 20y10y due to the fiscal story (Figure 37).

TIPS: From TIPS to breaks

Raghav Datla

The increase in TIPS auction sizes will take a pause in 2026. Real rates look attractive as we enter 2026 and as we move deeper into the easing cycle, longer term inflation expectations should bottom out. We expect the inflation curve to steepen over the next year as near-term inflation moves lower, and longer-term expectations remain elevated. We expect 10y breakevens of around 2.4% and 10 real rates at 1.35% by the end of next year.

TIPS supply-demand dynamics

TIPS auction sizes will remain unchanged for most of 2026. TIPS auction sizes have continued to increase in the last couple of years as Treasury tried to capitalize on the increased investor demand for inflation protection. 5y new-issue auctions have increased from \$22bn in Q4 2023 to \$26bn in Q4 2025 and 10y new-issue auction sizes have increased from \$17bn in 2023 to \$21bn in 2025. 30y new-issue auctions at \$9bn have not changed since last year. Recent quarterly refunding statements show that the Treasury will pause these gradual increases in 5y and 10y TIPS auction sizes for now. The upcoming January new-issue TIPS auction will be the same size as the July 10y new-issue auction this year at \$21bn. We expect 5y TIPS auctions to also continue at their current sizes in 2026. However, as we mentioned in the supply section, the Treasury might increase coupon auction sizes in November. We would not be surprised if they also increase TIPS auction sizes around the same time or at least discuss that possibility.

Net TIPS supply will increase to \$65bn in 2026. Despite these increases in TIPS auction sizes this year, the overall net supply of TIPS has decreased from \$54bn in 2024 to about \$48bn in 2025. The gradual increase in auction sizes were less than the increase in TIPS redemptions after accounting for inflation accrual. However, net supply of TIPS will increase to \$65bn in 2026 (Figure 38), despite auction sizes remaining unchanged. This is because of the decrease in redemptions from \$184bn in 2025 to \$169bn in 2026. TIPS as a percentage of the total private coupon debt outstanding will still be around the 8.5% throughout 2026 which is significantly lower than where we were prior to 2021 (Figure 39). So, we do not expect the increased TIPS supply to be an issue next year. Most of the net supply increase relative to last year will be in the first quarter. But even after this increase, net TIPS supply in Q1 2026 will still be negative at -\$7bn.

Figure 38. TIPS net supply will increase to \$65bn in 2026 due to decrease in TIPS maturities.

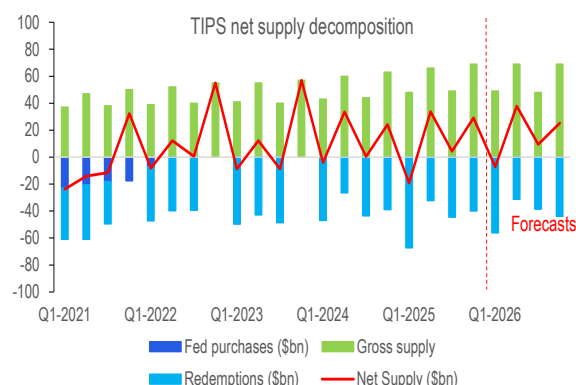


Figure 39. Total TIPS outstanding as percentage of total privately held treasury debt.



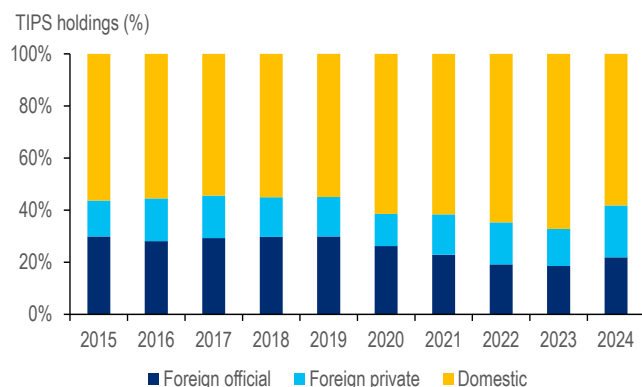
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Haver Analytics

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Haver Analytics

Foreign private investors are slowly catching up to foreign officials in TIPS holdings.

While foreign investors are not the biggest buyers of TIPS during auctions, according to the most recent annual TIC report, foreign investors held about 42% of the total outstanding TIPS as of June 2024. Foreign holdings of TIPS have decreased steadily from 2019 to 2023. But it increased for the first time in five years in 2024 due to increased demand from foreign private investors (Figure 40). Historically, foreign officials were larger holders of TIPS than foreign private investors. But foreign private investors bought more TIPS in 2024. At \$355bn, foreign private investors have almost caught up with the \$390bn foreign official TIPS holdings by mid-2024. This trend likely continued since then as foreign reserve managers have been net-sellers of USTs in the last couple of years

Figure 40. Foreign holdings as a percentage of total TIPS outstanding have increased in 2024 for the first time since 2019.

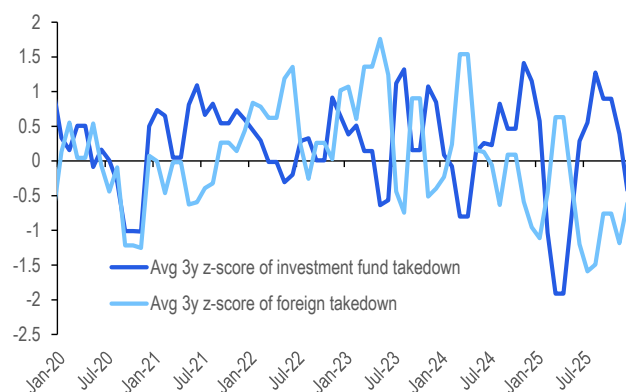


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: Most recent annual TIC report has foreign holdings data as of June -24

Source: Citi Research, Annual TIC report

Figure 41. But foreign demand seems to have decreased in the last year while purchases by investment funds have picked up.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

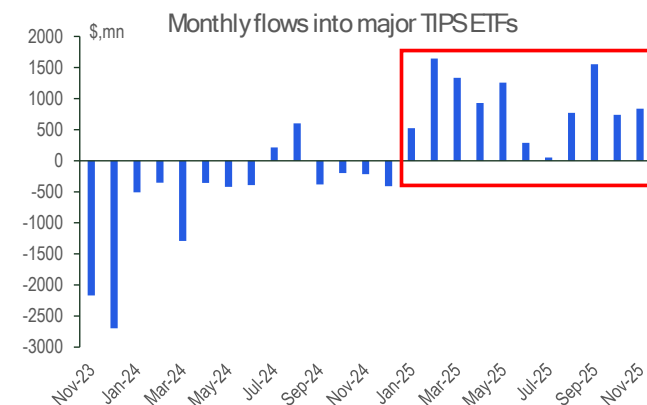
Source: Citi Research, Haver Analytics

Overall foreign demand has slowed down over the past year. The increase in foreign demand in 2024 was also evident at the auctions. Foreign investor takedown at TIPS auctions picked up in the second half of 2023 and first half of 2024 (Figure 41). However, 2025 has been a slow year in terms of foreign demand. Rolling 3-year z-score of foreign investor takedowns at TIPS auctions has turned negative in the second half of 2024 and has continued to move lower since then. Despite this decrease in demand from foreign investors, there were no clear signs of stress in the TIPS markets over the past year. Increased demand from domestic investment funds for inflation protection has more than made up for the decline in foreign demand.

Strong demand for TIPS from domestic investment funds will continue in 2026.

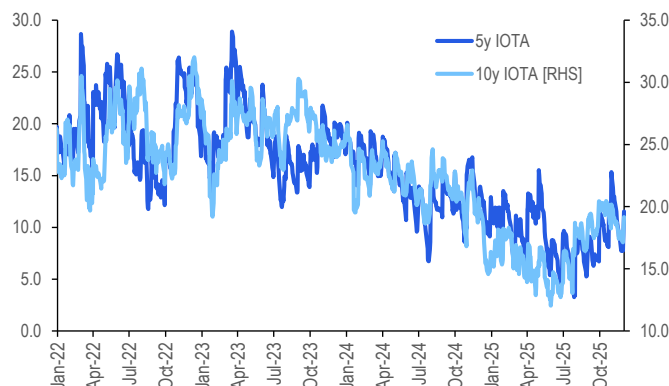
Demand for inflation protection from domestic investors has picked up at the start of this year due to concerns that tariffs would lead to higher inflation in the near term. Flows into the five biggest TIPS ETFs have turned positive in the first quarter of 2025 after continued outflows in the previous two years (Figure 42). While this is not a comprehensive measure of TIPS demand, it does capture the change in the direction of flows into TIPS. While the eventual inflationary impact of tariffs was lower than initially feared, demand for inflation protection held steady as concerns over Fed independence continue to linger. With the appointment of Kevin Hassett as the new Fed chair in 2026 looking almost certain, we expect these concerns to only grow as we get more rate cuts in coming months. This should lead to continued demand for inflation protection in the new year.

Figure 42. Domestic demand for inflation protection has picked up in recent months. A dovish Fed will only add to this demand in coming months.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 43. Despite weak foreign demand, IOTAs are close to the bottom of their historical range.



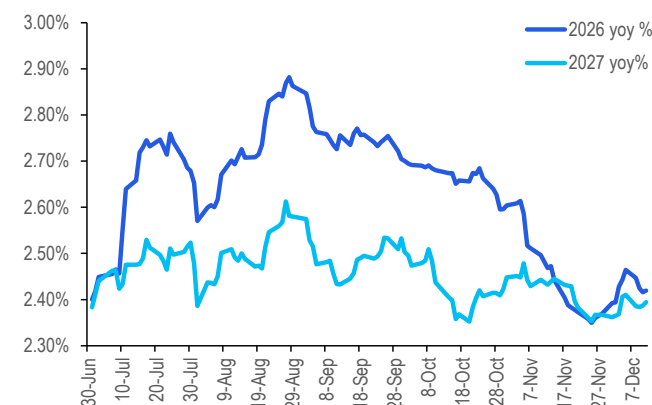
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

IOTA spreads are trading close to the bottom of their historical ranges, and we do not expect that to change much in the near term. Strong investor demand for TIPS has led to IOTA spreads across the curve trading close to the bottom of their historical ranges. As a reminder, IOTA spreads are the difference between matched maturity inflation swaps and TIPS breakevens. A tight IOTA spread indicates a smaller discount in TIPS breakevens compared to inflation swaps which in turn points to strong demand for TIPS. IOTA spreads across the curve are trading at tight levels indicating that demand for cash TIPS is very strong. We will continue to see the seasonal patterns in IOTA spreads like 5y IOTAs widening in the fourth quarter on excess supply and tightening in the first quarter (see [US Rates Weekly - The Life of a Shutdown*](#)). But overall, we do not expect IOTA spreads to widen significantly in 2026.

Inflation expectations in 2026

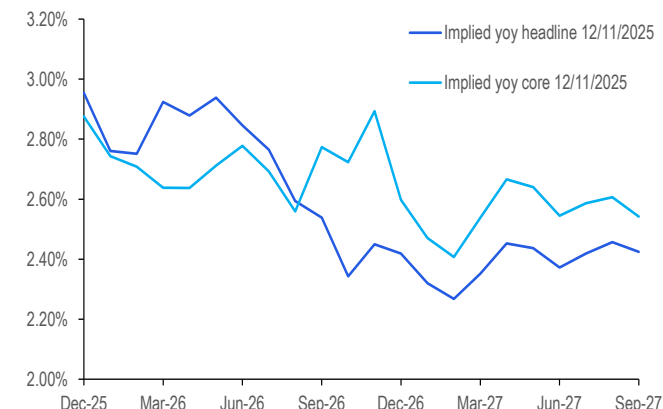
Front-end inflation expectations have decreased in recent months. The last few months of 2025 saw a significant move lower in market expectations for near-term inflation. Both 2026 and 2027 headline inflation expectations are at the lower end of their range (Figure 44). 2y inflation expectations have decreased from 3% at the end of July to 2.5% currently. This was not a surprise for us as we were of the view that markets have been overpricing the impact of tariffs on inflation ([US Rates Weekly - Trade picking 2025](#)). This decline was driven by both decrease in energy prices and lower than expected monthly core inflation prints. In Figure 45, we show the market implied core inflation expectations. We calculate the implied core inflation from headline inflation fixings by removing the energy and food inflation components. We use the gasoline futures curve (after adjusting for futures/retail basis) as a proxy for energy inflation. We assume that energy services and food inflation will continue at their recent 6m annualized rate. This shows that YoY core inflation expectations for 2026 are close to 2.5%. While that seems reasonable, we think there are further downside risks in the very near term.

Figure 44. Inflation expectations in the front end of the curve have decreased significantly in recent months.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

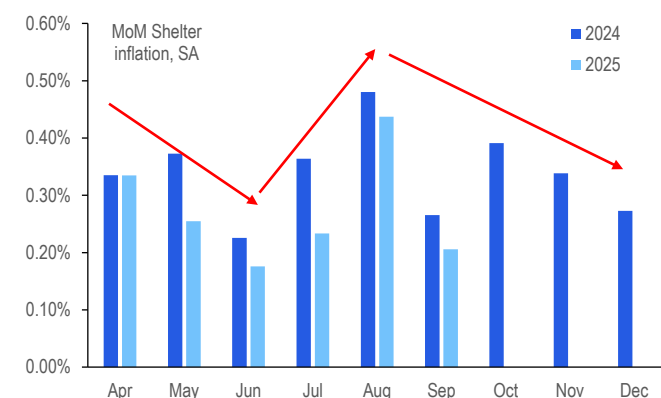
Figure 45. Market implied core CPI inflation for 2026 is around 2.5%-2.6%.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

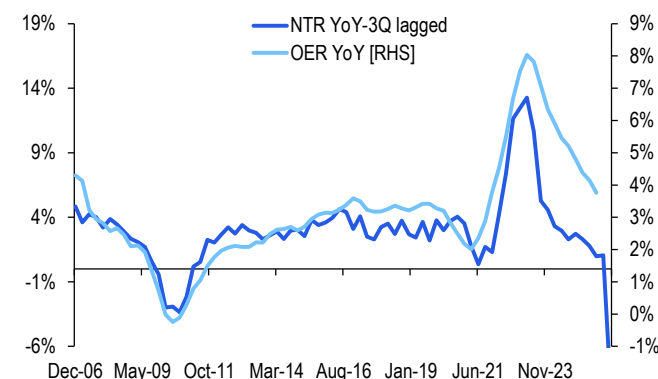
Shelter inflation has been decreasing gradually throughout 2025. While tariffs continue to get most of the headlines, the biggest driver of core inflation in 2026 in our view would be shelter inflation. Shelter accounts for close to 45% of the core inflation basket compared to core goods which accounts for only 24%. So, moves in shelter will have a considerably bigger impact on inflation than changes in core goods inflation. YoY shelter inflation has been decreasing gradually throughout the year from 4.8% at the start of 2025 to 3.8% in September. While we did see some strong MoM shelter inflation prints in the July and August, that seems to be driven by residual seasonality in shelter inflation (Figure 46). MoM shelter inflation in each of the first nine months in 2025 has been lower than in 2024.

Figure 46. There seems to be some residual seasonality in shelter inflation with strong prints in summer and declining towards year end.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 47. Owners-equivalent rent (OER) inflation will continue to decrease based on the new-tenant rent index which leads OER by about three quarters.



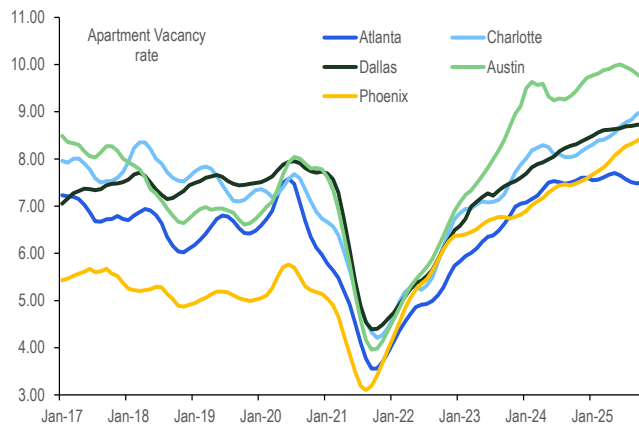
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, BLS

We expect shelter inflation to moderate to 2.5% in 2025. Forward looking data indicates that the decline in shelter inflation will continue in 2026. Year-over-year changes in BLS's new-tenant rent (NTR) index that tracks the rents of new tenants, typically leads the yoy changes in OER inflation by about three quarters. Most recent NTR data shows that new tenant rents have decreased by about 9% yoy (Figure 47). This data has typically been revised higher in recent years. So, we don't

expect shelter inflation to moderate to that level. Nonetheless, it should be significantly lower than the current 3.8% yoy pace by the end of 2026. Separately, apartment vacancy rates in pandemic boom towns like Austin and Charlotte are continuing to move higher beyond the pre-pandemic levels (Figure 48). So, while we think that shelter inflation will likely slow down to 2.5% in 2026, there are risks of it slowing down to below 2%.

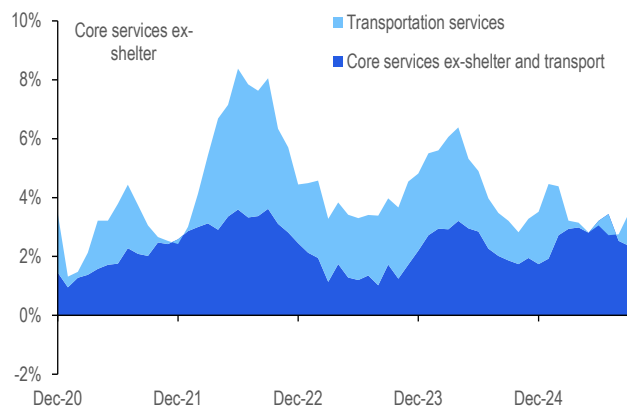
Core services ex-shelter inflation will also continue to decline. Ex-shelter services inflation has also been declining in recent months. While we did see some strength in this component in June and July, that proved to be temporary and rolling 6m annualized core services ex-shelter inflation has been slowly moving lower. Inflation in the volatile transportation services component (includes airfares) has also been strong in Q3 but will likely cool down in October and November. September YoY core services ex-shelter inflation was close to 3.33%, which has decreased from 4.63% in September of 2024. With unemployment rate continuing to move higher, we find it hard to justify any expectations of a move higher in ex-shelter services inflation in 2026. Core services ex-shelter inflation will continue to move lower to around 2.5% in 2026.

Figure 48. Apartment vacancy rates in some of the pandemic boom towns are continuing to move higher.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Haver Analytics

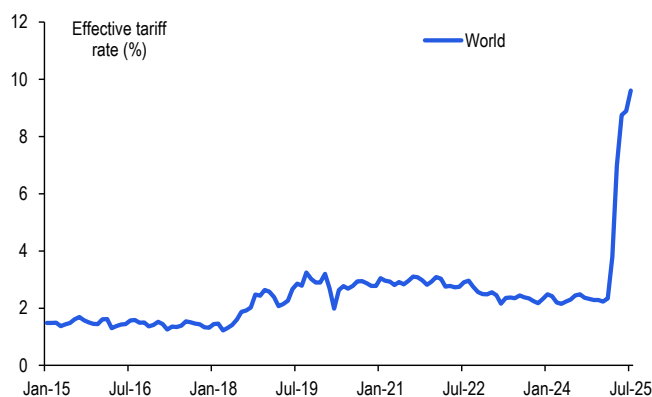
Figure 49. Core services ex-shelter inflation has also been moving gradually lower.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Goods inflation will most likely not exceed 2.5% in 2026. By early 2025, goods inflation has decreased to about 0% after the supply driven spike during post pandemic years. However, since April tariff announcement, core goods prices have increased by about 1.5% over a seven-month period. We expect continued increases in core goods prices due to tariffs in 2026. Effective tariff rate on imports has increased from ~3% before the Liberation Day tariffs to about 10% in August (Figure 50). Our economists think (and we agree) that effective tariff rate will likely peak around 15%. Roughly half of the core goods basket is imported which would imply that the 12% increase in tariff rate should result in 6% core goods inflation. However, tariffs are not collected on the final sale price but on the imported value of the goods. So, accounting for the margins of retailers ([US Rates Weekly - Summer break for the buyers' strike?](#)), core goods prices should increase by about 4% due to tariffs. As we mentioned earlier, they have already increased by about 1.5% in 2025. So, we expect goods inflation to be in the 2%-2.5% in 2026. Combined with our above estimates that should translate to about 2.4%-2.5% core inflation in 2025.

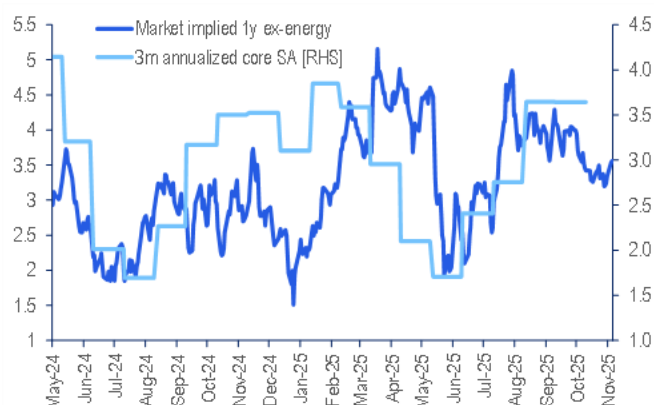
Figure 50. The effective tariff rate based on the tariff revenue being collected is close to only 10%.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Haver Analytics

Figure 51. 1y inflation swap rate when adjusted for recent changes in oil prices tends to move hand in hand with realized core inflation in recent months.



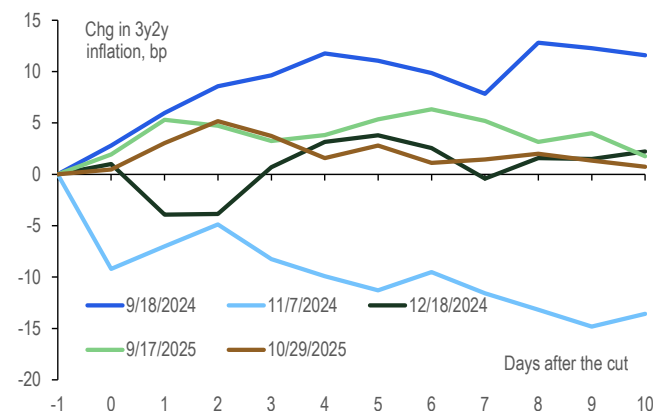
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Inflation expectations in the front end are in line with our expectations. Based on our estimate for core inflation in 2026, the current market pricing for 2026 inflation (see Figure 45) seems fair to us. Current 1y forward 1y inflation, which is trading close to 2.4%, will rolldown to become 1y inflation by the end of 2026. Typically, 1y inflation swap rate is highly dependent on the realized inflation over the previous three months (Figure 52). By the end of 2026, we expect 3m annualized inflation to be in the 2.2-2.5%, which would imply 1y inflation swap rate of about 2.3-2.5%. That is very close to the current 1y1y inflation swap rate of 2.4%. So, inflation pricing up to the 2y part of the curve is in line with our expectations. With unemployment rate gradually moving higher, we think that risks are likely skewed to a move lower in this part of the inflation curve in the near term.

Longer-term inflation expectations look cheap as we head deep into a cutting cycle. While it is hard to be constructive on near-term inflation expectations here, longer term inflation expectations look extremely attractive as we head into 2026. If our economists are correct about weakening labor market conditions and the Fed continuing to cut rates into 2026, longer-term inflation expectations beyond the 2y point should move higher as investors get increasingly concerned about the inflationary impact of dovish monetary policy. This was clearly evident in the way markets reacted to the bigger than expected 50bp cut in September of last year (Figure 52). 3y forward 2y inflation expectations increased by about 10bp in the two weeks after the 50bp cut. We did not see a similar reaction to subsequent cuts in this cycle as they were completely priced in the markets heading into those FOMC meetings. Markets are currently only pricing about 20% chance of a January cut and a total of 50bp cuts over the next year. If the Fed cuts more or faster than that (which we think they would), we expect 3y2y, 5y5y, and 10y20y inflation forwards to move higher from here.

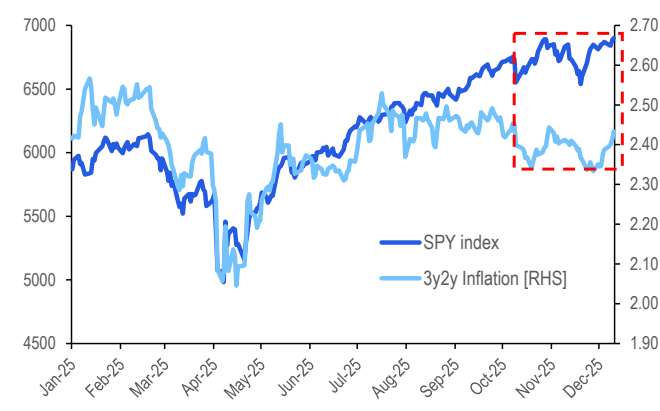
Figure 52. Inflation expectations have increased after the 50bp cut last year but not much after the cuts since then.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 53. Forward inflation expectations have moved lower while risk assets continued move higher in recent months.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

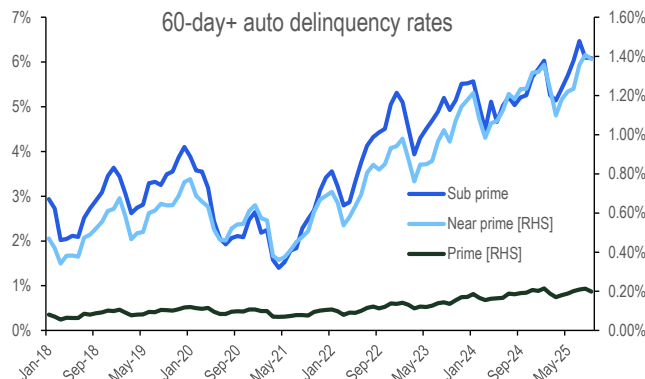
Source: Citi Research, Bloomberg

The K-shaped economy can push Fed to cut despite decent growth leading to higher inflation risk premium in 2026. It might seem counter intuitive to be constructive on inflation expectations when unemployment rate is moving higher. However, the current market dynamics can lead to a scenario where the increasing unemployment rate might not lead to a significant decline in growth and consumption. The current restrictive monetary policy seems to be having a disproportionate impact on the consumers in the bottom half of the economic ladder. One data point that illustrates this is the divergence in delinquency rates of subprime and prime auto loans. Subprime auto loan delinquencies have increased to about 6% while the increase in delinquency rates of prime consumers have barely increased (Figure 54). In an economy where the top 10% earners account for 50% of consumption, growth is less sensitive to a weakening subprime consumer.

The Fed, on the other hand, with its dual mandate, will be forced to cut rates to counter increasing unemployment rate. With the advent of AI, it is the less skilled and less experienced part of the labor market that is struggling to find jobs. However, monetary policy is a blunt tool and loosening financial conditions will likely drive significant growth in demand from the upper half of the economy along with helping the struggling subprime consumer. Increasing equity prices is another channel through which the top half of the K-shaped economy will gain more from an accommodative monetary policy and that should drive higher inflation expectations. However, forward inflation expectations look cheap relative to the recent move higher in equity prices (Figure 53).

The inflation curve is flat and will likely steepen in 2026 with 5y5y at 2.65%. The cheapness in forward inflation expectations led to a flat inflation curve. The 2y-5y5y inflation curve is still only 3bp despite the recent move lower in the frontend of the inflation curve. In Figure 55, we show a simple regression between the 2y-5y5y inflation curve and 2y inflation. While the current pricing is in line with the historical relationship, the fact that we are in cutting cycle combined with the unique dynamics of the K-shaped economy that we highlighted above warrants some pricing of inflation risk premium. The standard deviation of the residual in the regression is around 25bp. Adding that to the fair value and based on our estimate of 2y inflation expectations at 2.4%, we expect the 2y-5y5y inflation at the end of 2026 at around 25-30bp, which translates to 5y5y inflation at 2.65%.

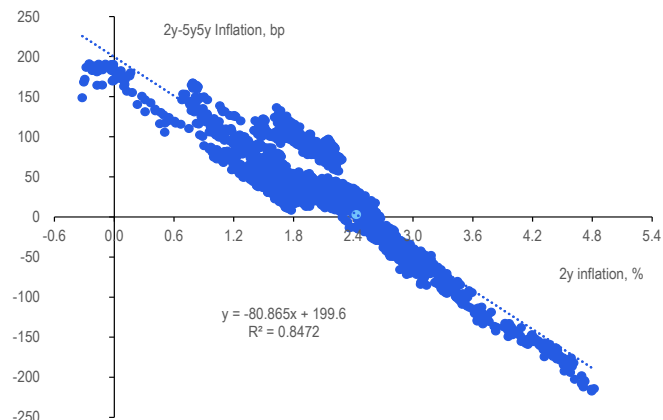
Figure 54. Consumers in the sub-prime and near prime buckets are increasingly feeling the impact of higher than neutral interest rates and increasing



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, 1010 Data, EDGAR

Figure 55. There is no inflation risk premium priced in forward inflation expectations despite the ongoing rate cutting cycle. 2y-5y5y inflation curve is currently trading at +3bp.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Our 10y breakeven 2026 YE estimate is 2.4%. Assuming that the inflation term structure will be a smooth line between the 2y and 5y5y tenors, we arrive at our 5y and 10y inflation swap year-end estimates of 2.48% and 2.55%, respectively. The 5y5y-10y20y inflation curve has averaged around -10bp in recent years and it typically trades in a tight range between 5bp and -20bp; assuming that it stays around -10bp, our 30y inflation swap estimate is 2.55%. Combining them with our IOTA spread estimates, we arrive at our 2026 year-end breakeven estimates of 2.4%, 2.4%, and 2.35% for 5y, 10y, and 30y tenors, respectively. In Figure 56, we show how these 2026 breakeven estimates translate into real rate estimates based on our nominal rate forecasts.

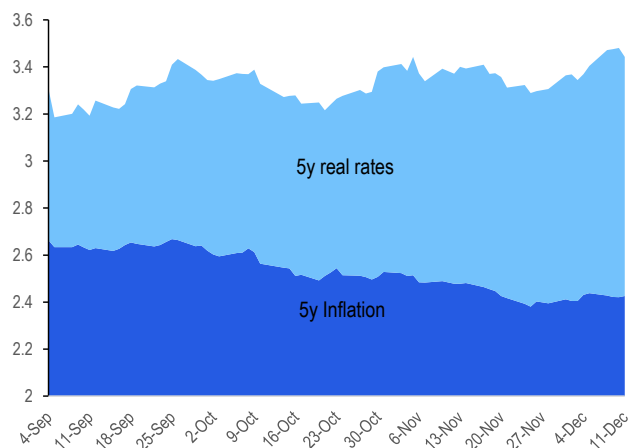
Figure 56. Breakevens and real rate estimate for YE 2026.

	Tenor		
	5y	10y	30y
ZC Inf swap	2.47%	2.55%	2.55%
IOTA, bp	7.5	15	20
Breaks	2.40%	2.40%	2.35%
Real rates	0.80%	1.35%	2.10%
Nominal	3.20%	3.75%	4.45%

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 57. The recent move lower in inflation expectations did not lead to lower nominal rates as real rates sold off by similar magnitude. This makes real rates attractive heading into 2026.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Real rates look extremely attractive heading into 2026. Based on the decomposition of our year-end estimates in Figure 56, real rates look extremely attractive in 2026. This should not be a surprise as real rates have cheapened significantly in recent months. Over the last three months, as we saw a significant decline in inflation expectations, nominal rates remained unchanged. In Figure 57, we breakdown the 5y nominal swap rate into inflation swap rate and the implied real rate. While 5y inflation swap rate has declined by about 30bp since September, 5y nominal rates have actually increased slightly as real rates sold-off by more than 30bp. 5y forward 5y real rates are also trading close to their cycle highs. We don't think this divergence in inflation expectations and real rates is sustainable in the medium to longer term. As unemployment rate continues to move higher, we expect real rates to start moving lower. Initially, between TIPS and breakevens, we prefer being long real rates as inflation expectations can also move slightly lower if the slowdown accelerates. Eventually, we expect breaks to move higher as monetary policy turns more accommodative (rates below neutral) in the latter half of 2026, finishing close to our 2026 year-end estimates.

Supply and Demand for Treasuries

Raghav Datla
Jason Williams

Supply Outlook

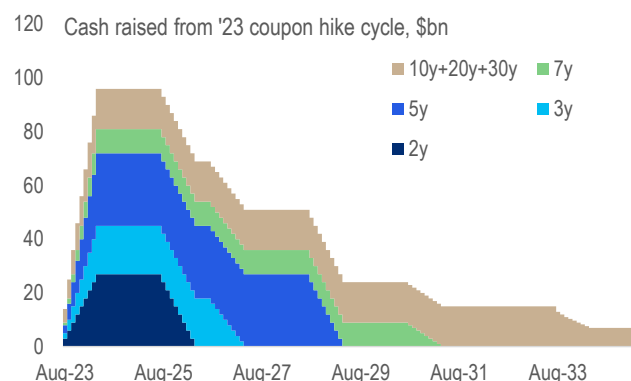
We expect Treasury to increase coupon auction sizes at the Nov26 refunding, with a risk for Feb27. Treasury is likely to remove their forward guidance comments around “maintaining... auction sizes” by the August refunding. Net private T-bill supply is set to keep growing, even accounting for the Fed’s new reserve management purchases.

No easy supply solution for Treasury

At the last Treasury refunding, [Treasury announced](#) they have “begun to preliminarily consider future increases to nominal coupon and FRN auction sizes, with a focus on evaluating trends in structural demand and assessing potential costs and risks of various issuance profiles.” This supported our view that coupon increases are likely to be announced at the November 2026 or potentially February 2027 refunding (we moved to Nov26 in [US Rates Strategy – Q3 refunding – coupons set to not grow for some time](#)). Similarly, the TBAC statement mentioned that the “Committee believes that current projections could warrant increases in coupon issuance in FY2027,” as a reminder the US government’s fiscal year begins in October, which supports our Nov26 timeline.

Interestingly, [Treasury still](#) “anticipates maintaining nominal coupon and FRN auction sizes for at least the next several quarters.” This forward guidance statement has been included since Treasury Secretary Yellen, presumably to calm the market after the 2023 buyers strike. We expect this statement to be removed by the August 2026 refunding. Treasury’s growing rollover risk, combined with ever higher deficits, gives them little choice but to increase coupons at some point. For example, the coupon increases from 2023, which started at the Aug23 refunding, will effectively stop bringing money into Treasury over the next few years (Figure 58).

Figure 58. The coupon increases from 2023 will ‘run out’ over the next few years

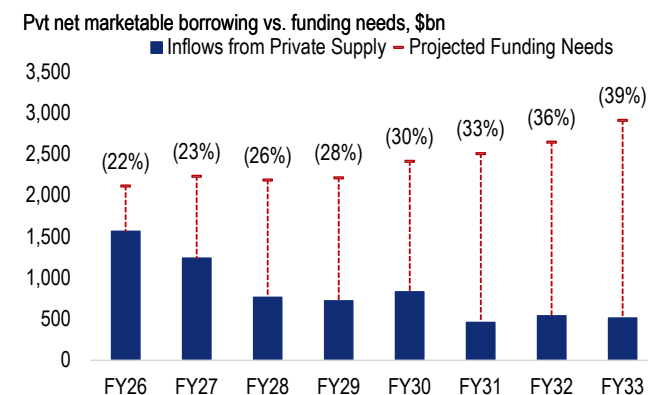


© 2025 Citigroup Inc. No redistribution without Citigroup’s written permission.

Note: Columns represent net cash raised for Treasury for each benchmark due to the 2023 coupon hikes. We use the 3m rolling average for the 10y, 20y and 30y supply given the uneven auction sizes.

Source: Citi Research, Bloomberg

Figure 59. Treasury would have to lean on T-bill issuance (the red bars below) to fund the government if they do not increase coupon issuance



© 2025 Citigroup Inc. No redistribution without Citigroup’s written permission.

Note: the numbers in parenthesis represent our estimates of fiscal YE T-bill share as % of marketable debt assuming no changes to coupon issuance. We use our economist’s deficit estimates (see below for details).

Source: Citi Research, Bloomberg

In Figure 59, report total funding shortfall over the next decade based on our latest fiscal projections. The red bars represent how much Treasury needs to fund via T-bills and/or coupons. The numbers in parentheses represent where T-bill share, to net marketable debt, will go if Treasury chooses to only fund the shortfall with more T-bills. This would expose Treasury to material rollover risk. In Figure 60, we report our estimate for T-bill share by FY26/FY27 assuming different coupon increase cycle start dates. Treasury has not given strong guidance on the 'optimal' T-bill level, but we think there is scope for this to increase to 25%. Note that if IEEPA tariffs are cancelled, and/or the cash collected is returned, this would push up T-bill share across the scenarios.

In the future, Treasury will have to lean on 3y and 7y paper

What sector will Treasury lean on for coupon issuance? In our view, the 3y and the 7y tenor are likely to be a focus. These benchmarks were not increased as much as the 2y and 5y in the 2023 coupon hike cycle (Figure 61). As a reminder, Treasury leaned on 3s and 7s back in 2020, but dealers informed Treasury that supply was overwhelming demand. Indeed, as Treasury grew the 7y auction sizes, relative to the 5y, auctions tailed more frequently. The worst 7y auction since its reintroduction occurred in February 2021 after the large auction increases, which even spread dislocations out to the 20y point.

In Figure 61, we report roughly where we see coupon auction sizes going over the next few years. Note that there are wide error bars on the precise timing and Treasury's T-bill share target. We assume Nov26 for the first coupon hike but early 2027 is also plausible. We also assume Treasury keeps T-bill share around 20% to 24% over time, but they may look to the higher or lower end of this range, which would also affect the timing. Regardless, we don't see a scenario where 3y and 7y are not increased in a material fashion.

Figure 60. Our projection of T-bill share over time under a variety of coupon hike scenarios

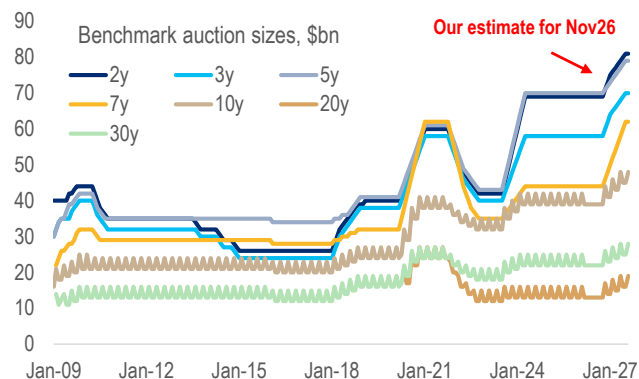
T-bill share

Coupon hikes in...	Path 1. Base case deficits		Path 2. Deficits ~2.3tn / yr	
	Fiscal Year End 2026	Fiscal Year End 2027	Fiscal Year End 2026	Fiscal Year End 2027
No increase	21.8%	23.3%	22.9%	25.2%
Q1-26	20.7%	20.1%	21.8%	22.1%
Q2-26	21.3%	20.7%	22.3%	22.7%
Q3-26	21.6%	21.2%	22.7%	23.2%
Q4-26	21.8%	21.7%	22.9%	23.7%
Q1-27	21.8%	22.3%	22.9%	24.2%
Q2-27	21.8%	22.8%	22.9%	24.7%
Q3-27	21.8%	23.1%	22.9%	25.1%
Q4-27	21.8%	23.3%	22.9%	25.2%

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 61. The 3y and 7y benchmark are likely to be increased, substantially, during the next coupon increase cycle



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

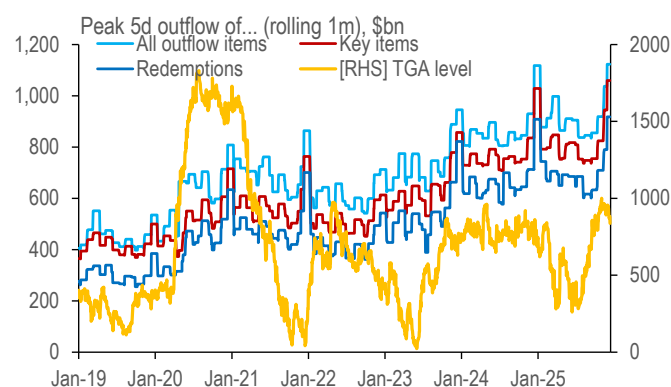
Path for T-bills and the TGA balance still somewhat unclear

In the last couple of weeks, Treasury has cut T-bill auction size, in line with the guidance they had provided at the November refunding announcement. We now see the TGA ending the year at \$900bn, slightly above Treasury's \$850bn TGA target. As a reminder, Treasury tries to keep one week of outflows on hand. In Figure 62, we report the maximum 5d outflow from the TGA. We think it is possible

that Treasury keeps overshooting their TGA target through the year, as outflows have trended higher in recent years. Note that overtime we expect Treasury to increase their TGA target, and we expect \$900bn for year-end 2026 (which means the realized TGA could be within \$50bn to \$100bn of this number).

Heading into 2026, Treasury will increase T-bill auction sizes once again in January, we're penciling in around \$30bn to \$50bn of additional supply per week. These increases will help Treasury finance the tax refunds filed in the new year. Those outflows are eventually reversed with large tax receipts in the middle of April. This drives considerable volatility in funding needs. Refunds may be especially high this season due to the OBBA, while capital gains tax income could be higher due to a strong stock market in 2025. We expect T-bill supply to then move lower into Q2 with the April tax receipts (Figure 63).

Figure 62. Treasury outflows tend to peak towards year-end.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Haver Analytics

Figure 63. Our latest T-bill and reserves forecasts.

	TGA	Net T-bill issuance		Reserves	
\$bn		Mkt	Pvt	Ex-QE	At QE
Dec-25	900	-149	-187	2,915	2,865
Jan-26	850	47	-10	2,995	2,995
Feb-26	800	219	165	3,080	3,080
Mar-26	850	20	-34	3,080	2,980
Apr-26	850	-274	-321	3,094	3,094
May-26	800	207	169	3,152	3,152
Jun-26	800	-221	-258	3,174	3,074
Jul-26	850	393	355	3,141	3,141
Aug-26	800	128	90	3,194	3,194
Sep-26	900	-92	-129	3,116	3,016
Oct-26	850	216	179	3,176	3,176
Nov-26	800	71	35	3,238	3,238
Dec-26	900	107	71	3,163	3,013

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, Haver Analytics

Supply projections and fiscal expectations

In Figure 64, we show our monthly coupon auction expectations. In line with the latest guidance provided by Treasury, we are penciling in auction size increases starting in November 2026. We have lightly modified this table to include Treasury's buybacks and the Fed's new reserve management purchases. We assume all RMPs will be in T-bills for now.

Figure 64. Below are our supply expectations for 2026

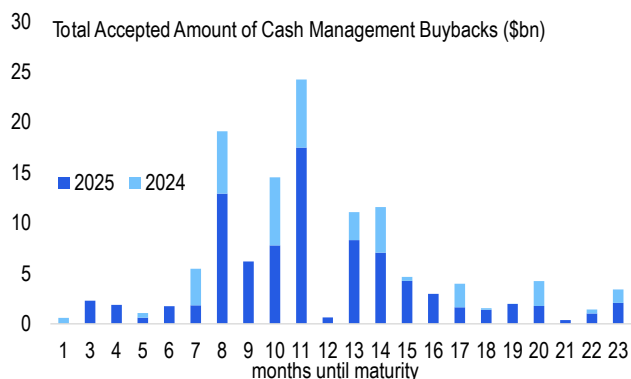
	FRN	Nominal Treasuries							TIPS			Gross Supply to pvt (A)	Redemption (from pvt) (B)			Net Issuance (A-B)	Treasury Buybacks (C)		Net Issuance incl. buybacks (A-B-C)
		2yr	3yr	5yr	7yr	10yr	20yr	30yr	5y	10y	30y		Nominals	TIPS	FRNs		Liquidity Support	Cash Management	
2026																			
Jan-26	30	69	58	70	44	39	13	22	0	21	0	366	40	55	0	271	15	0	256
Feb-26	28	69	58	70	44	42	16	25	0	0	9	361	232	0	84	45	15	0	30
Mar-26	28	69	58	70	44	39	13	22	0	19	0	362	317	0	0	45	13	26	7
Apr-26	30	69	58	70	44	39	13	22	26	0	0	371	184	31	86	70	13	43	15
May-26	28	69	58	70	44	42	16	25	0	19	0	371	84	0	0	287	12	0	276
Jun-26	28	69	58	70	44	39	13	22	24	0	0	367	326	0	0	41	13	25	3
Jul-26	30	69	58	70	44	39	13	22	0	21	0	366	178	38	86	64	15	0	49
Aug-26	28	69	58	70	44	42	16	25	0	0	8	360	247	0	0	113	12	0	101
Sep-26	28	69	58	70	44	39	13	22	0	19	0	362	187	0	0	175	10	25	141
Oct-26	30	69	58	70	44	39	13	22	26	0	0	371	45	43	0	283	18	0	265
Nov-26	30	71	60	71	46	44	17	26	0	19	0	384	398	0	86	-100	9	0	-109
Dec-26	30	73	62	72	48	41	14	23	24	0	0	387	198	0	0	189	9	25	156
Total	348	834	702	843	534	484	170	278	100	118	17	4,428	2,435	167	342	1485	152	143	1,190

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission

Source: Citi Research

As a reminder, there are two types of buyback operations. The first is called “liquidity support”, where Treasury buys a range of off-the-run coupon USTs. Presumably, the off-the-run bonds are purchased “cheap” relative to where Treasury issues coupons, which tend to trade “rich”. The Treasury does not report the required “cheap” level against a theoretic fitted spline. We expect Treasury to keep these sizes unchanged at \$38bn per quarter, the specific operations are announced at the quarterly refunding.

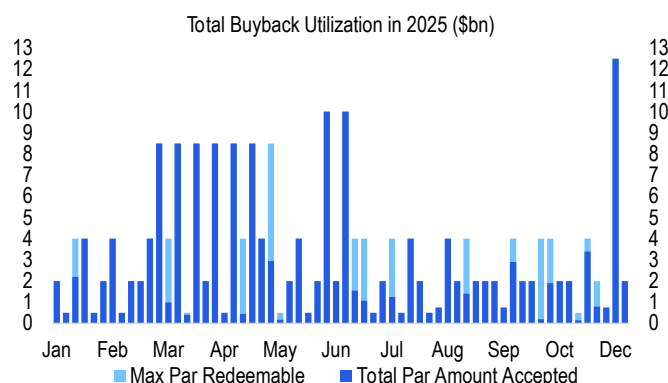
Figure 65. Maturities of cash management buybacks tend to be under 15 months



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, US Treasury

Figure 66. There is higher utilization for cash management buybacks around tax dates



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, US Treasury

Treasury also runs “cash management buybacks”, where they purchase 1m to 2y off-the-run nominal coupons. As seen in Figure 65, most cash management buybacks have maturities of under fifteen months. These buybacks are meant to reduce TGA volatility around tax dates. For instance, Treasury typically decreases T-bill sizes into a large tax receipt date to bring TGA down. This tool allows Treasury to purchase cheaper off-the-run, short-dated paper using TGA cash. This reduces volatility in T-bill auction sizes. During the July 2025 refunding, Treasury increased the maximum par amount for cash management operations from \$120 billion to \$150 billion per year. Cash management sizes are the largest around April given it is the biggest tax collection date. Note that there was no cash management buyback around the September 2025 tax date due to the TGA rebuild, however we do

expect one in 2026. Our 2026 buyback expectations above report maximum par amounts, however in 2025 the Treasury only utilized about 85% of total buybacks. There is more utilization for the cash management buybacks around tax dates compared to liquidity support (Figure 66).

In Figure 67, we provide some light updates to our deficit and TGA forecasts for 2026, we now expect TGA to end the year at \$900bn. We expect deficits for CY26 to be around \$1.9tn. Deficits could rise closer to \$2tn if the IEEPA tariffs are ruled unconstitutional by the Supreme Court. If Treasury is forced to payback tariffs, that may add another \$100bn to \$150bn to the CY26 deficits/outflows. We believe any increase in deficit would be funded via T-bills, but it would support our view for coupons to be increased by the Nov26 (risk case Feb27) refunding. We also add Treasury buybacks on the left and right hand side of our fiscal projections. Starting December 12, the Fed will purchase \$40bn T-bills per month until at least April at which point we assume \$20bn of purchases per month (see short-end section further below for more details on the Fed balance sheet).

Figure 67. Our latest supply projections.

Quarterly	Deficit Baseline	TGA		Buybacks	Other Changes	Fed Rolloff	Private Funding Needs	Net Supply		Fed purchases/QT		Private Net Supply		Private Net Supply (incl. buybacks)		Bills as % of total mkt debt
		level	chg					bill	coup	bill	coup	bill	coup	bill	coup	
Q1 2025	596	406	-316	51	14	75	419	-31	375	0	-75	-31	450	-31	400	21.5%
Q2 2025	30	457	51	69	-31	15	134	-372	491	0	-15	-372	506	-372	437	20.2%
Q3 2025	438	891	434	25	171	15	1,083	613	455	0	-15	613	470	613	445	21.6%
Q4 2025	647	900	9	54	-93	10	627	177	440	38	-10	139	450	139	396	21.7%
Q1 2026	630	850	-50	68	0	0	648	287	361	165	0	121	361	121	293	22.3%
Q2 2026	55	800	-50	105	0	0	110	-289	398	121	0	-410	398	-410	293	21.3%
Q3 2026	621	900	100	62	0	0	782	430	353	114	0	315	353	315	291	22.2%
Q4 2026	706	900	0	61	0	0	767	394	372	109	0	285	372	285	312	22.9%
Yearly																
FY 2025	1,776	891	5	143	153	180	2,257	392	1,684	0	-180	392	1,864	392	1,722	21.6%
FY 2026	1,952	900	9	288	-93	10	2,167	604	1,552	439	-10	166	1,562	166	1,274	22.2%
CY 2025	1,712	900	178	199	60	115	2,263	387	1,761	38	-115	349	1,876	349	1,678	21.7%
CY 2026	2,011	900	0	295	0	0	2,306	822	1,485	510	0	312	1,485	312	1,190	22.9%

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: "Other changes" is only for realized periods. "Private Funding Needs" is a function of deficit baseline, TGA change, buybacks, other changes, and Fed roll-off. "Net Supply" includes total change and the Fed's roll-offs but does not include buybacks. "Private Net Supply" is private only without buybacks. "Private Net Supply (incl. buybacks)" is private supply including buybacks. T-bill share values (in final column) are end-of-period.

Source: Citi Research, US Treasury

Demand Outlook

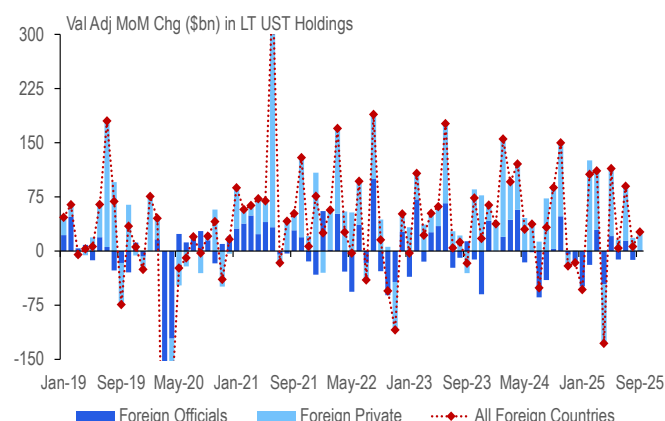
Demand for USTs from foreign private investors should remain strong in 2026 as Treasuries remain the haven asset of choice for global investors. T-Bill purchases from the Fed may increase demand for USTs from banks as reserves move higher.

Supply is not likely to be a major concern for most part of this year. While increasing deficits continue to be a major concern for Treasury markets, the change in the funding mix will likely provide a break from increasing supply in 2026. As we mentioned in our supply section above, net private supply of longer-term USTs is set to decline from \$1.83tn in 2025 to about \$1.2tn. This decline in net-supply will be driven mainly by increased redemptions, auction sizes remaining unchanged till the last quarter and increased buybacks by Treasury, which is essentially replacing off-the-run coupons with T-Bills. For a market that has seen significantly higher coupon supply the last couple of years, absorbing \$1,190bn in net coupon supply

should not be an issue, in our view. Between slightly better demand from foreign private investors than in 2025, increased demand for duration as unemployment moves higher and larger purchases from banks, we see ample demand for the projected coupon supply this year.

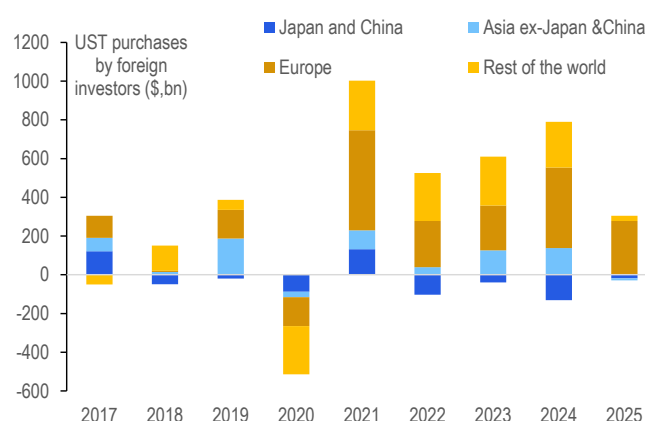
Foreign private demand decreased in 2025 due to sales driven by a weak dollar narrative. In our 2025 outlook, we stated that we will likely see a sustained demand for long-term USTs from foreign private investors in 2025. However, according to the most recent TIC data (for the month of September), foreign private investors have only purchased about \$349bn long-term USTs year-to-date compared to \$544bn in the first nine months of 2024. While we do expect strong foreign private investor demand in the last quarter (see [Foreign Flows in U.S. Fixed Income - Corporates shine in a steady period for US bond demand](#)), we do not think that we will reach our \$650bn estimate at the start of the year for long-term UST purchases by foreign private investors. While demand from Europe continued to be strong, the decrease in demand was mainly led by Asia (ex-Japan and China) and rest of the world (Figure 69).

Figure 68. In the first 9 months of 2025, foreign private investors increased their long-term UST holdings by \$349bn while foreign officials sold \$73bn USTs.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

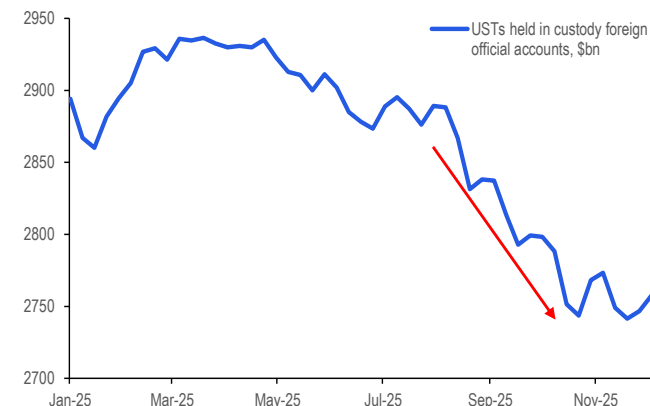
Figure 69. After increasing for three straight years, foreign demand for long-term USTs is on its way to decreasing in 2025. Demand from Europe however remained relatively strong.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

We expect foreign private purchases to increase in 2026 to \$600bn. This decrease in private demand this year was mainly driven by the tariff announcements in April and the subsequent negative sentiment over dollar assets. Foreign private investors sold around \$82bn long-term USTs in April after the Tariff announcements, which was the largest month of coupon sales from foreign private investors since the pandemic-driven sales in April 2020. While they did buy all of the USTs back in subsequent months, demand was relatively slow as anti-dollar narrative persisted. Since then, markets have re-calibrated their estimates of negative growth/inflationary impacts of tariffs. In our view, strong demand from private investors will return in 2026 as USTs cement their status as the safe haven asset of choice for most foreign private investors. In the absence of further fiscal shocks like a possible Supreme Court ruling against the IEEPA tariffs, we expect foreign private investors to purchase around \$600bn USTs in 2026. Even in the case of a ruling against the tariffs, the administration can eventually substitute the IEEPA tariffs with other tariffs under section 122 and section 232, but the resultant market volatility could hurt foreign private investor demand for USTs.

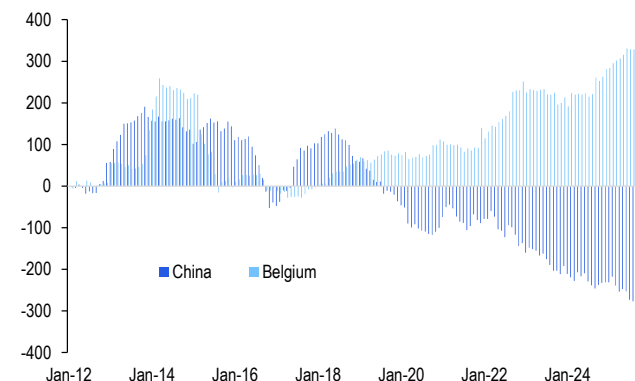
Figure 70. USTs held at the Fed in foreign official accounts have decreased by about \$194bn since March. However, we think much of this was a shift in custody (note sales)...



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 71. ...they could just be moving their USTs to a custodial center like Belgium. The decrease in Chinese holdings in recent years closely match the increase in UST holdings of Belgium.



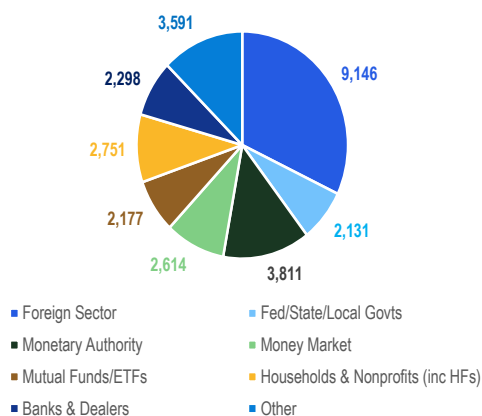
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

We do not expect a big uptick in foreign official demand in the new year. Coming into this year, we did not have high expectations for foreign official demand. However, we did not expect foreign officials to be net sellers of long-term USTs either. In the first nine months of 2025, foreign officials sold about \$73bn long-term USTs. Most of these sales were driven by China, whose UST holdings decreased by about \$90bn this year. The popular narrative in the aftermath of Liberation Day tariffs was that foreign reserve managers were selling USTs and moving their reserves out of dollars. However, the small magnitude of reserve manager sales did not support that story. We do not expect foreign official demand to improve much in 2026 either as there is no clear catalyst that could drive demand. Our FX strategists expect dollar to strengthen in the second half of 2026 (see [Foreign Exchange Forecasts: 2026 FX Outlook](#)). That would cap reserve manager demand for USTs as reserve managers usually sell USTs into dollar strength to protect their currencies.

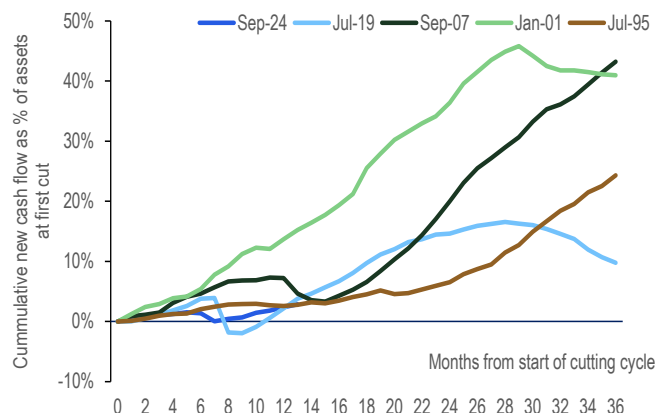
USTs held at the Fed in foreign official accounts are likely moved to a different custodial center. USTs held at the Fed in custody foreign official accounts decreased by about \$186bn in Q2 and Q3 of this year. However, according to TIC data, foreign officials have only sold about \$34bn long-term USTs and \$48.5bn T-bills during that period. In fact, this divergence is not just limited to this year. As overall foreign official holdings of USTs increased by about \$300bn over the last five years, USTs held at the Fed in foreign official accounts have decreased by about \$300bn during that period. We think that some of the decreases in Fed custody holdings are not actual sales but rather a change in custody. The decrease in Fed custody holdings of USTs coincided with decreases in UST holdings of China in the TIC data. At the same time, treasury holdings of Belgium have increased by similar magnitude (Figure 71), so it is possible that China moved some of its USTs held at the Fed to a custodial center like Belgium. Recent TIC data suggests that other countries like Brazil and India might be doing something similar.

Figure 72. Q2 2025 holdings of USTs (\$, bn)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 73. Demand for taxable bond funds typically picks up as we head deeper into the cutting cycle.

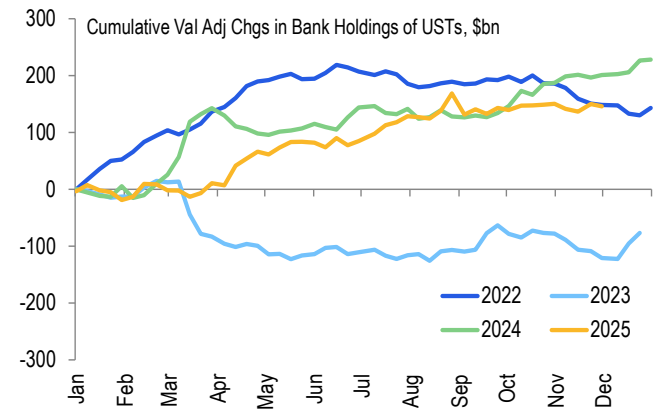


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Demand from investment funds typically tends to pick up as we head deeper into the cutting cycle. In Figure 72, we show a breakdown of current UST holdings by investor type as of Q2 2025 based on the quarterly financial accounts data. Due to the government shutdown, we do not have the Q3 data yet. After foreign investors, the next marginal buyer of long-term USTs in 2026 will most likely be mutual funds and the household sector (which is likely dominated by hedge funds and alternative money managers). Mutual funds, ETFs and household sector combined currently hold about \$4.9tn USTs. Historically, flows into taxable bond mutual funds pick up after the start of the Fed cutting cycle (Figure 73). Demand from this sector seems to be following a similar path as it did during the 1995 insurance cuts cycle. Demand was slow during the initial batch of cuts in 1995 but picked up significantly in 1997 as more cuts became evident. While we do not have granular data on UST demand from household sector during cutting cycles, if we assume similar demand dynamics across mutual funds, ETFs and household sector, it will imply demand for about \$350bn-\$500bn of USTs in 2026 (7%-10% of 4.9tn).

Bank demand for USTs will pickup in 2026. Banks have purchased about \$146bn USTs this year. Most of these purchases happened during the second and third quarter when swap spreads widened significantly. About 75% of the total bank purchases this year were driven by JP, whose domestic cash-to-deposit ratio has declined sharply by the end of Q3 (Figure 75). This led to bank purchases of USTs flatlining since the end of August. With the Fed continuing to drain reserves via QT for most past of this year, banks were a bit conservative in terms of asset purchases as they preferred to hold their cash reserves. With the Fed announcing this week that they will start buying T-Bills to increase reserves in the system, we expect banks to increase their UST purchases in 2026 to \$200bn-\$250bn. However, this might take some time as banks will likely improve their cash-to-deposit ratios before buying securities. So, we expect purchases to pick up beyond Q1 of next year just as it did in 2025.

Figure 74. Most of the bank purchases of USTs this year were concentrated in Q2 and Q3.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, H.8 data

Figure 75. UST purchases in Q2 and Q3 were mainly driven by a single bank whose cash-to-deposit ratio declined after these purchases.

Operating Company	Cash, \$bn	Cash/Deposit ratio		Q2 & Q3 UST purchases, \$bn
		Q3-25	Q1-25	
JPM Chase	63	3%	10%	110
BAML	157	8%	9%	6
Citi	173	22%	18%	-10
Wells Fargo	118	8%	9%	22
US Bank	52	10%	7%	-2
Goldman Sachs	86	21%	21%	14
BNY Mellon	64	31%	30%	5
State Street	78	38%	39%	-6
Capital One	44	9%	11%	2
TD Bank	29	10%	13%	2

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, FFIEC
Note: The cash column refers to domestic cash reserves at the Fed.

Short-end Outlook

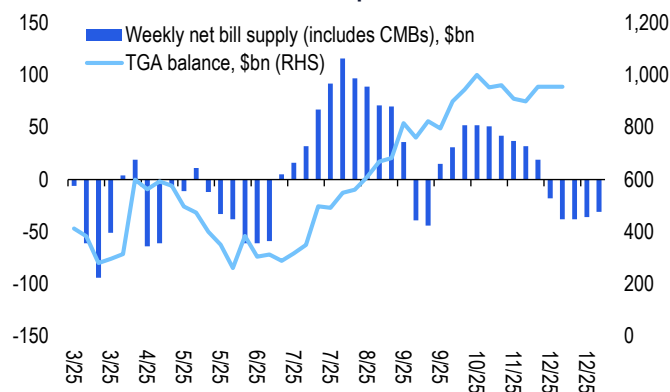
Alejandra Vazquez Plata
Jason Williams

The increase in repo rates since August has been driven more so by increased collateral, due to the rapid T-bill issuance, than due to a risk of reserve scarcity. Bank portfolios, and at times the Fed via the Standing Repo Facility, have overtaken money market funds as the marginal price setters in repo. The question now is what impact will the Fed's Reserve Management Purchases (RMPs) have on repo and T-bills into 2026? The reserve creation, on the back of this, keeps us relatively optimistic on front-end markets, especially in H1.

What drove repo higher in 2025?

Entering 2025, we were of the view that repo rates would move higher once usage of the RRP facility finally reached zero, more so than implied from forwards (see [US Rates Weekly - 2025 Outlook - Embracing uncertainty](#)). This indeed played out with the large T-bill issuance, after the debt ceiling, draining RRP which pushed repo rates higher (see Figure 76). We do not see the repricing in repo rates as a reserve scarcity story but rather the market transitioning to a regime where banks are the marginal liquidity providers. One difference this time around, compared to 2018-2019, is that bank portfolios wanted a higher spread over IORB to backstop repo markets. Into year-end, we expect repo pressure to persist, however, we do not expect a repeat of the Sep-19 episode. Specifically, SRF usage should provide a soft cap for repo rates and limits the concern of the Federal reserve into YE25. Indeed, we had been short SERFFZ5 but have since taken profits a few weeks ago (See [US Rates Weekly - Next steps for the Fed and Treasury](#), [Short-End Notes: Refunding takeaways and SOFR/IORB into 2026](#), and [Short-End Notes - T-bill indigestion](#) for details). Note: Futures trading involves substantial risk of loss.

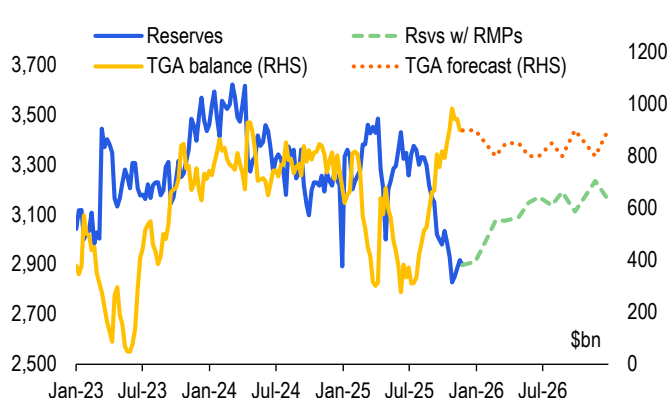
Figure 76. In our view, the rapid increase in T-bill issuance in October, which brought the TGA balance to \$1tn, was the main driver of the increase in repo rates.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg, Treasury

Figure 77. Reserves are set to move higher into 2026 on the back of the Fed new RMPs.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

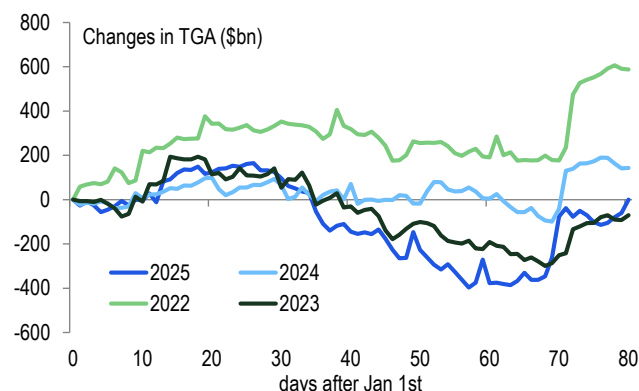
Source: Citi Research, Bloomberg

Reserves set to move higher with the Fed's new RMPs

The Fed introduced the start of Reserve Management Purchases (RMPs) at this week's [December FOMC](#). The Fed will grow the asset side of their portfolio, via purchasing T-bills and "depending on market conditions" up to 3y coupon USTs, to push up reserves (Figure 77). The Fed will start buying December 12th at a pace of \$40bn per month. They are starting large to build a buffer in reserves heading into

the April tax season, where the TGA can spike on Tax Day (draining reserves; see the TGA pattern in Figure 78). The Fed expects that “purchase amounts will be adjusted” afterwards. We expect purchase sizes to decline to \$20bn per month starting mid-April. As a reminder, the Fed does not consider this as QE5 since the objective of these purchases is to keep reserves at an ample level and not to keep long-end rates contained; they made a similar argument with the 2019 T-bill purchases.

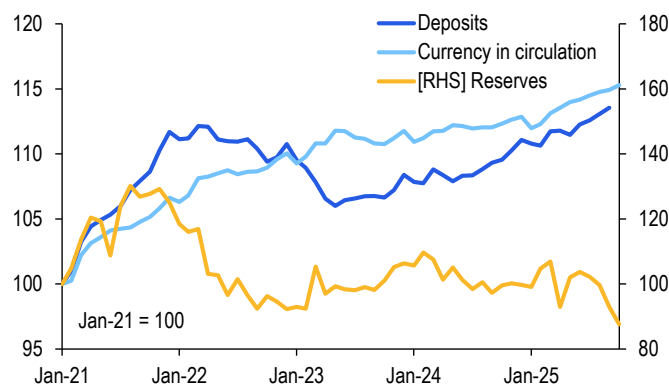
Figure 78. The TGA tends to spike on the tax due date in April (usually around the 15th). The Fed is building up a cushion in reserves via the large RMPs.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 79. Currency in circulation and deposits tend to grow with the economy, as a result, if the Fed doesn't expand its balance sheet, reserves mechanically shrink over time.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Haver Analytics

How large should RMPs be? Previously, we had penciled in \$20bn/month of T-bill purchases starting in February. This is partly driven by currency in circulation, which has grown at ~\$5bn/month. When currency is printed, it pulls a bank reserve out of the financial system. The financial system, measured by total bank assets or total deposits, also grows overtime (Figure 79). For example, in 2025, deposits grew at roughly \$50bn/month. Presumably, banks would want \$5bn to \$10bn of new cash assets backing those deposits (further below we show how front-end markets are responsive to reserve/deposit ratios). At the same time, the Fed would want some cushion on top of these numbers to help alleviate tail risks in repo. Hence, we penciled in an addition \$5bn/month bringing us to \$20bn. This is roughly in line with numbers Powell discussed at the presser as well. The Fed is starting much higher, partly due to the upcoming TGA move in April. There is some uncertainty if the Fed will reduce this to only \$10bn/month, giving them time to reevaluate front-end markets. For now, we forecast \$20bn/month of RMPs starting mid-April.

In Figure 80, we show our estimates for reserves in 2026. Higher reserves should generally be supportive of funding markets. We show our net marketable and private (i.e., ex-Fed) T-bill issuance expectations in Figure 80 as well. We expect the TGA will stay elevated through the year, with its balance fluctuating between \$800bn and \$900bn. Treasury outflows have increased in recent years, therefore TGA balance is more likely to stay elevated in 2026. As a reminder, the current debt ceiling is at \$41tn, and we don't expect to reach this level in 2026.

Figure 80. Our TGA, T-bills, and bank reserve scenarios for 2026.

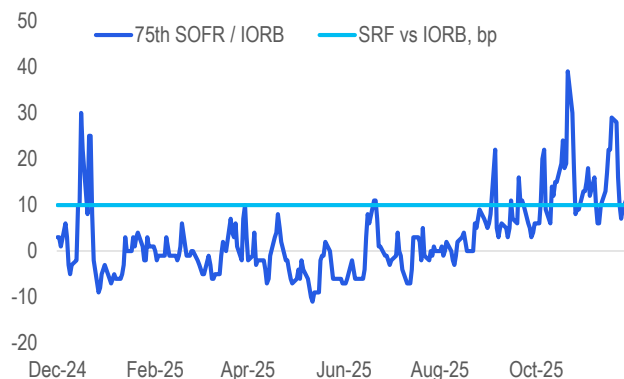
\$bn	TGA	Net T-bill issuance		Reserves	
		Mkt	Pvt	Ex-QE	At QE
Dec-25	900	-149	-187	2,915	2,865
Jan-26	850	47	-10	2,995	2,995
Feb-26	800	219	165	3,080	3,080
Mar-26	850	20	-34	3,080	2,980
Apr-26	850	-274	-321	3,094	3,094
May-26	800	207	169	3,152	3,152
Jun-26	800	-221	-258	3,174	3,074
Jul-26	850	393	355	3,141	3,141
Aug-26	800	128	90	3,194	3,194
Sep-26	900	-92	-129	3,116	3,016
Oct-26	850	216	179	3,176	3,176
Nov-26	800	71	35	3,238	3,238
Dec-26	900	107	71	3,163	3,013

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: QE is short for Quarter-End where RRP usage can move up marginally and thus push down reserves.

Source: Citi Research, Bloomberg

Figure 81. More bank reserves in the system may limit upside spikes in SOFR 75th, as banks have more funds to allocate into repo



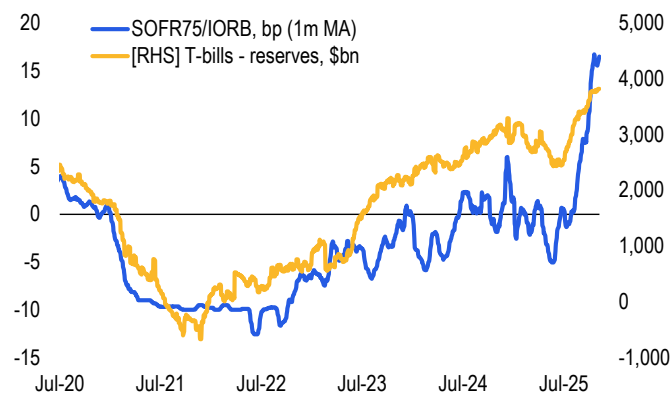
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

The year is effectively a tale of two halves, with net private T-bill issuance relatively contained in the first half of the year, increasing towards the second half of 2026. In the first half, we see two stories. First, Fed funds is very likely capped at IORB for the time being. Without further draining of reserves, it is challenging to see why domestic banks would bid FFs over IORB and TGR pressure may come down reducing the risk FHLBs demand at a higher rate. On SOFR into Q1, it is not clear how much of an impact the T-bill purchases will be since we still see positive net private T-bill issuance in Q1 2026. The increase in bank reserves should help reduce tail risks, but it is unclear if banks will lend at a much lower level than IORB plus 5bp to 10bp (Figure 81). Or, in other words, increased cash at banks may not force competition to push down repo rates, but they would have more cash to deploy on settlement dates to help reduce upside tail risks. Also, it will take time for reserves to optimally allocate throughout the financial system. We think SOFR will still fix at least 3-5bp above IORB throughout most of Q1 (non-settlement dates) or, in other words, we don't see that much scope for SOFR/FF to move much less negative against forwards.

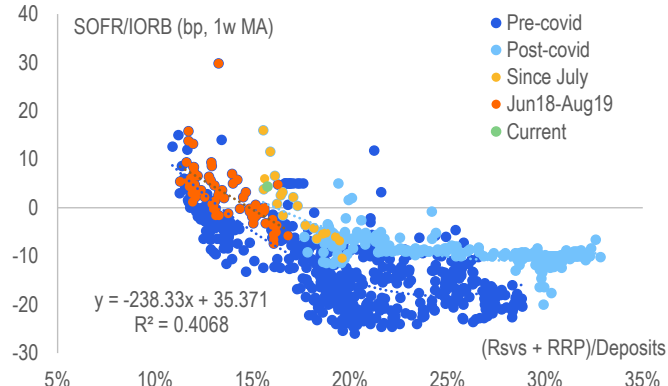
The increase in T-bill issuance towards the second half of 2026 will drive pressure in funding markets once again. The pressure on repo from additional collateral funding needs will be somewhat tempered by the increase in reserves, however, we still see T-bill outstanding growth outpacing reserve growth in Q3 and Q4. As we show in Figure 82, the differential between T-bill outstanding and reserves tends to be positively correlated with SOFR/IOB, therefore, if T-bill growth is greater than reserve growth, we're more likely to see SOFR/IOB pressured higher.

Figure 82. The level of SOFR75/IOB tends to be positively correlated with the differential between T-bill outstanding and reserves.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 83. It is possible that the elasticity curve between repo and liquidity (i.e., the ratio of reserves plus RRP to deposits) has recently shifted to the right.

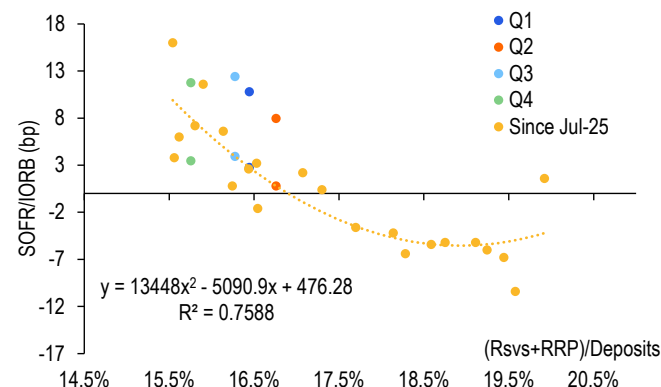


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

SOFR/IOB upside pressure likely to return in H2-26

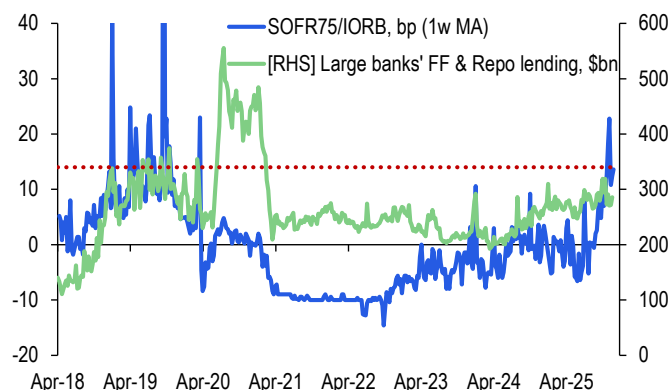
We use the relationship between SOFR/IOB and liquidity, proxied by the ratio of reserves plus RRP usage to deposits, to estimate a path for SOFR/IOB through 2026. Between Jun-18 and Aug-19 (orange dots in Figure 83), the regression curve between these two variables seemingly moved to the right during this period. Looking at the more recent relationship (i.e. since July, yellow dots), it seems that the curve is shifting to the right once again. One reason the curve may have shifted to the right is: 1) increased T-bill supply and repo demand driving up the need for reserves and 2) bank portfolios may be valuing cash at a higher premium due to increased outflow risks. The new RMPs could shift the demand curve lightly to the left, for a fixed level of reserves/deposits. In Figure 84, we model a path for SOFR/IOB in 2026 based on this regression curve along with estimates for the ratio of reserves to deposits (we assume RRP stays at zero). We then imply an upper range for SOFR/IOB by assuming a further shift in the demand curve to the right by ~1%.

Figure 84. Using the recent relationship between SOFR/IOB and the ratio of reserves plus RRP to deposits, we estimate a range for SOFR/IOB into 2026.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

Figure 85. Repo lending by banks is below the levels from 2018/19 despite the relatively attractive level of SOFR75/IOB.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg

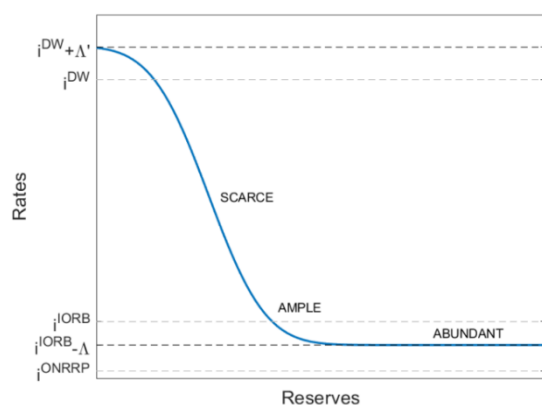
Our estimates show that during Q1 and Q2, the upside to SOFR/IOER is somewhat contained, with our Q1 range 3bp to 11bp and 1bp to 8bp for Q2. This is the result of seasonal patterns: T-bill supply increases in Q1 as the first tax refunds are filed and need to be funded, and then it moves lower into Q2 with the April tax receipts. At the same time, the \$40bn/month RMPs add additional bank reserves. In other words, liquidity in Q2 improves from Q1 due to the relative drop in T-bill supply, this could push SOFR/IOER slightly lower after Q1. There may still be value in long SOFR/FF forwards for Q2, based on our models.

Into the second half of the year, a similar pattern emerges as T-bill supply in Q3 tends to outpace supply in Q4. This in turn drives our SOFR/IOER estimates higher in Q3 (4bp to 12bp) compared the Q4 (4bp to 12bp). Note that higher reserves could encourage banks to lend more cash in repo, not just the level they lend. As we show in Figure 85, while the SOFR75/IOER spread is at attractive levels, overall repo lending by large banks is still below the levels we last saw in 2018/19. Presumably, with the Fed actively maintaining an ample level of reserves (Figure 86), banks' preferences for holding cash could change and they could instead deploy additional liquidity to repo markets.

Fed Funds likely to stay at IOER in H1-26

Given the current supply and demand dynamic of the Fed funds market, we think FF can stay pinned at IOER for a few months. The total volume of domestic banks' FF purchases (i.e., borrowings) has been steadily declining since Q2-2020 (Figure 87). Notably, over the past year G-SIB purchases have been essentially zero, and instead the main borrowers of Fed funds are smaller regional banks. We think this structural decline in FF borrowings from the largest players supports our thesis that Fed Funds can stay pinned at IOER for some time, as it is unlikely that the smaller banks have the capacity to bid up FF above IOER. Or, in other words, we do not think we are in a reserve scarcity regime, simply there is too much collateral that has pushed SOFR (and FFs to some extent) higher.

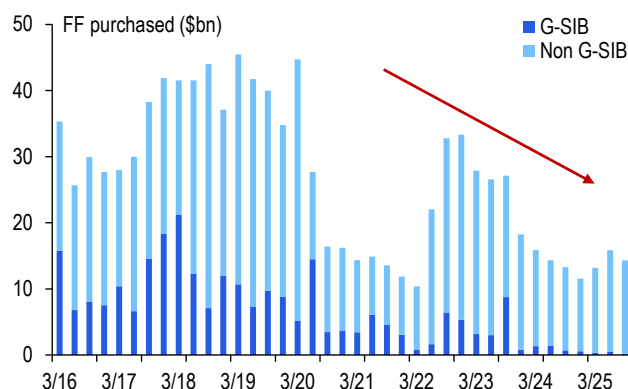
Figure 86. The Fed needs to eventually purchase USTs to prevent reserves from becoming scarce.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Federal Reserve Board

Figure 87. Domestic banks' Fed fund borrowing have been steadily declining since Q2-2020, and GSIB purchases have been essentially zero over the past year.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

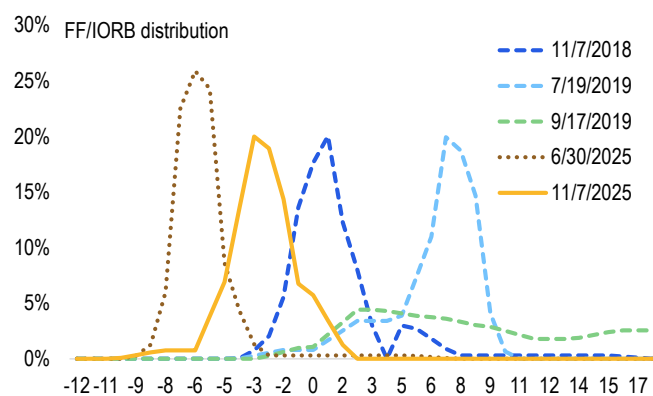
Note:

Source: Citi Research, FFIEC

As we show in Figure 88, while the FF/IOER distribution has shifted to the right from its June level, it hasn't reached yet the levels from late 2018 or September 2019. Further, the right tail of the distribution looks relatively contained; back in

September 2019, the increase in right-skew was one of the main distribution shifts going into the ‘repocalypse’ ([Short-End Notes - Will Fed funds keep moving?](#)). Back in late 2018, after climbing up 5bp, effective Fed funds stayed at IORB for around 6 months. During this time, TGCR moved around IORB, but it wasn’t until TGCR/IORB moved persistently above zero that FF began moving above IORB (Figure 89). This time around, we think it’s possible that FF stays capped at IORB for a few months, and that once again the FF rate doesn’t lift until the TGCR/IORB spread is persistently positive. The RMPs imply a strong risk that FFs may not go above IORB for the rest of 2026.

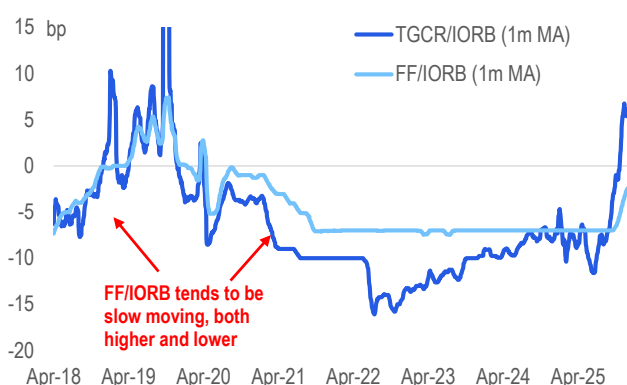
Figure 88. While the FF distribution has moved to the right over the past few months, its median is still below the levels from 2018/2019.



© 2025 Citigroup Inc. No redistribution without Citigroup’s written permission.

Source: Citi Research, Bloomberg, Federal Reserve Bank of New York

Figure 89. In 2018, the TGCR/IORB spread was consistently positive before FF lifted from IORB.



© 2025 Citigroup Inc. No redistribution without Citigroup’s written permission.

Source: Citi Research, Bloomberg

Will the Fed adopt a new target rate?

A tail risk to our view of increased repo pressure towards the end of 2026 is that the Fed could eventually change their target to a Treasury repo rate. Back in September, Dallas Fed President [Lorie Logan suggested](#) that the Fed should change their target from the Federal funds rate to the Tri-Party General Collateral Rate (TGCR; for some deep background on SOFR, please see [US Rates Strategy - SOFR update: basics and what comes next](#)). The Fed targeting a repo rate makes sense since their tools, namely the RRP and Standing Repo Facility (SRF), work by influencing UST repo markets, and the Treasury repo market is much larger than the Fed funds market.

The question is what rate, TGCR or SOFR, will be the target? Lorie Logan favored TGCR saying that “[it] is cleaner, and I think it would currently offer the best target”. We think Logan likely prefers TGCR because the Fed has more direct control over TGCR than SOFR. SOFR is effectively a bimodal market where cash lenders receive TGCR or TGCR+1bp, and cash borrowers pay something around SOFR 75th percentile (Figure 90). Effectively, dealer balance sheet cost (i.e., the cost of intermediation) is the spread between the cash borrowers and lenders. The Fed does not have a day-to-day tool to control intermediation costs. Or in simple terms, targeting TGCR would mean the Fed controls the rate cash borrowers receive for UST repo, while SOFR also includes the cost of intermediation. Separately, Fed Vice Chair of Supervision Bowman [highlighted](#) a preference to have SRF set above the top-end of the Fed’s target range, which may indicate she supports targeting TGCR implicitly. Bowman and Logan would be two key votes for using TGCR and not SOFR.

Still, we think there are positives for the Fed to target SOFR. First, the Fed implicitly supported SOFR as the new benchmark in a post-LIBOR world. Would they want to encourage the creation of new derivative markets on TGCR? Second, in our view, the Fed would not be comfortable keeping TGCR within the target range while SOFR fixes outside the range, as this would imply a material monetary policy transmission issue. In other words, if cash borrowers, posting ultra-safe UST collateral are paying a large premium over the Fed's newly targeted tri-party rate, the real economy is likely paying an even larger premium. Third, the Fed already is trying to keep SOFR within their target band. Since the standing repo facility (SRF) was introduced to softly cap cash borrowing rates, the Fed is already set to handle such an event. Hence, it makes more sense to target SOFR directly, although they would not try to explicitly pin it to the middle of the range, instead letting it float more throughout.

As for timing, we think the change would take some time, perhaps by late 2026 or early 2027 if it was a prime concern, although the Fed has other pressing matters. It may make sense to wait until the next Fed Chair is chosen to finalize the decision unless it is close to unanimous. A change of target to SOFR would be bullish for swap spreads because it would implicitly be putting a cap on GC, this in turn should keep term repo rates more contained (i.e., market should price in less risk premium). Front-end spreads, specifically 2y to 5y spreads, are likely to be anchored by term repo expectations. For example, a cash investor can choose to invest money into term repo (via cash markets or cash/futures basis for those that can) and roll the position for two years or buy 2y swap spreads on asset swap. Presumably, 2y spreads should contain that information and an additional risk premium.

Figure 90. SOFR is a bimodal distribution, a combination of cash lending rate (~TGCR and TGCR+1bp) and cash borrowers (we proxy with SOFR 75th on a day-to-day basis).

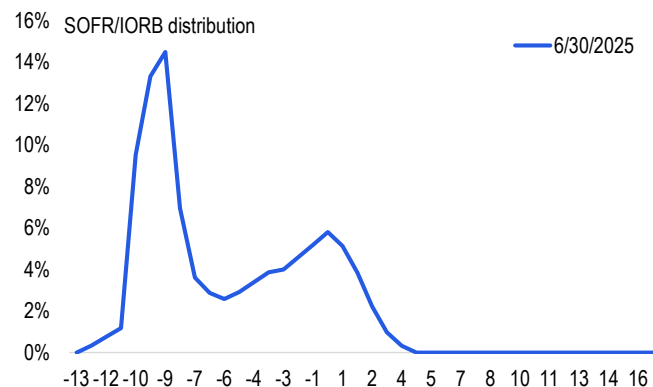


Figure 91. For the below GSIBs, we report current and new SLR requirements implied by the adopted rule.

Depository institution	Current			Current	
	Q3 SLR	Req	New Req	Q3 CET1	Req
C	6.9%	6%	4.0%	15.7%	12.1%
JPM	6.5%	6%	4.0%	15.7%	12.3%
GS	7.3%	6%	3.8%	15.9%	13.6%
WF	7.1%	6%	3.5%	13.1%	9.7%
BOA	6.3%	6%	3.8%	13.0%	10.7%
MS	7.8%	6%	3.5%	19.8%	13.5%

Holding company	Current			Current	
	Q3 SLR	Req	New Req	Q3 CET1	Req
C	5.5%	5%	4.0%	13.3%	12.1%
JPM	5.8%	5%	4.0%	14.8%	12.3%
GS	5.2%	5%	3.8%	14.3%	13.6%
WF	6.4%	5%	3.5%	11.0%	9.7%
BOA	5.8%	5%	3.8%	11.6%	10.7%
MS	5.5%	5%	3.5%	15.1%	13.5%

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Federal Reserve Bank of New York

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, FR Y-9, Call Reports, Federal Reserve Board

Other Fed tools into 2026

- **Lowering IORB.** The Fed can lower IORB to help manage where TGCR fixes within the target range. An IORB cut, we think would result in a 1-1 move lower in Fed funds, and a smaller in magnitude move lower in SOFR on 'good days' (i.e., days when SRF is not used). We don't think a lower IORB would cap SOFR on coupon settlement days or days when SRF is used. With the new RMP backdrop, there is little risk FF/IORB will get to +5bp, which in the 2018-2019 cycle was required before the Fed cut. If we are right that FFs may be short-term capped by IORB, then the Fed may take its time with this.
- **Lowering SRF.** The FOMC Board could lower the rate of the SRF, relative to IORB, to better contain SOFR on days of increased pressure (for example, on coupon settlement dates). However, we think it could be hard for the FOMC to reach a consensus on this. For example, as we mentioned above Fed Vice Chair of Supervision Bowman has expressed support for setting SRF above the top-end of the range. An SRF adjustment higher we think would be negative for spreads overall as it signals that the Fed is setting a higher bar to backstop repo markets. Overall, we think the likelihood of an outcome where both IORB and SRF are cut at the same time is very small. Of course, such a dual adjustment would likely help contain repo rates during most days. In summary, we expect no change to the level of SRF within the target range in 2026
- **Clearing SRF.** Clearing the SRF would create a stronger soft-cap for repo at the top-end of the Fed's target range. Currently, repo rates can trade above SRF due to the expensive netting requirements at constrained dealers. Clearing the facility would allow netting, which may increase uptake as well. Or, in other words, the 'stigma' around SRF usage may decline when it is very easy to utilize. Additionally, clearing SRF could allow the Fed to reduce their balance sheet further if in the future reserves start moving. The facility would be a stronger backstop and the Fed could choose to shift SOMA holdings from USTs into repo collateral via SRF (e.g., reserves being more dynamically created at the SRF). Dallas Fed President Logan's [remarks](#) from August suggest that she would support "increasing or removing limits on the SRF's size or centrally clearing those transactions". The Fed uncapped SRF at the December FOMC, removing the \$500bn aggregate limit. This may encourage banks to equate, at the margins, USTs and cash (given they can leverage USTs at the Fed for cash). Over time this could encourage bank portfolios to lend more reserves into repo markets over time, although we stress this is not a short-term view.

eSLR reform and other long-term regulation changes

Back in June, the Fed released a proposal for changing the eSLR requirement for GSIBs (see [US Rates Weekly - Don't fight the Fed... for now](#)). This proposal was finalized and published on the [Federal Register](#) on Dec 1st, and it will take effect on Apr-26. Prior to this change, GSIBs supplementary leverage ratio was set at 3% plus an eSLR buffer of 2% at the bank holding company level, and eSLR was set to 6% for the depository institution (DI). The proposal changed eSLR to half of the GSIB's method 1 surcharge calculation for both the holding company and the DI. Hence total SLR will be 3% plus half of the method 1 calculation (capped at 1%). As a reminder, the GSIB surcharge is calculated using method 2 in the US, which includes short-term wholesale funding (STWF) in exchange for suitability in method 1, which is the global standard. The GSIB surcharge calculation will not change, which we think makes it less impactful for the Treasury market. In Figure 91, we show the current and new requirements for GSIBs' DI and Holdco.

In layman's terms, the goal of this change is for SLR to not be a binding constraint for banks as it should "serve as a backstop" to risk-based capital requirements. As a reminder, risk-based capital requirements are, effectively, common equity tier 1 (CET1) ratios. Each bank has a different CET1 requirement, which is calculated as the 4.5% minimum plus stress capital buffer plus GSIB surcharge for each bank (these are published annually by the Fed). The idea is that SLR is punitive for Treasury market intermediation given that SLR is not based on risk exposures. Therefore, low-risk products may look less attractive if SLR becomes a constraint.

We don't think the new rule will be a catalyst for additional UST demand. In our view, liquidity requirements and banks' preference for cash reserves compared to USTs, are the deciding factors for their security holdings. We have previously discussed how swap spreads collapsed in 2015-2016 due to sales from foreign central banks and a lack of demand by pension funds. Hence, the new rule won't push spreads to pre-2015 levels (see [US Rates Weekly - How to DO\(d\)GE higher 10s?](#)). In addition, long-end spreads are not attractive "arbitrage" trades for dealer portfolios. Carry and roll remains high predominately in front-end spreads, and this is especially true on a risk-adjusted basis. Dealers would have little appetite to be long 30y asset swaps, unhedged, regardless of capital requirements given risk limits.

One possible impact of this reform is bank portfolios might be more open to lending in repo markets if SLR was a constraint on the depository side. This is since the SLR requirement will fall significantly on the DI side of the equation. There are two issues here that will limit possible impacts on front-end spreads and repo markets. First, banks will not lend their cash into repo markets as cash is generally not cheap. Second, there is still a limited amount of cash to be lent relative to the ever-growing supply of UST securities. Or, in other words, there is not unlimited balance sheet. Large banks will be careful with lending cash and are likely to do so only at attractive levels.

Vol Outlook: Mind the tail risks

Mike Chang

We expect the continuation of a cautious and divided Fed to initially keep rates vol relatively suppressed, but vol can rebound modestly under a new dovish Chair with the bar for more aggressive easing likely lower. We estimate that 3m10y implied vol can average between 78–83bp vol. 5y tails look undervalued against other tails on a relative basis. We are mildly constructive on long-dated vol given the positive tailwinds from the potential GSEs vol hedging needs and unresolved long-run fiscal uncertainties. We see more upside in intermediate left-side receiver skews (1y1y) than the shorter expiries. 5s30s curve vol could stay rich relative to 2s10s curve vol through early next year.

Vol to stay low in H1 but has upside in H2 due to tail risks

Heading into 2025, we forecasted that implied vols would drift lower on the back of a gradual Fed easing approach, and our estimate of 3m10y averaging between 85–90bp vol has essentially been realized with the YTD average currently at 91bp vol ([Rates Vol Lab - US and EUR Rates Vol 2025 Outlook](#)). Looking ahead to 2026, we still expect the Fed's approach to monetary policy to be the primary driver for rates volatility, and the transition to a new dovish Fed Chair, along with the right economic backdrop, could potentially lead to very different repricing in rates vol between the first and second half of the year.

In early 2026, we expect the continuation of a cautious and divided FOMC to initially keep rates vol relatively suppressed, while unresolved and overhanging tail risks should provide a soft floor. As we have previously highlighted, there is a broadly directional relationship between short-expiry implied vol, especially on front-end rates, and the market's expectation for Fed cuts/hikes over the coming year (Figure 92). This is because a gradual/(aggressive) Fed should be reflected by the market's expectation for a narrower/(wider) potential rate distribution, which in turn translates to lower/(higher) implied vol. Given that upper-left vol has already cheapened back to its multi-year low last seen in late October right before the start of the government shutdown (can be viewed as the extreme low vol period given the lack of data release), we believe that further meaningful decline in short-dated vol would require renewed pricing for a Fed pause. At the same time, a divided and handcuffed Fed should continue to anchor short-expiry vol at least until the transition to a more dovish leaning Fed Chair.

Figure 92. Short-expiry vol tends to trade directionally with market's expectation for Fed rate changes. A cautious Fed should keep vol relatively suppressed early in the year



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

Figure 93. Despite the economic, fiscal, and Fed-related uncertainties next year, the market seems complacent and is not pricing for a sizable increase in swaption vol



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

As the year progresses, vol could rebound modestly given a backdrop that is more conducive for outsized rate and curve moves and more potential tail risks.

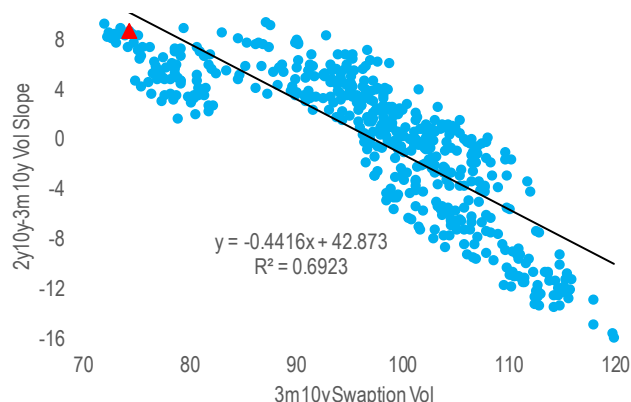
New dovish inclined Fed Chair: We believe that the upcoming change in the Fed's leadership, and possibly a more dovish composition, means that the bar for potentially more aggressive easing will likely be lower. As long as inflation is not rebounding, even a modest weakening in the labor data could be enough to justify deeper preemptive cuts under a dovish inclined Fed chair. And once rates are lowered, there is greatest chance that they stay low longer than necessary, i.e. a quick v-shaped normalization would be less likely. This potential shift in monetary approach should at least extend the left tail of the rate distributions, especially on front-end rates.

Increase in coupon issuance could bring back fiscal worries: At the same time, the eventual need for the Treasury to increase coupon issuance (we expect the announcement to happen at the Nov2026 refunding) and the possibility of additional fiscal stimulus ahead of the mid-term election could lead to renewed fiscal concerns. Poor auction demand and/or mini episodes of buyer strikes could lead to higher term premium repricing. These potential risks should increase the right tail of the distributions for intermediate and long-end rates.

Despite the uncertainties slated for next year around the economic growth outlook, the new Fed Chair, and the fiscal policies ahead of the mid-year election, the market seems complacent and is not pricing for a sizable increase in swaption vol. Currently 6m fwd 1y1y vol is roughly only 3 normals higher than spot 1y1y vol with both trading near their multi-year lows (Figure 93), which suggests that implied vols are expected to remain subdued even by mid next year. Similarly, the vol term structure does not appear to be steeper than usual when viewed in the context of the recent decline in outright vol. The swaption vol slope typically moves inversely with the outright level of vol because short-expiries tend to lead, and a simple regression of the 2y10y-3m10y vol slope on 3m10y vol shows that the vol slope is close to fair after accounting for this relationship (Figure 94). **But given the potential shift in approach from the currently cautious Fed to a more active Fed, we believe the vol term structure can trade meaningfully steeper than usual.**

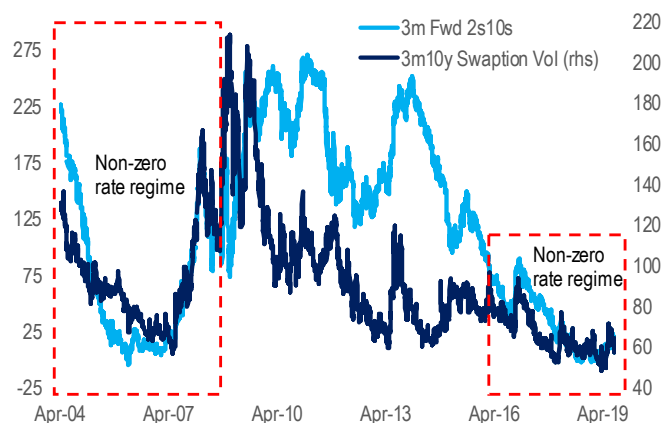
Thus, we continue to favor being long intermediate vol versus short gamma with net positive carry heading into next year.

Figure 94. The swaption vol slope seems fair relative to outright level of vol, but the risk is for it to be steeper given the potential shift from a cautious to a more active Fed



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 95. Short-dated vol has historically traded directionally with the yield curve when rates were above zero and high inflation was not a concern



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

If inflation continues to drift lower and is viewed to be no longer a constraint for the Fed, we believe that short-dated vol can potentially trade more directionally with the yield curve next year, which historically has been the case aside from the zero-rate regime and the recent high inflation period. Using the 2004–2008 and 2015–2019 periods for guidance (Figure 95), we see that 3m10y swaption vol was trading relatively closely with the 3m fwd 2s10s curve at a beta of roughly 0.3 normal/bp in the curve. Given that our 2026 base case forecast for the 2s10s curve is roughly 10bps steeper than the forwards and the bullish and bearish forecasts range from 10bps flatter to 30bps steeper (see the Overview section of the Rates Outlook), this would suggest a modest upside in 3m10y vol for next year. **We estimate that 3m10y implied vol can average between 78–82bp vol, with most of the increase in vol happening in the second half of the year.** Without the Fed actively putting a ceiling on rates via QE, which is not a consideration at this point, and the lower zero bound still far away, we do not expect swaption vol to fall back to the pre-covid range. We arrived at our vol estimate by using the difference between our bullish and bearish 10y yield.

Intermediate receiver skews on front-end can outperform

As we have discussed in the past, we believe the tail risks for front-end and intermediate/long-end rates are tied to different factors, and in recent years this has been reflected by their diverging vol skews. Front-end risk reversal skews, such as 1y1y, have been primarily driven by inflation surprises (Figure 96), which makes intuitive sense given the Fed's focus this year to normalize inflation from elevated levels and to avoid a possible tariff related rebound. We expect this relationship to persist for next year. If our economists' forecasts for further decline in core inflation materialize, we believe that receiver skews on front-end rates could richen even more to reflect the asymmetric tail risk of a much deeper easing cycle under a Fed that would no longer be handcuffed by inflation.

Figure 96. Front-end skew should continue to be driven by inflation surprises, and intermediate expiry receiver skew can richen more once the Fed is not handcuffed by inflation



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 97. Implied vs realized receiver skews in price/model ratios. Rec skew in the very upper-left is currently the most overvalued, but intermediates could have more upside

OTM receivers (1Y z-score)					
exptail	1y	2y	5y	10y	30y
3m	1.12 (1.1)	1.06 (0.6)	1.04 (1.0)	1.02 (0.1)	1.01 (0.2)
6m	1.06 (0.8)	1.03 (0.7)	1.03 (1.9)	1.01 (0.8)	1.00 (-0.1)
1y	1.02 (0.7)	1.02 (0.9)	1.01 (1.0)	0.99 (-1.0)	0.99 (-0.6)
2y	1.00 (0.4)	1.00 (0.9)	1.00 (-1.0)	0.99 (-1.5)	0.99 (-1.5)
3y	1.00 (1.8)	1.00 (0.6)	0.99 (-1.0)	0.99 (-1.0)	0.99 (-0.8)
5y	0.99 (-2.0)	0.99 (-2.0)	0.99 (-1.5)	0.99 (-1.1)	0.99 (-0.7)
10y	0.99 (-1.4)	0.99 (-1.3)	0.99 (-0.9)	0.99 (-0.7)	0.99 (-0.8)

We calibrate an empirical SABR model to the recent observed dynamics of ATM vols and rates. We use a 2y rolling window to estimate a backbone parameter, and a 3m window to estimate correlation and vol-of-vol parameters. The empirical model matches ATM implied vols exactly, so it's different from the market only in skew parameters.

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

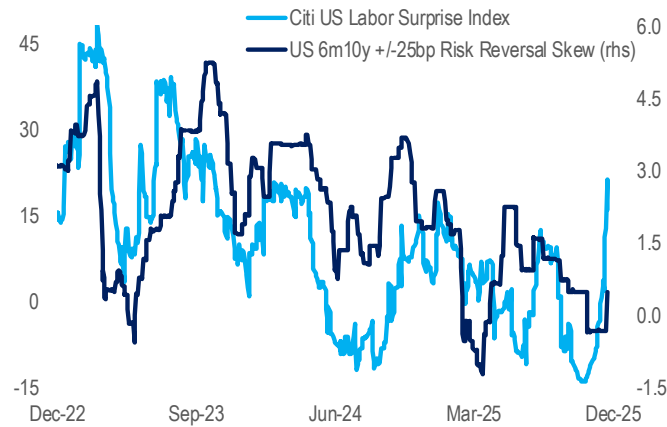
Source: Citi Research

Typically, short-expiry receiver skews tend to trade rich relative to long-expiry receiver skews because the Fed is expected to cut aggressively early so that less accommodation would be needed later. This appears to be the case right now with the very upper-left receiver skew trading the most overvalued relative to our model (3m1y receiver price/model ratio at 1.12) and the intermediate left-side receiver skews trading close to fair (Figure 97). **However, given that the Fed's composition might be more dovish later next year than in the near-term and that the inflation risk is more likely to recede over time, we see more upside in intermediate left-side receiver skews (1y expiry) than the shorter expiries.** This is consistent with our overall bias that the second half of the year could potentially experience larger rate moves, especially in rallies, and we believe receiver calendar spread on front-end rates would be an effective way to express this view.

Unlike the front-end, we expect the tail risks around the 10y rate to be more balanced with the labor market being the key driver. In recent years, risk reversal skews on 10y and 30y tails have generally tracked employment surprises, and we expect this to continue (Figure 98). **The difference between the drivers for front-end and long-end skews also implicitly suggests that the requirement for front-end rates to rally is lower (just need inflation to not be a constraint) than it is for the intermediate and long-end rate (need a deterioration in the jobs data in addition to moderating inflation).** This suggests that the tail risk is also biased for a bullish steeper rates curve, which is consistent with our rates forecasts.

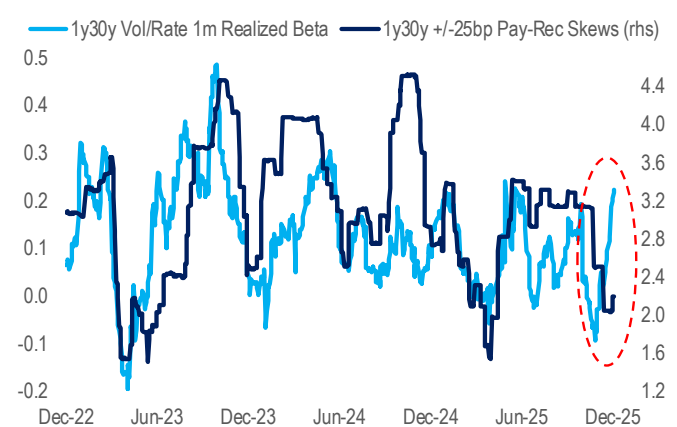
Specifically for the 30y tails, renewed fiscal/supply concerns could also cause payer skews to deviate and trade higher than expected relative to the jobs data, as it did in Q2 this year. Right now, the fiscal outlook does not appear to be the market's primary concern with the 30y risk reversal skew trading near its multi-year low. Looking at the long-term directional relationship between the vol skew and the realized beta of the swaption vol to the underlying forward rate, 1y30y risk reversal skew actually looks to be relatively low (Figure 99). **Thus, we would not be surprised to see a rebound in 30y payer skew over the course of next year given that it is already slightly undervalued, and the unresolved long-run fiscal concerns could return to the spotlight.**

Figure 98. Risk reversal skews on 10y and 30y rates have generally tracked employment surprises, which suggests a higher requirement for rallies than the front-end



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 99. 1y30y risk reversal (payer-receiver) skew looks too low relative to the recent vol/rate directionality. We see upside risk especially if fiscal concerns return.

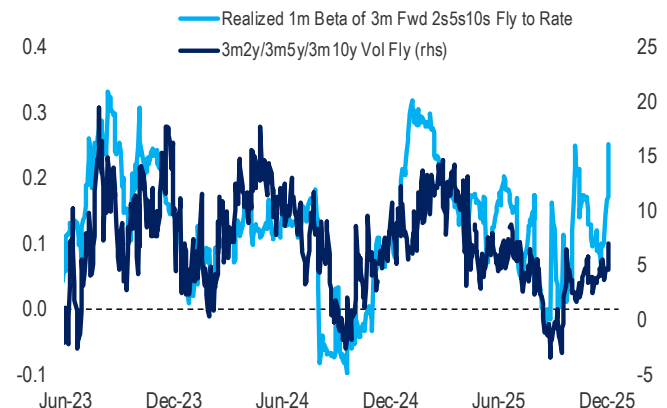


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

5y tails look cheap relative to others and can outperform

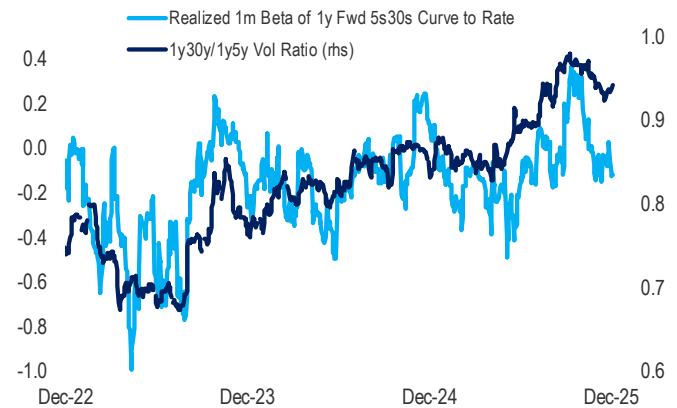
On a relative basis, we believe that 5y tails look cheap relative to the neighboring 2y and 10y tails. For example, even though the 3m5y vs 3m2y and 3m10y vol fly has drifted modestly higher in recent weeks, the move has lagged the increase in the positive fly/rate directionality (rate fly tightens/(widens) in rate rallies/(sell-off)), which it has broadly tracked in the past (Figure 100). After accounting for the recent increase in fly and rate directionality, the vol fly looks to be around 4 normals too low. This suggests that even though vol on 5y is higher than vols on 2y and 10y outright, the implied vol differential might not be enough to compensate for the likely larger realized moves in the 5y rate on the fly. One way to take advantage of this relative cheapness is to be long a bullish conditional fly tightener by being long receivers on 5y against receivers on 2y and 10y. The benefit of structuring the conditional bullish using receivers is that it helps to mitigate the downside risk if the fly widens in a rate sell-off.

Figure 100. 5y tails look cheap versus 2y and 10y tails, where the vol fly has lagged the recent increase in the positive fly/rate directionality



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 101. The 30y vs 5y implied vol ratio is still trading near its multi-year high and above where it should be based on the recent directionality of the 5s30s curve to rates



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

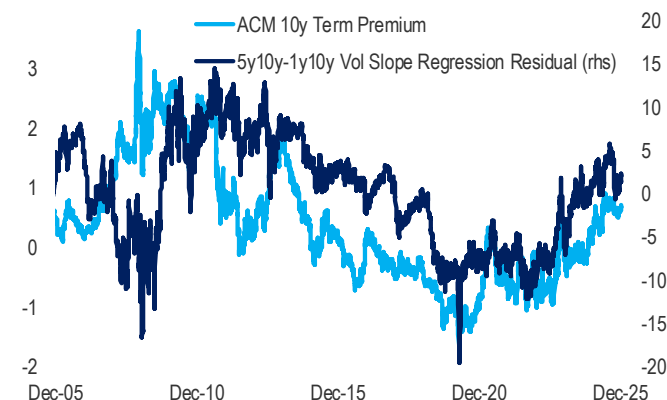
Similarly, 5y tails also look relatively cheap versus 30y tails with the right-side/left-side vol ratio currently still trading near its multi-year high. The 30y vs 5y implied vol differential is also above where it should be based on the recent realized directionality of the 5s30s curve to rates (Figure 101). The relative cheapness of 5y tails to 30y tails provides an opportunity to establish 5s30s conditional bull steepeners with only a negligible give-up of only 3bps relative to the spot curve.

Long-dated vol and potential GSE hedging demand

We are mildly constructive on long-dated vol given that it is already relatively low to rates and could benefit from positive tailwinds from the unresolved long-run fiscal uncertainties and potential GSEs vol hedging needs.

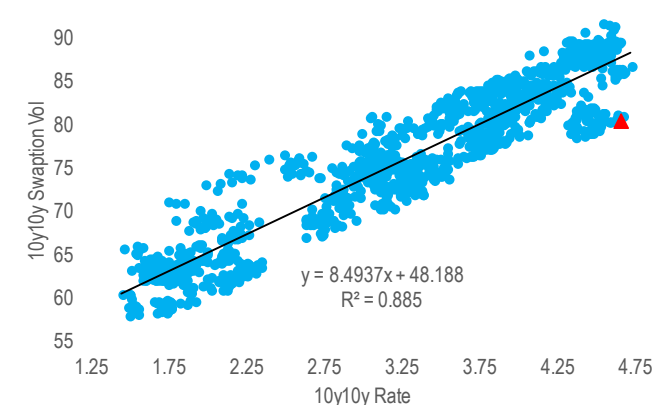
We have long argued that the steepness of the vol term structure after adjusting for the level of short-dated volatility is broadly tied to the pricing for term premium, and we heuristically show this by comparing the long-run regression residual of the 5y5y-1y5y vol slope on 1y5y vol against the widely followed NY Fed ACM term premium index (Figure 102). We expect this relationship to persist, and the overhanging unresolved fiscal concerns should continue to provide implicit support for long-dated vol. At the same time, a simple regression of 10y10y vol on its forward rate shows that long-dated vol in general is already relative cheap and has sharply lagged underlying rate since this past September (Figure 103). This suggests that long-dated vol has limited room for further cheapening without a meaningful rally in rates and/or term premium.

Figure 102. Overhanging and unresolved fiscal concerns should continue to be a tail risk for higher term premium which in turn is an implicit support for long-dated vol



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 103. Long-dated vol is already relatively cheap to its underlying rate, suggesting limited room for further cheapening barring a meaningful rate rally



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

From the demand side, the increase in the GSEs retained mortgage portfolios over the past few months could be a harbinger of potential vol hedging needs next year. From July to October, Fannie Mae's and Freddie Mac's retained portfolios grew by \$27bn and \$25bn, respectively, and our mortgage strategists believe that this could continue with a possible combined buying of \$100bn for next year ([US Agency MBS Strategy - Fannie/Freddie mortgage portfolio increases by ~\\$18bn in October](#)). An increase of this amount would be reasonably achievable given that the retained portfolios would still be well below their current caps of \$225bn each. Prior to the financial crisis, the GSEs would hedge their retained mortgage portfolios' short vega exposure by buying long-dated vol around the 3y10y to 5y10y

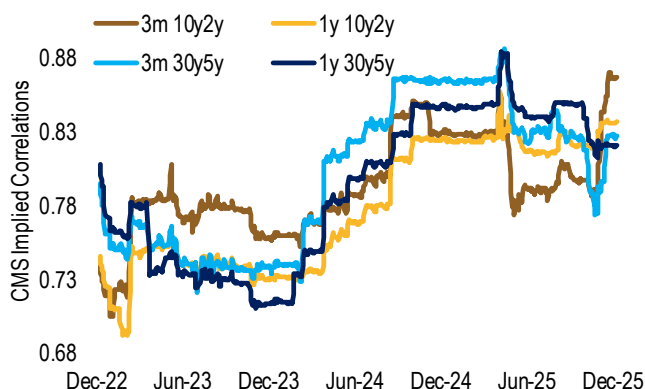
sector. We believe the GSEs could have the need to actively hedge again if they regrow their portfolios further as we expect, which would bring a new source of marginal demand for vega. But to be clear, we expect the GSE hedging demand to be only a supporting positive factor for intermediate and long-expiry vols and not the primary driver for the sector. For example, even between the past July and October when the GSE's retained portfolios were increasing, intermediate and long expiries did not outperform on the surface, likely because term premium was declining and weighing down on bottom right vol.

On the supply side, we expect long-maturity callable issuance to remain relatively low, which should provide a positive tailwind for long-dated vol. Long-maturity callable gross issuance this year ended at \$13bn, which is slightly above what we had originally expected (\$10bn). For 2026, we expect a similarly low gross issuance of around \$12bn due to the lack of demand from foreign investors and the lack of call redemption. Given that we expect rates to rally by around only 70bps even under our most bullish scenario, the outstanding long-maturity bonds that are eligible to be redeemed likely will not be called and no replacement issuance would be needed.

1y 30s/5s curve vol outperformance can persist through H1

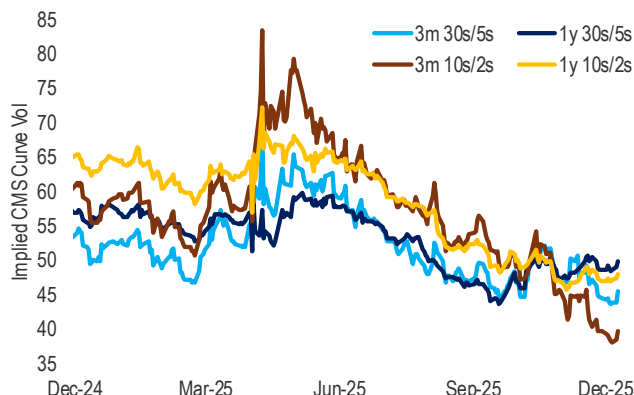
Heading into 2025, one of our highest conviction views was that CMS curve vol was undervalued and should outperform swaption vol ([Rates Vol Lab - US and EUR Rates Vol 2025 Outlook](#)). Within curve vol, we also have been arguing that 5s30s offers much better risk/reward than 2s10s, especially for intermediate expiries. These views proved to be correct with the implied correlations for 3m and 1y 30s/5s CMS curve options trading below where they were at the start of the year, reflecting 5s30s curve vols' outperformance against 5y and 30y swaption vols (Figure 104). Note that this was not the case for 2s10s curve options where their corresponding implied correlations have increased YTD.

Figure 104. Implied correlations for 30s/5s CMS curve options are below where they were at the start of the year, reflecting curve vols outperformance vs swaptions



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 105. 1y 30s/5s CMS curve vol has outperformed 10s/2s curve vols and short-expiry 30s/5s vol this year amid the overall cheapening



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

The divergence in the implied correlations has translated to 1y 30s/5s CMS curve vol's outperformance against 10s/2s curve vols and short-expiry 30s/5s vol this year amid the overall cheapening (Figure 105). Given the currently divided and cautious Fed, it is not surprising that 2s10s implied curve vol has underperformed.

The relative underperformance has been especially extreme for the intermediate expiries where the 30s/5s vs 10s/2s 1y implied vol ratio is currently near its all-time high (Figure 106). **Looking ahead, we expect 5s30s curve vol to remain rich relative to 2s10s curve vol at least through early 2026 because it is less dependent on the speed of the Fed cuts.** Under a new dovish Fed Chair, along with falling inflation and softening labor market, it is possible that all curve vols can outperform swaption vols, with 2s10s curve vols catching up to 5s30s later in the year.

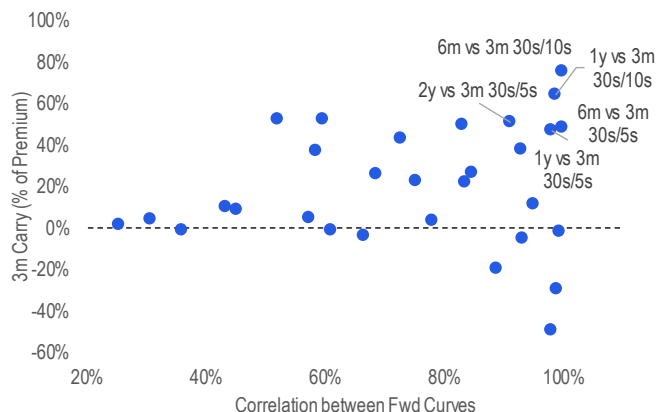
Consistent with the overall theme of low vol near-term but possibly rebound later, we continue favor curve cap calendars, specifically long 1y vs short 3m 30s/5s, ahead of the Fed Chair transition. To determine the most attractive curve cap calendar to own, we scanned across various expiry combinations for the calendar spreads (with 3m expiry being the short leg) to find the one that offers the highest positive carry with a relatively high correlation between the two forward curves (Figure 107). Even though calendar spreads on 30s/10s are currently more attractive than 30s/5s based on the 3m carry, we still prefer 30s/5s because we see more steepening potential if the market reprices for a deeper easing cycle.

Figure 106. Even though the 5s30s vs 2s10s implied vol ratio is already near its high, we believe the relative richness can persist through early 2026



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 107. We scanned across various combinations of calendar spreads (with 3m expiry being the short leg) to find the ones that offer the highest positive carry with a high correlation between the two forward curves



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Summarizing our key vol views for 2026:

- We expect the continuation of a cautious and divided FOMC to initially keep rates vol relatively suppressed, while unresolved and overhanging tail risks should provide a soft floor.
- Vol can rebound modestly later in the year with the bar for more aggressive easing likely lower under the new dovish Fed Chair. This potential shift in monetary approach should extend the left tail of the rate distributions, especially on front-end rates, and translate to a steeper vol term structure.
- If inflation continues to drift lower and is no longer a constraint for the Fed, short-dated vol should revert to trading more directionally with the yield curve again. We estimate that 3m10y implied vol can average between 78–83bp vol under our base case forecast of 85bps for the 2s10s curve.

- On a relative basis, 5y tails look cheap against other tails. The relative cheapness makes 2s5s10s conditional bull fly tightener via receivers and 5s30s conditional bull steepener look attractive.
- We are mildly constructive on long-dated vol given that it is already relatively low to rates and could benefit from positive tailwinds from the unresolved long-run fiscal uncertainties and potential GSEs vol hedging needs.
- We see more upside in intermediate left-side receiver skews (1y expiry) than the shorter expiries. 30y payer skew could rebound if unresolved long-run fiscal concerns return to the spotlight.
- 5s30s curve vol could remain rich relative to 2s10s curve vol through early 2026 because it is less dependent on the speed of the Fed cuts. We continue favor long 1y vs short 3m 30s/5s curve cap calendars ahead of the upcoming Fed Chair transition.

2026 US Agency Debt Outlook

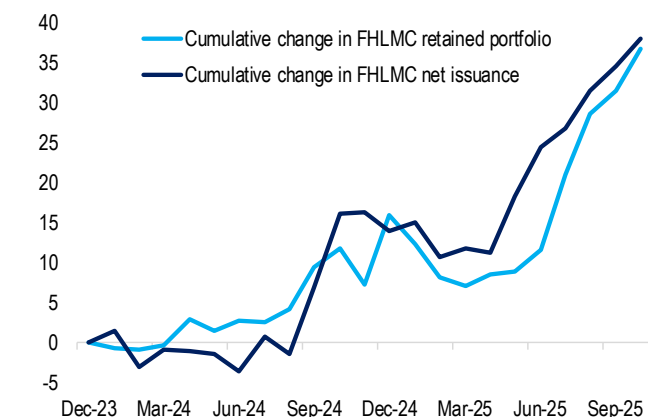
Mike Chang

GSEs' retained portfolio growth could lead to more issuance in short-term debt and floaters. We expect agency benchmark spreads to stay tight in 2026 at around their current levels with potential widening likely to be short-lived. Callable bonds look fair, but we see scope for further outperformance given our bearish vol bias in the near term.

GSEs' retained portfolio growth could lead to higher issuance in short-term debt and floaters

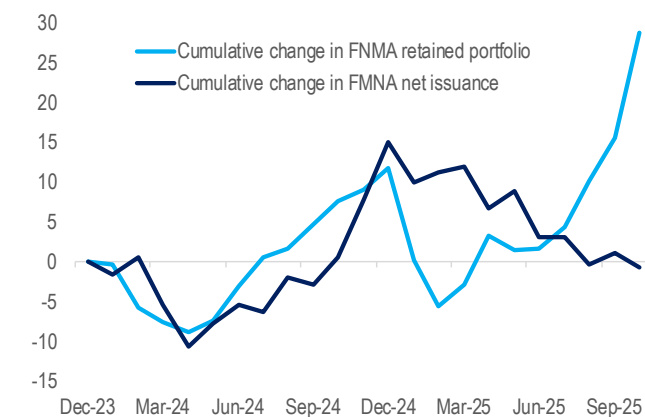
A new development this year has been the increase in the GSE's retained mortgage portfolios in recent months. From July to October, Fannie Mae's and Freddie Mac's retained portfolios grew by \$27bn and \$25bn, respectively, and the combined portfolios are the largest they have been since July 2021. Our mortgage strategists believe that the GSEs will likely continue this trend of regrowing their retained portfolio and estimate that the combined buying could be around \$100bn in 2026 ([US Agency MBS Strategy - Fannie/Freddie mortgage portfolio increases by ~\\$18bn in October](#)). Increase of this amount would be reasonably achievable given that the retained portfolios would still be well below their current caps of \$225bn each. Under such a scenario, it is likely that the GSEs would need to increase their net debt issuance to fund the purchases. Looking back over the past 2 years, we can clearly see a strong relationship between the cumulative change in Freddie Mac's retained portfolio and the change in its net debt issuance (Figure 108). In contrast, the same relationship existed in 2024 for Fannie Mae but appears to have broken down this year with net debt issuance steadily declining despite the increase in the retained portfolio (Figure 109).

Figure 108. The cumulative increase in Freddie Mac's net debt issuance has closely matched the cumulative change in its retained portfolio over the past two years



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 109. The cumulative change in Fannie Mae's net debt issuance has matched the cumulative change in its retained portfolio in 2024 but not over the recent months

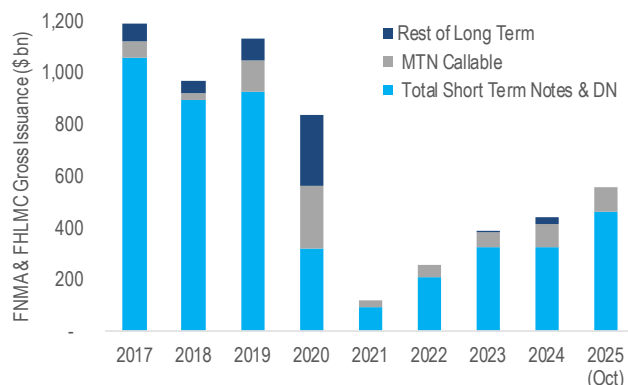


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Looking ahead to 2026, we believe that it is very likely that the GSEs would have to increase their net debt issuance if they regrow their retained portfolios meaningfully. For a combined retained portfolio increase of around \$100bn, the GSEs could end up increasing their net issuance by roughly \$90bn based on the recently observed beta between their retained portfolio changes and net issuance. We believe they can probably continue to lean on short-term debt and

floaters, as they have been doing in recent years. Over the past 5 years, Fannie Mae and Freddie Mac have issued mostly short-term notes/discount notes along with some callable bonds (Figure 110). The last time meaning amount of long-term debt was issued was in 2020, and we do not expect this to change given the more attractive funding levels for short-term debt.

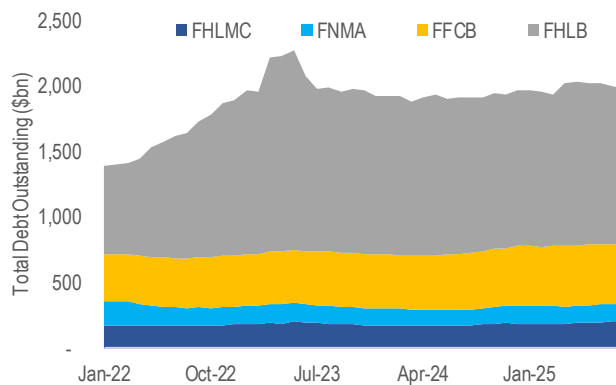
Figure 110. Post Covid, Fannie Mae and Freddie Mac have issued mostly short-term notes/discount notes along with some callable bonds. This trend should continue in 2026.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Fannie Mae, Freddie Mac

Figure 111. Total debt outstanding for all agencies has been stable since the regional bank crisis, but it could increase slightly if the GSEs regrow their retained portfolios

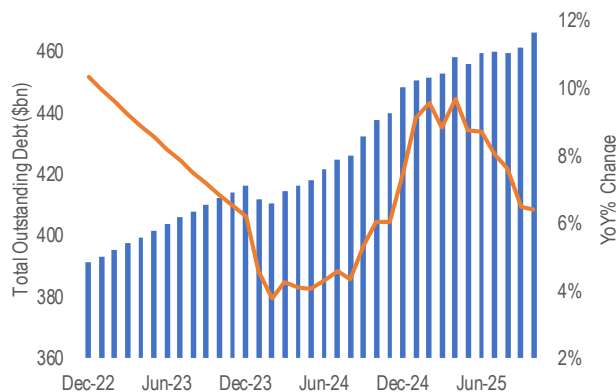


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Regarding FHLB, we expect demand for advances to remain nearly unchanged, with some tail risk of reduced needs given that we are expecting bank reserves to increase slightly next year to around \$3tn, roughly \$100bn higher from their current levels (see the Short-end section for detailed discussion). **Thus, our base case for FHLB net supply is close to flat.** Federal Farm Credit's total outstanding debt has been increasing recently at a rate of around 6-9% YoY (Figure 112). **We expect the pace of increase to remain closer to 6% which means that there could be a marginal increase in Federal Farm Credit's net supply of roughly \$28bn.** Overall the total debt outstanding for all the agencies has been relatively stable in the range of \$1.9-\$2trn since the regional bank crisis (Figure 111), but it could increase slightly in 2026 if the GSEs regrow their retained portfolios. With that said, the increase likely would not be enough to have a material impact on agency spreads.

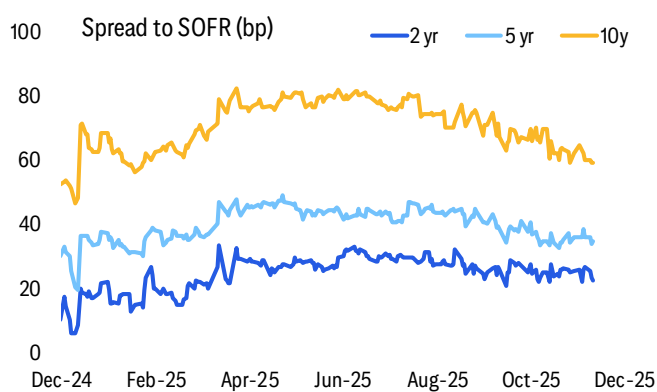
Figure 112. Federal Farm Credit's total outstanding debt has been increasing recently at a rate of around 6–9% YoY. This means we could see a net supply increase of \$28bn.



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Federal Farm Credit

Figure 113. Agency spreads to SOFR have also remained relatively tight this past year, and we expect that to remain the case in 2026



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, LSEG Yieldbook

Agency spreads likely to remain relatively tight and stable

Agency benchmark spreads to SOFR widened earlier this year into the tariff related risk-off repricing in April (Figure 113). Since then, 5y and 10y agency spreads have tightened from their wides while 2y spread essentially remained unchanged for rest of the year. Overall agency spreads are only modestly wider than where they were at the beginning of the year and have remained relatively stable.

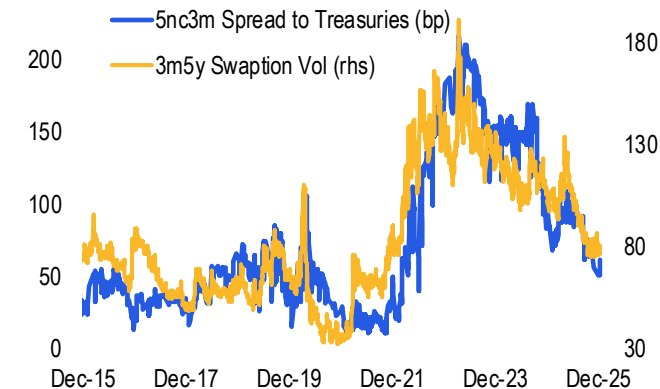
Looking ahead to 2026, we expect agency spreads to stay relatively tight at around their current levels due to positive factors including easy financial conditions, economic data that is still relatively robust, and a new dovish leaning Fed Chair. Any potential spread widening due to risk-off shocks will likely be short-lived, as they were the case in April of this year.

Buy callables with vol likely to stay low early next year

Callable bonds have performed well throughout most of this year with the spreads to Treasuries tightening sharply after the temporary spike in April on Liberation Day tariff uncertainties (Figure 114). Since then, implied rates vol has essentially been on a downward trend, and agency callable spreads have tightened correspondingly. Just as a reminder, agency callable spreads typically trades directionally with implied rates vol due to the embedded call option that the owner of the bond is implicitly shorting. Thus when implied vols are high/(low), agency callable investors would have to be compensated for the higher/(lower) option value in the form of a wider/(narrower) spread.

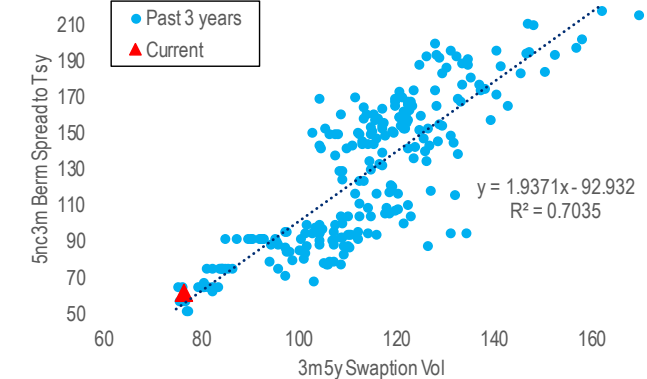
A simple regression of the relationship between the implied vol and agency callable spread to Treasuries suggests that the current excess yield pickup is essentially fair (Figure 115). Given our view that short-dated vol can stay suppressed through early next year given the backdrop of a divided and slow-moving Fed (see our Vol Outlook for a detailed discussion), we are comfortable owning callables and being implicitly short vol for yield enhancement.

Figure 114. Callable bonds have performed well this year with the spreads to Treasuries tightening sharply after the temporary spike in August, along with the decline in vol



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

Figure 115. Agency callables currently look fair relative to implied vol, but we believe vol can stay suppress through early next year



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research

US Agency Chart pack

Mike Chang

Agency Bullets

Figure 116. Agency benchmark spreads (as of 12/10/25)

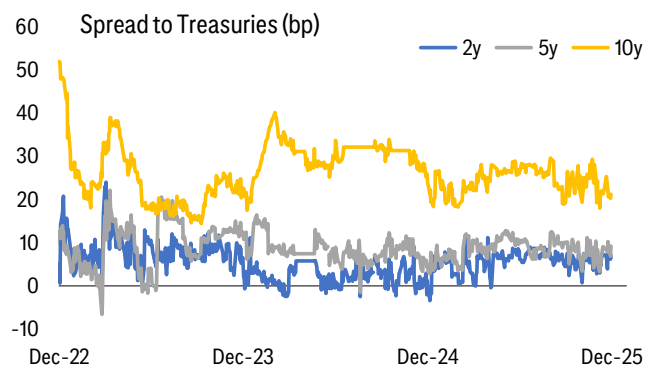
Agency Spread to Treasury:		Changes (bp)		
Tenor	Current (bp)	1w	2w	1y
2y	7	0	0	15
3y	9	2	2	8
5y	9	-1	0	8
7y	15	-3	2	5
10y	21	-1	0	13

Agency Spread to SOFR		Changes (bp)		
Tenor	Current (bp)	1w	2w	1y
2y	23	-3	-2	18
3y	29	-1	0	9
5y	35	-4	0	5
7y	48	-5	2	4
10y	59	-3	0	11

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Yieldbook

Figure 117. 2yr, 5yr, 10y benchmark spreads to Treasuries



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Agency Callable Bonds

Figure 118. Berm callable yields by structures (%)

Tenor	3m	6m	1y	2y	3y
2y	3.89	3.83	3.65		
3y	4.07	4.00	3.84		
5y	4.38	4.32	4.18	4.00	
7y	4.58	4.56	4.35	4.30	4.06
10y	4.88	4.83	4.65	4.51	4.38

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

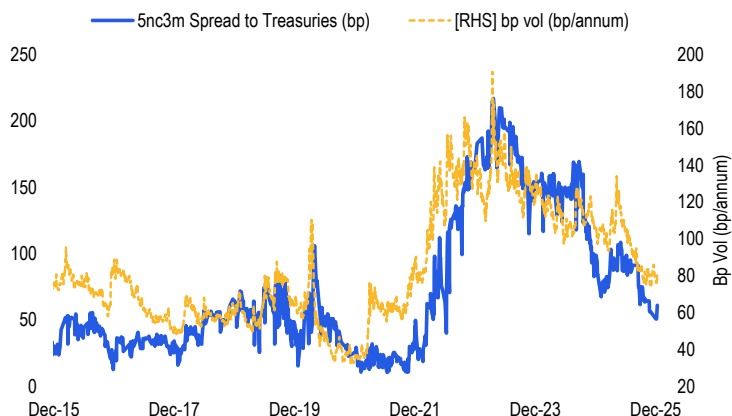
Figure 119. Callable spreads to match-maturity Treasuries (bp)

Tenor	3m	6m	1y	2y	3y
2y	32	26	7		
3y	45	38	22		
5y	61	55	40	23	
7y	63	61	40	35	11
10y	73	68	50	36	23

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 120. Agency berm callable 5nc3m spread to Treasuries versus 3m5y implied swaption vol



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 121. Callable OAS to SOFR (bp)

Tenor	3m	6m	1y	2y	3y
2y	-17	-17	-24		
3y	-13	-15	-19		
5y	-15	-16	-22	-17	
7y	-22	-18	-33	-25	-31
10y	-24	-28	-36	-37	-43

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 122. Callable yield pickup versus match-duration agency bullets (bp)

Tenor	3m	6m	1y	2y	3y
2y	18	14	3		
3y	37	33	17		
5y	72	69	55	36	
7y	94	95	73	63	35
10y	127	123	101	80	57

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Figure 123. Callable returns relative to match-duration agency bullets

Fwd Agy						Differences Versus Comparable Duration Bullet													
						Yld		OAS		Return Diff. Versus Changes to 6-month Forward Rate									
										Pickup	-100bp	-75bp	-50bp	-25bp	0bp	25bp	50bp	75bp	100bp
Structure	Cpn	Eff.Dur	Convex.	Vega	Rate	Pickup	-100bp	-75bp	-50bp	-25bp	0bp	25bp	50bp	75bp	100bp				
2NC3M	3.89	0.58	-1.42	-0.01	3.60	0.22	-17	-0.62	-0.46	-0.29	-0.12	0.04	0.14	0.05	-0.11	-0.29			
2NC6M	3.83	0.83	-0.90	-0.01	3.58	0.16	-17	-0.41	-0.29	-0.17	-0.05	0.07	0.08	-0.03	-0.19	-0.38			
2NC1Y	3.67	1.31	-0.38	-0.01	3.55	0.03	-22	-0.31	-0.21	-0.11	-0.03	0.02	0.02	-0.02	-0.09	-0.19			
3NC3M	4.07	0.76	-1.99	-0.01	3.64	0.40	-13	-0.58	-0.41	-0.25	-0.08	0.08	0.15	-0.07	-0.36	-0.70			
3NC6M	4.00	1.05	-1.30	-0.01	3.64	0.34	-15	-0.36	-0.23	-0.10	0.03	0.16	0.08	-0.14	-0.43	-0.76			
3NC1Y	3.84	1.60	-0.74	-0.01	3.63	0.24	-19	-0.37	-0.21	-0.06	0.04	0.08	0.05	-0.06	-0.22	-0.41			
5NC3M	4.38	1.10	-2.92	-0.02	3.78	0.71	-15	-0.71	-0.49	-0.28	-0.06	0.15	0.21	-0.14	-0.60	-1.14			
5NC6M	4.32	1.46	-1.99	-0.02	3.79	0.68	-16	-0.59	-0.37	-0.14	0.09	0.32	0.19	-0.13	-0.55	-1.04			
5NC1Y	4.15	2.13	-1.27	-0.02	3.80	0.53	-22	-0.50	-0.24	-0.01	0.15	0.18	0.10	-0.09	-0.38	-0.73			
6NC6M	4.42	1.63	-2.22	-0.02	3.91	0.82	-18	-0.78	-0.49	-0.20	0.09	0.38	0.24	-0.10	-0.56	-1.10			
6NC1Y	4.22	2.36	-1.54	-0.01	3.94	0.57	-33	-0.68	-0.35	-0.07	0.12	0.18	0.09	-0.12	-0.44	-0.84			
7NC3M	4.58	1.38	-3.59	-0.02	4.02	0.94	-22	-0.88	-0.61	-0.33	-0.06	0.21	0.24	-0.20	-0.79	-1.47			
7NC6M	4.56	1.79	-2.50	-0.02	4.03	0.96	-18	-0.83	-0.51	-0.19	0.13	0.44	0.26	-0.12	-0.63	-1.24			
7NC1Y	4.35	2.58	-1.79	-0.02	4.07	0.70	-33	-0.70	-0.34	-0.03	0.17	0.22	0.12	-0.14	-0.51	-0.96			
7NC2Y	4.20	3.68	-0.97	-0.02	4.18	0.50	-25	-0.58	-0.29	-0.07	0.05	0.09	0.05	-0.07	-0.26	-0.50			
10NC3M	4.88	1.74	-4.44	-0.03	4.30	1.29	-24	-1.16	-0.79	-0.43	-0.06	0.61	0.32	-0.22	-0.92	-1.75			
10NC6M	4.83	2.22	-3.17	-0.04	4.32	1.21	-28	-1.32	-0.84	-0.36	0.11	0.53	0.35	-0.07	-0.65	-1.35			
10NC1Y	4.65	3.10	-2.10	-0.04	4.36	1.00	-36	-0.91	-0.42	-0.01	0.24	0.31	0.18	-0.13	-0.60	-1.16			
10NC2Y	4.51	4.44	-1.43	-0.04	4.48	0.70	-37	-0.66	-0.30	-0.05	0.09	0.11	0.01	-0.20	-0.48	-0.85			
10NC3Y	4.38	5.31	-1.13	-0.05	4.61	0.41	-43	-0.57	-0.30	-0.10	-0.01	0.01	-0.06	-0.21	-0.41	-0.66			

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

\$ SSA Outlook

Jussi Harju, CFA

The \$ SSAs absorbed 2025 supply without a hiccup, and we expect this to be the case also in 2026. Whilst we expect gross supply to increase next year, NCR will turn even more negative owing to higher redemptions, which is likely to keep \$ SSA swap and Treasury spreads well supported.

Bank treasuries have firmly established themselves as increasingly important \$ SSA investor constituent along with central banks and official institutions. Whilst overall demand for \$ SSAs has increased in 2025, its composition for the two main buyer constituencies has changed. The demand for \$ SSAs by CB & OIs has shifted towards longer maturities, which is most likely driven by outright buyers given \$ SSAs' historically high long end yields.

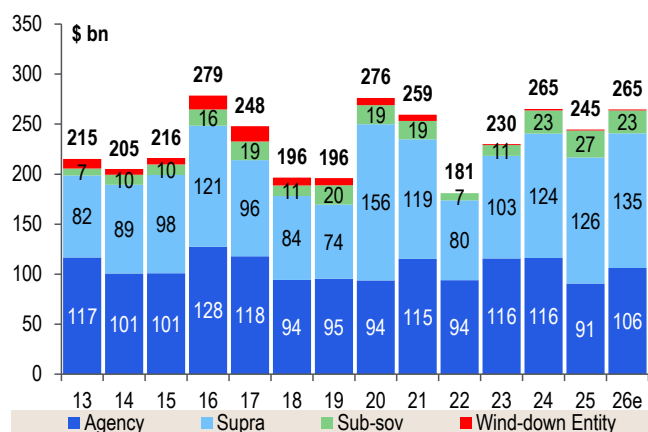
Bank treasury demand has remained elevated as \$ SSA swap spreads still look historically attractive for them, but it has declined significantly at longer maturities. This, in combination with the increasing WAM of \$ SSA supply, might pose some challenges for 5y+ \$ SSA swap spread performance in 2026.

\$ SSA net supply to turn even more negative

\$ SSA gross supply decreased in 2025 as we had expected; we forecast it to increase in 2026 owing to higher redemptions

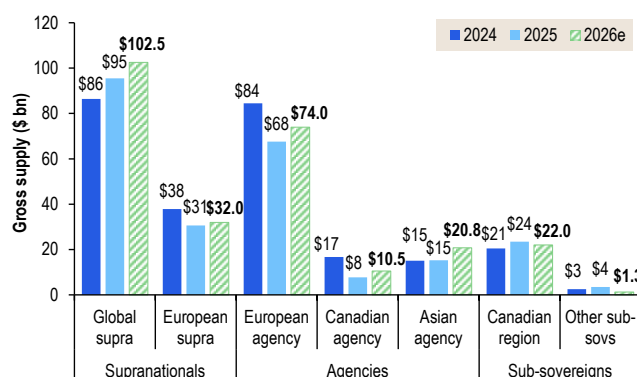
In 2025, gross \$ SSA supply declined from last year as we expected and is at \$245bn exactly in line with our forecast (\$247bn). As redemptions increase from \$221bn in 2025 to \$254bn, we expect primary supply to follow suit and expect gross issuance to reach \$265bn, up 8% from \$245bn issued YTD (**Figure 124**). The largest share of the increase is expected from agencies, led by European and Asian issuers whilst we also expect a small increase from Canadian agencies. For supranationals, primary supply from global issuers is expected to increase next year (we expect slightly more \$ supply by ASIA and IADB) and \$ supply by European supranationals is also forecast to increase, albeit only marginally. Among the other major issuer categories, Canadian regions are also expected to remain active in the \$ market (**Figure 125**).

Figure 124. \$ SSA gross supply is expected to increase in 2026, mainly driven by higher redemptions (annual gross supply for \$ SSAs; \$ bn)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, Issuers' investor relations

Figure 125. Majority of the increase in 2026 gross supply is expected from European and Asian agencies, whilst in supras gross issuance by global names is forecast to increase (\$ SSA supply forecast by issuer category; \$ bn)



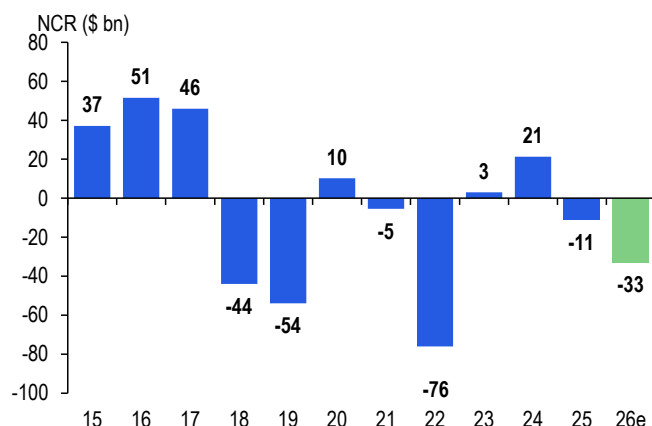
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, Issuers' investor relations

We estimate NCR for \$ SSAs to be even more negative in 2026 at -\$38bn

However, although we expect gross supply to increase, we expect it will not match the increase in redemptions. Accounting for coupon flows, Net Cash Requirement (NCR = Gross supply – Redemptions – Free-float Coupons, i.e., **net supply price sensitive investors need to absorb**) will be even more negative next year. Based on our supply forecast, **we estimate the NCR for \$ SSAs to be -\$33bn in 2026**, compared with -\$11bn this year (**Figure 126**).

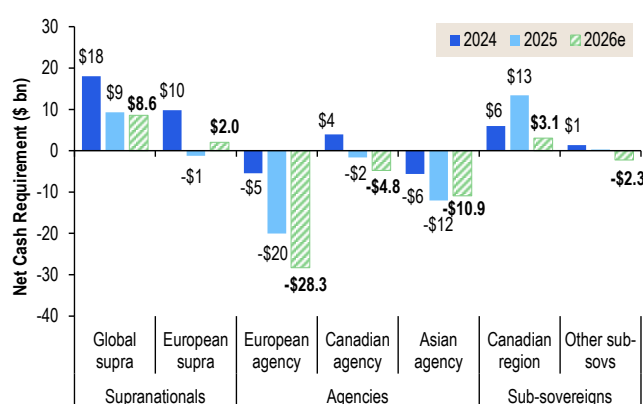
As in 2025, we expect the NCR to be most negative for European and Asian agencies. **In Europe, the NCR is expected to decline to -\$28bn**, mainly driven by notably higher redemptions in France (\$24.4bn, up from \$15.6bn), Netherlands (\$11.25bn, up from \$6.7bn), and Norway (\$7bn, up from \$1.25bn). We also expect it to be negative for Asian and Canadian agencies (-\$10.9bn and -\$4.8bn, respectively), only partially offset by the positive NCRs for global supras and Canadian provinces (+\$8.6bn and +\$3.1bn, respectively; **Figure 127**).

Figure 126. NCR for \$ SSAs is expected to be even more negative in 2026. This should keep \$ Treasury spreads in a tight range (annual NCR for \$ SSAs; \$ bn)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, Issuers' investor relations

Figure 127. The deeply negative 2026 NCR for \$ SSAs is mainly driven by European, and to a lesser extent, Asian agencies (2024–26 NCR for \$ SSAs by issuer category; \$ bn)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, Issuers' investor relations

Supply/demand dynamics in \$ SSAs mirror those in € SSAs; heavy supply meets even heavier demand

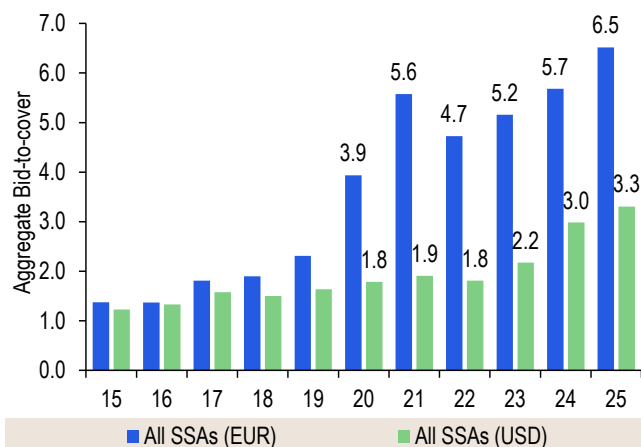
The balance of primary supply/demand for \$ SSAs has continued to follow the same dynamic as we have observed in the € market: heavy supply meets even heavier demand. In € SSA market the aggregate bid-to-cover ratio reached another all-time high of 6.6x in 2025, up from 5.7x in 2024 (and significantly higher than the 1.4–2.3x range in 2013–18 when ECB APP net purchases were active) despite gross issuance reaching €438bn; the highest € SSA gross supply on record. In \$ SSAs, supply was lower at \$245bn (slightly above historical average of \$231bn in 2013–24) and it also attracted record demand: the aggregate bid-to-cover for primary \$ deals issued increased from 3.0x last year to 3.3x in 2025; the third consecutive year of increasing primary demand for \$ SSAs (**Figure 128**).

This was the case even if the data is split between tier 1 \$ names (IBRD, KFW, and EIB) and the rest of SSAs – the primary demand for tier 1 names exceeded supply by 4.1 times (up from 3.6x in 2024) and for not tier 1 names by 3.0 times (up from 2.7x in 2024).

We are witnessing a gradual shift in the \$ SSA primary demand from dominance of central banks & official institutions to a more balanced demand backdrop between them and bank treasuries

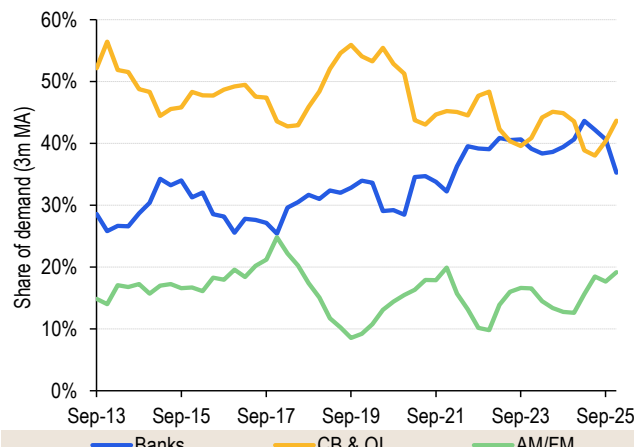
Where is the increase in demand then coming from? Traditionally, central banks and official institutions (CB & OI; mostly reserve managers) have been the largest buyers of primary \$ SSA supply making up approximately half the order books of newly issued deals. They, together with bank treasuries, have bought 80% of all \$ SSA supply issued in since 2013. However, **we have started to witness a gradual shift in the primary take-up of new \$ SSA deals between these two investor groups in recent years with CB & OIs' share trending lower and bank treasuries' higher.** Since Q1 23 when the share of bank treasuries exceeded that of CB & OI in the order books for the first time on record, it has been a tug of war for the top place between these investor groups. As of Q4 25, CB and OI have regained their top spot as the largest buyers of \$ SSAs **but the long-term trend is clear: bank treasuries are increasingly important source of primary demand for \$ SSAs (Figure 129).**

Figure 128. Supply/demand dynamics in \$ SSAs mirror those in € SSAs; heavy supply meets even heavier demand (aggregate bid-to-cover ratios for € and \$ SSAs)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, BondRadar, Issuers' investor relations

Figure 129. CB & OIs have regained their top spot as the top buyers of \$ SSAs in Q4 25 but the long-term trend is clear: bank treasuries are increasingly important source of demand for \$ SSAs (\$ SSA primary take-up by investor type; 3m MA)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, BondRadar, Issuers' investor relations

\$ SSAs still look attractive for ASW-buyers, such as bank treasuries...

The shift in the primary demand more towards bank treasuries can be explained by \$ SSA's relatively attractive valuations versus swaps and tight spreads versus Treasuries. **For bank treasuries, that are ASW-buyers, \$ SSAs still look attractive** with tier 1 names trading around 25-30bp over swaps at the front-end of the curve in 2-3y and 30-45bp over in 5-10y. Non-tier 1 European agencies, apart from French names, offer 35-40bp over swaps in 2-5y (they rarely issue longer than 5y) whilst Canadian provinces trade at 35-55bp over swaps in 2-5y and 65-80bp over in 5-10y. French agencies, on the other hand, are currently trading at 50-65bp over swaps pretty much across the curve owing to the political turmoil in France.

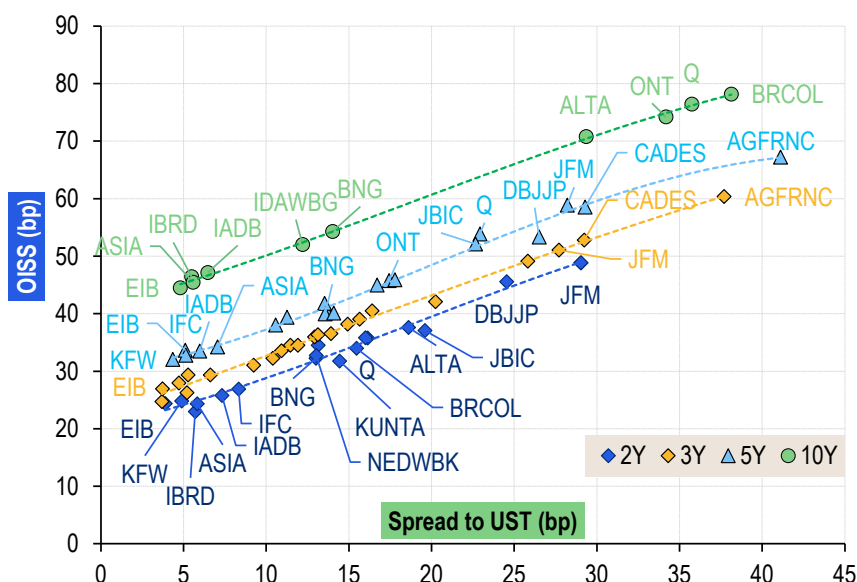
...but they are looking increasingly rich for investors looking at relative value versus Treasuries

Whilst \$ SSAs look relatively attractive for ASW-buyers, the same cannot be said of them for Treasury benchmarked investors. At present, **tier 1 names offer just 4-6bp spread pick-up over Treasuries across the curve.** This is hardly sufficient compensation for investors looking at \$ SSA relative value through the Treasury spread lens. This is also the case for the non-US based supnationals ASIA and IADB. In fact, the only names that offer more than 20bp over the US Treasury curve are the Canadian provinces (30-40bp from 7y onwards) and the Japanese agencies (20-30bp; Figure 130).

The tight Treasury spreads of \$ SSAs, especially tier 1 names, is looking increasingly harder to justify, though for some investors might value them for diversification purposes

Given the above, it is not surprising that the primary demand from central banks and official institutions, that look at valuations primarily versus Treasuries, has declined. **For these investors, the trade-off for buying \$ SSAs instead of Treasuries with better liquidity is looking increasingly harder to justify.** Whilst for some of these investors that are looking to shift away from US Treasuries, \$ SSA's tight Treasury spreads might be justifiable given the diversification they offer. However, at the current levels we believe this argument cannot be stretched much further.

Figure 130. \$ SSAs still look attractive for ASW-buyers, such as bank treasuries, but they are looking increasingly rich for investors looking at relative value versus Treasuries



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: Pricing as of 18:30 CET 11 December 2025.

Source: Citi Research

Bank treasury demand for \$ SSAs has increased in 2-5y, but sharply dropped at the long end of the curve

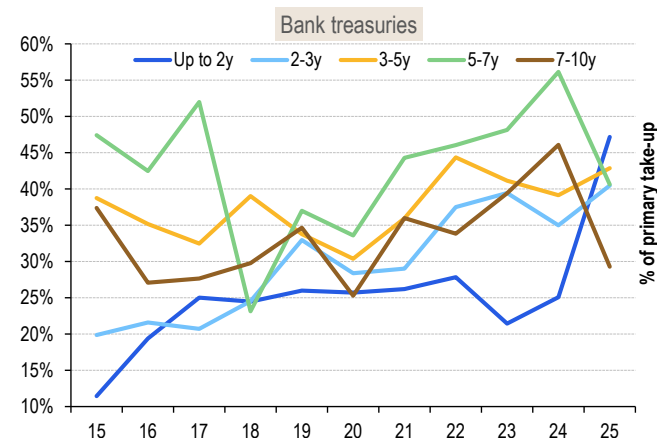
The order books for \$ SSAs highlight reveal couple of further developments when we split the order data by maturity of the deals. **Bank treasury demand**, that is usually focused on shorter maturities, **has increased 4 percentage points (pp) in 2-3y and 5pp points in 3-5y.** Whilst the strongest increase has been in the front-end in maturities up to 2y, we advise not to read too much into this as issuance at this part of the curve is rather scarce (only five deals this year, of which one deal makes up 40%).

What is more notable, however, is **the decline in bank treasury demand at longer maturities.** In 5-7y and in 7-10y (where \$31bn was issued in both segments) the share of bank treasuries in the primary order books declined by 16pp and 17pp, respectively (**Figure 131**).

Primary demand for \$ SSAs from central bank and official institutions has moved further out on the maturity curve in 2025

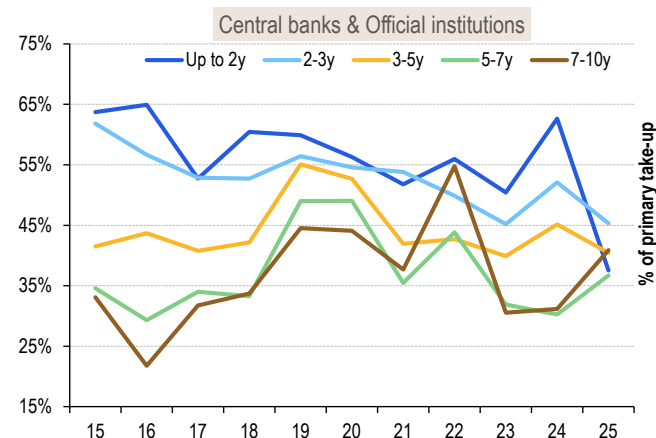
In contrast to bank treasuries, CB & OIs have done the exact opposite. These investors are usually most active in maturities up to 5y but this year **their primary take-up up front-end deals (up to 2y) has declined 25pp**, in 2-3y by 7pp and in 3-5y by 5pp. **In 2025 their demand has shifted towards longer maturities** with 5-7y deals seeing primary take-up by CB & OIs increasing 6pp and 7-10y by 10pp (**Figure 132**).

Figure 131. Bank treasury demand for \$ SSAs has increased at their preferred maturities in 2-5y, but sharply dropped at the long end of the curve (share of bank treasuries of primary demand for \$ SSAs by maturity category)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, BondRadar, Issuers' investor relations

Figure 132. CB & OI primary demand has shifted further out on the curve in 2025 (share of central banks & official institutions of primary demand for \$ SSAs by maturity category)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Source: Citi Research, Bloomberg, BondRadar, Issuers' investor relations

The reduction in the bank treasury take-up at longer maturities has been most likely driven by the flattening of \$ SSA credit curves

For bank treasuries, the reduction in their primary take-up of new \$ SSA deals at longer, 5-7y and 7-10y maturities has most likely been driven by the flattening of \$ SSA credit curves. The credit curves of tier 1 \$ SSA names – IBRD, EIB, and KFW – have flattened 5-8bp since the start of the year. So, whilst \$ SSA swap spreads still look on aggregate relatively attractive for bank treasuries, the incremental spread they receive for extending further out on the curve is now notably lower than it was at the start of the year (Figure 133).

Despite marginal pick-up to Treasuries and very little incentive to extend on the curve, demand for longer dated \$ SSAs has increased in 2025

Turning to central banks and official institutions, we find it somewhat unexpected how strong their primary demand has been this year, especially at longer maturities and in tier 1 names. The increase in demand at longer maturities in 5-7y and 7-10y appears counterintuitive when looking at how flat their credit curves are versus Treasuries: IBRD, KFW, and EIB offer just 4-6bp spread over Treasuries across the curve. Similarly, Nordic names also do not provide really much incentive for Treasury-benchmarked investors to extend out on the curve. At present, only Canadian provinces offer higher spread over Treasuries when extending on the curve (Figure 134).

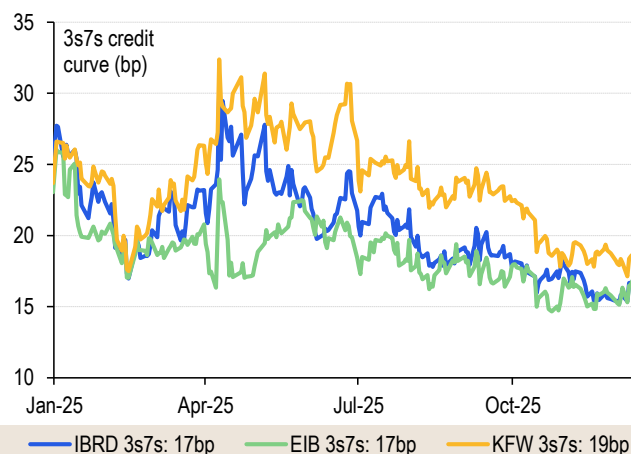
We believe the increase in demand has been driven by outright buyers...

We believe this demand has been driven by two main reasons. First, although \$ SSAs yields have come down 50-80bp this year, this has been more driven by the front-end causing \$ SSA yield curves to steepen. **This has increased attractiveness of \$ SSA extension trades to outright buyers.** Moreover, at 4-4.5% currently \$ SSAs benchmark yields still look attractive in historical context.

...and possibly investor interest to look for diversification away from US Treasuries

Second, the heightened trade tensions between the US and the rest of the world following the Liberation Day tariff announcements **appears to have increased the demand for debt offering diversification away from Treasuries.** This, however, is much harder to quantify given that unlike for Treasuries, there is no investor holdings data for \$ SSAs as far as we are aware. That said, anecdotal evince suggests that this has also played a part as we have seen a marked increase in investor enquiries looking for alternatives, such as \$ SSAs, for Treasuries this year.

Figure 133. Flattening of \$ SSA credit curves has lowered their incentive to extend further out on the curve (tier 1 \$ SSA 3s7s credit curves; bp)

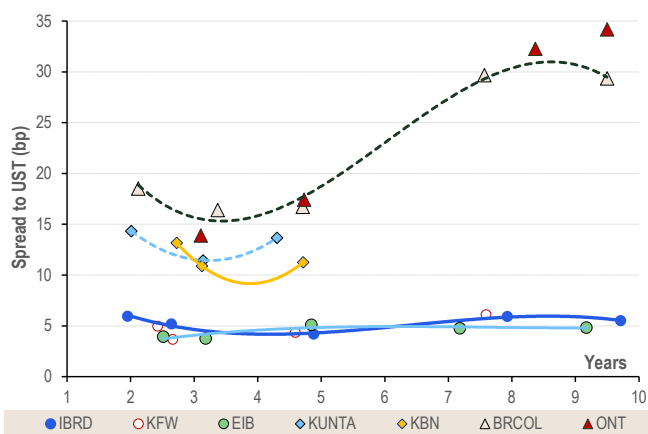


© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: Pricing as of 18:30 CET 11 December 2025.

Source: Citi Research

Figure 134. Despite relatively flat spread curves to Treasuries, especially in case of tier 1 names, demand for \$ SSAs has increased at longer maturities. This has been most likely driven by outright buyers (\$ SSA spreads to Treasuries; bp)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: Pricing as of 18:30 CET 11 December 2025.

Source: Citi Research

To further highlight how tightly \$ SSAs currently trade versus Treasuries, **Figure 135** shows the current 2-10y Treasury spreads for select \$ SSA benchmark and the 3-month and YTD changes. **The richness of tier 1 names across the curve is hard not to miss** but this is also the case for other supras, such as ASIA, IADB, IDAWBG, and IFC. As previously pointed out, only the French agencies or Canadian provinces offer around 30bp or more over Treasuries.

As the YTD changes show, \$ SSAs have outperformed Treasuries across the curve with 3y performing the best. Among \$ SSA names, **3y Japanese agencies and Canadian provinces have performed the best with their Treasury spreads tightening 8-18bp and 10-13bp YTD, respectively**. However, this has taken the Canadian provinces' Treasury spreads in 2-5y to just 14-23bp with only the longer maturities still offering around 30-35bp. Similarly, the Japanese agencies look notably less attractive at 20-30bp over Treasuries compared with 30-50bp range at the start of the year.

Figure 135. \$ SSAs have outperformed Treasuries across the curve and issuers this year (benchmark \$ SSAs: 3m and YTD changes in spread to Treasuries; bp)

Treasury spreads (bp)	Current					Change					Change				
	3m	3m	3m	3m	3m	3m	3m	3m	3m	3m	YTD	YTD	YTD	YTD	YTD
	2Y	3Y	5Y	7Y	10Y	2Y	3Y	5Y	7Y	10Y	2Y	3Y	5Y	7Y	10Y
IBRD	6	5		6	5	-1	1		-1	-4	-1	0		-6	
KFW	5	4	4	6		2	2	0	-1					-3	
EIB	4	4	5	5	5	1	0	1	1	-3		-5		-4	
CADES	29	29	29	30		7	3	3	2		-1	-4	-2	-4	
AGFRNC		38	41				3	4				-10			
ASIA	6	7	7	7	6	3	-1	2	-1	-3		-3		-6	
IADB	7	5	6	7	6	3	0	1	-1	-4	0	-4		-6	
IDAWBG		9	11	11	12		1	2		-3		-1			
IFC	8	5	5			5	-2	3				-3			
ONT		14	17	32	34		-1	1	-4	-5		-13		-8	
BRCOL	15	16	18	32	38	3	-3	1	-2	-4		-11		-6	
Q	16	15	23	29	36	2	-2	0	-4	-4	-5	-12	-8	-7	
ALTA	19	16	17	30	29	1	-4	-2	-7		-3	-10	-13	-11	
KUNTA	14	11	14			-1	-2	2			-5	-10			
KBN	13	11	11			2	-2	1			-3	-8			
KOMINS		10					2								
SEK	16	13	14			4	-2	-2				-9	-9		
BNG	13	12	14		14	2	-2	0		-4		-8			
NEDWBK	13	13	14			3	0	0				-7			
JBIC	20	20	23	22		-6	-2	-3	-5		-10	-8	-9	-5	
DBJJP	25	26	27			5	-3	1				-10			
JFM	29	28	28			-2	-5	-7			-11	-18	-25		

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Note: 3m and YTD performance calculated only for bonds that were outstanding at the beginning of the respective period to avoid distortions. Pricing as 18:30 CET 11 December 2025.

Source: Citi Research

RV thoughts

Bank treasury bid has become increasingly important for \$ SSA swap spreads...

The current RV landscape still looks reasonably attractive to ASW-buyers, namely bank Treasuries, despite the YTD \$ SSA swap spread tightening. Importantly, bank treasuries have become an increasingly important source of primary demand for \$ SSAs and their increased presence in the \$ SSA primary order books increases the importance of \$ SSA swap spreads.

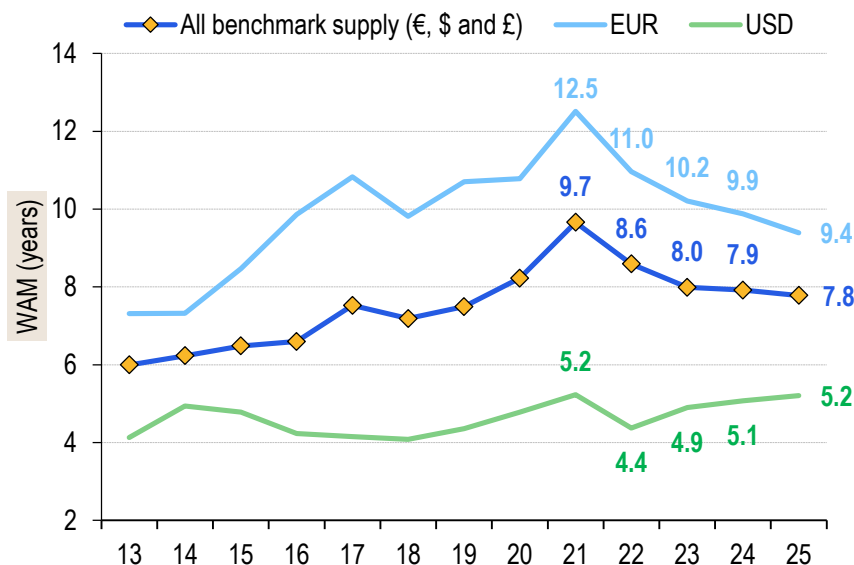
We noted earlier that bank treasury demand has increased the most in 2-3y and 3-5y whereas it has declined at longer maturities this year. However, **the recent changes in weighted-average maturity (WAM) of primary SSA supply might challenge this.**

...but increasing WAM of \$ SSA supply, combined with weaker demand at longer maturities...

In \$ SSAs, primary supply has been for the past decade tightly in the 4-5y range. In € SSAs, however, it has been much more volatile. The WAM of € SSA supply increased from around 7.2y in 2014 to an all-time high of 12.5y in 2021, from where it declined sharply to 9.4y in 2025, down 0.5y from 2024. Despite the sharp decline in € SSA WAM, the aggregate WAM of new SSA supply across the major funding currencies (€, \$ and £) declined only by 0.1y to 7.8y in 2025. **This was mainly due to the increase in \$ SSA WAM to 5.2y**, making 2025 the third consecutive year of increasing \$ SSA WAM (Figure 136).

In short, the increasing WAM of \$ SSA supply combined with weakening demand for them at longer maturities might pose some challenges for the swap spread performance of 5y+ \$ SSAs.

Figure 136. Opposing maturity trends: The WAM of aggregate SSA supply has been relatively stable the past three years, but this masks the underlying changes. WAM of € SSA supply has been shortening whilst for \$ SSAs it has increased. This, with declining demand for longer dated \$ SSAs might pose a challenge to 5y+ \$ SSA swap spread performance (WAM of SSA supply; years)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Bloomberg

\$ SSA swap spreads are likely to remain in a relatively tight range next year in absence of outsized moves in Treasury swap spreads

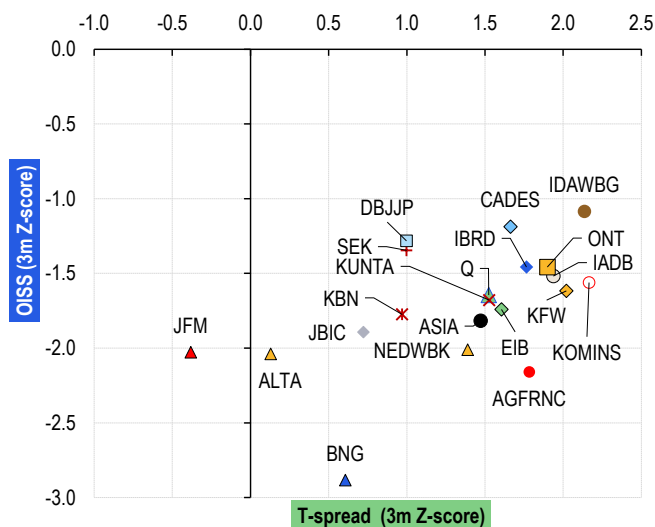
Despite the above, given that \$ SSA NCR is expected to turn even more negative next year we expect their swap spreads to remain in a relatively tight range in absence of significant moves in 2-5y Treasury swap spreads. This is our view for their Treasury spreads. Granted, they are on the very tight side, but they are historically appealing for outright buyers with 7-10y \$ SSA benchmark yields at 4-4.5%.

Compared to their 3m trading ranges, most \$ SSAs look reasonably attractive

Moreover, based on their current 3m Z-scores, \$ SSAs look relatively attractive versus Treasuries. In 3y all benchmark \$ SSAs apart from JFM have positive 3m Treasury spread Z-scores and nearly all apart from ALTA, BNG, and JBIC have Z-scores of at least 1, implying that their current Treasury spreads are at least 1 standard deviation wider than their 3-month average (Figure 137). This is also the case in 5y where only Japanese agencies JFM, and to a lesser extent JBIC, look slightly rich versus Treasuries based on their 3m trading ranges (Figure 138).

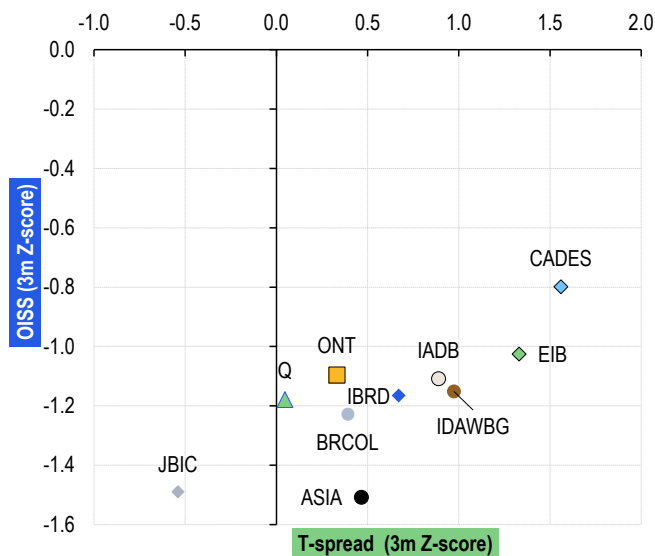
At longer maturities, most tier 1 \$ SSA names are trading at 0.5-1 standard deviations above their 3m trading ranges with EIB and CADES looking the most attractive versus Treasuries (Figure 139). Finally, in 10y, IBRD and IADB are starting to look rather rich versus Treasuries whereas the rest are broadly fairly valued with Q looking the most attractive on this metric, albeit rather marginally (Figure 140).

Figure 137. In 3y, most \$ SSA names trade 1-2 standard deviations wider Treasury spreads than their 3m averages (3m Z-scores for 3y\$ SSA swap and Treasury spreads) ...



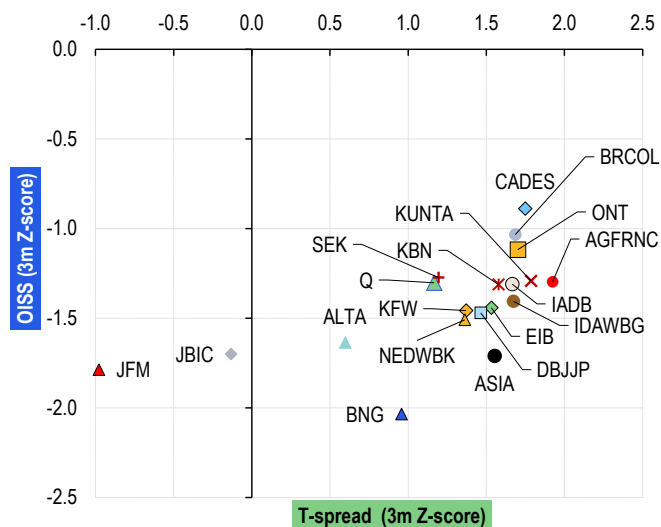
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Note: Pricing as 18:30 CET 11 December 2025.
Source: Citi Research

Figure 139. In 7y, most tier 1 \$ SSA names look from quite reasonable valued versus Treasuries, though EIB and CADES still look attractive (3m Z-scores for 7y\$ SSA swap and Treasury spreads)



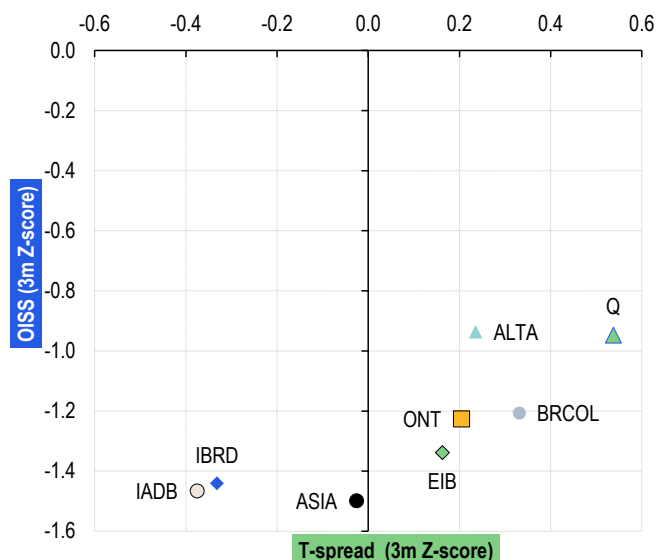
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Note: Pricing as 18:30 CET 11 December 2025.
Source: Citi Research

Figure 138. ...which is also the case in 5y with only JFW, and to a lesser extent, JBIC looking slightly rich versus Treasuries based on their 3m trading ranges (3m Z-scores for 5y\$ SSA swap and Treasury spreads)



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Note: Pricing as 18:30 CET 11 December 2025.
Source: Citi Research

Figure 140. IBRD and IADB look rich versus swaps and Treasuries in 10y whereas rest of \$ SSAs look relatively fairly valued (3m Z-scores for 10y\$ SSA swap and Treasury spreads)



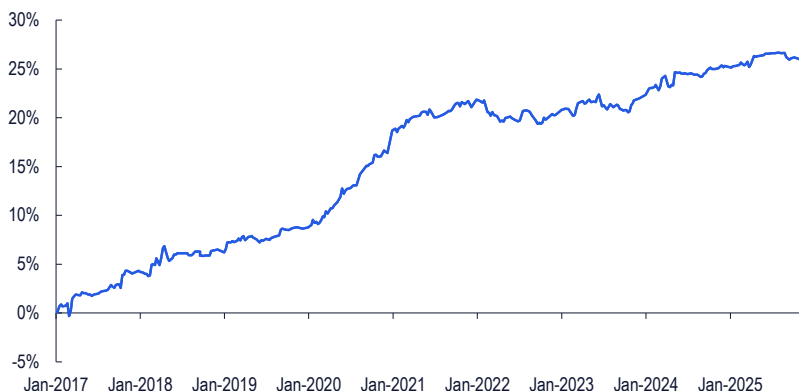
© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.
Note: Pricing as 18:30 CET 11 December 2025.
Source: Citi Research

US Rates Strategy Model Portfolio Update

The US Rates Strategy Model Portfolio is up 0.95% in 2025.

Figure 141 shows the weekly model portfolio returns since January 2017. Figure 142 shows the P&L from our outstanding trades, while Figure 143 shows all trades closed after 2024. To see the older trades, please refer to a previous publication.

Figure 141. Returns* for the US Rates Strategy Model Portfolio, Jan 2017 – Present



© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research, Past performance is no indicator of future results. Calculations do not include transaction costs and other fees, Note: Returns are reported on a publication-by-publication basis

The portion of this research report regarding non-OCC issued options is not intended for US clients other than Qualified Institutional Buyers. Investing in options is not suitable for all investors. Please see the disclosures concerning the risks of investing in options below and discuss with your Financial Advisor whether this particular options strategy is suitable for you. Note that all option prices are indications, based on pricing as of 4:00pm on December 11, 2025. Interested investors should contact our trading desk for updated price and liquidity information. Also, complex option strategies may entail higher commissions costs.

Outstanding Trade Recommendations¹

Long 10y TIPS Opened January 5, 2024 see [US Rates Weekly - The Foxy Five – 2024 edition](#)

Conditional Z5/Z6 bull steepener: Opened April 4, 2025; see [US Rates Weekly - Lower Yields, But At What Cost?](#)

20s30s spread flatteners: Opened April 17, 2025; see [US Rates Strategy - Entering 20s30s spread flatteners](#)

5s30s calendar spread steepener: Opened June 6, 2025; see [US Rates Weekly - Deficit Dramedy](#)

Long 10y10y vol: Opened July 11, 2025; see [US Rates Weekly: Cautiously holding the range](#)

1y 5s30s swap steepeners Opened September 5, 2025; see [US Rates Weekly - Trade picking 2025](#)

Costless 1y fwd 5s30s conditional bull steepener Opened September 5, 2025; see [US Rates Weekly - Trade picking 2025](#)

Long SOFR Z6 futures vs short Jan expiry 2y midcurve calls Opened September 5, 2025; see [US Rates Weekly - Trade picking 2025](#)

Costless bullish 2s5s10s conditional fly via receivers Opened September 5, 2025; see [US Rates Weekly - Trade picking 2025](#)

Long 2y swap spreads Opened September 5, 2025; see [US Rates Weekly - Trade picking 2025](#)

Long 3y 5s10s30s fly Opened September 26, 2025; see [US Rates Weekly - Fed Funds Shutdown](#)

Long 1y10y straddle vs short 3m10y straddle Opened October 17, 2025; see [US Rates Weekly - Hedging our bull steepener view](#)

Long 1x2 call spreads on SFRH6 Opened November 7, 2025; see [US Rates Weekly - Bullish case for swap spreads next year](#)

Long belly 5s10s30s inflation swap Opened November 20, 2025; see [US Rates Strategy - Going long 10y inflation on the curve](#)

Costless 3m1y 1x2 receiver spread Opened November 21, 2025; see [US Rates Weekly - Pausing the pause?](#)

Note: Futures trading involves substantial risk of loss.

¹ For trades recommended here, the reasonable basis and risks can be found in the hyperlinked reports as well as the figure in the next page.

Figure 142. Summary of US Rates Strategy Model Portfolio Performance

Trade		Levels	Rationale + Publication Date	
Inflation	Long 10y TIPS, short 3m10y receivers	Level at Open 1.74% Level Current (4:00pm) 1.8% P&L \$23 K Target P&L -25% Stop P&L -2.25%	We recommend buying 25k dV01 of the July-33 TIPS at 1.74% against \$30mm 3m 10y receiver ATMF + 3.52% at 22bps running premium credit. Target is 1% plus received option premium. Stop is 2.25%. Short 3m 10y receivers expired on 8/6/25 for profit of 95k. Risk to the trade is a sell-off in real rates on strong activity data. US Rates Weekly - The Fed's Paw - 2025 edition	Profit
	Long 10y TIPS, short 3m 10y receivers	Level at Open -31.5bp Level Current (4:00pm) 0.6bp P&L 181 K Target P&L 500k Stop P&L -300k	The options market implies that Z5/26 will flatten in a large bullish move, which we disagree with. We buy 1000 SFRZS calls K=97 and sell 1000 1y midcurve calls on Z5 underlying (expiry Z5 K=97.375. This has a take-in of 1.6K (target pri 500k, stop -300k). The forward spread is -31.5bp and the strike spread is -37.5 (break-even of -38.5, pricing as of 11:40am on 4/4/25). The risk to the trade is mark-to-market in any tight bull flattening moves. US Rates Strategy - I Shorted VIX's. Does the 4% floor hold for 10y?	Profit
Swap spread	20s30s swap spread flattener	Level at Open -5.6bp Level Current (4:00pm) -2.2bp P&L -781 K Target P&L -15bp Stop P&L 8bp	We are entering 30k dv01 20s30s swap spread flattener at -5.6bp (pricing as of 10:40AM EST on 4/17/2025), with a target level of -15bp and a stop at 0bp. The main risk to this trade is another liquidity event leading to 20y underperformance. US Rates Strategy - Extending 20s30s spread flattener	Loss
	20s30s swap spread flattener	Level at Open 44bp Level Current (4:00pm) 67.5bp P&L -119 K Target P&L 600k Stop P&L -450k	To cost efficiently position for a near-term pause in the curve steepening but an eventual continuation in the upward trend, we recommend selling 300mm 3m 30s/5s CMS cap (0.44%, expired on 9/8/25) and buying 300mm 1y 30s/5s CMS cap (ATMF+0.44%) at net premium of \$410k (pricing as of 11:30am on 6/6/25, net spread delta=\$1.855). We are selling a new 300mm 2m cap with 0.721% strike as a replacement (pricing as of 2:50pm on 11/21/2025). The primary risk is a steep flattening in the curve. US Rates Weekly - Default Damages	Loss
Volatility	5s30s calendar spread steepener	Level at Open 1.770 Level Current (4:00pm) 1.594 P&L -255 K Target P&L 500k Stop P&L -375k	We recommend buying \$30mm notional of 10y/10y ATMFF straddles at 1.770 forward premium (pricing as of 12pm 7/11/2025, ATMFF+4.52%, vega=\$41K). The risk to the trade is a sharp rally in long-end rates with further cheapening in long-dated vol. US Rates Weekly - Cautiously holding the range	Loss
	Long 10y10y vol	Level at Open 76bp Level Current (4:00pm) 63.7bp P&L -363 K Target P&L 120bp Stop P&L 46bp	Enter 50k dv01 of 1y 5s30s swap steepeners at 75.5bp hedged by paying 25k dv01 of Dec FOMC swap at 3.64% (pricing as of 1:45pm on 9/5/25). We express the trade in swaps as per our preferred view on swap spreads separately (see below), although our spreads view would support a cash 5s30s steepener or receiving in 5y swaps and selling 30y cash. Profit of \$195k taken on pay DEC FOMC swap hedge on 10/31/25. There are two risks to the trade: 1) bear flattening which would be driven by another data "head fake", similar to last year, and 2) a large bull flattening. US Rates Weekly - Trade picking 2025	Loss
Rates	1y 5s30s swap steepeners hedged with paying Dec FOMC swap	Level at Open 78bp Level Current (4:00pm) 63.2bp P&L -114 K Target P&L 120bp Stop P&L 53bp	We recommend buying 100mm 1y 5s30s OTM receivers vs 25.5mm 1y30y ATMFF receivers at net flat DV01 and net zero cost (pricing as of 1:50pm on 9/5/2025, 1y5y ATMFF+3.201%, 1y30y ATMFF+3.951%). The conditional expression has a negligible give-up of 3bps relative to the spot curve, which is the most attractive it has been over the past year, in our view, due to the improved vol (offsetting Figure 8). The primary risk is a bull flattening. US Rates Weekly - Trade picking 2025	Loss
	Costless 1y flat 5s30s conditional bull steepener	Level at Open 2.90% Level Current (4:00pm) 3.15% P&L -375 K Target P&L 45 kcks Stop P&L -30 kcks	Buy 1000 Z5 SOFR futures at 97.102 hedged by selling 1000 Z5 expiry 2y midcurve SOFR calls K=97.25 as a take-in of 10 kcks (pricing as of 8pm on 9/5/25). Our short Z5 expiry 2y midcurve calls expired virtually worthless, taking in that premium and selling new Jan expiry call on 2y midcurve 12/5/2025. Most to the trade is a large bear flattening in the 20L/C curve perhaps driven by a very robust economy. US Rates Weekly - Trade picking 2025	Loss
Front-end	Long SOFR Z5 futures vs Jan expiry 2y midcurve calls	Level at Open -32bp Level Current (4:00pm) -21.5bp P&L 6 K Target P&L -52bp Stop P&L -15bp	Buy 100mm 3m5y 0.5bp OTM receivers and sell 120mm 3m2y ATMFF receivers and 27mm 3m 10y ATMFF receivers at net flat DV01 and net zero cost (pricing as of 1:50pm on 9/5/2025, 3m2y ATMFF+3.111%, 3m5y ATMFF+3.176%, 3m 10y ATMFF+3.546%). The primary risk is a steep bull steepening in 2s5s. US Rates Weekly - Trade picking 2025	Profit
	Costless bullish 2s5s10s conditional fly via receivers	Level at Open -23bp Level Current (4:00pm) -21.2bp P&L 340 K Target P&L -18bp Stop P&L -28bp	We buy 50k dv01 of 2y MMS spreads at -23.2bp hedged with shorting 1000 SOFRFF Z5 at -7.5 kcks (positioning for higher SOFR prints over FFs, pricing as of 11am on 9/5/25). We took a profit of 2.5bp on the short SOFRFF Z5 hedge on 10/24/25. Risk to the trade is a large bull shock, perhaps driven by a risk-off, although we would look to add in such a move as we do not expect a shock like occurred in the April trade. US Rates Weekly - Trade picking 2025	Profit
Swap spread	Long 2y swap spreads and short SOFRFF Z5 hedge	Level at Open 27bp Level Current (4:00pm) 20.8bp P&L 113 K Target P&L 42bp Stop P&L 71bp	We are initiating a 20k dv01 long belly/short wings position in 3y forward 5s10s30s fly at 26.8bp (pricing as of 12:30 PM EST on 26th September 2025). Continued flattening of the 10s30s curve is the biggest risk to the trade. US Rates Weekly - Fed Funds Shutdown	Profit
	Long 3y forward 5s10s30s fly	Level at Open 4bp vol Level Current (4:00pm) 8bp vol P&L -42 K Target P&L 500k Stop P&L -250k	We recommend selling \$50mm 3m 10y straddles and buying \$52mm 1y10y straddles at a beta-adjusted vega weighting of 1-to-2 (pricing as of 1pm, 10/17/2025, \$1.5mm premium, 3m10y ATMFF+0.534%, 1y10y ATMFF+0.801%, net vega=\$17k). The primary risk to the trade is a steep flattening in the vol term structure in the near term. US Rates Weekly - Hedging our bull steepener view	Loss
Rates	Long 1y10y straddle vs short 3m10y straddle	Level at Open 1 kck Level Current (4:00pm) 2.6kck P&L 69 K Target P&L 500k Stop P&L -300k	Buying 1x2 call spreads on SFRH6 on K=96.5/96.75 with a take-in of 1 kck (pricing at 9:50am on 11/7/25, target 500k, stop 300k). The risk to the trade is a material increase in UR which requires rate cuts below the bottom strike. US Rates Weekly - Bullish case for swap spreads next year	Profit
	Long 1x2 call spreads on SFRH6	Level at Open 3bp Level Current (4:00pm) -2bp P&L -50 K Target P&L 10bp Stop P&L -45bp	We are entering a 40k dv01 long belly position in 5s10s30s inflation swap fly at 2.85bp as of 1:35PM EST on 11/20/2025. A steep flattening in the 5s10s inflation curve is the biggest risk to the trade. US Rates Strategy - Going long 10s inflation in the curve	Loss
Inflation	Long belly 5s10s30s inflation swap	Level at Open 3% Level Current (4:00pm) 3% P&L 50 K Target P&L 700k Stop P&L -300k	We recommend entering a costless 3m 1y ATMFF/A-25bp 1x2 receiver spread with 300mm vs 600mm notional (pricing as of 11:30am 11/21/2025, ATMFF+3.32%, \$4.2k net short vega). The risk to the trade is a sharp bull landing slowdown that causes the Fed to cut very rapidly in the next three months. US Rates Weekly - Paving the way?	Profit
	Costless 3m 1y 1x2 receiver spread			

Pricing as of 4:00pm December 11, 2025. *Units in thousand dollars, unless specified. *This table does not include trade ideas subject to a restriction.

(a) For a detailed list of all closed trades from May 2006 to May 2007, please see "US Rate Strategy — Trade Closeout," US Rate Strategy — Bond Market Roundup: Strategy Citi, May 11, 2007. For a detailed list of all closed trades from May 2007 to May 2008, please see "US Rate Model Portfolio One-Year Anniversary Recap," US Rate Strategy — Bond Market Roundup: Strategy, Citi, May 30, 2008. Between May 2007 and May 2008, the group made a total of 87 trade recommendations, with 50 producing positive results, 36 negative, and one breaking even. This produced a 15.4% total return, with a 1.68 Sharpe ratio. Note: Return on risk is based on Citi's return-on-risk methodology and is calculated by taking the largest two-week change in the trade since January 1997. Return on portfolio based off \$300 million model portfolio sizing. Note: Past performance does not indicate future results. Calculations include transaction fees and other costs, and trades are marked-to-mid. Note: Futures trading involves substantial risk of loss.

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

Appendix I: Model Portfolio Closed Trades

Figure 143. US Rates Strategy Closed Trades from 2024 to present

Trade	Inception Date	Unwind Date	Initial	Unwind	P&L (\$'000s)	Target P&L	Stop Loss	Risk Return	Portfolio Return
Long US:CAN 10y spread	Oct 24, 2023	Jan 19, 2024	82.5 bp	65.90	\$407	50 bp	95 bp	40.70%	0.14%
Short 3y10y ATM straddles delta hedged by 3y10y swap	Aug 25, 2023	Jan 19, 2024	105 normal s	101 normal s	\$155	350K	-200K	15.50%	0.05%
Long CFI BC 01/31 vs. CNT 02/31	Oct 20, 2023	Jan 23, 2024	7 bp	0 bp	\$508	-6 bp	14 bp	50.80%	0.17%
Short Jan FOMC QIS	Oct 5, 2023	Jan 31, 2024	7 bp	-1 bp	(\$213)	200k	-200k	-21.25%	-0.07%
3s10s Spreads Steepener	Nov 3, 2023	Feb 9, 2024	-15.4 bp	-19.5 bp	(\$200)	-10 bp	-19 bp	-20.00%	-0.07%
Long 1x2 2s10s cap spread	Jan 5, 2024	Feb 13, 2024	-0.35%	-0.47%	\$138	540K	-300K	13.80%	0.05%
Long 1x1.5 3m0y payer spread	Jan 5, 2024	Feb 20, 2024	3.53%	3.89%	\$167	800K	-300K	16.70%	0.06%
Long belly in 10s20s30s UST fly	Oct 24, 2023	Mar 1, 2024	54.4 bp	42 bp	\$202	42 bp	63 bp	20.20%	0.07%
Short 1M4 puts, long call spread	Feb 28, 2024	Mar 1, 2024	1 tick	26 ticks	\$781			78.10%	0.26%
Pay 3mly SOFR TONAR	Dec 1, 2023	Mar 1, 2024	-55 bp	-42 bp	\$600	-42 bp	-64 bp	60.00%	0.20%
Long 5s against 2s and 10s	Aug 18, 2023	Mar 8, 2024	-47 bp	-60.2 bp	\$203			20.30%	0.07%
Short SOFR Blues convexity adjustment	Jan 12, 2024	Mar 8, 2024	13.8 bp	10.4 bp	\$97	500K	-300K	9.70%	0.03%
Long Z5/Z6 SOFR steepeners	Feb 9, 2024	Mar 14, 2024	5.5 ticks	-10 ticks	(\$578)	30 ticks	-10 ticks	-57.80%	-0.19%
Long SFRM puts	Jan 5, 2024	Mar 15, 2024	1.5 ticks	7.25 ticks	\$115	18 ticks	-10 ticks	11.50%	0.04%
Buy (dollar-swapped) € KBN 04/26 vs \$ KBN 01/26	Dec 7, 2023	Mar 28, 2024	5 bp	10 bp	(\$59)	10 bp	12 bp	-5.90%	-0.02%
Long FHLB 5nc3m Berm	Feb 16, 2023	Apr 5, 2024	5.73%	5.73%	\$300			30.00%	0.10%
Buy DBJJP 10/26 vs UST 10/26	Nov 30, 2023	Apr 5, 2024	46 bp	39 bp	\$289			28.90%	0.10%
Buy IDAWBG 06/27 vs EIB 05/27	Nov 30, 2023	Apr 5, 2024	12 bp	7 bp	\$194	7 bp	15 bp	19.40%	0.06%
Buy JICA 1.75 04/31 vs UST 1.625 05/31	Jan 25, 2024	Apr 5, 2024	58 bp	47 bp	\$414	44 bp	64 bp	41.40%	0.14%
Buy SEK 4.875 10/30 versus UST 2.625 09/30	Mar 1, 2024	Apr 5, 2024	32 bp	32 bp	\$18	28 bp	35 bp	1.80%	0.01%
Buy IDBI NV 4.125 02/28 versus UST 2.75 02/28	Mar 1, 2024	Apr 5, 2024	29 bp	30 bp	\$4	20 bp	34 bp	0.40%	0.00%
Short 10y UST vs Bunds	Feb 2, 2024	Apr 11, 2024	180 bp	212 bp	\$1,468	215 bp	169 bp	146.80%	0.49%
2m5y 1x2 straddle/strangle switch	Mar 22, 2024	Apr 10, 2024	3.90%	4.40%	(\$250)	800K	-300K	-25.00%	-0.08%
Long 6mly 1x2 straddle/strangle switch	Oct 13, 2023	Apr 11, 2024	5.00%	5.22%	\$1,020	600K	-200K	102.00%	0.34%
1 by 2 costless receiver spread on 1m0y	Mar 8, 2024	Apr 8, 2024	3.70%	4.05%	\$0			0.00%	0.00%
Long 10y BEs	Jan 11, 2024	Apr 18, 2024	2.24%	2.48%	\$1,182	0	0	118.20%	0.39%
Long UST short Canada 10y spread	Apr 16, 2024	May 14, 2024	94 bp	77.4 bp	\$642	75 bp	105 bp	64.20%	0.21%
Long belly of 2s5s10s	Apr 19, 2024	May 17, 2024	-30.2 bp	-37.5 bp	\$147	-45 bp	-20 bp	14.70%	0.05%
June SOFR put spread	Mar 22, 2024	May 31, 2024	1.75 ticks	-9 ticks	(\$181)	-135K	-18.10%	-0.06%	
Jun/Jul FOMC QIS weighted flattener	Apr 2, 2024	May 31, 2024	9.3bp	-1bp	(\$360)	12bp	-8bp	-36.00%	-0.12%
Pay 3mly SOFR TONAR	Mar 1, 2024	Jun 7, 2024	-44.75bp	-35bp	\$244	-35bp	-51bp	24.40%	0.08%
Short in TU SOFR invoice spreads	Mar 8, 2024	Jun 14, 2024	-8.6bp	-12.1bp	\$110	-15bp	-2bp	11.00%	0.04%
3m fwd 2s3s5s conditional bull tightener	Mar 15, 2024	Jun 17, 2024	-1.2bp	-1.2bp	\$0	400K	-200K	0.00%	0.00%
Long 10y TIPS ASW	Nov 3, 2023	Jun 28, 2024	69 bp	70 bp	\$190	45 bp	80 bp	19.00%	0.06%
Long belly of 2s3s5s fly	Mar 8, 2024	Jun 28, 2024	-4.9bp	0bp	(\$61)			-6.10%	-0.02%
1y fwd 10s30s bear steepener	Mar 22, 2024	Jul 12, 2024	-14.8bp	-13.1bp	\$70	500K	-250K	7.00%	0.02%
Long 3mly payer spread	Jun 13, 2024	Jul 12, 2024	4.91%	4.578%	(\$320)	860K	-362K	-32.00%	-0.11%
Long payer spreads on 5y5y vs short receiver	Jun 28, 2024	Aug 6, 2024	3.78%	3.50%	(\$503)	915K	-400K	-50.30%	-0.17%
Long 6m0y straddle with delta hedging	Jul 26, 2024	Aug 6, 2024	100.7bp	108.8bp	\$275	120bp	93bp	27.50%	0.09%
Short belly of 2s5s10s fly	Jun 28, 2024	Aug 8, 2024	-19.5bp	-17bp	\$63	-7.5bp	-30bp	6.30%	0.02%
20s30s breakeven steepener	Mar 1, 2024	Aug 9, 2024	-10.5bp	-11bp	(\$75)	0bp	-20bp	-7.50%	-0.03%
Long 10y payer spread	Sep 4, 2024	Sep 13, 2024	3.35%	3.19%	(\$238)	1600k	-278k	-23.80%	-0.08%
Receiving the belly in 2s5s10s fly	Aug 8, 2024	Sep 27, 2024	-23bp	-19.5bp	(\$66)	-43bp	-10bp	-6.60%	-0.02%
Short 10y UST vs Bunds	Aug 21, 2024	Oct 2, 2024	159.5bp	169.5bp	\$540	148bp	185bp	54.00%	0.18%
Long 3m0y receiver ladder	Sep 20, 2024	Oct 4, 2024	3.23%	3.45%	\$56	500k	-250k	5.60%	0.02%
Long 10y BE	Aug 6, 2024	Oct 11, 2024	2.11%	2.34%	\$910	2.35%	1.95%	91.00%	0.30%
Short 10y UST vs Gills	Oct 2, 2024	Oct 17, 2024	-23.8bp	-0.5bp	\$689	-5bp	-32bp	68.89%	0.23%
Long 10y Bund-short 10y CAD	Nov 8, 2024	Nov 20, 2024	82.4bp	100.5bp	\$711	100bp	70bp	71.13%	0.24%
Pay Dec FOMC QIS	Nov 5, 2024	Dec 2, 2024	4.40%	4.41%	\$23	1000k	-350k	2.25%	0.01%
FV net basis	Aug 23, 2024	Dec 6, 2024	-1.7bp	3.6bp	\$180	3.3bp	2bp	18.00%	0.06%
Long 6m 30s/2s CMS curve vol vs 6mly swaption vol	Sep 2, 2024	Dec 18, 2024	-16bp vol	-9bp vol	(\$180)	300K	-180K	-18.00%	-0.06%
Buying TY upside for FOMC week	Dec 16, 2024	Dec 18, 2024	4 ticks	0 ticks	(\$100)	250k	-100k	-10.00%	-0.03%
5y IOTA spread w/dener	Jun 28, 2024	Dec 19, 2024	9bp	8bp	(\$30)	20bp	3bp	-3.00%	-0.01%
20s30s spreads flattener	Jan 5, 2024	Jan 9, 2025	-0.9bp	-12bp	\$550	-10bp	5bp	55.00%	0.18%
TU net basis	Dec 16, 2024	Feb 7, 2025	-1 tick	0 ticks	\$256			25.60%	0.09%
30y swap spread tightener	Oct 18, 2024	Feb 13, 2025	-81bp	-70bp	(\$261)	-100bp	-70bp	-26.08%	-0.09%
2s10s inflation steepener	Dec 6, 2024	Feb 27, 2025	-12bp	-30bp	(\$500)	25bp	-30bp	-50.00%	-0.17%
10y10y vs 20y15y long-dated fwd steepener	Nov 8, 2024	Feb 28, 2025	-94.7bp	-90.2bp	\$173	500k	-300k	17.30%	0.06%
3m0y 1x2 payer spread	Jan 9, 2025	Feb 28, 2025	4.17%	3.15%	\$52	800k	-300k	5.20%	0.02%
Costless 3m2y 1x2 payer spread	Mar 12, 2025	Apr 4, 2025	3.72%	3.34%	\$42	600k	-250k	4.20%	0.01%
Receive 2y swaps paired with short 3m2y receiver	Jan 9, 2025	Apr 9, 2025	4.06%	3.52%	\$565	760k	-400k	56.54%	0.19%
Long 3y swap spreads	Apr 3, 2025	Apr 9, 2025	-24.5bp	-29bp	(\$225)	-20bp	-28bp	-22.50%	-0.08%
Long 5y5y real rates vs long 5y5y inflation	Mar 21, 2025	Apr 10, 2025	91bp	-20bp	(\$300)	60bp	-20bp	-30.00%	-0.10%
Short 10y UST vs long 10y Bund	Mar 7, 2025	Apr 11, 2025	142bp	200bp	\$3,039	190bp	125bp	303.90%	1.01%
Long 2y1y inflation hedged with SOFR puts	Apr 23, 2025	May 9, 2025	2.18%	2.25%	\$260	30bp	-20bp	26.00%	0.09%
TU net basis	Feb 21, 2025	May 16, 2025	-4.0	-2.8	\$60	3bp	-2bp	6.00%	0.02%
Long CORM	May 8, 2025	Jun 6, 2025	97.4	97.3	(\$200)	98	97	-20.00%	-0.07%
Conditional SOFR M5/M6 steepeners	Jan 9, 2025	Jun 13, 2025	-8 ticks	0 ticks	\$0	+25 ticks	-15 ticks	0.00%	0.00%
5y IOTA spread tightener	Jan 9, 2025	Jun 27, 2025	15.5bp	7.5bp	\$280	3bp	22bp	28.00%	0.09%
Long belly of 10s20s30s fly	Aug 9, 2024	Jun 27, 2025	46bp	59.5bp	(\$166)	30bp	55bp	-16.63%	-0.06%
3m2y 1x2 payer spread	Apr 11, 2025	Jun 27, 2025	3.57%	3.50%	\$115	700k	-300k	11.50%	0.04%
Short 3m6y straddle	Apr 23, 2025	Jun 27, 2025	3.62%	3.45%	\$705	500k	-250k	70.50%	0.24%
3mly SOFR TONAR	Dec 13, 2024	Jul 25, 2025	-38bp	-29.5bp	\$393	-48bp	-32bp	39.30%	0.13%
Costless 6m 5s30s bear steepener	May 16, 2025	Aug 22, 2025	36.5bp	-67.9bp	\$92	500k	-300k	9.20%	0.03%
3m2y 1x2 payer spread	Jun 27, 2025	Aug 22, 2025	3.50%	3.45%	\$120	700k	-300k	12.00%	0.04%
Short 2y2y inflation	Jun 27, 2025	Aug 26, 2025	2.34%	2.48%	(\$445)	2.15%	2.46%	-44.50%	-0.15%
Long 3m0y straddle	Jul 25, 2025	Sep 12, 2025	88bp	75.8bp	(\$175)	105bp	80bp	-17.50%	-0.06%
Long 3m0y straddle	Jul 25, 2025	Sep 12, 2025	88bp	75.8bp	(\$175)	105bp	80bp	-17.50%	-0.06%
Short 1y inflation with 5y5y hedge	Sep 5, 2025	Oct 29, 2025	-80bp	-55bp	\$243	-50bp	-100bp	24.30%	0.08%
3mly 1x1 payer spread	Oct 17, 2025	Oct 31, 2025	3.19%	3.45%	\$195	720k	-330k	19.50%	0.07%
Long 2m0y straddle vs short 1m0y straddle	Nov 7, 2025	Nov 26, 2025	2bp	12bp	\$32	250k	-150k	3.20%	0.01%
Long belly 10s20s30s cash fly	Oct 17, 2025	Dec 5, 2025	53.5bp	60bp	(\$190)	45bp	60bp	-19.00%	-0.06%

© 2025 Citigroup Inc. No redistribution without Citigroup's written permission.

Source: Citi Research

If you are visually impaired and would like to speak to a Citi representative regarding the details of the graphics in this document, please call USA 1-888-500-5008 (TTY: 711), from outside the US +1-210-677-3788

Appendix A-1

ANALYST CERTIFICATION

The research analysts primarily responsible for the preparation and content of this research report are either (i) designated by "AC" in the author block or (ii) listed in bold alongside content which is attributable to that analyst. If multiple AC analysts are designated in the author block, each analyst is certifying with respect to the entire research report other than (a) content attributable to another AC certifying analyst listed in bold alongside the content and (b) views expressed solely with respect to a specific issuer which are attributable to another AC certifying analyst identified in the price charts or rating history tables for that issuer shown below. Each of these analysts certify, with respect to the sections of the report for which they are responsible: (1) that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc. and its affiliates; and (2) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in this report.

IMPORTANT DISCLOSURES

Within the past 12 months, Citigroup Global Markets Inc. or its affiliates has acted as manager or co-manager of an offering of securities of AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CITIBANK NA, Canada, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, FEDERAL FARM CREDIT BANKS FUNDING CORP, FEDERAL HOME LOAN BANKS, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, Germany, INTERNATIONAL DEVELOPMENT ASSOCIATION, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, KFW, KOMMUNALBANKEN AS, NEDERLANDSE WATERSCHAPSBANK NV, ONTARIO, PROVINCE OF.

Citigroup Global Markets Inc. or its affiliates has received compensation for investment banking services provided within the past 12 months from AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, ALBERTA, PROVINCE OF, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CAPITAL ONE BANK (USA) NA, CITIBANK NA, Canada, China, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, FEDERAL HOME LOAN BANKS, France, GOLDMAN SACHS & CO LLC, Germany, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, INTERNATIONAL DEVELOPMENT ASSOCIATION, India, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, JP Morgan Chase & Co, Japan, KFW, KOMMUNALBANKEN AS, MORGAN STANLEY BANK NA, NEDERLANDSE WATERSCHAPSBANK NV, Netherlands, Norway, ONTARIO, PROVINCE OF, STATE STREET BANK AND TRUST CO, US BANK NA (MINNESOTA), United States, WELLS FARGO BANK NA.

Citigroup Global Markets Inc. or its affiliates expects to receive or intends to seek, within the next three months, compensation for investment banking services from AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CITIBANK NA, Canada, China, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, GOLDMAN SACHS & CO LLC, Germany, KFW, KOMMUNALBANKEN AS, Norway.

Citigroup Global Markets Inc. or its affiliates received compensation for products and services other than investment banking services from AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, ALBERTA, PROVINCE OF, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CAPITAL ONE BANK (USA) NA, CITIBANK NA, Canada, China, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, FEDERAL HOME LOAN BANKS, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, GOLDMAN SACHS & CO LLC, Germany, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, INTERNATIONAL DEVELOPMENT ASSOCIATION, India, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, JP Morgan Chase & Co, Japan, KFW, KOMMUNALBANKEN AS, MORGAN STANLEY BANK NA, NEDERLANDSE WATERSCHAPSBANK NV, Netherlands, Norway, ONTARIO, PROVINCE OF, QUEBEC, PROVINCE OF, STATE STREET BANK AND TRUST CO, US BANK NA (MINNESOTA), United States, WELLS FARGO BANK NA in the past 12 months.

Citigroup Global Markets Inc. or its affiliates currently has, or had within the past 12 months, the following as investment banking client(s): AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, ALBERTA, PROVINCE OF, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CAPITAL ONE BANK (USA) NA, CITIBANK NA, Canada, China, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, FEDERAL FARM CREDIT BANKS FUNDING CORP, FEDERAL HOME LOAN BANKS, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, GOLDMAN SACHS & CO LLC, Germany, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, INTERNATIONAL DEVELOPMENT ASSOCIATION, India, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, JP Morgan Chase & Co, Japan, KFW, KOMMUNALBANKEN AS, MORGAN STANLEY BANK

NA, NEDERLANDSE WATERSCHAPSBANK NV, Netherlands, Norway, ONTARIO, PROVINCE OF, STATE STREET BANK AND TRUST CO, US BANK NA (MINNESOTA), United States, WELLS FARGO BANK NA.

Citigroup Global Markets Inc. or its affiliates currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, securities-related: AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, ALBERTA, PROVINCE OF, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CAPITAL ONE BANK (USA) NA, CITIBANK NA, Canada, China, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, FEDERAL HOME LOAN BANKS, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, GOLDMAN SACHS & CO LLC, Germany, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, INTERNATIONAL DEVELOPMENT ASSOCIATION, India, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, JP Morgan Chase & Co, Japan, KFW, KOMMUNALBANKEN AS, MORGAN STANLEY BANK NA, NEDERLANDSE WATERSCHAPSBANK NV, Netherlands, Norway, ONTARIO, PROVINCE OF, QUEBEC, PROVINCE OF, STATE STREET BANK AND TRUST CO, US BANK NA (MINNESOTA), United States, WELLS FARGO BANK NA.

Citigroup Global Markets Inc. or its affiliates currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, non-securities-related: AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, ALBERTA, PROVINCE OF, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, CAPITAL ONE BANK (USA) NA, CITIBANK NA, Canada, China, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, FEDERAL HOME LOAN BANKS, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, GOLDMAN SACHS & CO LLC, Germany, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, INTERNATIONAL DEVELOPMENT ASSOCIATION, India, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, JP Morgan Chase & Co, Japan, KFW, KOMMUNALBANKEN AS, MORGAN STANLEY BANK NA, NEDERLANDSE WATERSCHAPSBANK NV, Netherlands, Norway, ONTARIO, PROVINCE OF, QUEBEC, PROVINCE OF, STATE STREET BANK AND TRUST CO, US BANK NA (MINNESOTA), United States, WELLS FARGO BANK NA.

Citigroup Global Markets Inc. and/or its affiliates has a significant financial interest in relation to AGENCE FRANCAISE DE DEVELOPPEMENT EPIC, BNY MELLON NA, Bank of America NA, Belgium, Brazil, CAISSE D'AMORTISSEMENT DE LA DETTE SOCIALE, Canada, China, EUROPEAN INVESTMENT BANK, EUROPEAN UNION, Federal Home Loan Mortgage Corp, Federal National Mortgage Association, France, GOLDMAN SACHS & CO LLC, Germany, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, INTERNATIONAL DEVELOPMENT ASSOCIATION, India, International Finance Corp, JAPAN BANK FOR INTERNATIONAL COOPERATION, JP Morgan Chase & Co, Japan, KFW, KOMMUNALBANKEN AS, MORGAN STANLEY BANK NA, NEDERLANDSE WATERSCHAPSBANK NV, Netherlands, Norway, United States. (For an explanation of the determination of significant financial interest, please refer to the policy for managing conflicts of interest which can be found at www.citiVelocity.com.)

Analysts' compensation is determined by Citi Research management and Citigroup's senior management and is based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates (the "Firm"). Compensation is not linked to specific transactions or recommendations. Like all Firm employees, analysts receive compensation that is impacted by overall Firm profitability which includes investment banking, sales and trading, and principal trading revenues. One factor in equity research analyst compensation is arranging corporate access events between institutional clients and the management teams of covered companies. Typically, company management is more likely to participate when the analyst has a positive view of the company.

For financial instruments recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in such financial instruments (and any underlying instruments) and may act as principal in connection with transactions in such instruments. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Unless stated otherwise neither the Research Analyst nor any member of their team has viewed the material operations of the Companies for which an investment view has been provided within the past 12 months.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Research product ("the Product"), please contact Citi Research, 388 Greenwich Street, 6th Floor, New York, NY, 10013, Attention: Legal/Compliance [E6WYB6412478]. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm's disclosure website at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures. Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Pursuant to the Market Abuse Regulation a history of all Citi Research recommendations published during the preceding 12-month period can be accessed via Citi Velocity (<https://www.citivelocity.com/cv2>) or your standard distribution portal. Historical disclosures (for up to the past three years) will be provided upon request.

RESEARCH ANALYST AFFILIATIONS / NON-US RESEARCH ANALYST DISCLOSURES

The legal entities employing the authors of this report are listed below (and their regulators are listed further herein). Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts may not be associated persons of the member organization (but are employed by an affiliate of the member organization) and therefore may not be subject to the FINRA Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Citigroup Global Markets Inc.

Alejandra Vazquez Plata; Mike Chang; Jason Williams; Jabaz Mathai; Raghav Datla

OTHER DISCLOSURES

Any price(s) of instruments mentioned in recommendations are as of the prior day's market close on the primary market for the instrument, unless otherwise stated.

The completion and first dissemination of any recommendations made within this research report are as of the Eastern date-time displayed at the top of the Product. If the Product references views of other analysts then please refer to the price chart or rating history table for the date/time of completion and first dissemination with respect to that view.

European regulations require that where a recommendation differs from any of the author's previous recommendations concerning the same financial instrument or issuer that has been published during the preceding 12-month period that the change(s) and the date of that previous recommendation are indicated. Please refer to the trade history in the published research or contact the research analyst.

Citi Research has implemented policies for identifying, considering and managing potential conflicts of interest arising as a result of publication or distribution of investment research. A description of these policies can be found at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures.

The proportion of all Citi Research research recommendations that were the equivalent to "Buy", "Hold", "Sell" at the end of each quarter over the prior 12 months (with the % of these that had received investment firm services from Citi in the prior 12 months shown in brackets) is as follows: Q3 2025 Buy 33% (61%), Hold 44% (52%), Sell 23% (50%), RV 0.4% (80%); Q2 2025 Buy 33% (63%), Hold 44% (51%), Sell 23% (49%), RV 0.4% (86%); Q1 2025 Buy 33% (63%), Hold 44% (51%), Sell 23% (49%), RV 0.5% (87%); Q4 2024 Buy 32% (64%), Hold 44% (52%), Sell 23% (44%), RV 0.4% (92%). For the purposes of disclosing recommendations other than for equity (whose definitions can be found in the corresponding disclosure sections), "Buy" means a positive directional trade idea; "Sell" means a negative directional trade idea; and "Relative Value" means any trade idea which does not have a clear direction to the investment strategy.

European regulations require a 5 year price history when past performance of a security is referenced. CitiVelocity's Charting Tool (https://www.citivelocity.com/cv2/#go/CHARTING_3_Equities) provides the facility to create customisable price charts including a five year option. This tool can be found in the Data & Analytics section under any of the asset class menus in CitiVelocity (<https://www.citivelocity.com/>). For further information contact CitiVelocity support (https://www.citivelocity.com/cv2/go/CLIENT_SUPPORT). The source for all referenced prices, unless otherwise stated, is DataCentral, which sources price information from LSEG Data & Analytics. Past performance is not a guarantee or reliable indicator of future results. Forecasts are not a guarantee or reliable indicator of future performance.

Investors should always consider the investment objectives, risks, and charges and expenses of an ETF carefully before investing. The applicable prospectus and key investor information document (as applicable) for an ETF should contain this and other information about such ETF. It is important to read carefully any such prospectus before investing. Clients may obtain prospectuses and key investor information documents for ETFs from the applicable distributor or authorized participant, the exchange upon which an ETF is listed and/or from the applicable website of the applicable ETF issuer. The value of the investments and any accruing income may fall or rise. Any past performance, prediction or forecast is not indicative of future or likely performance. Any information on ETFs contained herein is provided strictly for illustrative purposes and should not be deemed an offer to sell or a solicitation of an offer to purchase units of any ETF either explicitly or implicitly. The opinions expressed are those of the authors and do not necessarily reflect the views of ETF issuers, any of their agents or their affiliates. Citigroup Global Markets India Private Limited and/or its affiliates may have, from time to time, actual or beneficial ownership of 1% or more in the debt securities of the subject issuer.

Please be advised that pursuant to Executive Order 13959 as amended (the "Order"), U.S. persons are prohibited from investing in securities of any company determined by the United States Government to be the subject of the Order. This research is not intended to be used or relied upon in any way that could result in a violation of the Order. Investors are encouraged to rely upon their own legal counsel for advice on compliance with the Order and other economic sanctions programs administered and enforced by the Office of Foreign Assets Control of the U.S. Treasury Department.

This communication is directed at persons who are "Eligible Clients" as such term is defined in the Israeli Regulation of Investment Advice, Investment Marketing and Investment Portfolio Management law, 1995 (the "Advisory Law"). Within Israel, this communication is not intended for retail clients and Citi will not make such products or transactions available to retail clients or to non-Eligible Clients. The presenter is not licensed as investment advisor or investment marketer by the Israeli Securities Authority ("ISA") and this communication does not constitute investment or marketing advice. The information contained herein may relate to matters that are not regulated by the ISA. Any securities which are the subject of this communication may not be offered or sold to any Israeli person except pursuant to a security offering exemption according to the Israeli Securities Law, 1968 and the public offering rules provided thereunder.

Citi Research broadly and simultaneously disseminates its research content to the Firm's institutional and retail clients via the Firm's proprietary electronic distribution platforms (e.g., Citi Velocity and various Global Wealth platforms). As a convenience, certain, but not all, research content may be distributed through third party aggregators. Clients may receive published research reports by email, on a discretionary basis, and only after such research content has been broadly disseminated. Certain research is made available only to institutional investors to satisfy regulatory requirements. The level and types of services provided by Citi Research analysts to clients may vary depending on various factors such as the client's individual preferences as to the frequency and manner of receiving communications from analysts, the client's risk profile and investment

focus and perspective (e.g. market-wide, sector specific, long term, short-term etc.), the size and scope of the overall client relationship with the Firm and legal and regulatory constraints.

Pursuant to Comissão de Valores Mobiliários Resolução 20 and ASIC Regulatory Guide 264, Citi is required to disclose whether a Citi related company or business has a commercial relationship with the subject company. Considering that Citi operates multiple businesses in more than 100 countries around the world, it is likely that Citi has a commercial relationship with the subject company.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. Statements and views concerning ESG (environmental, social, governance) factors are typically based upon public statements made by the affected company or other public news, which the author may not have independently verified. ESG factors are one consideration that investors may choose to examine when making investment decisions. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Research does not set a predetermined frequency for publication, if the Product is a fundamental equity or credit research report, it is the intention of Citi Research to provide research coverage of the covered issuers, including in response to news affecting the issuer. For non-fundamental research reports, Citi Research may not provide regular updates to the views, recommendations and facts included in the reports. Notwithstanding that Citi Research maintains coverage on, makes recommendations concerning or discusses issuers, Citi Research may be periodically restricted from referencing certain issuers due to legal or policy reasons. Where a component of a published trade idea is subject to a restriction, the trade idea will be removed from any list of open trade ideas included in the Product. Upon the lifting of the restriction, the trade idea will either be re-instated in the open trade ideas list if the analyst continues to support it or it will be officially closed. Citi Research may provide different research products and services to different classes of customers (for example, based upon long-term or short-term investment horizons) that may lead to differing conclusions or recommendations that could impact the price of a security contrary to the recommendations in the alternative research product, provided that each is consistent with the rating system for each respective product.

Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by.

The Product is made available in **Australia** through Citigroup Global Markets Australia Pty Limited. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. Citigroup Global Markets Australia Pty Limited is not an Authorised Deposit-Taking Institution under the Banking Act 1959, nor is it regulated by the Australian Prudential Regulation Authority.

The Product is made available in **Brazil** by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários ("CVM"), BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBIMA - Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais. Av. Paulista, 1111 - 14º andar(parte) - CEP: 01311920 - São Paulo - SP.

This Product is available in **Chile** through Banchile Corredores de Bolsa S.A., an indirect subsidiary of Citigroup Inc., which is regulated by the Comisión Para El Mercado Financiero. Enrique Foster Sur, 20, piso 6, Las Condes, Santiago, Chile.

Disclosure for investors in the Republic of Colombia : This communication or message does not constitute a professional recommendation to make investment in the terms of article 2.40.1.1.2 of Decree 2555 de 2010 or the regulations that modify,

substitute or complement it. Para la elaboración y distribución de informes de investigación y de comunicaciones generales de que trata este artículo no se requiere ser una entidad vigilada por la Superintendencia Financiera de Colombia.

The Product is made available in **Germany** by Citigroup Global Markets Europe AG ("CGME"), which is regulated by the European Central Bank and the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht BaFin), Börsenplatz 9, 60313 Frankfurt am Main, Germany.

Unless otherwise specified, if the analyst who prepared this report is based in Hong Kong and it relates to "securities" (as defined in the Securities and Futures Ordinance (Cap.571 of the Laws of Hong Kong)), the report is issued in Hong Kong by Citigroup Global Markets Asia Limited. Citigroup Global Markets Asia Limited is regulated by Hong Kong Securities and Futures Commission. If the report is prepared by a non-Hong Kong based analyst, please note that such analyst (and the legal entity that the analyst is employed by or accredited to) is not licensed/registered in Hong Kong and they do not hold themselves out as such. Please refer to the section "Research Analyst Affiliations / Non-US Research Analyst Disclosures" for the details of the employment entity of the analysts.

The Product is made available in **India** by Citigroup Global Markets India Private Limited (CGM), which is regulated by the Securities and Exchange Board of India (SEBI), as a Research Analyst (SEBI Registration No. INH000000438). CGM is also actively involved in the business of merchant banking (SEBI Registration No. INM000010718) and stock brokerage ((SEBI Registration No. INZ000263033) in India, and is registered with SEBI in this regard. Registration granted by SEBI and certification from National Institute of Securities Markets (NISM) in no way guarantee performance of the intermediary or provide any assurance of returns to investors. CGM's registered office is at 1202, 12th Floor, First International Financial Centre (FIFC), G Block, Bandra Kurla Complex, Bandra East, Mumbai – 400098 & registered Tel: +91 22 61759999. Citi maintains robust policies, procedures, controls, and training to ensure continued compliance with all applicable rules and regulations. All recommendations contained herein are made by duly qualified research analysts. CGM's Corporate Identity Number is U99999MH2000PTC126657, and its Compliance Officer [Vishal Bohra] contact details are: Tel: +91-022-61759994, Fax: +91-022-61759851, Email: cgmcompliance@citi.com. The Investor Charter in respect of Research Analysts, the Compliance Audit Report and Complaints information can be found at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures. The grievance officer [Nikita Jadhav] contact details are Tel: +91-022-42775089, Email: EMEA.CR.Complaints@citi.com. Investment in securities market are subject to market risks. Read all the related documents carefully before investing. SEBI prescribed Client Terms & Conditions can be found at

<https://www.citivelocity.com/rendition/authfilelinksvcs/eppublic/V1/file?paramData=ZmlsZU5hbWU9L1MzL0dETVMvcHVlRGltY2xvc3VyZUh0bWxzL2dkbV9kaXNfc2ViaV9UZXJtc29mVXNlLmh0bWw>

The Product is made available in **Indonesia** through PT Citigroup Sekuritas Indonesia. Citibank Tower 10/F, Pacific Century Place, SCBD lot 10, Jl. Jend Sudirman Kav 52-53, Jakarta 12190, Indonesia. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Services Authority (OJK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations.

The Product is made available in **Japan** by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Otemachi Park Building, 1-1-1 Otemachi, Chiyoda-ku, Tokyo 100-8132 Japan. In the event that an error is found in an CGMJ research report, a revised version will be posted on the Firm's Citi Velocity website. If you have questions regarding Citi Velocity, please call (81 3) 6270-3019 for help.

The product is made available in the **Kingdom of Saudi Arabia** in accordance with Saudi laws through Citigroup Saudi Arabia, which is regulated by the Capital Market Authority (CMA) under CMA license (17184-31). 2239 Al Urubah Rd – Al Olaya Dist. Unit No. 18, Riyadh 12214 – 9597, Kingdom Of Saudi Arabia.

The Product is made available in **Korea** by Citigroup Global Markets Korea Securities Ltd. (CGMK), which is regulated by the Financial Services Commission, the Financial Supervisory Service and the Korea Financial Investment Association (KOFIA). The address of CGMK is Citibank Center, 50 Saemunan-ro, Jongno-gu, Seoul 03184, Korea. KOFIA makes available registration information of research analysts on its website. Please visit the following website if you wish to find KOFIA registration information on research analysts of

CGMK. <http://dis.kofia.or.kr/websquare/index.jsp?w2xPath=/wq/fundMgr/DISFundMgrAnalystList.xml&divisionId=MDISO3002002000000&serviceld=SDISO30020020000>. The Product is made available in Korea by Citibank Korea Inc., which is regulated by the Financial Services Commission and the Financial Supervisory Service. Address is Citibank Center, 50 Saemunan-ro, Jongno-gu, Seoul 03184, Korea. This research report is intended to be provided only to Professional Investors as defined in the Financial Investment Services and Capital Market Act and its Enforcement Decree in Korea.

The Product is made available in **Malaysia** by Citigroup Global Markets Malaysia Sdn Bhd (Registration No. 199801004692 (460819-D)) ("CGMM") to its clients and CGMM takes responsibility for its contents as regards CGMM's clients. CGMM is regulated by the Securities Commission Malaysia. Please contact CGMM at Level 43 Menara Citibank, 165 Jalan Ampang, 50450 Kuala Lumpur, Malaysia in respect of any matters arising from, or in connection with, the Product.

The Product is made available in **Mexico** by Citi México Casa de Bolsa, S.A. de C.V., Grupo Financiero Citi México which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comisión Nacional Bancaria y de Valores. Prolongación Reforma 1196, 24 floor, Colonia Santa Fe, Alcaldía Cuajimalpa de Morelos, C.P. 05348, Ciudad de México.

The Product is made available in **Poland** by Biuro Maklerskie Banku Handlowego (DMBH), separate department of Bank Handlowy w Warszawie S.A. a subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Biuro Maklerskie Banku Handlowego (DMBH), ul.Senatorska 16, 00-923 Warszawa.

The Product is made available in **Singapore** through Citigroup Global Markets Singapore Pte. Ltd. ("CGMSPL"), a capital markets services and Exempt Financial Advisor license holder, and regulated by Monetary Authority of Singapore. Please contact CGMSPL at 8 Marina View, 21st Floor Asia Square Tower 1, Singapore 018960, in respect of any matters arising from, or in connection with, the analysis of this document. This Product is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act 2001. For Citi Private Bank, the Product is made available in Singapore by Citi Private Bank through Citibank, N.A., Singapore Branch. Citibank N.A., Singapore Branch is a licensed bank in Singapore that is regulated by the Monetary Authority of Singapore. Please contact your Private Banker in Citibank N.A., Singapore Branch if you have any queries on or any matters arising from or in connection with this document. The Product is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act 2001. For Citibank Singapore Limited ("CSL"), the Product is distributed in Singapore by CSL to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of the Product. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this document. The Product is intended for recipients who are accredited investors as defined under the Securities and Futures Act (Cap. 289).

Citigroup Global Markets (Pty) Ltd. is incorporated in the **Republic of South Africa** (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa.

The Product is made available in the **Republic of China (Taiwan)** through Citigroup Global Markets Taiwan Securities Company Ltd. ("CGMTS"), 14F, 15F and 16F, No. 1, Songzhi Road, Taipei 110, Taiwan, subject to the license scope and the applicable laws and regulations in the Republic of China (Taiwan). CGMTS is regulated by the Securities and Futures Bureau of the Financial Supervisory Commission of Taiwan, the Republic of China (Taiwan). No portion of the Product may be reproduced or quoted in the Republic of China (Taiwan) by the press or any third parties [without the written authorization of CGMTS]. Pursuant to the applicable laws and regulations in the Republic of China (Taiwan), the recipient of the Product shall not take advantage of such Product to involve in any matters in which the recipient may have conflicts of interest. If the Product covers securities which are not allowed to be offered or traded in the Republic of China (Taiwan), neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities in the Republic of China (Taiwan). The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security or financial products. Any decision to purchase securities or financial products mentioned in the Product must take into account existing public information on such security or the financial products or any registered prospectus.

The Product is made available in **Thailand** through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 399 Interchange 21 Building, 18th Floor, Sukhumvit Road, Klongtoey Nua, Wattana ,Bangkok 10110, Thailand.

Disclosure for investors in the Republic of Turkey: The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. Under Capital Markets Law of Turkey (Law No: 6362), the investment information, comments and recommendations stated here, are not within the scope of investment advisory activity. Comments and recommendations stated here rely on the individual opinions of the ones providing these comments and recommendations. These opinions may not fit to your financial status, risk and return preferences. For this reason, to make an investment decision by relying solely to this information stated here may not bring about outcomes that fit your expectations. Furthermore, Citi Research is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies and/or trades on securities covered in this research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report, however investors should also note that the Firm has in place organisational and administrative arrangements to manage potential conflicts of interest of this nature.

In the **U.A.E**, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFSA", license #CLO221) to Professional Clients and Market Counterparties, as defined in DFSA regulations, only and should not be relied upon or distributed to Retail Clients. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. Citigroup Global Markets Limited DIFC Branch registered address Level 3, Gate District Building 02, Dubai International Financial Centre and can be contacted on +971 4 509 97 90.

The Product is made available in **United Kingdom** by Citigroup Global Markets Limited, which is authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA. This material may relate to investments or services of a person outside of the UK or to other matters which are not authorised by the PRA nor regulated by the FCA and the PRA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB.

The Product is made available in **United States** and **Canada** by Citigroup Global Markets Inc., which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013.

Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Europe AG ("CGME"), which is regulated by the European Central Bank and the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht-BaFin).

The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. The yield and average life of CMOs (collateralized mortgage obligations) referenced in this Product will fluctuate depending on the actual rate at which mortgage holders prepay the mortgages underlying the CMO and changes in current interest rates. Any government agency backing of the CMO applies only to the face value of the CMO and not to any premium paid. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product.

Card Insights. Where this report references Card Insights data, Card Insights consists of selected data from a subset of Citi's proprietary credit card transactions. Such data has undergone rigorous security protocols to keep all customer information confidential and secure; the data is highly aggregated and anonymized so that all unique customer identifiable information is removed from the data prior to receipt by the report's author or distribution to external parties. This data should be considered in the context of other economic indicators and publicly available information. Further, the selected data represents only a subset of Citi's proprietary credit card transactions due to the selection methodology or other limitations and should not be considered as indicative or predictive of the past or future financial performance of Citi or its credit card business.

Citi Research product may source data from dataCentral. dataCentral is a Citi Research proprietary database, which includes the Firm's estimates, data from company reports and feeds from LSEG Data & Analytics. The source for all referenced prices, unless otherwise stated, is DataCentral. Past performance is not a guarantee or reliable indicator of future results. Forecasts are not a guarantee or reliable indicator of future performance. The printed and printable version of the research report may not include all the information (e.g. certain financial summary information and comparable company data) that is linked to the online version available on the Firm's proprietary electronic distribution platforms.

Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, disseminated or used to create any financial products, including any indices. This information is provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. Where data is attributed to Morningstar that data is © 2025 Morningstar, Inc. All Rights Reserved. That information: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.

The Firm accepts no liability whatsoever for the actions of third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in any way form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

© 2025 Citigroup Global Markets Inc. Citi Research is a division of Citigroup Global Markets Inc. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. The research data in this report are not intended to be used for the purpose of (a) determining the price of or amounts due in respect of (or to value) one or more financial products or instruments and/or (b) measuring or comparing the performance of, or defining the asset allocation of a financial product, a portfolio of financial instruments, or a collective investment undertaking, and any such use is strictly prohibited without the prior written consent of Citi Research. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST
