

US Rates Watch

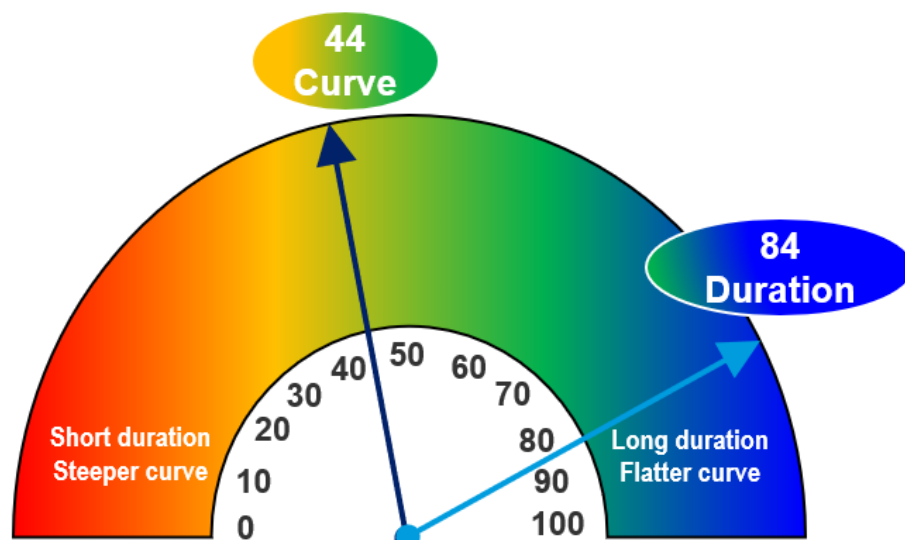
Positioning lagging sentiment

Vulnerable longs

Longs have become the net out of the money position suggesting that rates are biased to move higher. While the market likely reduced probability of a recession last week (see report: [Global Rates Weekly](#)), we did not see meaningful reduction in long exposure from CTAs or benchmark funds. Agg funds added to duration and fund inflows extended to the long end of the curve. CTAs have room to sell and exacerbate a selloff. In March, foreign private investors bought historic amounts of USTs and in April Japanese banks and pensions were notable sellers.

Exhibit 1: Curve-o-meter

CTA, futures proxy, fund flows & regression signals longer duration and steeper curve



Source: BofA Global Research, Note: dial shows duration = average 5y percentiles of CTA positioning + net OTM position implied from futures positioning proxy + CFTC non-comm ex LF + fund regression duration beta. Curve = avg 5y percentiles of CTA betas + futures positioning proxy + fund regression curve beta

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Longs are out of the money

Our futures positioning proxy (for construction detail see Gauging positioning in Treasury Futures [the 9 May 2019 report](#)) shows a strong bias for rates to selloff across the curve given the prominence of OTM longs vs ITM shorts (Exhibit 8 & Exhibit 9). This is a notable shift over the last week and suggests that positioning has yet caught up to the swing in macro sentiment.

Report continued on subsequent pages...

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CFTC: Commodities Futures Trading Commission

CTA: Commodity Trading Adviser

FV: Treasury 5Y contract

ITM: In the Money

MBS: Mortgage Backed Securities

OTM: Out of the Money

US: Treasury 20Y contract.

UST: Treasury Security

SF: SOFR Futures

TY: Treasury 10Y contract

TIC: Treasury International Capital

See appendix (page 23) for a detailed list of abbreviations and acronyms.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

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Timestamp: 19 May 2025 06:00AM EDT

AMs reduce shorter tenor futures longs

Asset managers reduced long futures exposure most notably at the front end and belly of the curve on the week and leveraged funds in turn cut shorts (Exhibit 5). While asset managers long positioning remains concentrated at shorter tenors, this gap narrowed slightly on the week (Exhibit 6).

CTAs have room to sell

Our indicators suggests that CTAs have only begun to reduce long rates exposure (for construction see the 18 August 2020 report, [CTAs impact on the rates market](#)). Momentum began to shift less long on the week and betas declined only slightly (Exhibit 10 & Exhibit 12). This suggests that CTAs have potential to exacerbate a rates selloff if momentum continues to shift shorter.

Strong foreign buying before April

TIC data evidences strong buying from foreign private investors in March. Adjusted for valuation, foreign private buyers added \$180bn in UST securities, one of the largest months on record and a 2.2 z-score over the past 12 months. Foreign official holdings were little changed; the official sector has sold about \$100bn in total over the past 12 months. This continues the strong divergence between private and official investor holdings of USTs observed in recent years (Exhibit 28). By country, Norway, Cayman and UK were the largest buyers while China, UAE and Hong Kong were the largest sellers (Exhibit 27).

MoF data shows the largest private buying of foreign bonds since September '24 over the week ending May 9 (\$13bn, Exhibit 24). Strong inflows at the start of the month followed sharp selling in April, however. Investor allocation data indicate selling stemmed primarily from banks & pensions (Exhibit 32).

NY Fed custodial holdings ticked lower last week alongside no offsetting increase in foreign repo, suggesting a net reduction in USD holdings (Exhibit 31). Custodial UST balances have declined \$34bn since the end of April alongside an only modestly stronger dollar (Exhibit 25).

Funds add to duration

US fixed income funds saw net inflows on the week led by corporate HY & long-term sovereign funds. Short term sovereign funds, however, saw net outflows, a deviation from outsized inflows since the start of the year vs longer tenors (Exhibit 36).

Our regression suggests that benchmark funds added to duration on the week while curve positioning was little changed (Exhibit 40 & Exhibit 42, for construction details see report: [Fund duration & curve positioning: a PCA regression approach](#)). Funds overall are modestly overweight and in steepeners.



Week Ahead

Exhibit 2: On deck next week

Calendar of upcoming events

	US Data			Fed Speaker / Event	Treasury Auction			Treasury Settlements	
	Series	BofA	BB Consensus		Security	Amount (\$bn)	Prior Δ	Security	Amount (\$bn)
S, May 18				17:20 Fed's Williams Gives Commencement Address					
May 18-21				Federal Reserve Bank of Atlanta's 2024 Financial Markets Conf					
M, May 19	Leading Indicators	—	-0.8%	08:30 Fed's Bostic Gives Opening Remarks 08:45 Fed's Jefferson Gives Keynote, Bostic Moderates 08:45 Fed's Williams Speaks in Moderated Discussion 13:15 Fed's Logan Gives Remarks, Moderates Panel	13-Week Bill 26-Week Bill	76 68	0 0		
T, May 20				09:00 Fed's Bostic Gives Opening Remarks 13:00 Fed's Musalem Speaks on Economy, Policy 19:00 Fed's Hammack, Daly Give Keynote, Bostic Moderates	6-Week	70	0	Bills	-4
W, May 21					20-Year Bond	16	0		
T, May 22	Initial Jobless Claims S&P Global US manufacturing PMI S&P Global US services PMI Existing Home Sales	225k 49.60 51.00 4.00M	— — — 4.15M	14:00 Fed's Williams Gives Keynote Remarks	9-Year 8-Month TIPS	18	1	Bills	-8
F, May 23	New Home Sales	670k	698k						

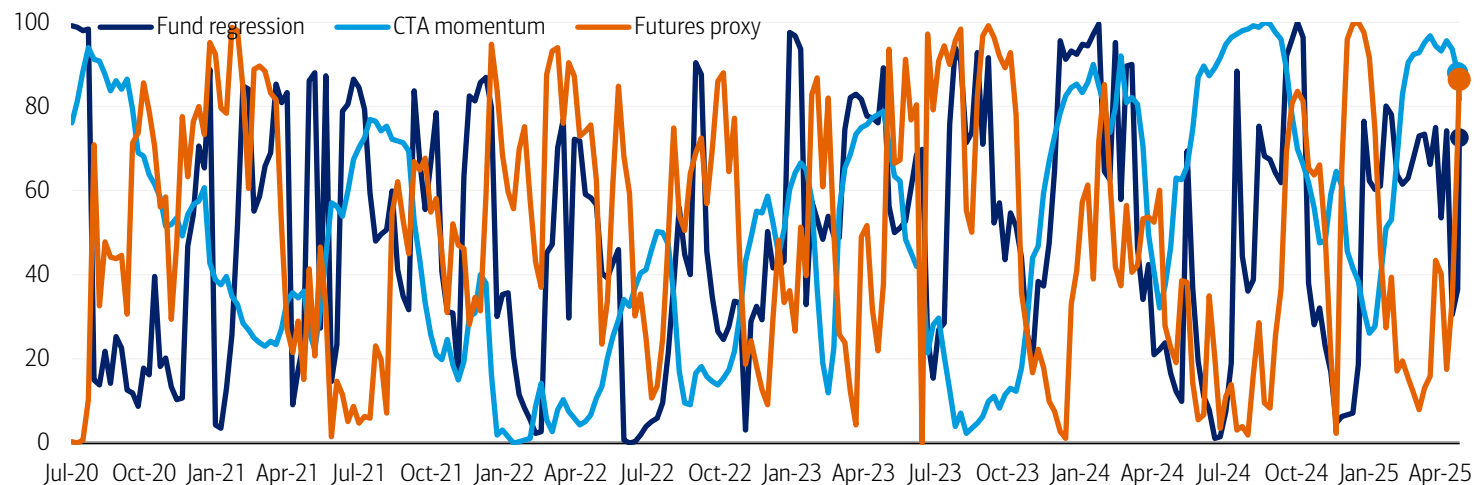
Source: BofA Global Research, Bloomberg, US Treasury

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Positioning indicators

Exhibit 3: 5y percentile of 10y equivalent duration positioning (percentile: higher = longer)

CTA momentum signals, benchmark investors and futures proxy suggests positioning for longer duration

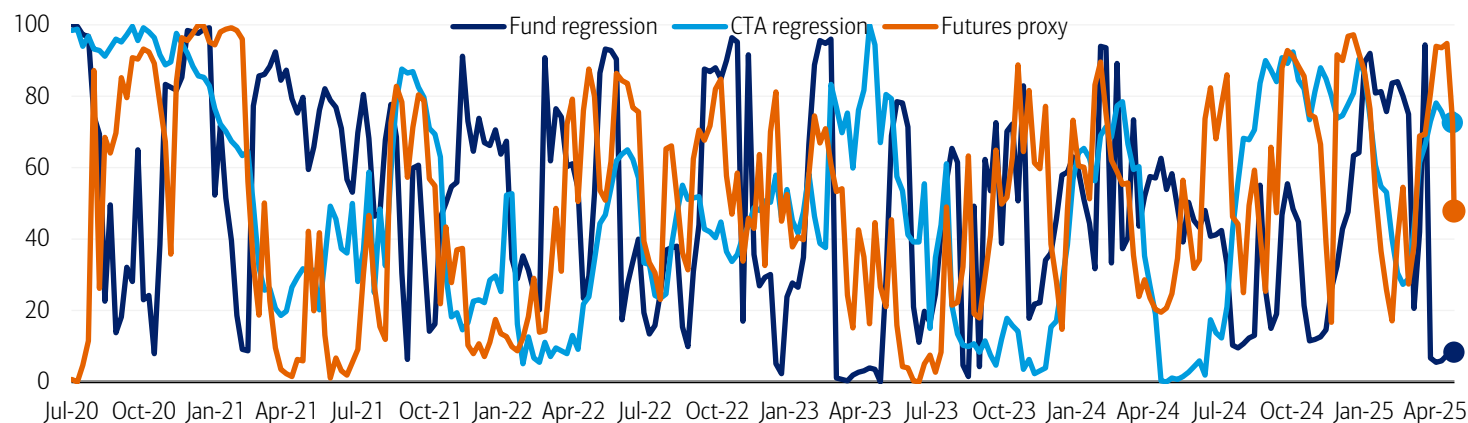


Source: BofA Global Research, Bloomberg

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Exhibit 4: 5y percentile of curve positioning (percentile: higher = longer back-end relative to front end)

Our fund regression points to a flatter curve. Futures positioning suggests flattener is pain trade and vulnerable for covering

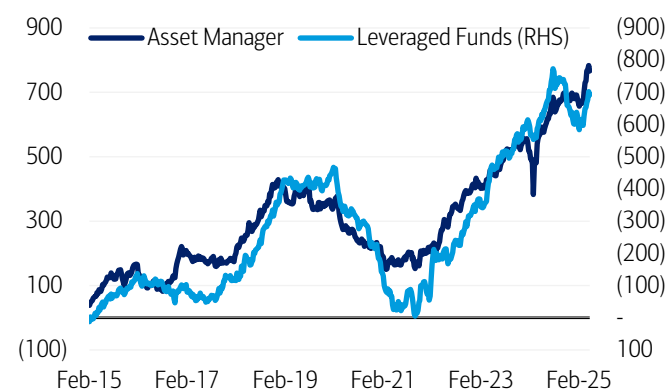


Source: BofA Global Research, Bloomberg

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Exhibit 5: Asset manager and leveraged fund positioning (10y equivalent, \$bn)

Asset manager longs correspond with leveraged fund shorts

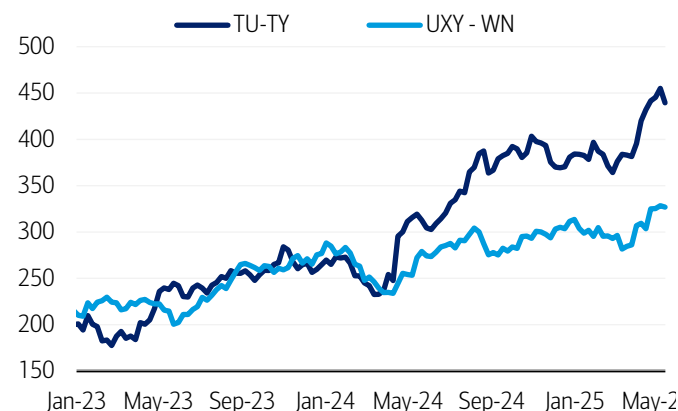


Source: BofA Global Research, Bloomberg

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Exhibit 6: Asset manager futures positioning in 10y equivalents (\$bn)

Futures bid has been concentrated at the front end of the curve

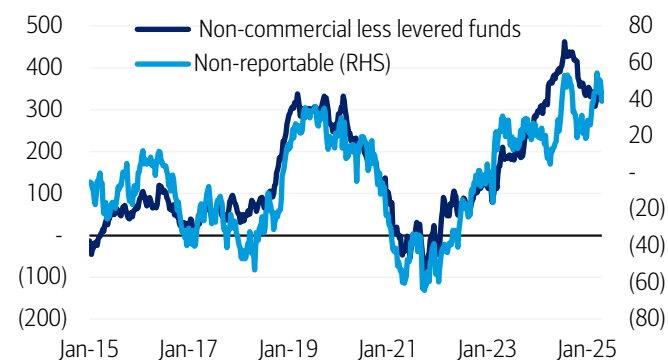


Source: BofA Global Research, Bloomberg

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Exhibit 7: Non-reportable vs non-commercial ex LF positions (10y equivalent, \$bn)

Non-comm ex LF series is a cleaner way to assess the directional positioning of the speculative community; it also trends with CFTC non-reportable which is viewed as a proxy for CTA positioning.



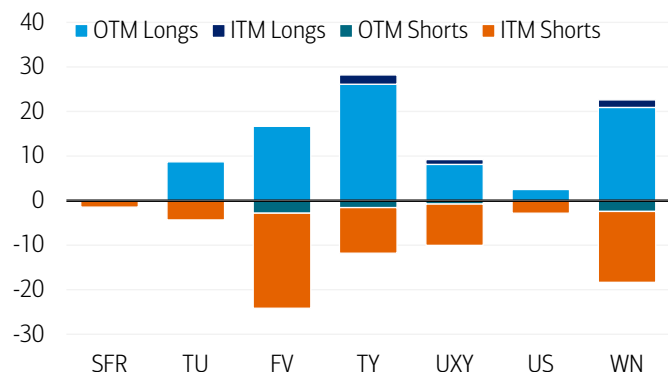
Source: BofA Global Research, CFTC

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Exhibit 8: Proxies for futures positioning (\$mil '01, duration-weighted by contract)

Longs are out of the money across the curve; shorts are in the money

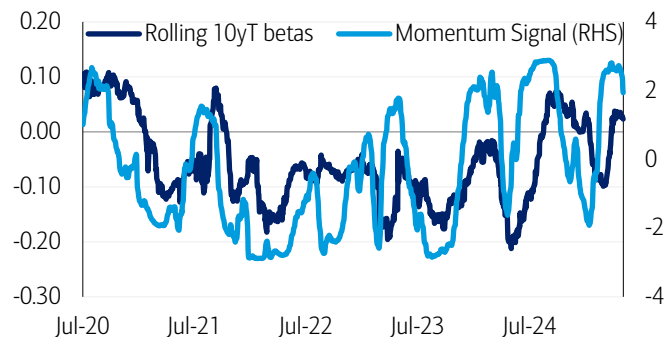


Source: BofA Global Research, Bloomberg; Note: see Appendix A.1. on how to read proxies for futures positioning

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Exhibit 10: CTA positioning in 10yT

Momentum signal suggests longs have peaked

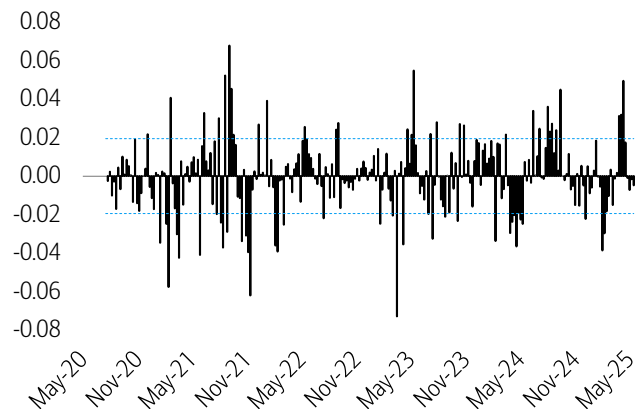


Source: BofA Global Research

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Exhibit 12: Changes in CTA 10yT beta

Beta declined modestly on week

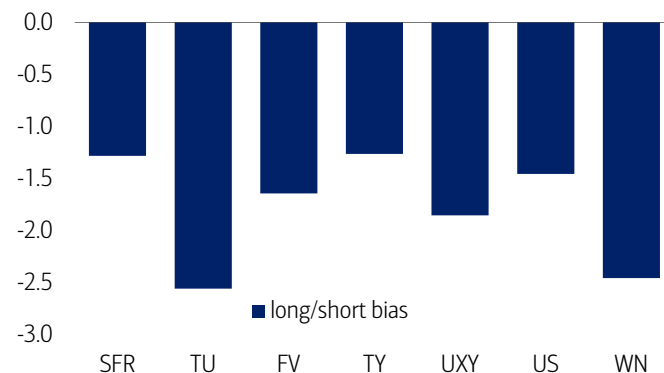


Source: BofA Global Research

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Exhibit 9: Analysis of proxies for futures positioning

Futures proxy implies net OTM position is long and rates biased to selloff

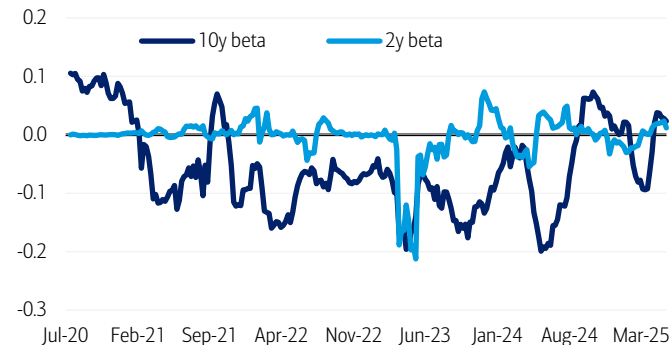


Source: BofA Global Research, Bloomberg; Note: reflects the average z-score of the return signal stack over the last 5 days vs past 3mo. Positive signal implies net OTM position is short & rates are biased to rally; similarly, negative signal implies net OTM position is long & a bias for rates to selloff

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Exhibit 11: CTA positioning in 2y vs 10y UST

Top-down model is more lagged but shows CTAs are modestly long

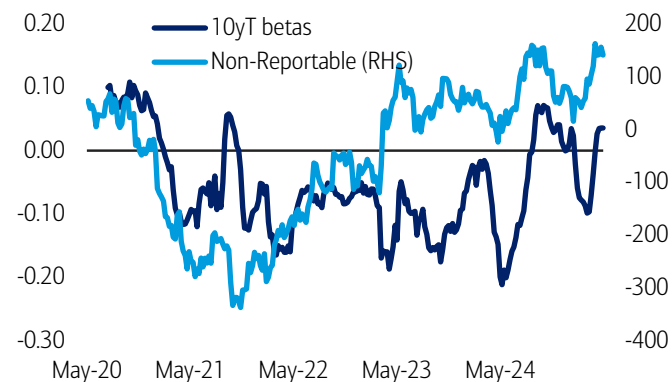


Source: BofA Global Research

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Exhibit 13: CTA 10y TSY beta and non-reportable positions

Non-reportable moderation consistent with top-down model; though both have meaningfully diverged in last two years



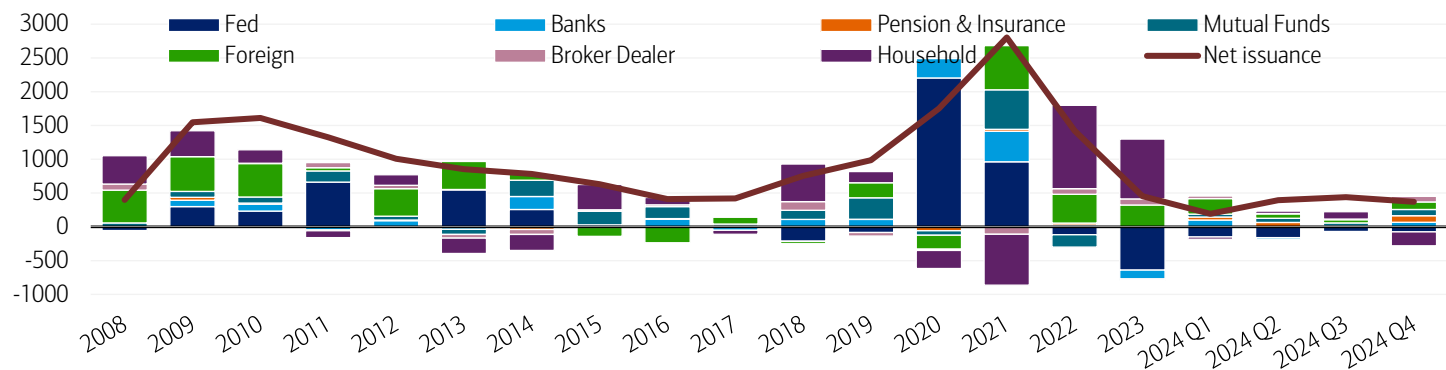
Source: BofA Global Research, Bloomberg

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Flow of funds

Exhibit 14: UST supply versus sources of demand (\$bn)

Demand in 2024 was notably higher across investor types vs 2023 except for the Fed and households

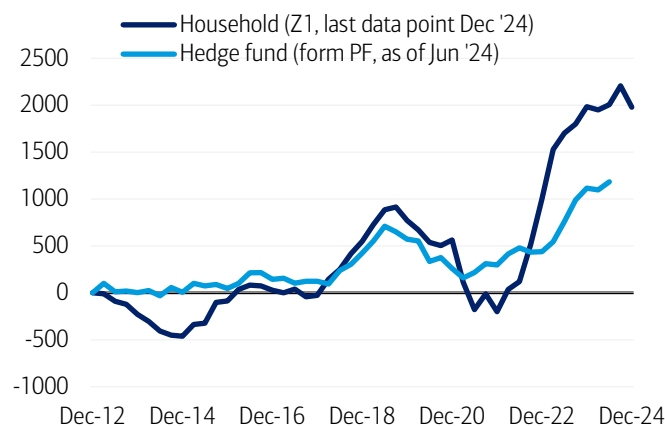


Source: BofA Global Research, Federal Reserve, Note: only reflects real money categories from flow of funds that generally invest in Treasury coupon securities. Net issuance is coupon supply excluding Fed flows, which are shown as negative for periods where Fed is reducing size of its balance sheet

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Exhibit 15: Change in UST holdings (\$bn)

HF UST holdings picked up in Q2, household holdings declined in Q4

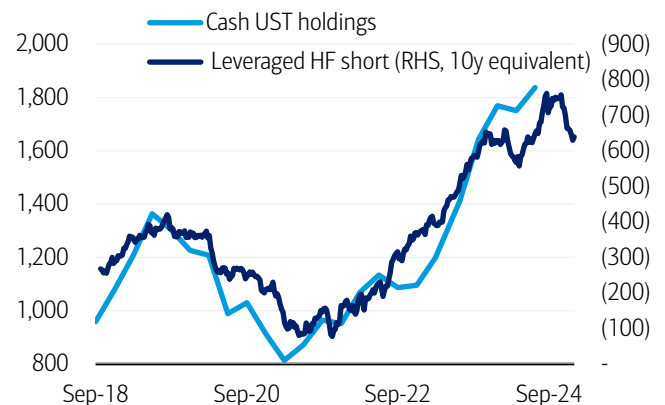


Source: BofA Global Research, Federal Reserve, Bloomberg

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Exhibit 16: Hedge fund cash UST holdings vs leveraged HF shorts (\$bn)

Form PF data shows growth in cash UST in Q2 '24, short futures position dropped near the end of 2024



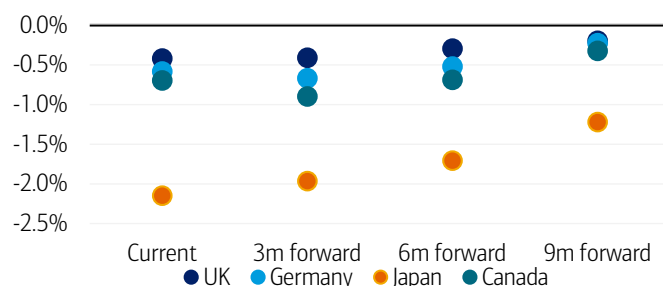
Source: BofA Global Research, Federal Reserve, Bloomberg

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FX hedged pickup and foreign flows

Exhibit 17: FX hedged pickup of TSYs versus local alternatives implied by forwards

Market pricing suggests relatively flat pickup for UK, German, and Canadian investors but deeply negative for Japan



Source: BofA Global Research, Bloomberg, Note: pickup vs 10y local alternative except Japan which is relative to 20y JGB using 3m forward FX hedge

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Exhibit 18: 10Y UST pickup to 20Y JGB, with 3m FX hedge (bps)

10y TSY hedged pickup versus 20y JGBs is still very negative



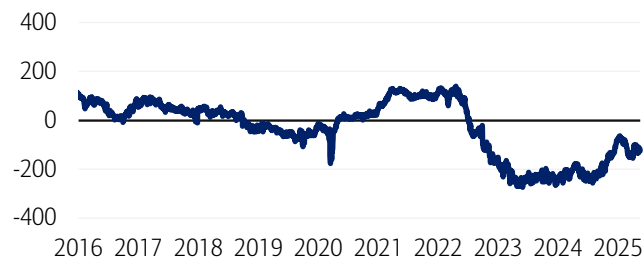
Source: BofA Global Research, Bloomberg

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Exhibit 19: 10Y UST pickup to 10Y JGB, with 3m FX hedge (bps)

10y TSY offers negative hedged pickup versus 10y JGBs

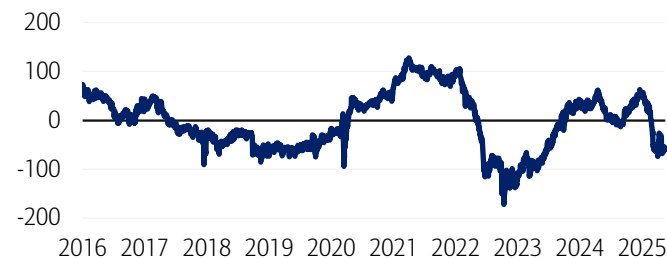


Source: BofA Global Research, Bloomberg

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Exhibit 20: 10Y UST pickup to 10Y Bund, with 3m FX hedge (bps)

10y TSY hedged pickup still negative versus 10y Bund

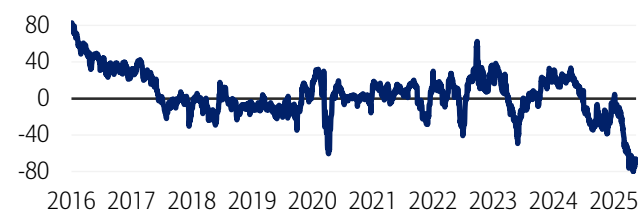


Source: BofA Global Research, Bloomberg

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Exhibit 21: 10Y UST pickup to 10Y CAD govie, with 3m FX hedge (bps)

10y TSY hedged pickup increasingly negative versus 10y CAD gov bond

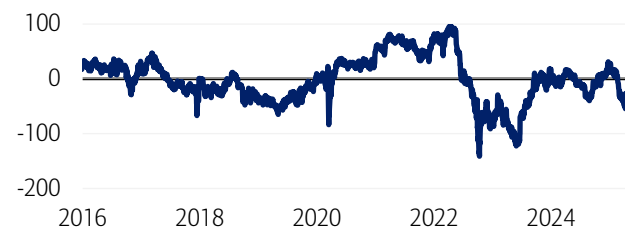


Source: BofA Global Research, Bloomberg

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Exhibit 22: 10Y UST pickup to 10Y Gilt, with 3m FX hedge (bps)

10y TSY offers negative pickup versus gilts



Source: BofA Global Research, Bloomberg

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Exhibit 23: 3m rolling JPY currency hedge

From the perspective of Japanese investor, pickup is negative across US, German, Bel, UK, & Canada

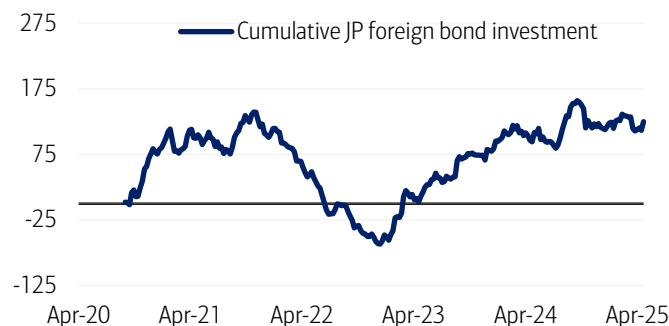
	May 16 '25		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB
10y UST	-1.22%	-2.14%	-1.16%	-2.14%	-1.15%	-2.08%	-2.10%	-2.91%
10y GER	-0.63%	-1.55%	-0.59%	-1.58%	-0.71%	-1.63%	-2.34%	-3.15%
10y FRA	0.04%	-0.88%	0.11%	-0.88%	0.06%	-0.87%	-1.87%	-2.68%
10y BEL	-0.09%	-1.01%	-0.02%	-1.01%	-0.09%	-1.02%	-1.81%	-2.62%
10y ITA	0.37%	-0.55%	0.45%	-0.54%	0.46%	-0.47%	-1.06%	-1.87%
10y SPA	-0.02%	-0.94%	0.05%	-0.94%	-0.01%	-0.94%	-1.59%	-2.40%
10y UK	-0.83%	-1.75%	-0.81%	-1.80%	-0.77%	-1.69%	-2.14%	-2.95%
10y CAN	-0.55%	-1.47%	-0.45%	-1.43%	-0.49%	-1.42%	-2.25%	-3.06%

Source: BofA Global Research, Bloomberg

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Exhibit 24: Japan investment in foreign bonds, cumulative weekly (\$bn)

Long & medium term bonds holdings rose \$13bn on the week ending May 9

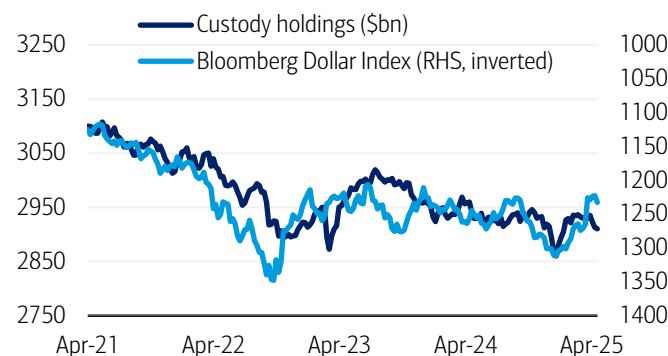


Source: BofA Global Research, Bloomberg

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Exhibit 25: Weekly UST custody holdings, foreign official (\$bn)

Custody holdings dropped \$2bn on the week ending May 14

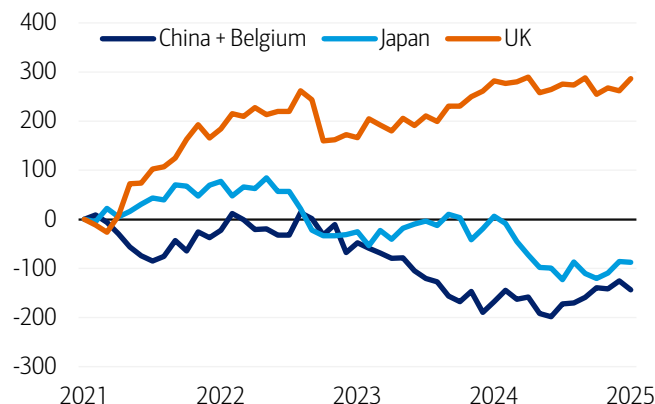


Source: BofA Global Research, NY Fed

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Exhibit 26: Cumulative UST flows from foreign investors (\$bn)

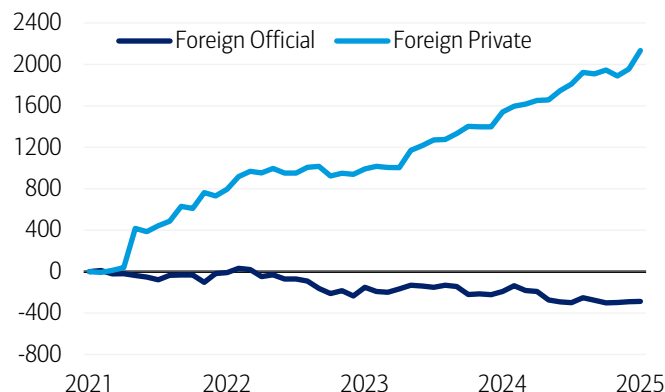
China + Belgium were net sellers in Mar, UK net buyer



Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow
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Exhibit 28: Cumulative UST flows from foreign investors (\$bn)

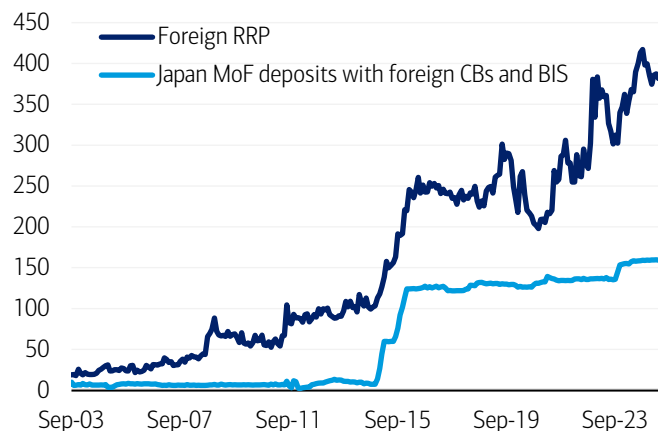
Foreign private buying picked up notable in March



BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow
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Exhibit 30: Japanese deposits with other central banks and Fed foreign repo pool (\$bn)

Vast majority of \$159bn in MoF deposits likely at Fed's foreign repo pool

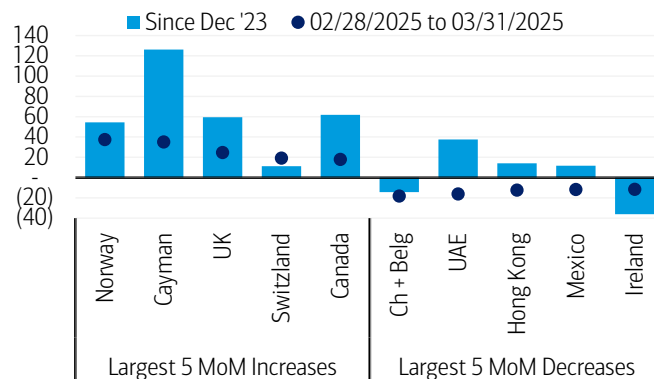


Source: Japan MoF, Federal Reserve, Bloomberg

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Exhibit 27: Largest MoM changes in foreign TSY holdings (\$bn)

Norway was the largest buyer, China/Bel the largest seller in Mar

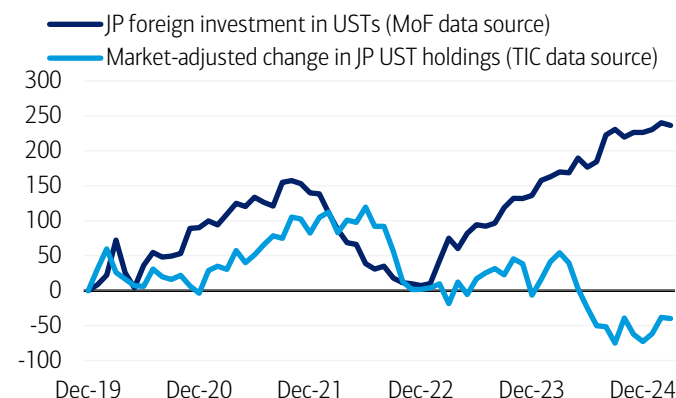


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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Exhibit 29: Cumulative change in Japanese investor holdings of USTs

MoF and TIC data show Japan's UST holdings flat to slightly lower in Mar



Source: BofA Global Research, Bloomberg, TIC

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Exhibit 31: Cumulative change in custody holdings and foreign RRP

Custody holdings inversely related to foreign RRP



Source: BofA Global Research, Federal Reserve

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Exhibit 32: Monthly change in Japanese investor foreign bond holdings (\$USD, bn)

April saw selling across Japanese investor base, especially banks

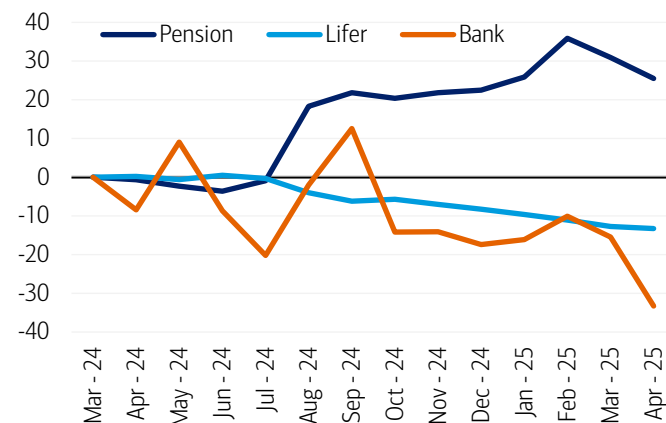
	Pension	Lifer	Bank
Apr - 25	-5.4	-0.5	-17.8
Mar - 25	-5.0	-1.7	-5.4
Feb - 25	10.0	-1.4	6.1
Jan - 25	3.4	-1.4	1.3
Dec - 24	0.7	-1.2	-3.3
Nov - 24	1.4	-1.3	0.1
Oct - 24	-1.4	0.5	-26.7
Sep - 24	3.5	-2.2	14.6
Aug - 24	19.2	-3.7	18.2
Jul - 24	2.7	-0.8	-11.5
Jun - 24	-1.3	1.1	-17.7
May - 24	-1.7	-0.8	17.5
Apr - 24	-0.6	0.2	-8.4

Source: BofA Global Research, Japanese MoF

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Exhibit 33: Cumulative change in Japanese investor foreign bond holdings (\$USD, bn)

Banks pulled back on foreign holdings again in April



Source: BofA Global Research, Japanese MoF

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Fund flows and returns

Exhibit 34: US fixed income fund flows (\$million)

UST funds saw inflows into most fund types, ex short- and intermediate- dated gov't funds

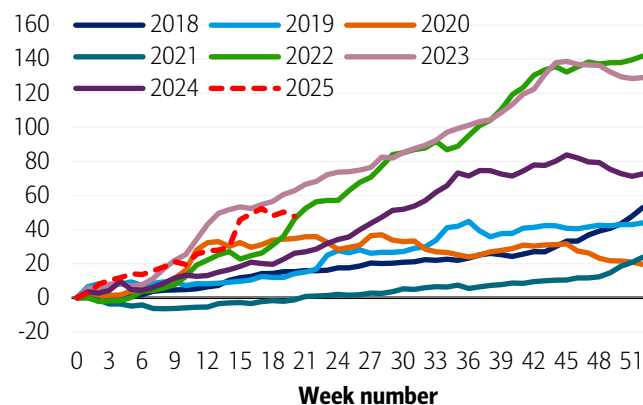
	May 14 '25	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	(4,744)	(648)	2,665	2,910	1,268
Gov: intermediate	(352)	425	333	(80)	229
Gov: long	2,574	(135)	(452)	(355)	318
Corp: IG	536	116	(465)	(231)	675
Corp:HY	3,182	1,604	(954)	(253)	484
Corp: all quality	55	(213)	(87)	(37)	89
MBS	403	704	173	136	519
Inflation	319	51	213	325	50
Muni	847	718	(154)	38	529
Mixed allocation	1,876	609	(622)	1,037	3,620
All US FI	5,601	3,034	(221)	2,773	7,709

Source: BofA Global Research, EPFR

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Exhibit 35: Sovereign fund inflows by year (\$bn)

2025 inflows trending higher than most years ex '22 & '23

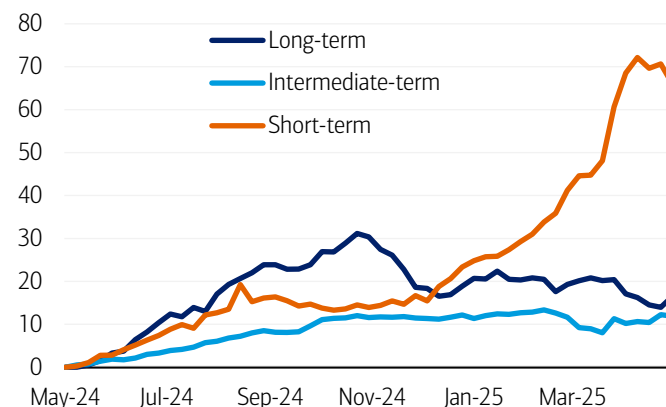


BofA Global Research, EPFR

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Exhibit 36: Sovereign inflows by tenor (\$bn)

Short-term funds inflows appear to have peaked and now face outflows



Source: BofA Global Research, EPFR

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Exhibit 37: Total return FI fund performance vs benchmark

On the week, AUM weighted funds performance was neutral to benchmark

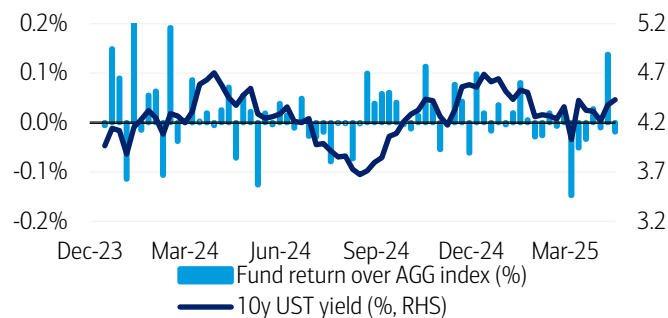
	AUM (\$Bn)	May 15 '25	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	306	-0.14%	-0.08%	0.06%	0.01%
Vanguard Total Bond Market Index Fund	226	-0.14%	-0.08%	-0.05%	-0.10%
PIMCO Income fund	181	0.11%	0.18%	0.51%	0.46%
The Bond Fund of America	91	-0.19%	-0.13%	0.06%	0.01%
MetWest Total Return Bond Fund	33	-0.14%	-0.08%	-0.04%	-0.09%
PIMCO Total Return Fund	45	-0.15%	-0.09%	0.08%	0.03%
Dodge & Cox Income Fund	94	-0.08%	-0.02%	0.40%	0.35%
PGIM Total Return Bond Fund	48	-0.08%	-0.02%	0.32%	0.27%
BlackRock Strategic Income Opportunities Fund	41	0.30%	0.36%	1.05%	1.00%
Baird Aggregate Bond Fund	52	-0.10%	-0.04%	0.21%	0.16%
JPMorgan Core Bond Fund	49	-0.20%	-0.13%	-0.13%	-0.18%
DoubleLine Total Return Bond Fund	30	-0.23%	-0.17%	-0.07%	-0.12%
Fidelity Series Investment Grade Bond Fund	35	-0.12%	-0.06%	0.23%	0.18%
Fidelity Total Bond Fund	39	-0.02%	0.04%	0.44%	0.39%
Western Asset Core Plus Bond Portfolio	5	-0.23%	-0.17%	0.12%	0.07%
Baird Core Plus Bond Fund	38	0.00%	0.06%	0.23%	0.18%
John Hancock Bond Fund	26	0.08%	0.15%	0.49%	0.44%
TIAA-CREF Bond Index Fund	24	-0.14%	-0.08%	0.05%	0.00%
BlackRock Total Return Fund	19	-0.01%	0.05%	0.56%	0.51%
JPMorgan Core Plus Bond Fund	23	-0.14%	-0.08%	0.03%	-0.02%
Bridge Builder Core Bond Fund	21	-0.14%	-0.08%	0.08%	0.03%
T Rowe Price New Income Fund	16	-0.04%	0.02%	0.18%	0.13%
Western Asset Core Bond Fund	2	-0.02%	0.05%	0.29%	0.24%
CREF Bond Market Account	11	-0.13%	-0.07%	0.17%	0.12%
Fidelity Investment Grade Bond Fund	10	-0.06%	0.00%	0.16%	0.11%
DoubleLine Core Fixed Income Fund	6	0.00%	0.06%	0.26%	0.21%
TCW Total Return Bond Fund	2	-0.13%	-0.07%	0.25%	0.20%
Janus Henderson Flexible Bond Fund	3	-0.12%	-0.06%	0.33%	0.28%
Weighted avg	1474	-0.08%	-0.02%	0.19%	0.14%
Agg			-0.06%		0.05%
10y return			-0.53%		-1.07%

Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg Index

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Exhibit 38: Total return funds, excess return vs. 10y rate

Weekly asset-weighted total returns for total return funds. Funds return in below benchmark on the week

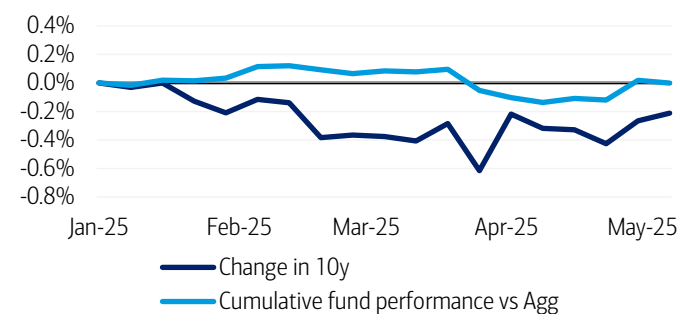


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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Exhibit 39: Cumulative return of TR FI funds over benchmark vs 10yT

Funds are now flat to benchmark performance YTD



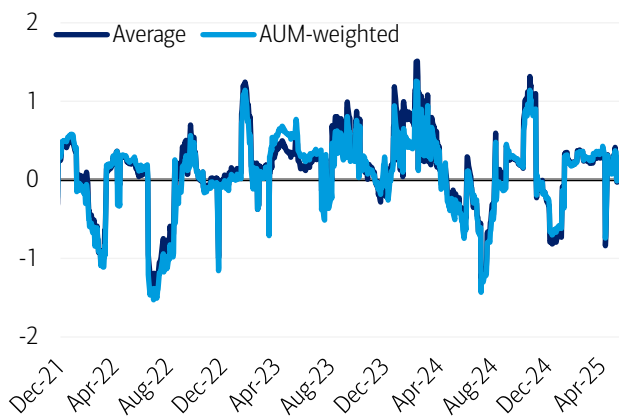
Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays AGG index

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Exhibit 40: UST beta from PCA regression (z-score)

Betas suggest funds are overweight benchmark duration; higher beta = funds' overweight duration versus benchmark

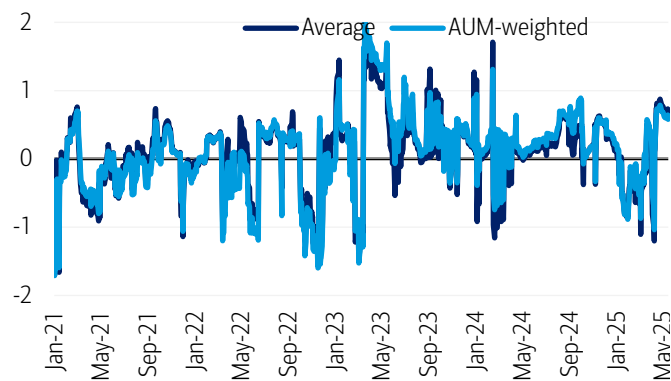


Source: BofA Global Research, Bloomberg. Z-score calculated over fund beta differences vs Agg back to May 2015

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Exhibit 42: Curve beta from PCA regression (z-score)

Betas suggest funds likely positioning for steepeners; higher beta = funds positioning for steepeners versus benchmark

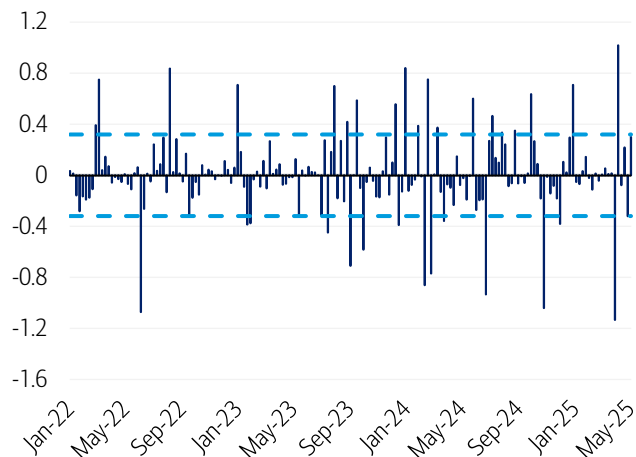


Source: BofA Global Research, Bloomberg. Z-score calculated over fund beta differences vs Agg back to May 2015

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Exhibit 41: WoW change in UST beta from PCA regression

Funds duration increased on the week

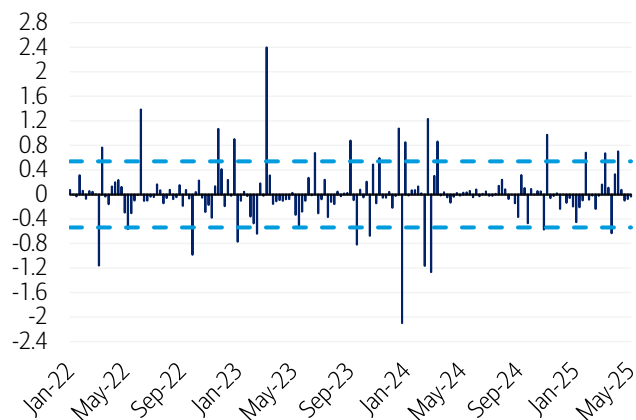


Source: BofA Global Research, Bloomberg; WoW changes calculated from average fund beta

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Exhibit 43: WoW change in curve beta from PCA regression

Curve bias little changed on the week



Source: BofA Global Research, Bloomberg; WoW changes calculated from average fund beta

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Exhibit 44: Total return funds' published UST allocations vs benchmark from Q3 and Q4 '24

Funds' UST allocation on an AUM-weighted basis decreased about 0.7PPT in Q4 '24

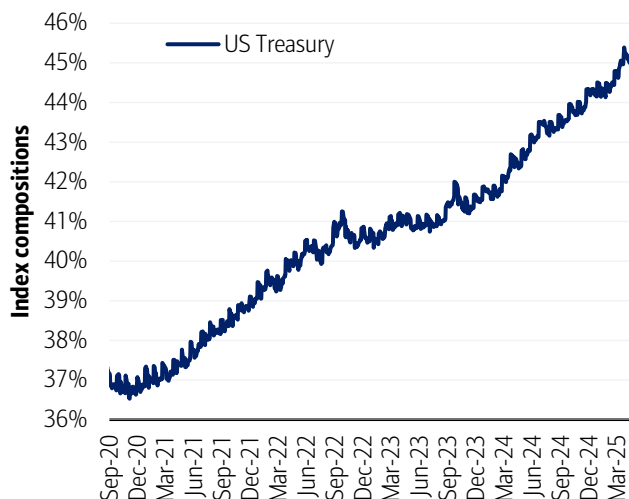
		AUM (\$bn)	Q3 '24 (%)	Q4 '24(%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	311.4	1.2	1.6	0.4
VBMFX	Vanguard Total Bond Market Index Fund	221.9	0.7	1.2	0.5
PIMIX	PIMCO Income fund	174.7	-26.1	-37.7	-11.6
ABNDX	The Bond Fund of America	92.0	-22.0	-9.7	12.3
DODIX	Dodge & Cox Income Fund	89.8	-25.5	-31.2	-5.7
BAGIX	Baird Aggregate Bond Fund	51.7	-15.1	-17.7	-2.6
PDBAX	PGIM Total Return Bond Fund	49.4	-35.8	-38.0	-2.2
PGBOX	JPMorgan Core Bond Fund	48.8	-1.1	-7.3	-6.2
PTTRX	PIMCO Total Return Fund	45.8	-11.8	-15.2	-3.4
BSIIX	BlackRock Strategic Income Opportunities Fund	40.9	-37.2	-14.6	22.5
FTBFX	Fidelity Total Bond Fund	38.3	-8.2	-18.3	-10.1
BCOIX	Baird Core Plus Bond Fund	37.2	-13.1	-20.0	-6.9
MWTIX	MetWest Total Return Bond Fund	36.3	-13.8	-17.4	-3.6
FSIGX	Fidelity Series Investment Grade Bond Fund	34.7	-3.8	-10.4	-6.7
DBLTX	DoubleLine Total Return Bond Fund	30.1	-39.9	-32.4	7.5
TBIIX	TIAA-CREF Bond Index Fund	26.6	-0.1	0.9	1.0
JHBIX	John Hancock Bond Fund	26.6	-22.7	-26.1	-3.4
ONIAx	JPMorgan Core Plus Bond Fund	22.5	-16.4	-7.6	8.8
MAHQX	BlackRock Total Return Fund	19.9	-24.3	21.3	45.5
BBTBX	Bridge Builder Core Bond Fund	18.3	-	-22.6	-
PRCIX	T Rowe Price New Income Fund	17.0	-13.7	-11.2	2.5
QCBMIX	CREF Bond Market Account	10.9	-23.8	-22.3	1.5
FBNDX	Fidelity Investment Grade Bond Fund	10.3	10.0	-8.6	-18.6
DBLFX	DoubleLine Core Fixed Income Fund	6.8	-23.3	-20.3	3.0
WACPX	Western Asset Core Plus Bond Portfolio	6.3	-38.9	-29.1	9.8
WATFX	Western Asset Core Bond Fund	3.0	-29.5	-23.6	5.8
JFLEX	Janus Henderson Flexible Bond Fund	2.7	-35.1	-9.5	25.6
TGLMX	TCW Total Return Bond Fund	1.7	-38.9	-40.6	-1.6
AUM weighted		1475.5	-12.3	-13.0	-0.7

Source: BofA Global Research, funds' publicly available reports

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Exhibit 45: Bloomberg US Aggregate Bond Fund – Treasury share through time

US Treasury's share declined to c.45% on the week

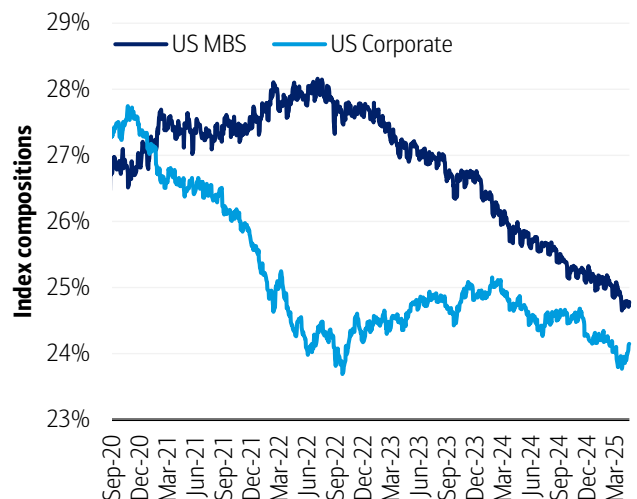


Source: BofA Global research, Bloomberg

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Exhibit 46: Bloomberg US Aggregate Bond Fund – MBS and Corporate share through time

US corporate shares rose on the week while MBS was flat



Source: BofA Global research, Bloomberg

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Bank balance sheets

Exhibit 47: Changes to bank balance sheet assets (\$bn)

Foreign banks saw notable increase in total assets while domestic banks saw a notable decline

		Current (May 07 '25)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
All (\$bn, NSA)	Total Assets	23995	56	-59	2	23	16
	Cash	3214	153	-61	-31	-6	-3
	UST & Agency	1866	2	14	11	8	5
	MBS	2672	-10	1	2	4	3
	Loans and Leases	12817	-33	21	20	16	9
	Other	3427	-57	-33	0	1	3
Large Domestic (\$bn, NSA)	Total Assets	13748	-126	-50	-3	8	7
	Cash	1280	-35	-54	-22	-9	-5
	UST & Agency	1471	-3	14	12	8	5
	MBS	2004	-13	0	1	3	2
	Loans and Leases	6982	-26	11	11	9	4
	Other	2012	-48	-21	-5	-3	2
Small Domestic (\$bn, NSA)	Total Assets	6809	-34	-12	0	5	4
	Cash	492	-25	-17	-7	-1	1
	UST & Agency	268	1	0	0	0	0
	MBS	625	3	1	1	1	1
	Loans and leases	4656	-2	5	6	5	3
	Other	769	-11	-1	0	0	0
All Domestic (\$bn, NSA)	Total Assets	20557	-160	-61	-3	13	11
	Cash	1771	-61	-71	-29	-10	-4
	UST & Agency	1739	-3	14	11	8	4
	MBS	2629	-11	1	2	4	3
	Loans and leases	11637	-28	17	17	14	7
	Other	2781	-59	-22	-5	-4	2
Foreign (\$bn, NSA)	Total Assets	3438	217	3	5	10	5
	Cash	1443	214	10	-2	4	2
	UST & Agency	128	4	-1	0	0	0
	MBS	43	1	0	0	0	0
	Loans and leases	1179	-5	4	3	2	2
	Other	645	2	-11	4	4	1

Source: Federal Reserve.

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Exhibit 48: Select bank balance sheet liabilities (\$bn, NSA)

Domestic banks saw deposits decline while foreign banks increased deposits and other borrowing

		Current (May 07 '25)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
Deposits (\$bn, NSA)	All	18025	-27	-55	-7	10	11
	Domestic	16602	-92	-72	-9	10	9
	Large Domestic	11034	-85	-55	-6	7	5
	Small Domestic	5568	-8	-16	-2	3	4
	Foreign	1423	65	17	2	0	2
	Other	2283	142	30	12	9	-3
Other borrowing (\$bn, NSA)	Domestic	1338	3	22	7	3	-1
	Large Domestic	1006	11	17	6	2	0
	Small Domestic	332	-8	5	2	1	-2
	Foreign	945	139	8	5	6	-2

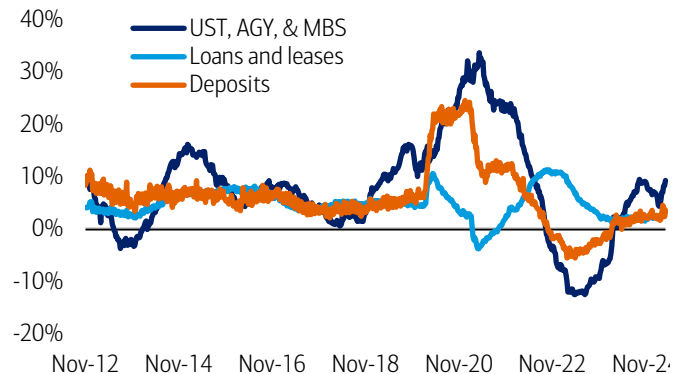
Source: BofA Global Research, Federal Reserve, Bloomberg

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Exhibit 49: YoY change in securities, loans, and deposits

Securities growth usually only positive when deposit growth is positive

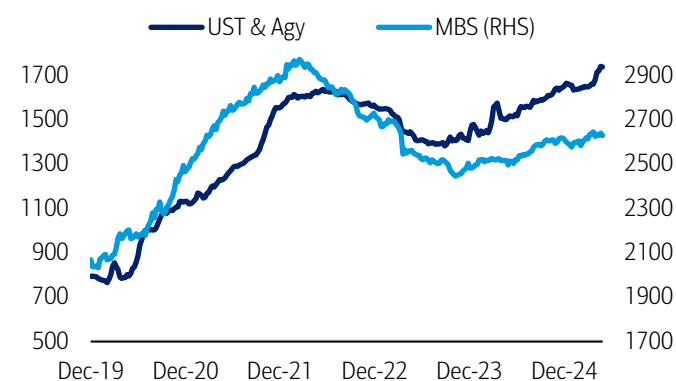


Source: BofA Global Research, Bloomberg, Federal Reserve

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Exhibit 50: Domestic bank holdings of UST& Agy, MBS

UST holdings saw sharp increase

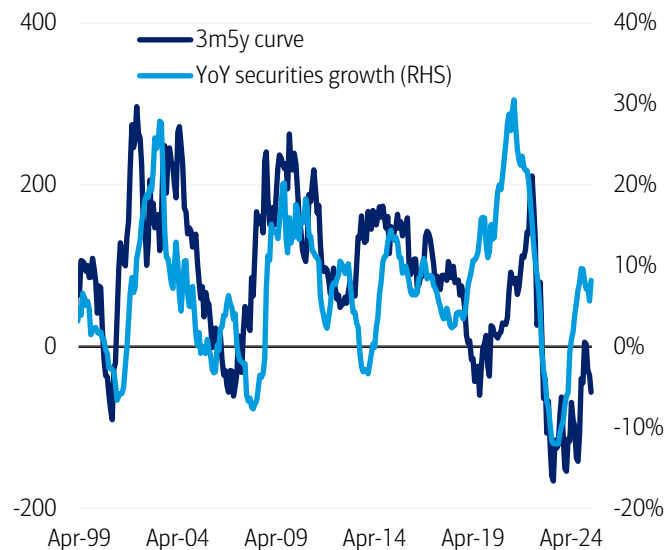


Source: BofA Global Research, Bloomberg, Federal Reserve

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Exhibit 51: 3m5y curve (bps) & YoY securities growth

Securities portfolios tend to grow when curve is upward sloping

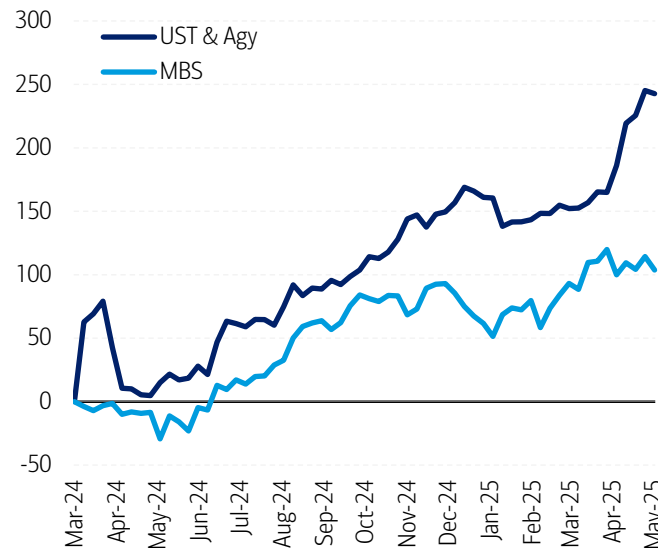


Source: BofA Global Research, Federal Reserve

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Exhibit 52: Cumulative change in domestic bank holdings of UST & Agency, MBS

Domestic bank securities holdings declined on the week ending May 7



Source: BofA Global Research, Bloomberg, Federal Reserve

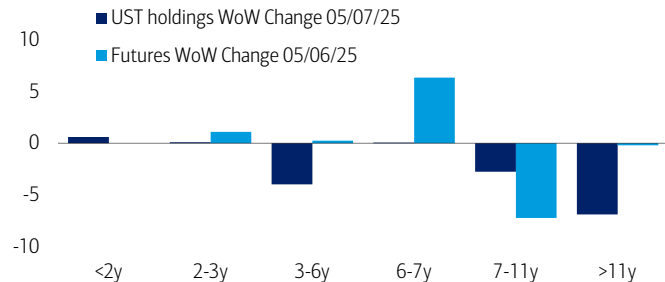
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Primary dealer balance sheet

Exhibit 53: Dealers WoW change in positions

10y equivalent, \$bn, cash UST higher at the back-end

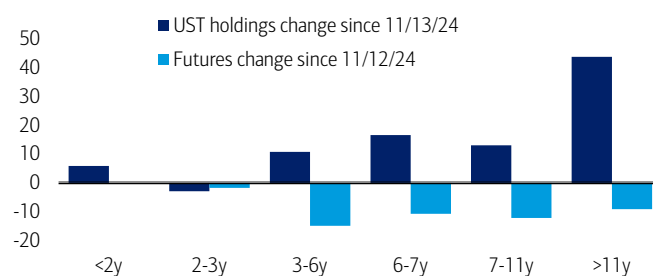


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 54: Dealers change in positions over last 6 months

10y equivalent, \$bn, cash holdings higher across the curve

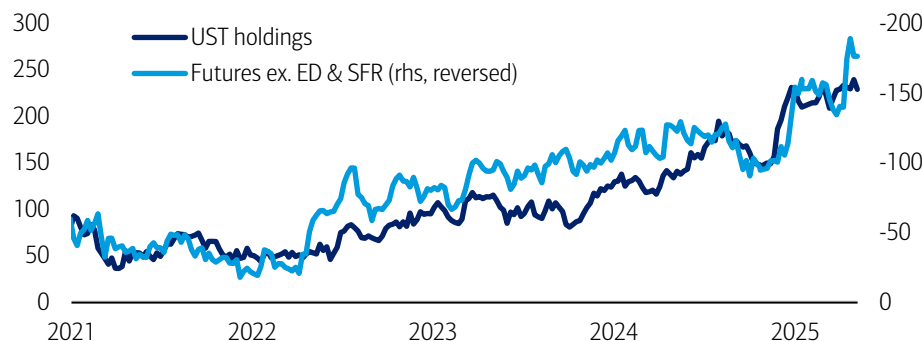


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 55: Dealers total sector positions

10y equivalent, \$bn, short futures positions coincide with long Treasury security holdings.



Source: BofA Global Research, NY Fed, CFTC, Note: futures on RHS axis

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Auction statistics

Exhibit 56: Auction summary statistics

Z-score calculated on levels, Investment fund participation in auctions remains robust

		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	Apr 30 '25	13.7%	56.2%	30.1%	73.9%	9.6%	0.0%
	MoM Change	3.1%	-19.6%	16.5%	-2.3%	-0.3%	0.0%
	1Y Z-score	0.4	-1.4	1.7	0.2	-0.8	-0.3
3y	Apr 15 '25	20.7%	73.0%	6.2%	68.5%	8.2%	0.0%
	MoM Change	9.2%	10.5%	-19.8%	-8.7%	-0.3%	0.0%
	1Y Z-score	1.2	1.1	-2.0	-0.3	-1.4	-0.4
5y	Apr 30 '25	11.1%	24.8%	64.0%	71.6%	11.1%	4.3%
	MoM Change	-2.1%	13.8%	-11.8%	-4.8%	2.6%	4.3%
	1Y Z-score	-0.9	1.3	-1.0	-0.4	-0.2	2.7
7y	Apr 30 '25	15.3%	59.3%	25.4%	71.5%	10.6%	0.0%
	MoM Change	2.6%	-1.9%	-0.7%	-5.4%	2.6%	0.0%
	1Y Z-score	1.3	-1.3	0.9	-0.1	-0.7	-0.5
10y	Apr 15 '25	10.7%	87.9%	1.4%	67.3%	18.4%	0.0%
	MoM Change	-2.4%	20.5%	-18.1%	-1.8%	6.5%	-2.4%
	1Y Z-score	-0.9	2.4	-2.4	0.0	1.4	-0.8
20y	Apr 30 '25	17.0%	70.7%	12.3%	71.7%	8.0%	0.0%
	MoM Change	8.2%	1.8%	-10.0%	-7.3%	0.0%	0.0%
	1Y Z-score	0.8	0.2	-1.2	0.2	-1.7	-0.3
30y	Apr 15 '25	12.3%	61.9%	25.8%	73.6%	10.6%	0.0%
	MoM Change	-4.6%	1.4%	3.1%	3.4%	0.9%	0.0%
	1Y Z-score	-1.0	-0.8	1.3	0.7	0.0	-0.4

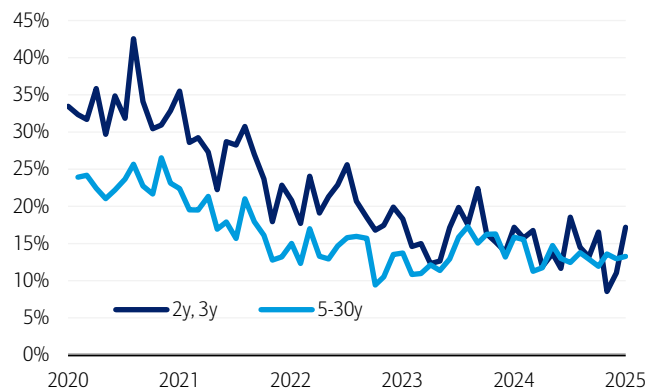
Source: BofA Global Research, Treasury

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Exhibit 57: Primary dealer – average auction allotment

Dealer participation increased notably in 2y & 3y tenors

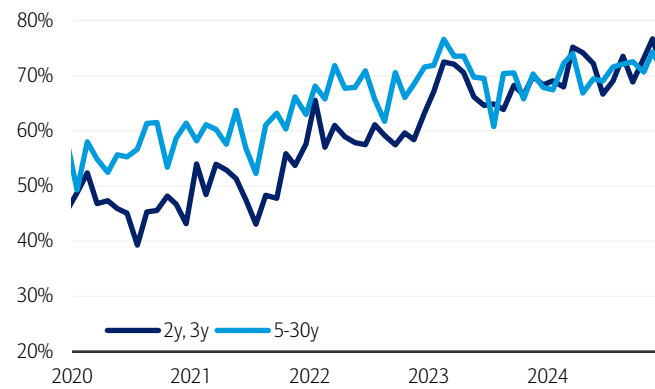


BofA Global Research, Treasury

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Exhibit 58: Investment fund – average auction allotment

Fund participation increased moderated across tenors

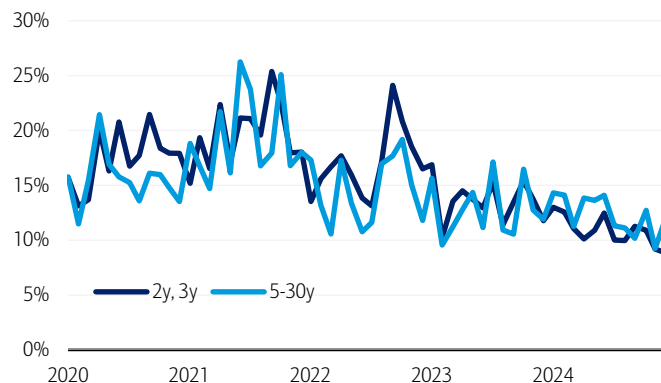


BofA Global Research, Treasury

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Exhibit 59: Avg foreign investment at auction (all nominal coupons)

Foreign participation increased for 5-30y tenors

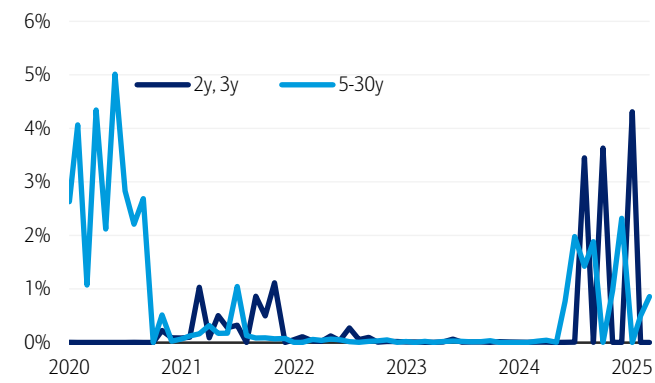


BofA Global Research, Treasury

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Exhibit 60: Depository institutions – average auction allotment

Depository participation increased for 5-30y tenors



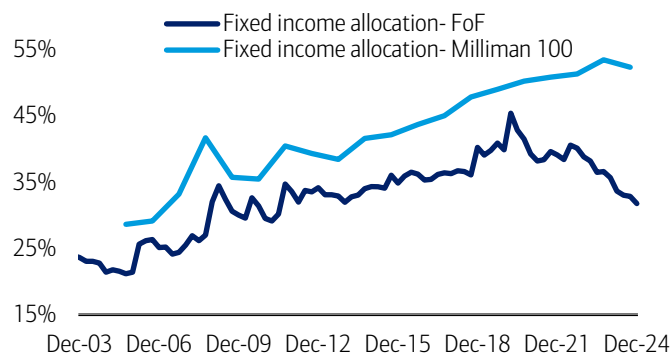
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Pensions

Exhibit 61: DB private pension fixed income allocation from Flow of Funds and smaller Milliman subset

Milliman funds have higher fixed income share of assets vs broader private DB pension funds according to FoF

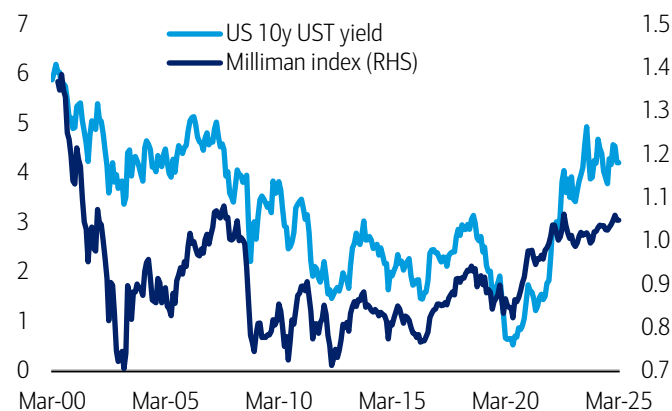


Source: BofA Global Research, Milliman, Federal Reserve

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Exhibit 62: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates



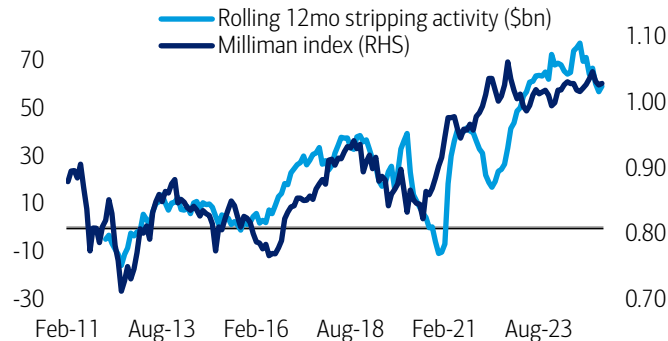
Source: BofA Global Research, Bloomberg

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Exhibit 63: Milliman index and 12-month increase in USTs held in stripped form

Slight decline in pension funded status aligns with slightly lower stripping activity

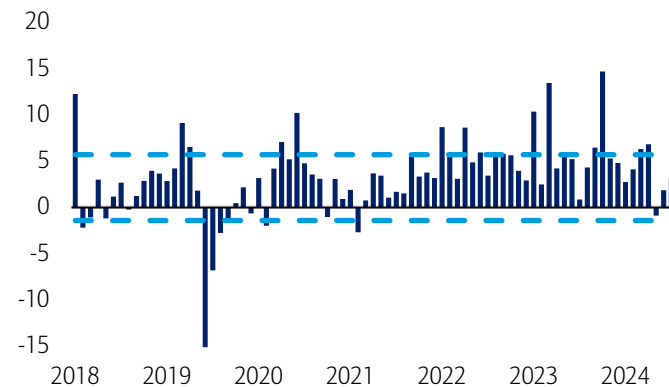


Source: BofA Global Research, Bloomberg

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Exhibit 64: Change in USTs held in stripped form (\$bn)

UST stripping activity increased modestly in April

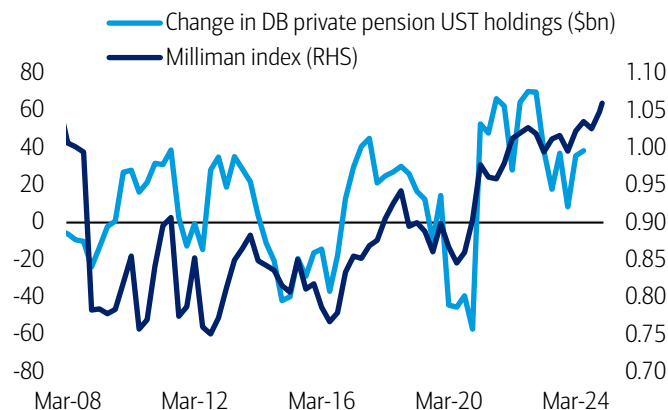


Source: BofA Global Research, Note: dashed line is 1stdev

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Exhibit 65: UST holdings of private DB pensions and funded status

When funded status is higher, pension funds buy more USTs

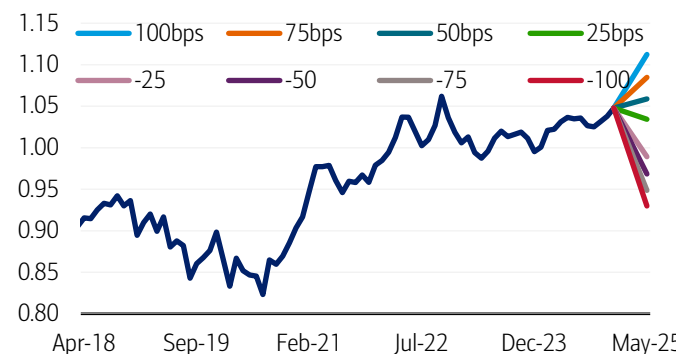


Source: BofA Global Research, Bloomberg, Federal Reserve

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Exhibit 66: Expected pension funded status conditional on 10y UST interest rate shock

Pension funded status likely to remain sensitive to changes in interest rates and will decline if interest rates move lower



Source: BofA Global Research, Bloomberg, Milliman, Note: we show what the Milliman pension funded index may look like under various rate shocks using: 1) the historical relationship between rates and liability valuation, 2) the last reported Milliman fixed income allocation as of end FY '23 3) the historical relationship between interest rates and investment grade credit returns as a proxy for DB pension fixed income returns.

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Appendix

A.1. Reference for futures positioning proxy

Exhibit 67: How to read futures positioning proxies (OI = open interest)

Change in direction in OI & rates give insights to change in positioning

Direction of OI	Direction of rates	Indicator
OI up	Rates up	Shorts created
OI up	Rates down	Longs created
OI down	Rates up	Longs destroyed
OI down	Rates down	Shorts destroyed

Source: BofA Global Research

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A.2. Visuals for various positioning indicators

This section contains helpful visuals for: 1) understanding the value of our fund regression as a signal for directional positioning vs CFTC data and 2) historical analysis on price action when positioning indicators are historically stretched.

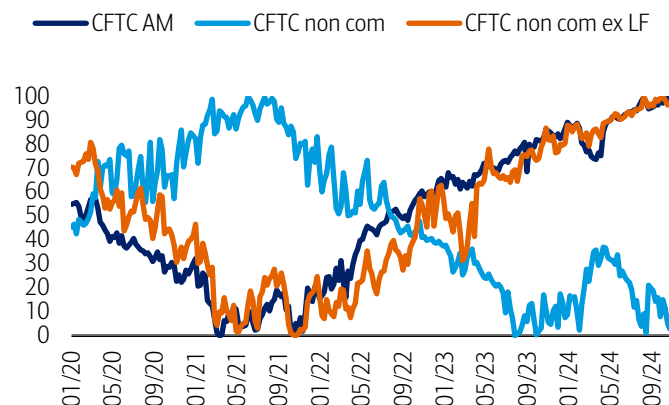
Fund regression vs CFTC data for directional positioning

In our previous positioning indicator dial (see the report, [Buying breather but real money longs intact](#)), we showed non-commercial positioning excluding leveraged funds (LFs) to gauge directional positioning from available CFTC data. As shown in Exhibit 71 and Exhibit 72, this signal looks very similar to asset manager positioning which is likely most of the remaining component of the non-commercial aggregation.

We do not believe that asset manager CFTC data over time is a helpful indicator for directional positioning because it trends heavily with persistent fixed income fund inflows since '22 (Exhibit 74). Instead, going forward, we utilize the positioning signal from our fund regression (see Exhibit 40 – Exhibit 46), which has more variation versus CFTC non-commercial positioning ex LF (Exhibit 70). We think this represents a better read on how the real money community in the US is positioned versus benchmark.

Exhibit 68: 5y percentile of 10 equivalent duration positioning (percentile: higher = longer)

Non-commercial ex LF duration positioning looks largely like asset manager

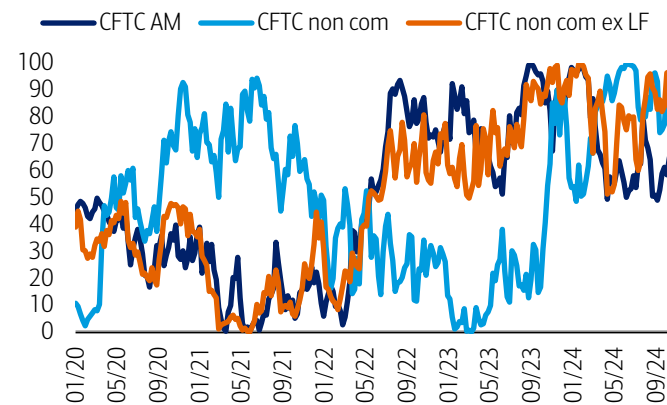


Source: BofA Global Research, Bloomberg

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Exhibit 69: 5y percentile of curve positioning (percentile: higher = longer back-end relative to front end)

Non-commercial ex LF curve positioning looks largely like asset manager



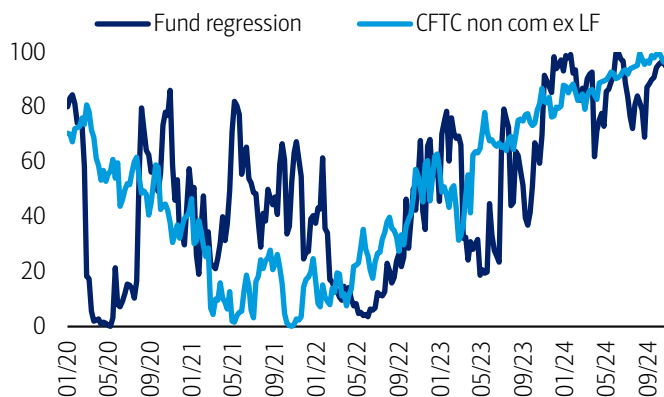
Source: BofA Global Research, Bloomberg

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Exhibit 70: 5y percentile of duration signal

Fund regression shows more recent volatility versus CFTC non-commercial ex LF

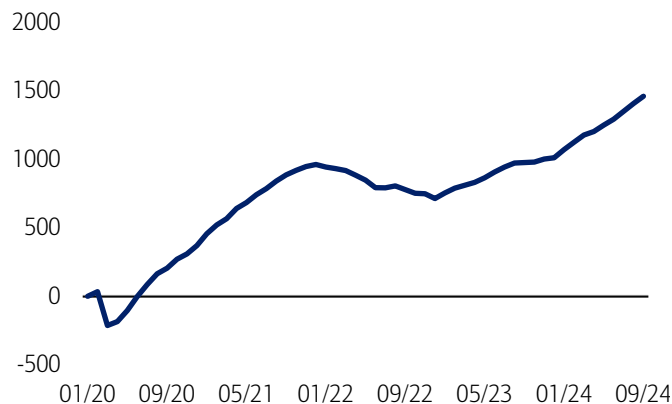


Source: BofA Global Research, Bloomberg

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Exhibit 71: US fixed income fund cumulative inflow (\$bn)

Inflows have been persistently strong since the end of 2022



Source: BofA Global Research, EPFR

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Positioning signals versus history

Below we compare the signals from various positioning metrics historically. We find that the fund regression tends to move largely in a trend-like fashion: when positioning is stretched long, rates tend to rally in subsequent months. By contrast, our futures positioning proxy is more contrarian for duration: when the net out of the money position is long, rates tend to sell off in subsequent months. CTA betas don't show a strong relationship to future curve or duration moves.

Exhibit 72: Summary of positioning indicator historical signals

Signal is based on qualitative assessment of historical rates & curve moves versus positioning indicator over 5y history

	Duration	Curve
Fund regression	Follower	Follower
CTA beta	No signal	No signal
Futures proxy	Modest contrarian	No signal
CFTC asset manager	Follower	Modest contrarian
CFTC non-commercial	Modest contrarian	No signal
CFTC non-commercial ex-leveraged fund	Follower	Modest contrarian

Source: BofA Global Research

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Note: tables below compare the 10y rate move and 2s10s curve change in bps versus average using 5y history

Exhibit 73: US Agg fund PCA: duration

Largely a trend following signal; when positioning is short rates generally increase over subsequent months

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-3	-4	2	16	24	23
10 to 20	19	37	43	36	35	41
20 to 30	16	25	26	33	34	27
30 to 40	12	15	22	27	28	28
40 to 50	-2	3	5	4	6	5
50 to 60	-9	-3	-5	1	8	17
60 to 70	-9	-15	-23	-36	-39	-26
70 to 80	-10	-23	-26	-39	-48	-48
80 to 90	-17	-28	-43	-58	-65	-88
90 to 100	3	-11	-11	-5	-9	-25
z-score						
<10	-0.25	-0.26	-0.17	0.01	0.05	-0.07
10 to 20	0.48	0.68	0.61	0.35	0.21	0.20
20 to 30	0.39	0.42	0.28	0.30	0.20	-0.01
30 to 40	0.25	0.18	0.21	0.19	0.11	0.00
40 to 50	-0.23	-0.10	-0.12	-0.20	-0.24	-0.34
50 to 60	-0.46	-0.25	-0.30	-0.24	-0.21	-0.16
60 to 70	-0.48	-0.54	-0.65	-0.87	-0.92	-0.79
70 to 80	-0.50	-0.73	-0.72	-0.93	-1.07	-1.11
80 to 90	-0.74	-0.84	-1.05	-1.25	-1.32	-1.68
90 to 100	-0.04	-0.43	-0.43	-0.36	-0.46	-0.77

Source: BofA Global Research, Bloomberg; Note higher percentile = longer duration positioning.
BofA GLOBAL RESEARCH

Exhibit 74: US Agg funds PCA: curve

Largely a trend following signal; when positioning is in steeper curve generally steepens over subsequent months

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	3	3	0	-5	2	9
10 to 20	-6	-3	-1	0	-3	3
20 to 30	-1	5	7	8	5	3
30 to 40	6	9	15	16	13	10
40 to 50	0	5	9	8	9	8
50 to 60	0	8	7	7	1	-7
60 to 70	2	4	4	2	6	13
70 to 80	-1	-9	-9	-4	-5	-11
80 to 90	-1	-10	-11	-8	-6	-9
90 to 100	-3	-13	-20	-25	-21	-16
z-score						
<10	0.18	0.13	0.02	-0.09	0.11	0.25
10 to 20	-0.33	-0.09	-0.01	0.04	0.00	0.15
20 to 30	-0.04	0.20	0.23	0.25	0.17	0.15
30 to 40	0.33	0.35	0.48	0.45	0.34	0.28
40 to 50	0.01	0.19	0.29	0.25	0.26	0.23
50 to 60	0.02	0.29	0.24	0.23	0.09	-0.05
60 to 70	0.11	0.18	0.14	0.10	0.20	0.34
70 to 80	-0.05	-0.31	-0.23	-0.06	-0.06	-0.13
80 to 90	-0.06	-0.35	-0.31	-0.17	-0.06	-0.08
90 to 100	-0.14	-0.48	-0.57	-0.57	-0.40	-0.24

Source: BofA Global Research, Bloomberg; Note higher percentile = flatter curve positioning.
BofA GLOBAL RESEARCH

Exhibit 75: CTA beta: duration

No clear signal; when CTAs are long & short no meaningful difference in how rates move

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	11	1	-16	-17	3	43
10 to 20	-5	-3	-12	-12	-5	8
20 to 30	-10	-8	-4	-3	-1	-5
30 to 40	3	14	20	27	16	10
40 to 50	4	0	12	10	5	-7
50 to 60	1	1	11	12	10	-2
60 to 70	7	17	16	3	-9	-21
70 to 80	-1	3	-2	-3	-5	-1
80 to 90	5	1	2	7	5	7
90 to 100	-13	-26	-25	-21	-17	-19
z-score						
<10	0.20	-0.17	-0.57	-0.68	-0.42	0.12
10 to 20	-0.33	-0.26	-0.50	-0.59	-0.56	-0.44
20 to 30	-0.49	-0.36	-0.34	-0.42	-0.48	-0.65
30 to 40	-0.04	0.14	0.12	0.12	-0.20	-0.41
40 to 50	-0.04	-0.18	-0.03	-0.19	-0.39	-0.67
50 to 60	-0.14	-0.15	-0.05	-0.14	-0.29	-0.60
60 to 70	0.08	0.21	0.04	-0.32	-0.63	-0.90
70 to 80	-0.18	-0.11	-0.30	-0.42	-0.56	-0.58
80 to 90	0.00	-0.17	-0.22	-0.24	-0.38	-0.46
90 to 100	-0.61	-0.80	-0.75	-0.74	-0.75	-0.87

Source: BofA Global Research, Bloomberg; Note higher percentile = longer duration positioning.
BofA GLOBAL RESEARCH

Exhibit 76: CTA beta: curve

No clear signal; when CTAs are in flatteners versus steepeners, no meaningful difference in how rates move

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	0	8	10	7	-5	-27
10 to 20	-2	-6	-14	-27	-32	-33
20 to 30	8	0	-5	-10	-13	-17
30 to 40	-6	-3	-9	-11	-10	-12
40 to 50	-4	-6	-2	-6	-8	-7
50 to 60	1	-2	0	-4	-6	-6
60 to 70	-5	-12	-11	-12	-12	-8
70 to 80	0	-2	-6	2	3	9
80 to 90	3	4	7	22	29	33
90 to 100	6	18	29	38	51	58
z-score						
<10	-0.01	0.29	0.32	0.24	-0.02	-0.40
10 to 20	-0.11	-0.21	-0.37	-0.61	-0.59	-0.52
20 to 30	0.46	0.03	-0.11	-0.18	-0.20	-0.20
30 to 40	-0.29	-0.10	-0.22	-0.21	-0.12	-0.11
40 to 50	-0.21	-0.19	-0.02	-0.09	-0.08	-0.02
50 to 60	0.08	-0.05	0.04	-0.03	-0.03	0.00
60 to 70	-0.27	-0.42	-0.26	-0.22	-0.17	-0.04
70 to 80	-0.01	-0.04	-0.13	0.11	0.16	0.29
80 to 90	0.18	0.16	0.25	0.60	0.73	0.77
90 to 100	0.35	0.68	0.89	0.99	1.20	1.25

Source: BofA Global Research, Bloomberg; Note higher percentile = flatter curve positioning.
BofA GLOBAL RESEARCH



Exhibit 77: Futures positioning proxy: duration

Modest contrarian signal; when positioning is short, rates tend to decline

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-16	-17	-16	-15	-19	-18
10 to 20	-10	-10	-13	-10	-11	-14
20 to 30	-5	-7	-2	-11	-5	-2
30 to 40	5	1	0	5	13	17
40 to 50	8	8	3	5	10	15
50 to 60	7	9	5	3	2	9
60 to 70	3	1	9	15	16	10
70 to 80	4	9	14	18	14	6
80 to 90	-4	0	-2	-1	-4	-8
90 to 100	8	6	1	-12	-20	-20
z-score						
<10	-0.70	-0.58	-0.52	-0.52	-0.63	-0.67
10 to 20	-0.51	-0.43	-0.48	-0.44	-0.50	-0.61
20 to 30	-0.35	-0.35	-0.26	-0.45	-0.41	-0.44
30 to 40	0.02	-0.15	-0.22	-0.18	-0.13	-0.16
40 to 50	0.11	0.00	-0.16	-0.18	-0.18	-0.19
50 to 60	0.06	0.02	-0.13	-0.21	-0.30	-0.28
60 to 70	-0.05	-0.15	-0.04	-0.01	-0.08	-0.26
70 to 80	-0.03	0.02	0.05	0.03	-0.10	-0.32
80 to 90	-0.30	-0.18	-0.25	-0.29	-0.39	-0.52
90 to 100	0.10	-0.04	-0.20	-0.47	-0.64	-0.70

Source: BofA Global Research, Bloomberg; Note higher percentile = longer duration positioning.
BofA GLOBAL RESEARCH

Exhibit 79: CFTC asset manager: duration

Modest trend following signal; when positioning is short rates tend to increase, though not when positioning is most stretched short (sub 10th percentile)

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-11	-16	-11	-13	-5	4
10 to 20	13	21	29	39	46	53
20 to 30	18	38	49	51	52	49
30 to 40	3	8	6	11	22	34
40 to 50	-6	-9	-4	4	-5	-18
50 to 60	-6	-24	-38	-57	-64	-73
60 to 70	-8	-8	-12	-9	-5	8
70 to 80	19	29	28	19	0	-21
80 to 90	-14	-17	-21	-26	-33	-37
90 to 100	-9	-28	-52	-58	-57	-
z-score						
<10	-0.53	-0.54	-0.43	-0.50	-0.45	-0.40
10 to 20	0.30	0.31	0.35	0.39	0.36	0.34
20 to 30	0.46	0.69	0.72	0.59	0.45	0.28
30 to 40	-0.04	0.00	-0.10	-0.09	-0.03	0.06
40 to 50	-0.35	-0.37	-0.29	-0.22	-0.46	-0.73
50 to 60	-0.36	-0.72	-0.95	-1.25	-1.39	-1.56
60 to 70	-0.42	-0.37	-0.45	-0.43	-0.45	-0.33
70 to 80	0.51	0.48	0.33	0.04	-0.38	-0.77
80 to 90	-0.60	-0.57	-0.61	-0.72	-0.90	-1.01
90 to 100	-0.46	-0.82	-1.21	-1.28	-1.28	-

Source: BofA Global Research, Bloomberg; Note higher percentile = longer duration positioning.
BofA GLOBAL RESEARCH

Exhibit 78: Futures positioning proxy: curve

No clear signal; when in flatteners versus steepeners, no meaningful difference in how rates move

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	7	10	13	15	12	18
10 to 20	5	7	9	6	-1	-6
20 to 30	0	-2	-7	-2	4	-6
30 to 40	-4	-4	-6	-7	-6	-7
40 to 50	-6	-6	-5	-8	-8	0
50 to 60	-6	-10	-10	-4	-5	-6
60 to 70	-6	-11	-11	-11	-16	-12
70 to 80	-1	-3	-4	-3	-3	-2
80 to 90	5	7	8	4	9	9
90 to 100	7	14	15	14	17	15
z-score						
<10	0.38	0.38	0.43	0.43	0.34	0.44
10 to 20	0.26	0.25	0.29	0.19	0.03	-0.03
20 to 30	0.00	-0.08	-0.18	-0.01	0.15	-0.03
30 to 40	-0.20	-0.12	-0.17	-0.13	-0.08	-0.06
40 to 50	-0.33	-0.23	-0.12	-0.15	-0.12	0.08
50 to 60	-0.30	-0.36	-0.26	-0.06	-0.05	-0.04
60 to 70	-0.34	-0.40	-0.29	-0.23	-0.29	-0.15
70 to 80	-0.07	-0.10	-0.09	-0.03	-0.01	0.03
80 to 90	0.25	0.26	0.27	0.14	0.26	0.26
90 to 100	0.35	0.52	0.49	0.41	0.45	0.38

Source: BofA Global Research, Bloomberg; Note higher percentile = flatter curve positioning.
BofA GLOBAL RESEARCH

Exhibit 80: CFTC asset manager: curve

Modest contrarian signal; when positioning is stretched in steepeners, curve tends to flatten

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-13	-18	-21	-31	-43	-49
10 to 20	-7	-18	-29	-38	-47	-57
20 to 30	7	10	11	14	19	21
30 to 40	9	16	19	24	32	34
40 to 50	5	3	9	14	18	21
50 to 60	-2	-1	9	15	7	-5
60 to 70	-3	-1	4	16	24	29
70 to 80	-3	-9	-13	-8	-5	3
80 to 90	-1	7	7	-4	0	6
90 to 100	8	9	5	3	6	9
z-score						
<10	-0.65	-0.65	-0.60	-0.72	-0.87	-0.84
10 to 20	-0.38	-0.63	-0.83	-0.90	-0.95	-1.01
20 to 30	0.35	0.36	0.35	0.40	0.48	0.50
30 to 40	0.46	0.61	0.59	0.63	0.78	0.75
40 to 50	0.25	0.13	0.30	0.40	0.46	0.50
50 to 60	-0.11	-0.04	0.28	0.42	0.22	0.00
60 to 70	-0.17	-0.04	0.15	0.44	0.60	0.65
70 to 80	-0.16	-0.33	-0.35	-0.16	-0.05	0.15
80 to 90	-0.06	0.26	0.23	-0.05	0.07	0.21
90 to 100	0.43	0.34	0.18	0.12	0.20	0.28

Source: BofA Global Research, Bloomberg; Note higher percentile = flatter curve positioning.
BofA GLOBAL RESEARCH

Exhibit 81: CFTC non-commercial: duration

Modest contrarian signal; when positioning is long, rates tend to increase more than when positioning is short

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-1	4	-6	-19	-30	-30
10 to 20	1	-4	6	8	-9	-29
20 to 30	1	-2	-2	14	30	23
30 to 40	-10	-15	-25	-40	-41	-25
40 to 50	-6	-29	-55	-61	-70	-77
50 to 60	3	14	24	17	17	20
60 to 70	8	18	27	36	48	46
70 to 80	1	9	21	35	38	37
80 to 90	7	11	18	22	25	32
90 to 100	-3	-5	-7	-14	-13	-12
z-score						
<10	-0.17	-0.09	-0.33	-0.61	-0.84	-0.91
10 to 20	-0.10	-0.27	-0.10	-0.15	-0.51	-0.90
20 to 30	-0.10	-0.23	-0.25	-0.04	0.10	-0.12
30 to 40	-0.48	-0.52	-0.70	-0.97	-1.03	-0.83
40 to 50	-0.36	-0.85	-1.27	-1.32	-1.48	-1.62
50 to 60	-0.06	0.14	0.25	0.00	-0.10	-0.15
60 to 70	0.13	0.24	0.31	0.33	0.38	0.24
70 to 80	-0.10	0.04	0.19	0.32	0.22	0.11
80 to 90	0.08	0.07	0.14	0.09	0.02	0.03
90 to 100	-0.26	-0.28	-0.34	-0.52	-0.58	-0.63

Source: BofA Global Research, Bloomberg; Note higher percentile = longer duration positioning.
BofA GLOBAL RESEARCH

Exhibit 82: CFTC non-commercial: curve

No clear signal; when in flatteners versus steepeners, no meaningful difference in how rates move

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	6	9	4	3	5	20
10 to 20	1	-3	5	1	0	-3
20 to 30	-12	-13	-16	-9	-3	-15
30 to 40	-3	-8	3	1	0	3
40 to 50	-1	-4	-11	-8	-10	-3
50 to 60	-4	-11	-19	-22	-23	-21
60 to 70	1	2	-3	-9	-7	-5
70 to 80	6	12	15	13	15	11
80 to 90	4	7	5	8	9	10
90 to 100	3	11	26	37	32	17
z-score						
<10	0.32	0.32	0.15	0.11	0.18	0.48
10 to 20	0.05	-0.09	0.16	0.06	0.07	0.05
20 to 30	-0.60	-0.45	-0.45	-0.19	0.01	-0.19
30 to 40	-0.15	-0.27	0.11	0.06	0.07	0.16
40 to 50	-0.06	-0.14	-0.31	-0.16	-0.14	0.04
50 to 60	-0.21	-0.39	-0.54	-0.50	-0.43	-0.31
60 to 70	0.05	0.06	-0.05	-0.19	-0.07	-0.01
70 to 80	0.30	0.46	0.46	0.36	0.41	0.32
80 to 90	0.18	0.27	0.16	0.24	0.27	0.30
90 to 100	0.15	0.41	0.79	0.96	0.77	0.42

Source: BofA Global Research, Bloomberg; Note higher percentile = flatter curve positioning.
BofA GLOBAL RESEARCH

Exhibit 83: CFTC non-commercial ex leveraged fund: duration

Trend following signal; when positioning is short, rates tend to increase; when positioning is long, rates tend to decline.

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-4	-2	7	5	19	26
10 to 20	8	20	31	41	41	54
20 to 30	11	17	19	30	37	33
30 to 40	18	29	35	35	30	18
40 to 50	-3	-6	0	3	9	14
50 to 60	-5	-4	-8	-8	-10	-2
60 to 70	2	5	8	7	-4	-18
70 to 80	-10	-24	-47	-51	-58	-62
80 to 90	-8	-15	-17	-41	-57	-63
90 to 100	-9	-28	-52	-58	-57	-
z-score						
<10	-0.30	-0.23	-0.09	-0.20	-0.08	-0.07
10 to 20	0.12	0.28	0.38	0.42	0.27	0.36
20 to 30	0.22	0.22	0.16	0.24	0.21	0.04
30 to 40	0.46	0.49	0.46	0.31	0.10	-0.18
40 to 50	-0.25	-0.32	-0.22	-0.23	-0.23	-0.24
50 to 60	-0.30	-0.28	-0.37	-0.42	-0.54	-0.49
60 to 70	-0.09	-0.05	-0.06	-0.17	-0.44	-0.73
70 to 80	-0.48	-0.72	-1.13	-1.16	-1.28	-1.39
80 to 90	-0.43	-0.52	-0.55	-0.98	-1.27	-1.42
90 to 100	-0.46	-0.82	-1.21	-1.28	-1.28	-

Source: BofA Global Research, Bloomberg; Note higher percentile = longer duration positioning.
BofA GLOBAL RESEARCH

Exhibit 84: CFTC non-commercial ex leveraged fund: curve

Modest contrarian signal; when positioning is stretched in steepeners, curve tends to flatten

	1m	2m	3m	4m	5m	6m
Realized less average (bps)						
<10	-7	-18	-26	-33	-41	-48
10 to 20	-6	-6	-5	-15	-27	-33
20 to 30	8	12	2	-4	-5	-4
30 to 40	-1	4	8	11	18	16
40 to 50	4	2	9	23	30	32
50 to 60	-5	-13	-14	-16	-10	-8
60 to 70	-1	7	7	10	8	9
70 to 80	-3	-4	4	6	6	10
80 to 90	5	11	15	20	27	24
90 to 100	7	9	5	7	10	18
z-score						
<10	-0.33	-0.63	-0.74	-0.78	-0.84	-0.82
10 to 20	-0.30	-0.21	-0.11	-0.34	-0.51	-0.53
20 to 30	0.41	0.46	0.09	-0.05	-0.04	0.03
30 to 40	-0.02	0.14	0.25	0.32	0.46	0.41
40 to 50	0.18	0.08	0.27	0.61	0.74	0.73
50 to 60	-0.26	-0.47	-0.40	-0.37	-0.15	-0.06
60 to 70	-0.07	0.25	0.24	0.30	0.26	0.27
70 to 80	-0.15	-0.16	0.15	0.20	0.20	0.30
80 to 90	0.28	0.42	0.47	0.53	0.66	0.56
90 to 100	0.38	0.34	0.18	0.20	0.30	0.45

Source: BofA Global Research, Bloomberg; Note higher percentile = flatter curve positioning.
BofA GLOBAL RESEARCH



Appendix: Abbreviations and Acronyms

Agy = Agency
 avg = average
 chg = change
 CTA = Commodity trading advisor
 DB = defined benefit
 FoF = flow of funds
 FV = Treasury 5Y contract
 gov't = government
 ITM = in the money
 JGB = Japanese government bonds
 LDI = liability driven investors
 LT = long term
 MoF = ministry of finance
 OTM = out of the money
 PCA = principal component analysis
 PD = primary dealer
 PPTS = percentage points
 QT = quantitative tightening
 RRP = reverse repo program
 SFR = SOFR futures contract
 TGA = Treasury General Account
 TIC = Treasury International Capital
 TU = Treasury 2Y futures contract
 TY = Treasury 10Y contract
 US = Treasury 20Y contract
 UST = Treasury security
 UXY = Treasury ultra 10Y contract
 WN = Treasury 30Y contract
 y = year

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