

# US Rates Watch

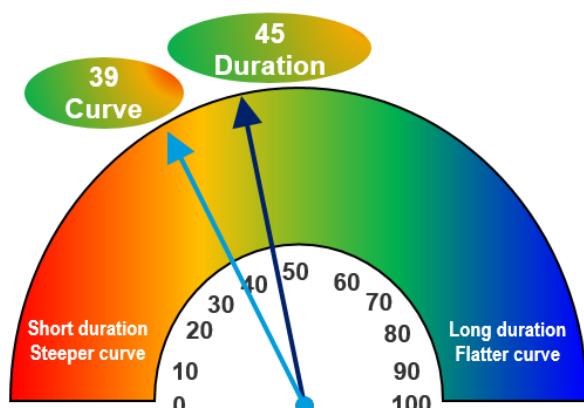
## Fund inflows, bank demand & record stripping activity

### Strong seasonal inflows

2024 kicked off with very strong inflows into US fixed income funds, particularly Agg, short-term UST, and IG credit funds. We also see asset managers that continue to extend futures longs, likely in part on the back of continued inflows. Historically, we see inflows into UST funds retreat as rates decline so January may serve as a final big influx should rates trend lower. Banks saw a \$75bn increase in UST/ agency holdings in December, a flow that may persist as the curve steepens. Stripping activity in December hit record highs as DB private pension funds remain well funded.

#### Exhibit 1: Curve-o-meter

Positioning for curve and duration is mixed



Source: BofA Global Research. Note: dials show 5y percentiles for the average non-commercial ex leverage funds & proxy of futures positioning for duration and the average of CTA betas and our proxy for futures positioning for the curve.

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### Bias for rate rally remains

Since the start of the year through Thursday, open interest was roughly flat, with new shorts created and a mix of both shorts and longs destroyed. Our futures positioning proxy (for construction details see: [Gauging positioning in Treasury Futures](#)) points to a bias for rates to rally across the curve (Exhibit 12). While moneyness is mixed—longs are more prominent vs shorts (Exhibit 11).

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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Rates Research  
United States

**Meghan Swiber, CFA**  
Rates Strategist  
BofAS  
+1 646 743 7020  
[meghan.swiber@bofa.com](mailto:meghan.swiber@bofa.com)

**Anna (Caiyi) Zhang**  
Rates Strategist  
BofAS  
+1 646 743 7021  
[cai.yi.zhang@bofa.com](mailto:cai.yi.zhang@bofa.com)

**US Rates Research**  
BofAS  
+1 646 855 8846

[See Team Page for List of Analysts](#)

UST= Treasury security

CTA= Commodity trading advisor

OTM= out of the money

ITM=in the money

TIC=Treasury International Capital

QT= quantitative tightening

MoF= ministry of finance

RRP = reverse repo program

SFR = SOFR futures contract

TU = Treasury 2Y futures contract

FV = Treasury 5Y contract

TY = Treasury 10Y contract

UXY = Treasury ultra 10Y contract

US = Treasury 20Y contract

WN = Treasury 30Y contract

TGA= Treasury General Account

TR FI funds = Total return fixed income funds

PPTS = percentage points

JGB = Japanese government bonds

FoF = flow of funds

DB = defined benefit

## CTAs move more neutral on curve and longer duration

Our cross over momentum indicator suggests that CTAs should now be long duration, while our top down model suggests that short covering particularly at longer tenors is still underway (Exhibit 13, for construction details see: [CTA impact on the rates market](#)). We have also observed a convergence in short vs long bond betas suggesting that curve positioning is more balanced (Exhibit 14).

## AM position extends alongside seasonal inflows

CFTC data for January 2nd showed a new high in asset manager longs in 10y equivalents (Exhibit 7). We continue to believe that asset manager futures demand will likely moderate as rates fall (Exhibit 41, Exhibit 42). However, January historically proves a strong month for fund inflows which can help support demand for futures. Asset manager futures growth was predominantly in WN, US, and TY. Consistent with this, leveraged hedge funds saw a growth in futures shorts to the greatest degree in US, WN, and TY. Non-commercial data excluding leveraged hedge funds also extended longer in recent weeks (Exhibit 8) and currently sits at the 80th percentile over the last 5 years.

## Foreign RRP usage up but officials have yet to buy

NY Fed custodial holdings have declined \$23bn alongside the 4% USD depreciation since the start of November (Exhibit 28). While holdings increased modestly on the week (about \$3bn), we have yet to see the official sector come back to the market as they usually do on USD selloffs. The decline in UST holdings though has coincided with a rebound in foreign RRP usage, suggesting that officials may be moving out of USTs and into repo (Exhibit 34). Latest data also suggests that at least part of this bump in foreign RRP usage may be attributable to the Japan MoF (Exhibit 35).

Private Japanese investment in foreign bonds has shown better buying over recent weeks and increased \$15bn net since the middle of December (Exhibit 27). FX hedged pickup of USTs remains unfavorable for Japanese investors and continues to weigh on lifer demand while banks have been better buyers of foreign bonds last year (Exhibit 33). Elsewhere, FX hedged pickup of USTs is beginning to look more favorable which may support better buying especially if the yield curve steepens further (Exhibit 20).

TIC data for October (Exhibit 30) showed the largest amount of buying out of UK, Japan, and the Cayman Islands, consistent with relatively strong private demand stemming from funds and banks. China + Belgium was the largest seller, consistent with patterns observed over the year.

## Fund inflows strong first week of the year

US fixed income funds saw \$7bn of fund inflows the first week of the year, a materially stronger pace than observed recently (Exhibit 38). January tends to be a seasonally strong period for inflows (see: Bond market seasonality explained), but we do expect inflows to slow if rates continue to retreat (Exhibit 41). Inflows were driven by mixed allocation, short term UST, and IG funds. Inflation fund outflows may be bottoming as we have been anticipating given fund AUM that is back to early 2021 levels (see: Inflation strategist).

US fixed income funds on an AUM weighted basis outperformed alongside the selloff in rates on the week (Exhibit 43). However, we continue to see a decline in the correlation between fund outperformance and changes in rates (Exhibit 47), suggesting that many funds may have covered underweights held at the end of Q3.

## Banks add to UST/ agency portfolios

Over the month of December, US banks' UST / agency portfolios grew about \$75bn, likely reflecting better buying (Exhibit 52). While loans also picked up \$55bn over this period, MBS holdings declined around \$20bn. We continue to think that banks can emerge as better buyers in 2024 as the front-end of the curve steepens (Exhibit 53), especially if the economy slows and drives a preference for securities vs loans.

## Historic stripping activity in December

December saw a record net increase of \$13bn of USTs held in stripped form (Exhibit 65). The boost comes alongside strong DB private pension funded status despite a dip in December with rates lower (Exhibit 63). As shown in Exhibit 64, stripping activity on a rolling basis moves loosely with funded status. The pickup in stripping activity likely represents pensions both de-risking given strong funded statuses and some rebalancing after significant rate volatility over the prior year.

### Exhibit 2: On deck next week

Calendar of upcoming events

	US Data		Fed Speaker / Event	Treasury Auction			Treasury Settlements	
	Series	BB Consensus		Security	Amount (\$bn)	Prior Δ	Security	Amount
M, Jan 8	Consumer Credit	\$9.5bn	12:30 Fed's Bostic Speaks on the Economic Outlook	13-week bills	75	0		
				26-week bills	68	0		
Tu, Jan 9	NFIB Small Business Optimism	90.5	12:00 Fed's Barr Speaks on Bank Regulation	42-day bills	70	0	Bills	1
	Trade balance	-\$64.8bn		3-year notes	52	2		
W, Jan 10	MBA Mortgage Applications	-	15:15 Fed's Williams Gives Speech on 2024 Economic Outlook	17-week bills				
	Wholesale Inventories	-0.20%		9-year 10-month notes	37	0		
Th, Jan 11	Initial Jobless Claims	-		4-week bills			Bills	12
	Consumer Price Index (yoy)	3.30%		8-week bills				
	CPI Ex Food & Energy (yoy)	3.80%						
	Consumer Price Index (mom)	0.20%						
	CPI Ex Food & Energy (mom)	0.20%						
	Monthly Budget Statement	-						
F, Jan 12	Producer Price Index (mom)	0.20%	10:00 Fed's Kashkari Speaks at Regional Economic Conditions Conferen					
	PPI Ex Food & Energy (mom)	0.20%						
	PPI Ex Food, Energy, Trade (mom)	0.20%						

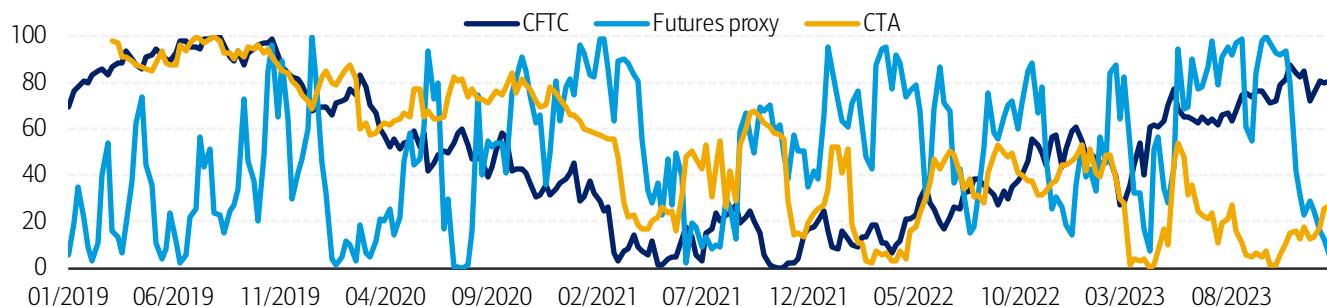
Source: BofA Global Research, Bloomberg, US Treasury

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## Positioning indicators

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

Futures positioning proxy shows bias for rates to rally, CFTC data adjusted for LFs is long, top down CTA model shows positioning is more neutral

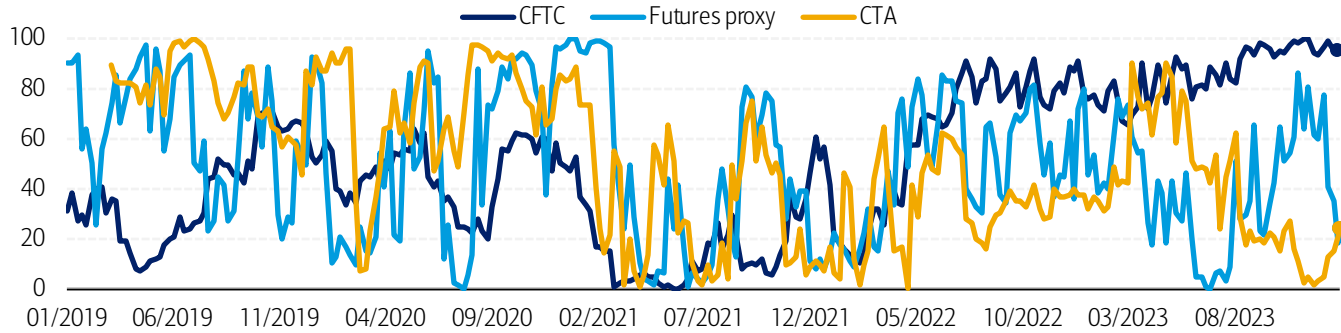


Source: BofA Global Research

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

CTAs are in steeper but futures positioning proxy shows bias for front-end to rally more, CFTC AMs have longs further out curve

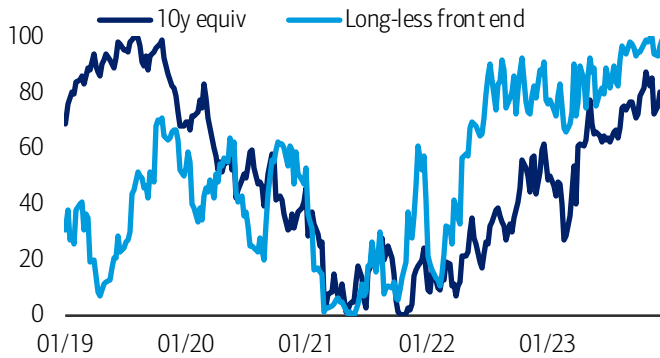


Source: BofA Global Research

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**Exhibit 5: 5y percentile of non-commercial ex LF positioning**

Positioning is historically long and largely concentrated at the back-end

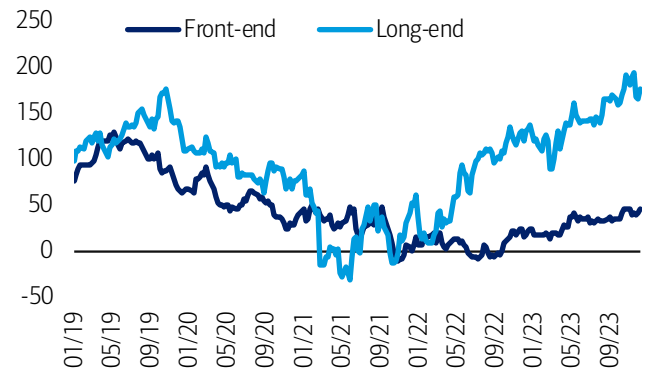


Source: BofA Global Research, Bloomberg

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**Exhibit 6: Non-commercial ex leveraged fund positioning (\$bn, 10y equivalent)**

Longs are more concentrated in the back-end

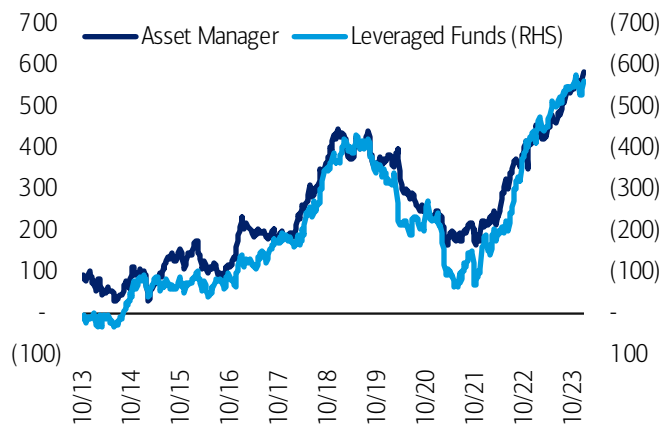


Source: BofA Global Research, Bloomberg

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**Exhibit 7: Asset manager and leveraged fund positioning (10y equivalent, \$bn)**

Asset manager longs correspond with leveraged fund shorts

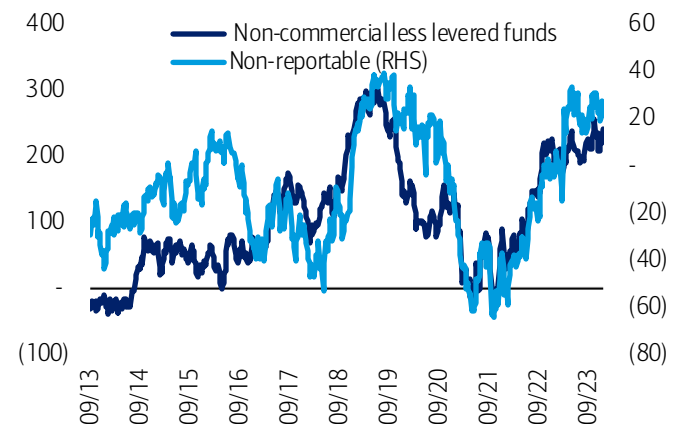


Source: BofA Global Research, Bloomberg

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**Exhibit 8: Non-commercial ex LFs and non-reportable positioning (10y equivalent, \$bn)**

Directional positions trend together



Source: BofA Global Research, Bloomberg

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### Exhibit 9: 10y rate change for given percentile of non-commercial ex-Leveraged fund positioning (higher percentile = longer)

Positioning is a momentum signal: longer positioning is usually followed by stronger 10y performance

	0	1w	4w	8w	12w	16w
0 to 10	10	1	-1	0	1	2
10 to 20	20	2	4	4	3	4
20 to 30	30	5	2	2	2	4
30 to 40	40	2	5	5	4	4
40 to 50	50	0	0	0	1	1
50 to 60	60	1	0	0	0	0
60 to 70	70	2	1	1	1	1
70 to 80	80	0	-1	-2	-3	-3
80 to 90	90	-3	-3	-2	-3	-5
90 to 100	100	-4	-3	-3	-2	-2

Source: BoFA Global Research, Bloomberg, average performance calculated over last 5y  
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### Exhibit 10: 10y rate change for given percentile of leveraged fund positioning (higher percentile = longer)

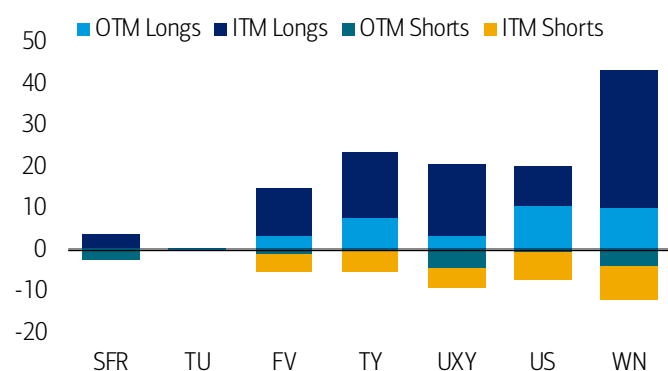
Positioning is contrarian signal: shorter positioning is usually followed by stronger 10y performance

	0	1w	4w	8w	12w	16w
0 to 10	10	1	1	1	2	3
10 to 20	20	-1	1	1	2	3
20 to 30	30	0	-4	-3	-2	-3
30 to 40	40	-5	-2	-3	-4	-5
40 to 50	50	-3	-3	-3	-3	-3
50 to 60	60	4	4	4	2	2
60 to 70	70	4	1	2	3	4
70 to 80	80	3	4	4	3	5
80 to 90	90	2	4	4	4	5
90 to 100	100	-1	-2	-1	0	0

Source: BoFA Global Research, Bloomberg, average performance calculated over last 5y  
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### Exhibit 11: Proxies for futures positioning

On the week, shorts are largely ITM, longs are more mixed with the most ITM contracts in WN

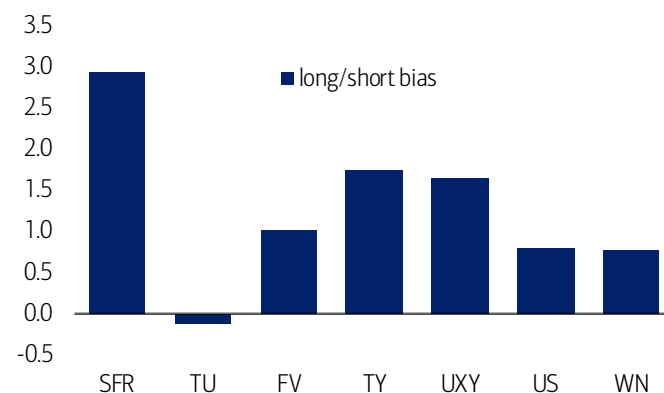


Source: BoFA Global Research, Bloomberg

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### Exhibit 12: Analysis of proxies for futures positioning

Bias for rates to rally except in TU

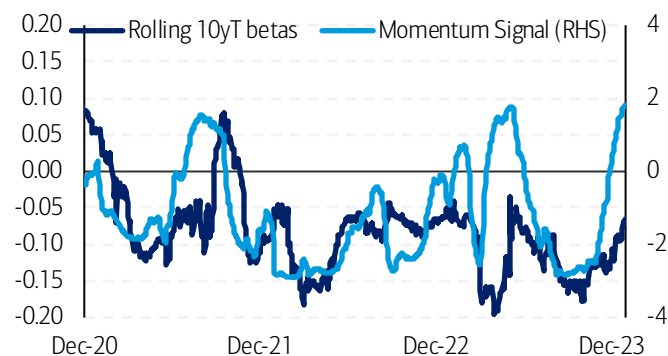


Source: BoFA Global Research, Bloomberg. Note: reflects average positioning of futures stack over last 5 days

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### Exhibit 13: CTA positioning in 10yT

On the week, momentum signal moderated, CTAs continued to cover shorts

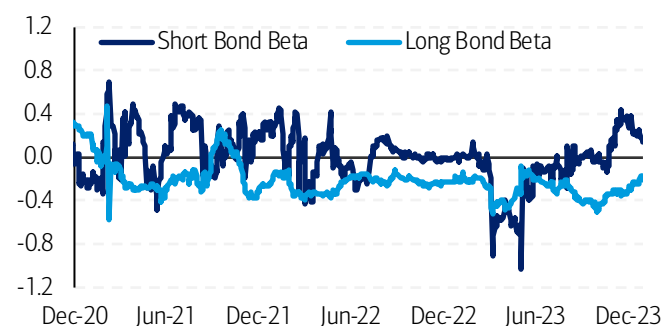


Source: BoFA Global Research

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### Exhibit 14: CTA positioning in longer duration and shorter duration bonds

Top-down model suggests CTAs reduced longs at the front-end and covered shorts at the back-end

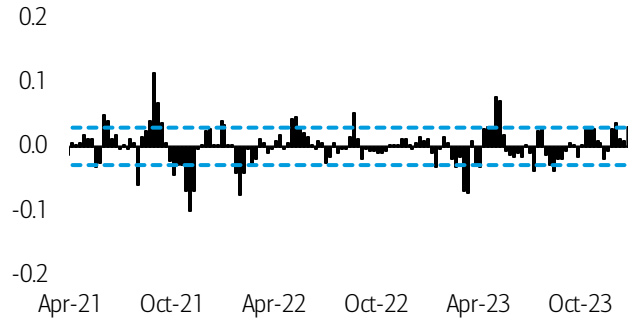


Source: BoFA Global Research

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**Exhibit 15: Changes in CTA 10yT beta**

Change in 10y beta is positive on the week

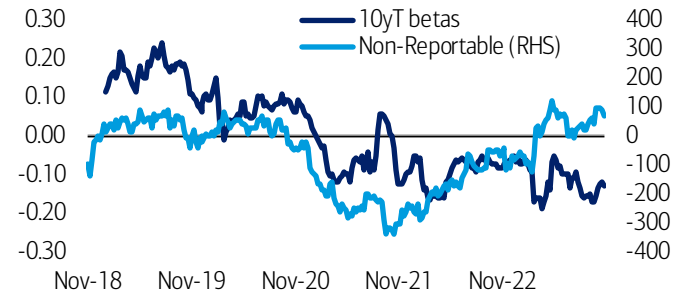


Source: BofA Global Research

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**Exhibit 16: CTA 10y TSY beta and non-reportable positions**

Strong divergence between non-reportable position and top-down model, which tends to be lagged

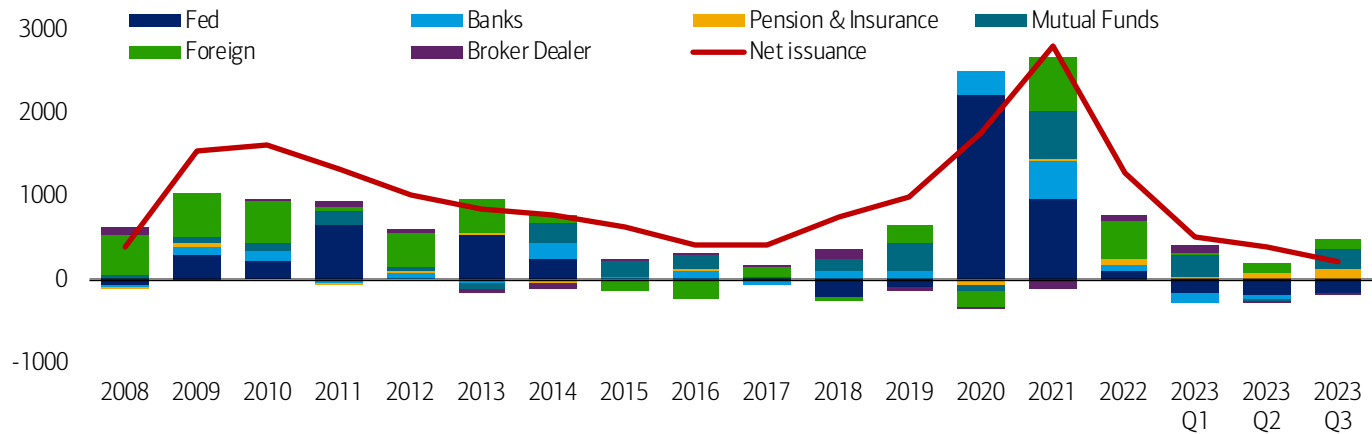


Source: BofA Global Research, Bloomberg

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**Flow of funds****Exhibit 17: Large Treasury investor demand & coupon issuance (\$bn)**

Mutual funds, foreign investors, pension &amp; insurance were the largest buyers in Q3

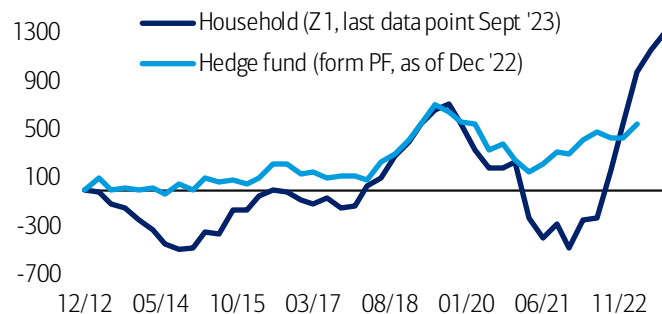


Source: BofA Global Research, Federal Reserve. Note: only reflects real money categories from flow of funds that generally invest in Treasury coupon securities, excludes households. Net issuance is coupon supply excluding Fed flows, which are shown as negative for periods where Fed is reducing size of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

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**Exhibit 18: Change in UST holdings (\$bn)**

Hedge funds UST holdings increased last year based on Flow of Funds data and form PF

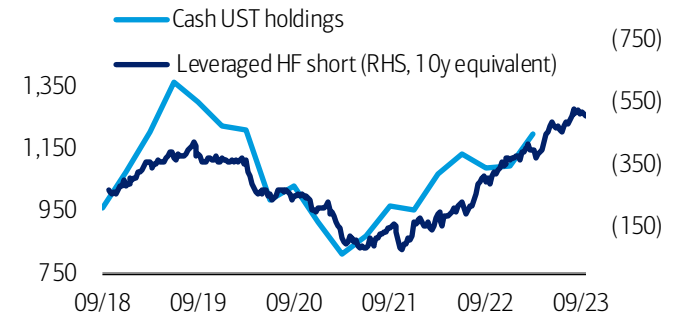


Source: BofA Global Research, Federal Reserve

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**Exhibit 19: Hedge fund cash UST holdings vs leveraged fund shorts (\$bn)**

Form PF confirms that cash long has grown alongside futures short



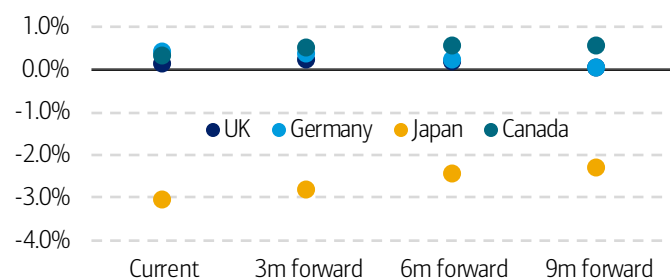
Source: BofA Global Research, Federal Reserve, Bloomberg

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# FX hedged pickup and foreign flows

## Exhibit 20: FX hedged pickup of TSYs vs local alternatives implied by forwards

Market pricing suggests improved environment for FX hedged carry trades in TSYs

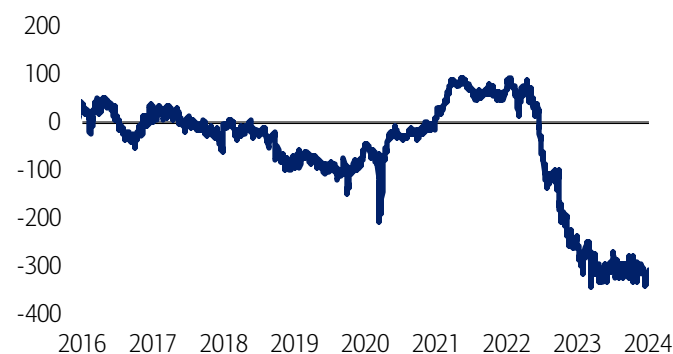


Source: BoFA Global Research, Bloomberg. Note: pickup vs 10y local alternative except Japan which is relative to 20y JGB using 3m forward FX hedge

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## Exhibit 21: 10Y UST pickup to 20Y JGB, with 3m fx hedge (bps)

10y TSY now offer very negative hedged pickup vs 20yJGBs

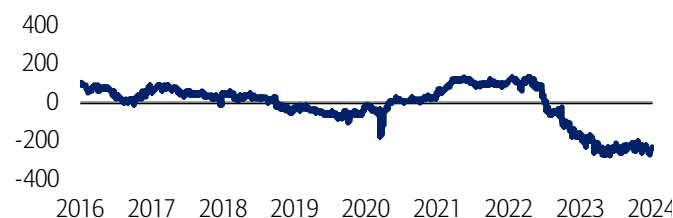


Source: BoFA Global Research, Bloomberg

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## Exhibit 22: 10Y UST pickup to 10Y JGB, with 3m fx hedge (bps)

10y TSY now offer very negative hedged pickup vs 10yJGBs

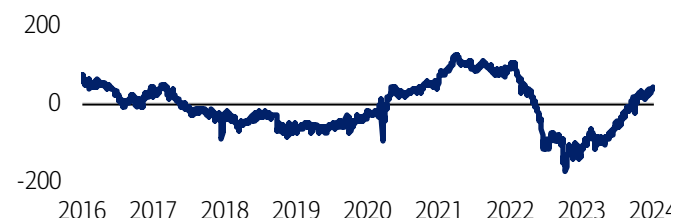


Source: BoFA Global Research, Bloomberg

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## Exhibit 23: 10Y UST pickup to 10Y Bund, with 3m fx hedge (bps)

10y TSY offers now offer slight positive pickup vs 10yBund

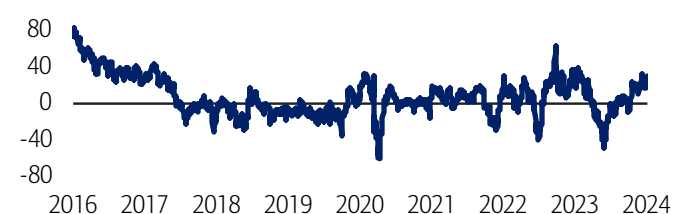


Source: BoFA Global Research, Bloomberg

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## Exhibit 24: 10Y UST pickup to 10Y CAD govie, with 3m fx hedge (bps)

10y TSY hedged pickup improved to 10yCAD gov bond

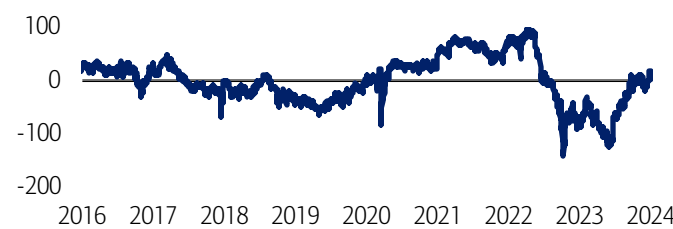


Source: BoFA Global Research, Bloomberg

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## Exhibit 25: 10Y UST pickup to 10Y Gilt, with 3m fx hedge (bps)

10y TSY offers flat pickup vs gilts



Source: BoFA Global Research, Bloomberg

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## Exhibit 26: 3m rolling JPY currency hedge

From the perspective of Japanese investor, pickup is negative across all regions

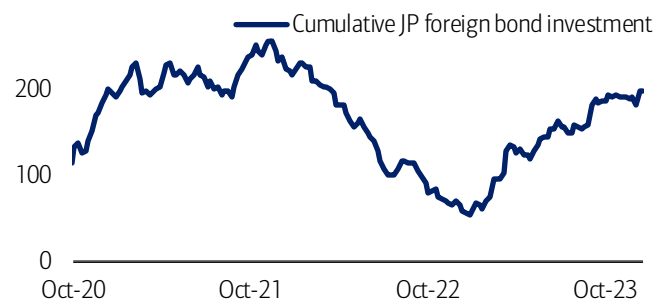
	1/4/2024		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB
10y UST	-2.33%	-3.08%	-2.44%	-3.21%	-2.37%	-3.15%	-1.71%	-2.60%
10y GER	-2.70%	-3.46%	-2.81%	-3.58%	-2.73%	-3.51%	-0.65%	-1.54%
10y FRA	-2.17%	-2.92%	-2.28%	-3.05%	-2.18%	-2.96%	-0.15%	-1.04%
10y BEL	-2.13%	-2.88%	-2.23%	-3.00%	-2.14%	-2.92%	-0.04%	-0.92%
10y ITA	-1.03%	-1.78%	-1.15%	-1.92%	-0.95%	-1.73%	1.34%	0.46%
10y SPA	-1.72%	-2.48%	-1.85%	-2.62%	-1.72%	-2.50%	0.38%	-0.51%
10y UK	-2.40%	-3.16%	-2.61%	-3.38%	-2.28%	-3.06%	-1.00%	-1.89%
10y CAN	-2.60%	-3.36%	-2.72%	-3.49%	-2.69%	-3.47%	-1.96%	-2.84%

Source: BoFA Global Research, Bloomberg

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### Exhibit 27: Japan investment in foreign bonds, cumulative weekly (\$bn)

Change in long & medium term bonds (\$bn) holdings was flat on the week

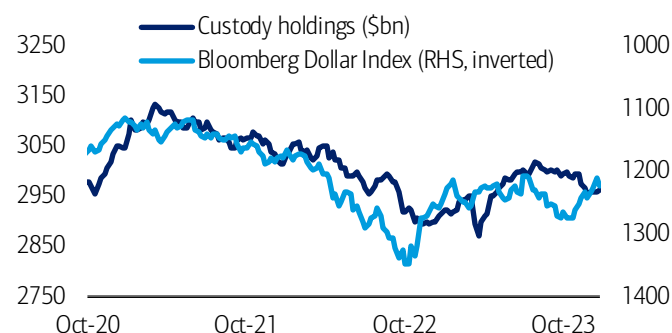


Source: BofA Global Research, Bloomberg

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### Exhibit 28: Weekly UST custody holdings, foreign official (\$bn)

Custody holdings mostly picked up on the week

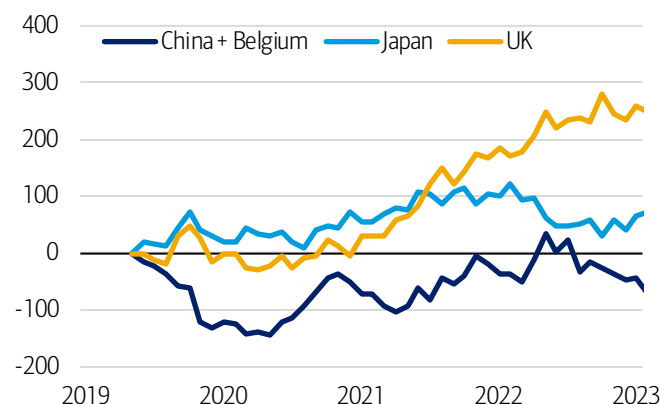


Source: BofA Global Research, NY Fed

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### Exhibit 29: Cumulative UST flows from foreign investors (\$bn)

China + Belgium have turned to net sellers since end of '22, Japan roughly flat after selling last year

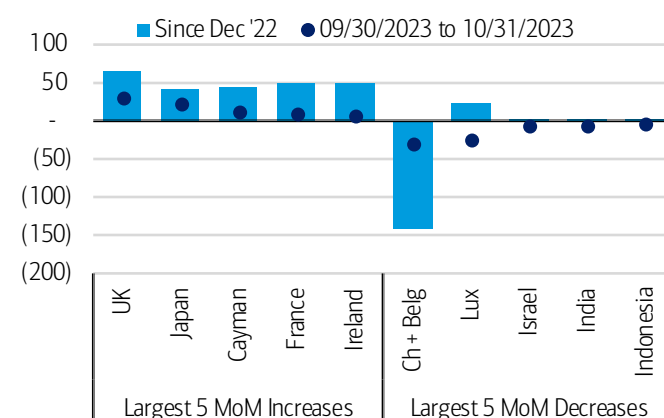


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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### Exhibit 30: Largest MoM changes in foreign TSY holdings (\$bn)

UK was the largest buyer, China+Belgium the largest seller in October

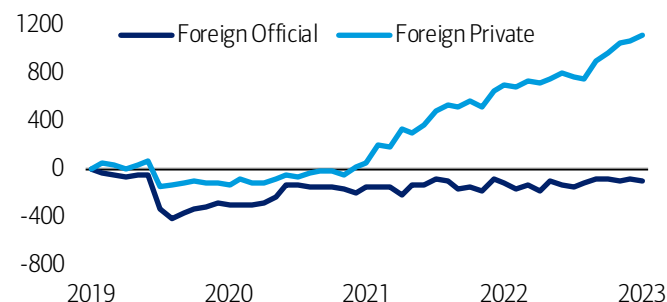


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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### Exhibit 31: Cumulative UST flows from foreign investors (\$bn)

While official UST holdings have declined in recent years, foreign private investors have more than offset



Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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### Exhibit 32: Foreign buyers and sellers of USTs in 2023

Foreign demand from private investors was strong in 2023, while China and Saudi Arabia were the largest regional sellers



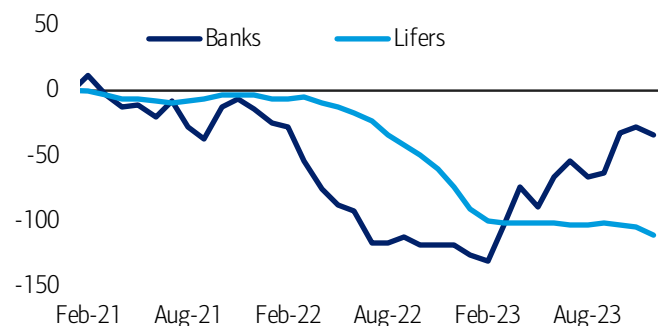
Source: BofA Global Research, Note: TIC data YTD through August adjusted for valuation

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

While banks and lifers have reduced foreign bond holdings in the last year, banks have recently turned modest buyers while lifer demand has been flat

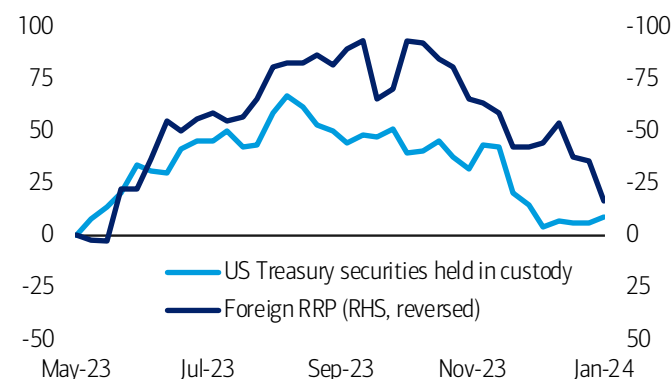


Source: Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is Nov '23

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### Exhibit 34: Cumulative change in custody holdings and foreign RRP since May 2023 (\$bn)

Custody holdings dropped & foreign RRP picked up

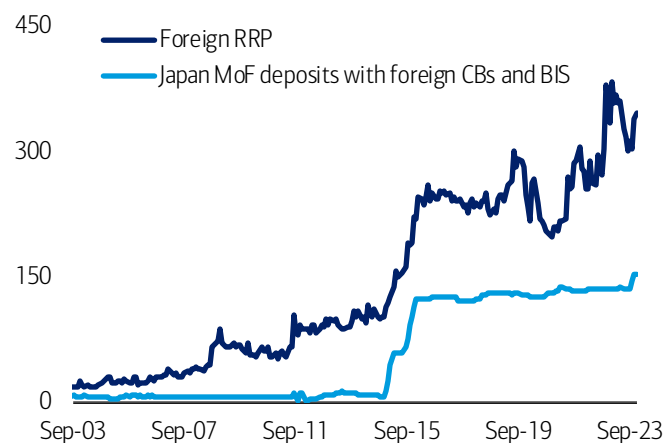


Source: BofA Global Research, Federal Reserve, Bloomberg

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### Exhibit 35: Japanese deposits with other central banks and Fed foreign repo pool (\$bn)

Vast majority of \$153bn in MoF deposits likely at Fed's foreign repo pool



Source: Japan MoF, Federal Reserve, Bloomberg

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# Fund flows and returns

## Exhibit 36: US fixed income fund flows (\$million)

US FI funds saw inflows on the week driven by mixed allocation & govt short funds. Outflows seen in corp HY & muni funds

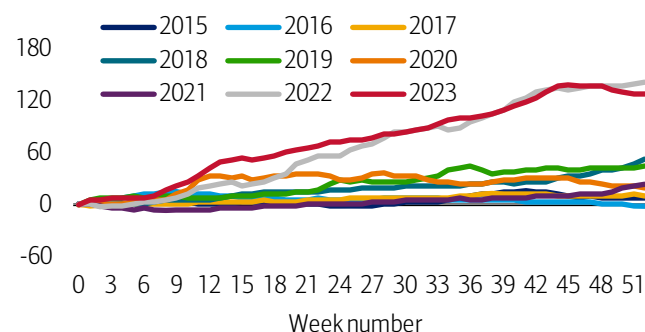
	1/3/2024	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	2,977	(254)	(1,241)	(224)	888
Gov: intermediate	851	26	(57)	75	298
Gov: long	(353)	252	538	1,252	1,256
Corp: IG	2,018	1,517	1,202	678	316
Corp:HY	(883)	369	943	1,021	(40)
Corp: all quality	29	73	76	56	42
MBS	111	(90)	52	220	282
Inflation	119	(746)	(828)	(683)	(476)
Muni	(821)	(117)	(27)	(46)	(17)
Mixed allocation	3,189	1,286	802	738	2,013
All US FI	7,068	2,554	1,535	3,068	4,187

Source: BofA Global Research, EPFR

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## Exhibit 37: Sovereign fund inflows by year (\$bn)

Flows near year-end '23 are lower but on track with highs of last year

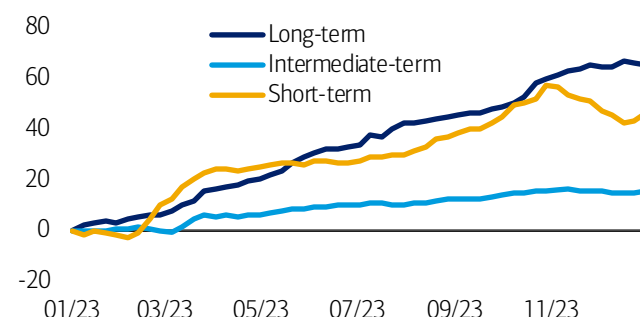


Source: BofA Global Research, EPFR

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## Exhibit 38: Sovereign inflows by tenor (\$bn)

Inflows have been concentrated in long-term and short-term funds, inflows in short-term funds saw a declining trend but picked up at year-end

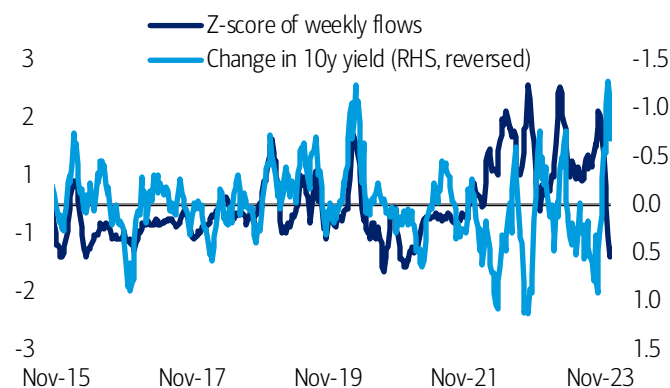


Source: BofA Global Research, EPFR

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## Exhibit 39: Fund flows and rate change (Z-score)

Fund flows recently have been historically strong alongside rates rally

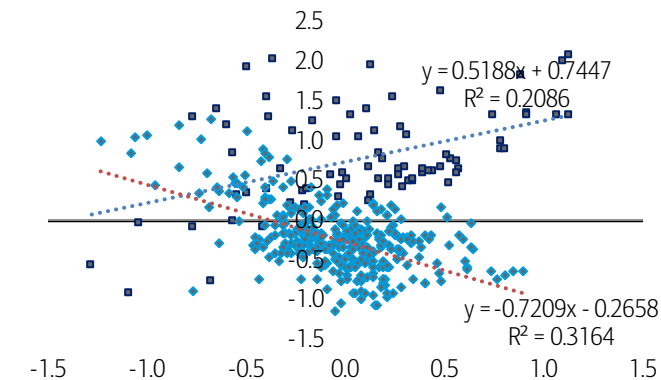


Source: BofA Global Research, EPFR

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## Exhibit 40: Fund flows and rate change

Since start of '22, fund flows are less negatively correlated to change in rates

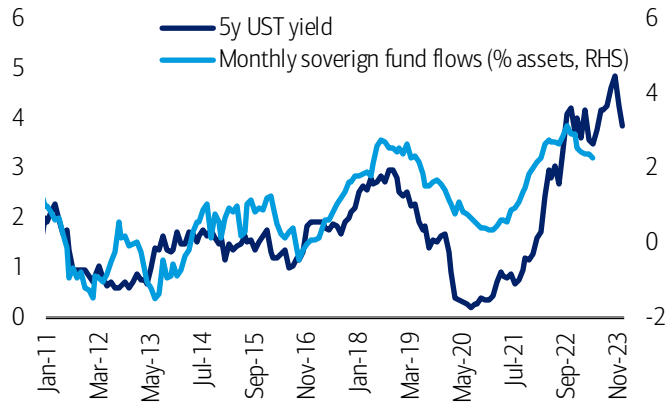


Source: BofA Global Research, EPFR, Bloomberg. Note: dark = post '22, light = '15-'22

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**Exhibit 41: Sovereign fund flows and UST yield**

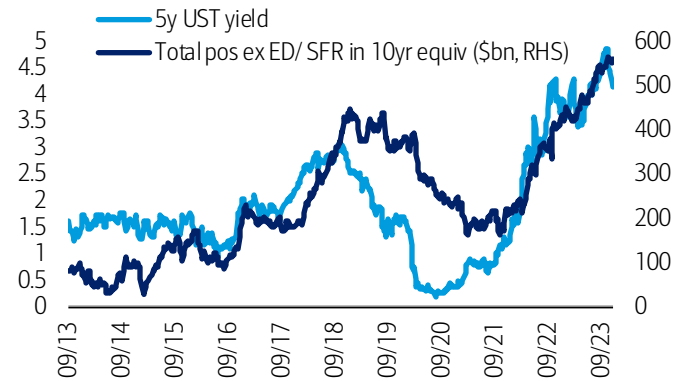
Inflows higher when yields are higher



Source: BofA Global Research, EPFR. Note: sovereign fund flows is midpoint of 12mo average  
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**Exhibit 42: Asset manager futures positioning and UST yield**

Asset manager futures positioning trends with yield levels



Source: BofA Global Research, Bloomberg

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**Exhibit 43: Total return FI fund performance vs benchmark**

Over the last week, AUM weighted fund performance was above benchmark

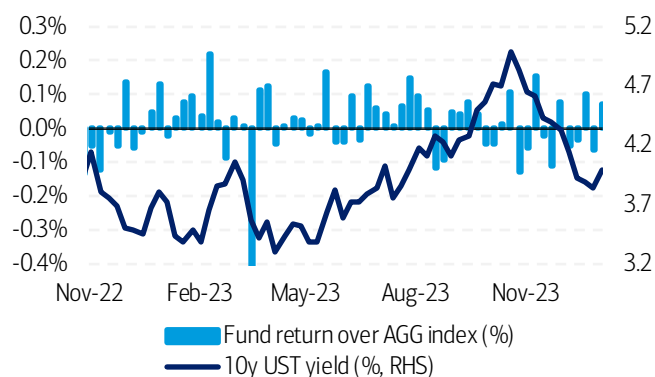
	AUM (\$Bn)	1/4/2024	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	260	-0.98%	0.04%	1.43%	0.06%
Vanguard Total Bond Market Index Fund	202	-0.97%	0.05%	1.31%	-0.06%
PIMCO Income fund	137	-0.64%	0.38%	1.32%	-0.04%
The Bond Fund of America	80	-0.97%	0.05%	1.37%	0.01%
MetWest Total Return Bond Fund	56	-1.11%	-0.10%	1.69%	0.32%
PIMCO Total Return Fund	55	-0.85%	0.17%	1.59%	0.22%
Dodge & Cox Income Fund	67	-1.11%	-0.09%	1.52%	0.15%
PGIM Total Return Bond Fund	43	-0.99%	0.02%	1.61%	0.25%
BlackRock Strategic Income Opportunities Fund	36	-0.66%	0.35%	1.41%	0.05%
Baird Aggregate Bond Fund	43	-1.01%	0.00%	1.49%	0.12%
JPMorgan Core Bond Fund	43	-0.87%	0.14%	1.39%	0.02%
DoubleLine Total Return Bond Fund	31	-0.80%	0.22%	1.61%	0.24%
Fidelity Series Investment Grade Bond Fund	36	-0.91%	0.10%	1.53%	0.16%
Fidelity Total Bond Fund	34	-1.07%	-0.05%	1.50%	0.13%
Western Asset Core Plus Bond Portfolio	22	-1.48%	-0.47%	1.85%	0.48%
Baird Core Plus Bond Fund	28	-0.88%	0.13%	1.55%	0.18%
John Hancock Bond Fund	23	-1.02%	-0.01%	1.59%	0.23%
TIAA-CREF Bond Index Fund	21	-0.97%	0.04%	1.40%	0.03%
BlackRock Total Return Fund	19	-1.01%	0.00%	1.35%	-0.02%
JPMorgan Core Plus Bond Fund	18	-0.96%	0.05%	1.47%	0.10%
Bridge Builder Core Bond Fund	17	-0.91%	0.10%	1.59%	0.22%
T Rowe Price New Income Fund	17	-0.91%	0.10%	1.44%	0.08%
Western Asset Core Bond Fund	14	-1.31%	-0.30%	1.53%	0.17%
CREF Bond Market Account	10	-0.92%	0.10%	1.48%	0.11%
Fidelity Investment Grade Bond Fund	9	-1.03%	-0.01%	1.57%	0.20%
DoubleLine Core Fixed Income Fund	7	-0.88%	0.13%	1.61%	0.24%
TCW Total Return Bond Fund	2	-1.36%	-0.35%	1.73%	0.36%
Janus Henderson Flexible Bond Fund	3	-0.97%	0.04%	1.66%	0.29%
Weighted avg	1333	-0.94%	0.07%	1.45%	0.08%
Agg		-1.02%		1.37%	
10y return		-1.55%		1.51%	

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

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**Exhibit 44: Total return funds, excess return vs. 10y rate**

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

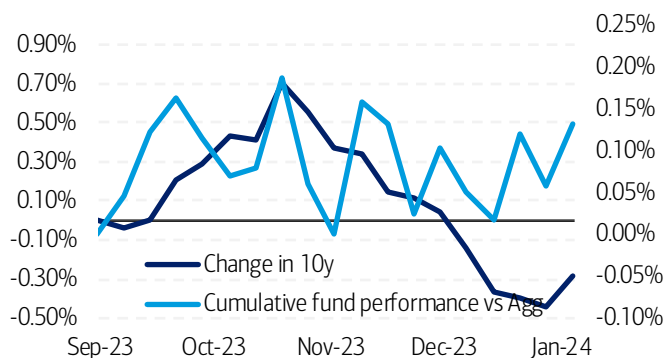


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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**Exhibit 45: Cumulative return of TR FI funds over benchmark vs 10yT**

Funds have modestly outperformed since start of the year



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

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**Exhibit 46: Total return funds' published UST allocations vs benchmark from Q2 and Q3 '23**

Funds increased underweight position from Q2 to Q3

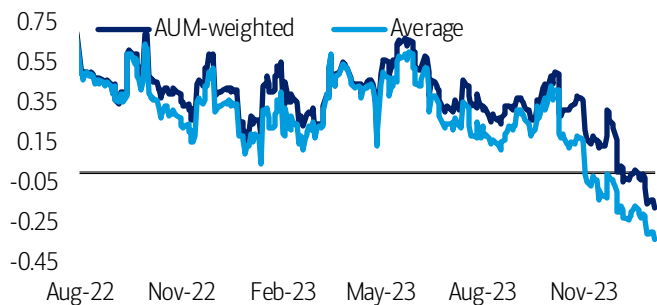
		AUM (\$bn)	Q2 '23 (%)	Q3 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	260.0	2.1	2.2	0.1
VBMFX	Vanguard Total Bond Market Index Fund	202.4	1.4	1.3	-0.1
PIMIX	PIMCO Income fund	137.5	-34.1	-34.8	-0.6
ABNDX	The Bond Fund of America	80.4	-14.0	-22.4	-8.4
DODIX	Dodge & Cox Income Fund	67.1	-32.7	-29.8	2.9
MWTIX	MetWest Total Return Bond Fund	55.5	-18.7	-17.4	1.3
PTTRX	PIMCO Total Return Fund	54.8	-18.6	-23.9	-5.3
PGBOX	JPMorgan Core Bond Fund	43.1	-2.2	-3.9	-1.7
PDBAX	PGIM Total Return Bond Fund	43.0	-34.2	-34.9	-0.7
BAGIX	Baird Aggregate Bond Fund	42.5	-17.7	-18.8	-1.1
BSIIX	BlackRock Strategic Income Opportunities Fund	35.9	-23.4	-24.0	-0.7
FSIGX	Fidelity Series Investment Grade Bond Fund	35.6	-10.1	-6.4	3.7
FTBFX	Fidelity Total Bond Fund	34.1	-12.5	-11.6	0.9
DBLTX	DoubleLine Total Return Bond Fund	31.4	-32.8	-34.6	-1.8
BCOIX	Baird Core Plus Bond Fund	27.7	-18.4	-19.1	-0.7
JHBI	John Hancock Bond Fund	23.1	-22.5	-21.6	0.9
WACPX	Western Asset Core Plus Bond Portfolio	22.0	-38.0	-38.6	-0.6
TBIIX	TIAA-CREF Bond Index Fund	21.4	0.3	0.0	-0.3
MAHQX	BlackRock Total Return Fund	18.5	88.0	-1.9	-89.9
ONIA	JPMorgan Core Plus Bond Fund	17.9	-2.9	-3.1	-0.2
BBTBX	Bridge Builder Core Bond Fund	17.2	-23.0	-24.6	-1.6
PRCIX	T Rowe Price New Income Fund	16.8	-11.8	-8.6	3.2
WATFX	Western Asset Core Bond Fund	14.3	-31.1	-32.1	-1.0
QCBMIX	CREF Bond Market Account	10.4	-22.6	-23.0	-0.4
FBNDX	Fidelity Investment Grade Bond Fund	8.7	-0.3	3.5	3.8
DBLFX	DoubleLine Core Fixed Income Fund	7.0	-17.9	-18.5	-0.6
JFLEX	Janus Henderson Flexible Bond Fund	2.7	-17.9	-26.0	-8.0
TGLMX	TCW Total Return Bond Fund	2.4	-39.6	-39.9	-0.3
<b>AUM weighted</b>		1333.4	-12.0	-13.9	-1.9

Source: BofA Global Research, funds' publicly available reports

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#### Exhibit 47: Rolling 30-day correlation between excess return and change in 10y UST yield

A higher correlation between the two would suggest that when UST yields increase, excess return is higher (more short), recent decline may suggest moderation in short positioning

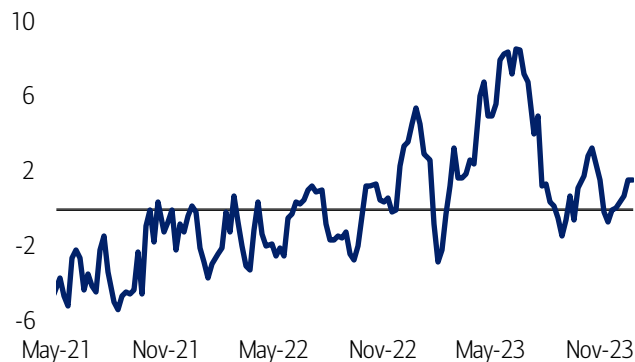


Source: BofA Global research, Bloomberg

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#### Exhibit 48: Primary dealer 2-6y holdings of TIPS (\$bn)

Primary dealer holdings recovered in December



Source: BofA Global research, Note: cumulative change since 2021 reflects adjustment for change in market value

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# Bank balance sheets

## Exhibit 49: Changes to bank balance sheet assets (\$bn)

Domestic bank balance saw an increase in assets driven by cash, securities, loans, and other

		Current (12/27/2023)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
<b>All (\$bn, NSA)</b>	<b>Total Assets</b>	23382	67	48	52	44	8
	Cash	3486	-26	-3	14	17	7
	UST & Agency	1598	7	19	7	7	-1
	MBS	2513	4	1	4	2	-4
	Loans and Leases	12385	19	18	16	12	5
	Other	3400	63	12	10	5	0
<b>Large Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	13692	65	57	37	30	5
	Cash	1795	12	21	15	13	6
	UST & Agency	1188	2	17	6	6	-1
	MBS	1910	5	-1	3	2	-1
	Loans and Leases	6815	7	8	6	5	1
	Other	1984	38	13	7	4	0
<b>Small Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	6614	17	14	10	7	1
	Cash	477	4	7	5	3	1
	UST & Agency	297	3	2	1	0	-1
	MBS	574	-1	2	1	0	-3
	Loans and leases	4474	6	5	4	4	4
	Other	792	5	-2	-1	-1	-1
<b>All Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	20306	82	71	46	37	6
	Cash	2272	17	28	20	16	8
	UST & Agency	1485	5	18	7	7	-1
	MBS	2484	4	1	4	2	-4
	Loans and leases	11289	13	12	10	9	5
	Other	2776	43	11	6	3	-1
<b>Foreign (\$bn, NSA)</b>	<b>Total Assets</b>	3076	-15	-23	5	7	2
	Cash	1214	-43	-31	-6	1	0
	UST & Agency	112	2	1	1	1	0
	MBS	29	0	0	0	0	0
	Loans and leases	1096	5	5	6	4	1
	Other	624	21	2	4	2	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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## Exhibit 50: Select bank balance sheet liabilities (\$bn, NSA)

Domestic banks saw an increase in deposits but modest decline in other borrowing

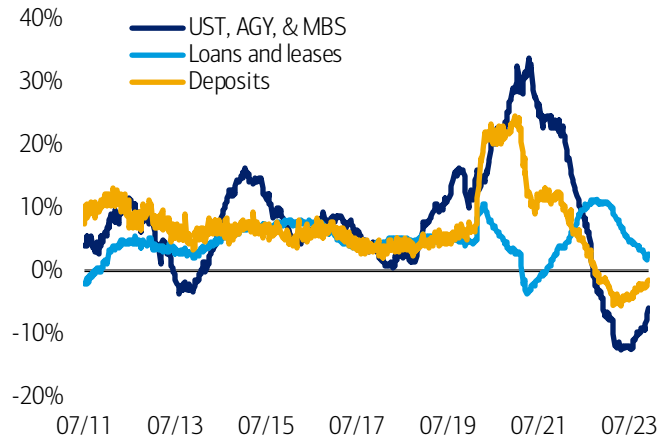
		Current (12/27/2023)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
<b>Deposits (\$bn, NSA)</b>	All	17611	20	55	33	24	-6
	Domestic	16349	39	61	31	24	-5
	Large Domestic	11002	30	49	25	19	-4
	Small Domestic	5348	9	11	7	5	-1
	Foreign	1262	-18	-5	2	0	-1
	Other	2324	-40	-1	0	-2	9
<b>Other borrowing (\$bn, NSA)</b>	Domestic	1344	-6	-2	-3	0	7
	Large Domestic	922	-8	-2	-2	1	6
	Small Domestic	421	2	1	-1	-1	1
	Foreign	980	-34	1	4	-2	2

Source: BofA Global Research, Federal Reserve, Bloomberg

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**Exhibit 51: YoY change in securities, loans, and deposits**

Securities growth usually only positive when deposit growth is positive

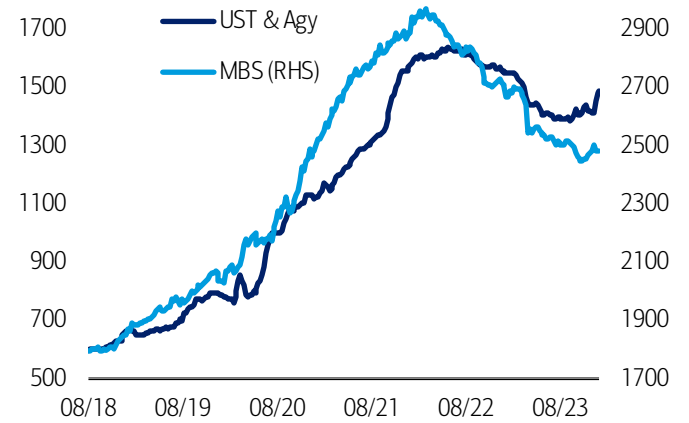


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 52: Domestic bank holdings of UST& Agy, MBS**

UST &amp; Agency shows signs of pickup

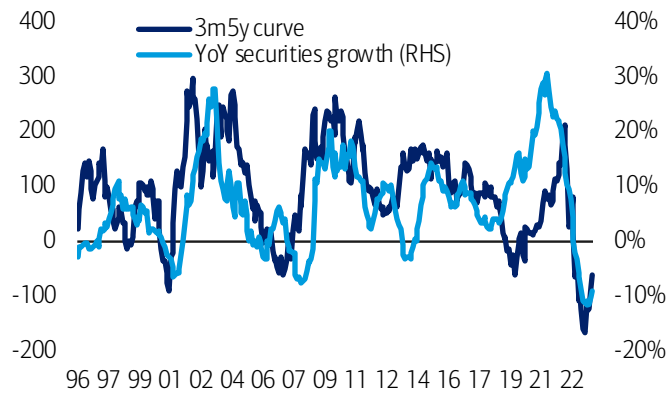


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 53: Front-end curve and YoY bank securities portfolio change**

Securities portfolio growth picks up historically with steeper front-end curve



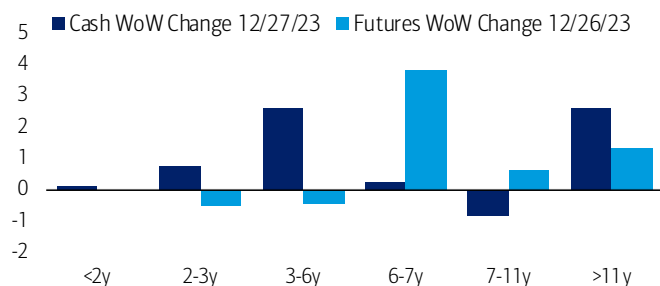
Source: BofA Global Research, Bloomberg

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# Primary dealer balance sheet

## Exhibit 54: Dealers WoW change in positions

10y equivalent, \$bn, futures positions higher in the belly, cash positions higher at the wings

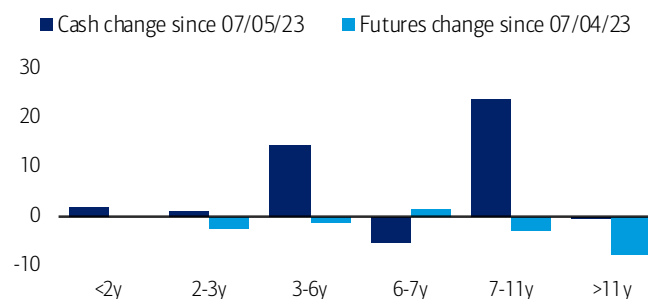


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 55: Dealers change in positions over last 6mo

10y equivalent, \$bn, cash positions noticeably higher in the 7-11y bucket

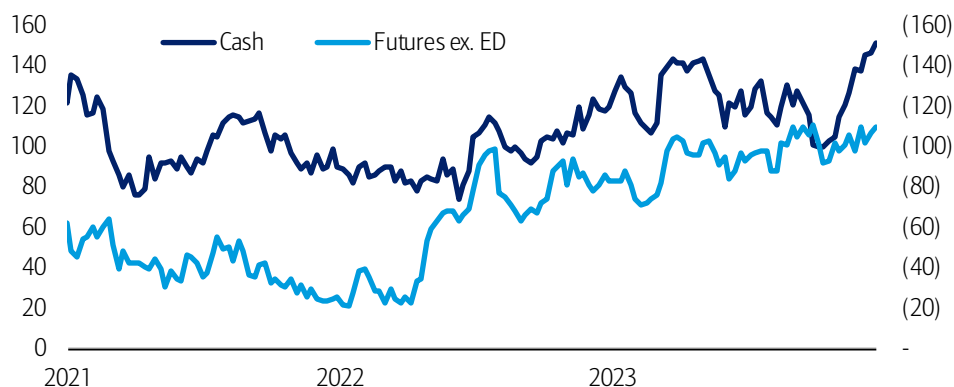


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 56: Dealers total sector positions

10y equivalent, \$bn, long cash & short futures position increased on the week



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

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# Auction statistics

## Exhibit 57: Auction summary statistics

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

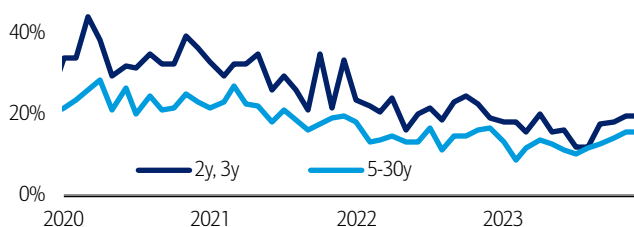
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	11/30/2023	17.6%	62.0%	20.3%	63.1%	15.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-3.3%	2.8%	0.0%
	1Y Z-score	0.2	-0.2	0.0	-0.1	0.0	-0.4
3y	12/15/2023	22.1%	56.0%	21.9%	60.0%	11.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-6.6%	-3.4%	0.0%
	1Y Z-score	1.1	-1.1	0.7	-0.9	-1.1	0.7
5y	11/30/2023	19.4%	19.1%	61.5%	70.6%	11.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	2.7%	0.6%	0.0%
	1Y Z-score	1.7	0.4	-1.5	-0.2	-0.6	-0.6
7y	11/30/2023	11.0%	70.6%	18.4%	62.0%	14.2%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-13.0%	2.5%	0.0%
	1Y Z-score	-0.5	0.3	0.2	-1.3	0.3	-0.5
10y	12/15/2023	18.7%	60.3%	20.9%	67.8%	11.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	14.9%	-17.3%	-0.1%
	1Y Z-score	0.7	-0.9	1.0	0.3	-0.6	-0.5
20y	11/30/2023	11.9%	72.9%	15.2%	73.9%	13.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	2.9%	-0.6%	0.0%
	1Y Z-score	1.1	0.4	-1.1	0.3	-0.2	#DIV/0!
30y	12/15/2023	18.2%	65.1%	16.7%	69.8%	12.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	12.3%	-1.9%	0.0%
	1Y Z-score	1.3	-0.7	-1.0	0.0	-0.5	-0.8

Source: BofA Global Research, Treasury

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## Exhibit 58: Primary dealer – average auction allotment

Dealer participation has picked up

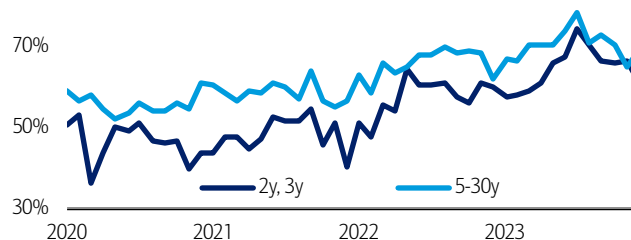


Source: BofA Global Research, Treasury

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## Exhibit 59: Investment fund – average auction allotment

Fund participation still elevated but shows sign of decline at front-end

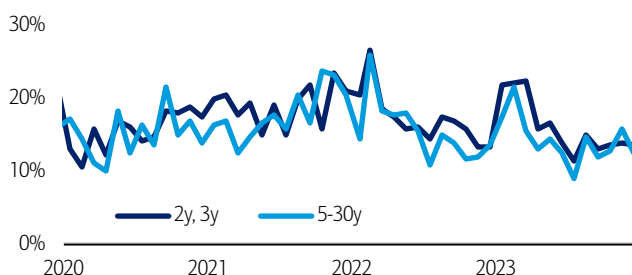


Source: BofA Global Research, Treasury

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## Exhibit 60: Foreign investment – average auction allotment

Foreign participation still below average and reduced in 5-30y

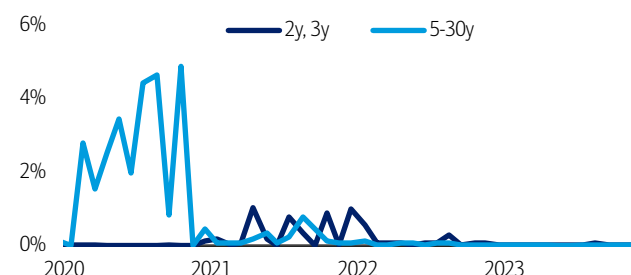


Source: BofA Global Research, Treasury

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## Exhibit 61: Depository institutions – average auction allotment

Participation is minimal



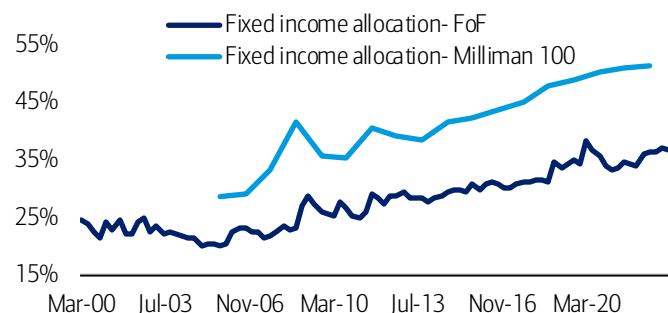
Source: BofA Global Research, Treasury

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# Pensions

## Exhibit 62: DB private pension fixed income allocation from Flow of Funds and smaller Milliman subset

Milliman funds have shown more de-risking than broader private DB pension funds according to FoF

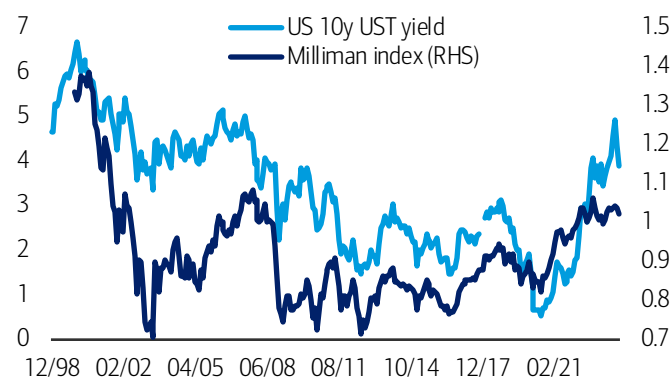


Source: BofA Global Research, Milliman, Federal Reserve

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## Exhibit 63: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

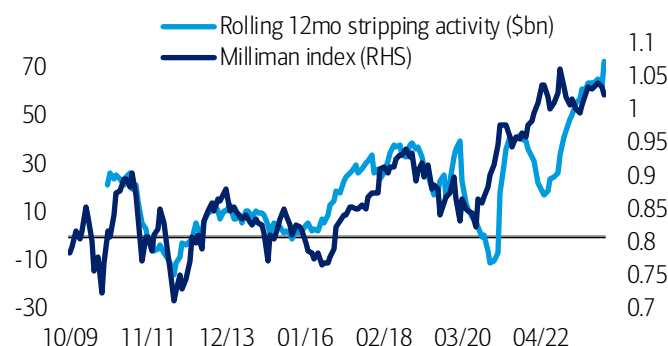


Source: BofA Global Research, Bloomberg

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## Exhibit 64: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

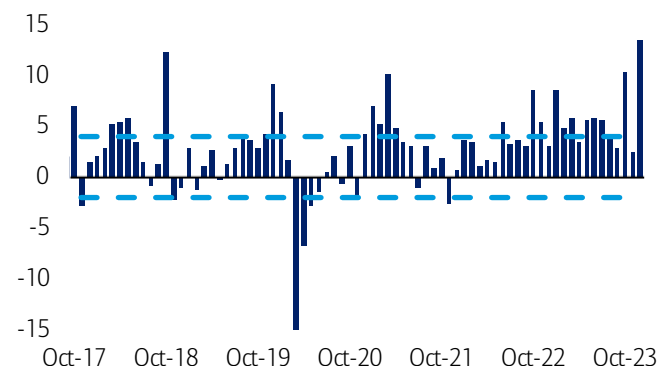


Source: BofA Global Research, Bloomberg

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## Exhibit 65: Change in USTs held in stripped form (\$bn)

USTs held in stripped form saw a historic increase in December

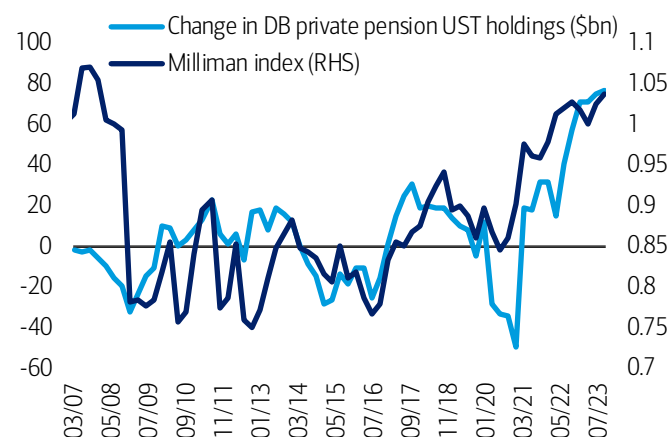


Source: BofA Global Research, Note: dashed line is 1stdev

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## Exhibit 66: 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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# Disclosures

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# Research Analysts

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## US Rates Research

**Ralph Axel**  
Rates Strategist  
BofA  
[ralph.axel@bofa.com](mailto:ralph.axel@bofa.com)

**Bruno Braizinha, CFA**  
Rates Strategist  
BofA  
[bruno.braizinha@bofa.com](mailto:bruno.braizinha@bofa.com)

**Mark Cabana, CFA**  
Rates Strategist  
BofA  
[mark.cabana@bofa.com](mailto:mark.cabana@bofa.com)

**Katie Craig**  
Rates Strategist  
BofA  
[katie.craig@bofa.com](mailto:katie.craig@bofa.com)

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