

## US Rates Watch

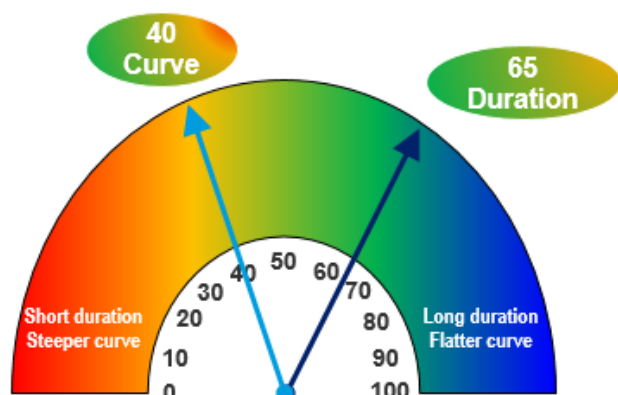
## Lower rates, more diversified demand

## Shift away from fund dependence

While it is still early days, history suggests that lower rates and steeper curves correspond with smaller overweights and slower fund inflows. We are seeing some signs of this in our latest FX and Rates Sentiment Survey and investment fund buying at auction off its recent peak. Demand from other investors though should continue to improve, including from foreign investors, pensions, and banks. This should mark a pivot from last year where fund inflows and the basis trade dominated the demand backdrop.

**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 curve to steepen

Our futures positioning proxy (for construction details see: Gauging positioning in Treasury Futures) is relatively neutral but shows a small bias for the curve to steepen, with the front end modestly prone to rally and back end to selloff (Exhibit 12). Open interest has grown more notably at the back end vs front end and has a larger concentration of out of the money longs (Exhibit 11). On the week through Thursday open interest increased across the curve with a similar number of shorts and longs created. Longs were more concentrated in TU – TY while TY saw the largest amount of shorts created.

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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**Refer to important disclosures on page 20 to 21. Analyst Certification on page 19. 12645603**

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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 continue to add duration

Both our top down and bottoms up models (for construction details see: CTA impact on the rates market) suggest that CTAs are continuing to add to longs (Exhibit 13). The long bond beta continues to extend and showed another week of a significant increase (Exhibit 15). Meanwhile the short bond beta is narrowing to long bond beta indicating a more neutral curve position (Exhibit 14).

## Asset manager position contracts

10y equivalent asset manager futures positioning contracted with notable declines in FV, UXY, and TY. Similarly, leveraged funds covered shorts notably across those three contracts (Exhibit 7).

We continue to believe that asset manager futures demand will likely moderate as rates fall (Exhibit 41, Exhibit 42). This should also suggest a moderation in the size of the basis trade. Most recent HF data, as of June '23, continues to point to growth in cash UST longs alongside futures (Exhibit 19). Non-commercial data excluding leveraged hedge funds also extended longer in recent weeks (Exhibit 8) and currently sits at the 85th percentile over the last 5 years.

## UST fund inflows and overweights moderate

While US fixed income fund inflows had another strong week, inflows were driven by IG and mixed allocation funds while UST funds demand was more muted (Exhibit 37). Short-term USTs saw \$2.7bn outflows after similar sized inflows last week. Intermediate and longer-term funds saw moderate inflows only slightly above what we have observed on average over the past four weeks.

AUM-weighted fund performance was roughly in line with benchmark alongside the small rally in 10y rates on the week ending Jan 11 (Exhibit 44). Performance was split with 50% of the funds we track outperforming vs underperforming benchmark. Rolling correlation of excess return vs changes in the 10y rate remain negative, but have retreated somewhat. This suggesting that funds may have moderated from recent peak in UST exposure (Exhibit 48). This would be consistent with our most recent FX and Rates Sentiment Survey which shows that global benchmark investors are still long, but less so vs last year (Exhibit 52, see: [FX and Rates Sentiment Survey: Hung Jury](#)).

A retreat in overweight US duration positions as rates fall and the curve steepens is consistent with what we observe historically. As shown in Exhibit 50 and Exhibit 51, as Fed cuts and curve steepens, FX and Rates Sentiment Survey US duration positioning tends to moderate. The duration allocation is usually only increasing alongside cuts when cuts are quite aggressive (likely risk off behavior). This is a similar dynamic that we see with fund flows as discussed above (inflows peak with rates). This shift away from investment funds is also evidenced in the most recent auction data (Exhibit 63); while fund demand is still robust it is off prior peaks. While fund demand may be moderating, we expect a continued firming in UST demand from other players.

## Strong demand from Japanese pensions

December saw relatively firm demand for foreign bonds from Japanese private investors. As shown in Exhibit 35, this demand was driven by pensions which have indeed been net buyers over much of 2023. As discussed in [US Rates Watch](#), this is consistent with what we see from domestic pensions as December was the biggest increase in USTs held in stripped from (Exhibit 69). Japanese banks also remained net buyers in December, albeit less so than earlier in the year (Exhibit 36).

Elsewhere, foreign custodial holdings moderated by about \$5bn alongside a \$5bn decline in foreign RRP usage (Exhibit 34). We still have not observed an uptick in foreign official buying generally consistent with the weaker USD since the start of November (Exhibit 28). Most recent auction stats also suggest limited participation from foreign investors at auctions (Exhibit 64).

**Exhibit 2: On deck next week**

Calendar of upcoming events

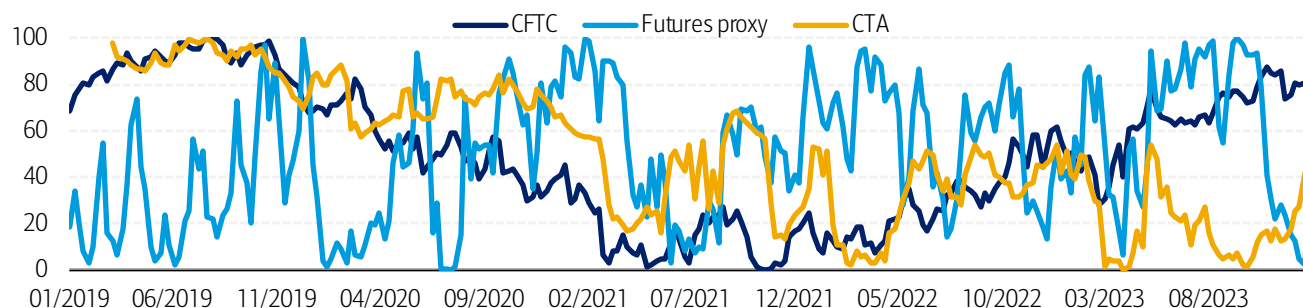
	US Data			Fed Speaker / Event	Treasury Auction			Treasury Settlements	
	Series	BofA	BB Consensus		Security	Amount (\$bn)	Prior Δ	Security	Amount
Tu, Jan 16	<b>Empire Manufacturing</b>	<b>-2</b>	<b>-2.9</b>	11:00 Fed's Waller Speaks on Economic Outlook and Monetary Policy	13-week bills	75	0	Bills	1
					26-week bills	68	0	Coupons	18
					42-day bills	70	0		
W, Jan 17	<b>MBA Mortgage Applications</b>	-	-	14:00 Federal Reserve Releases Beige Book 15:00 Fed's Williams Speaks at NY Fed Event	17-week bills				
	Import Price Index (mom)	-0.50%	-0.70%		19-year 10-month bonds	13	0		
	Import Price Index ex Petroleum (mom)	0.00%	-						
	<b>Advance Retail Sales</b>	<b>1.20%</b>	<b>0.40%</b>						
	Retail Sales Less Autos	1.10%	0.20%						
	Retail Sales Less Autos and Gas	1.00%	0.30%						
	Core Control	0.70%	0.30%						
	<b>Industrial Production</b>	<b>0.30%</b>	<b>-0.10%</b>						
	Manufacturing Production	0.30%	-0.10%						
	Capacity Utilization	79.00%	78.60%						
	Business Inventories	-	-0.10%						
	NAHB Housing Market Index	39	38						
Th, Jan 18	<b>Housing Starts</b>	<b>1450k</b>	<b>1415k</b>	7:30 Fed's Bostic Speaks on Economic Outlook	4-week bills			Bills	10
	Building Permits	1480k	1480k	11:30 Fed's Bostic Speaks on Economic Outlook	8-week bills				
	<b>Initial Jobless Claims</b>	<b>204k</b>	<b>-</b>		10-year TIPS	18	0		
	<b>Existing Home Sales</b>	<b>3.95M</b>	<b>3.84M</b>	16:15 Fed's Daly Speaks in Fireside Chat					
F, Jan 19	<b>U. of Michigan Sentiment</b>	<b>70</b>	<b>68</b>						

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

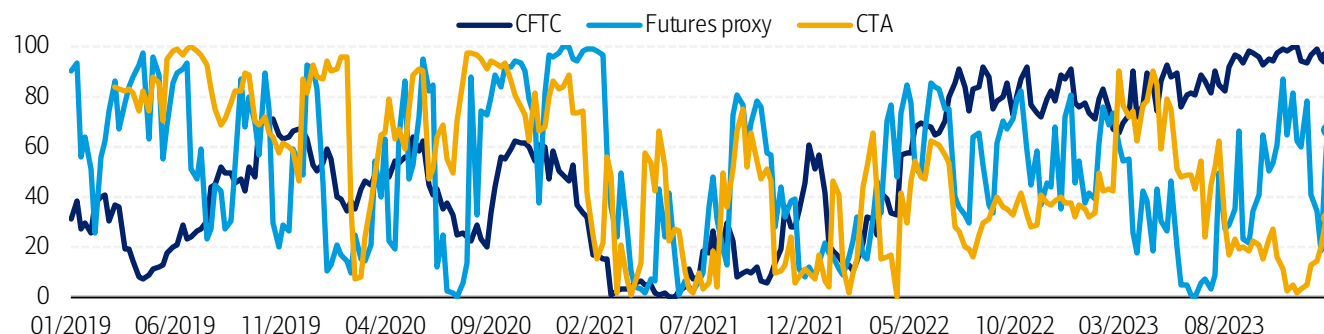


Source: BofA Global Research

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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

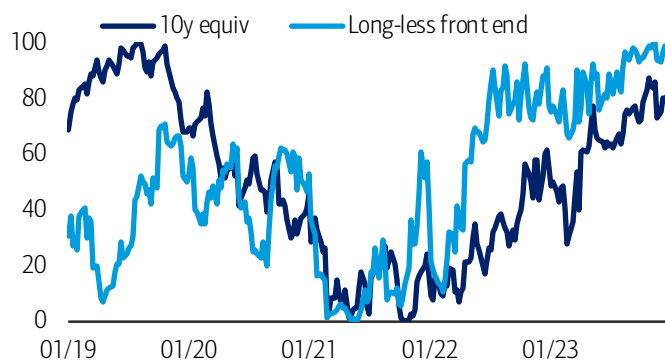


Source: BofA Global Research

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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

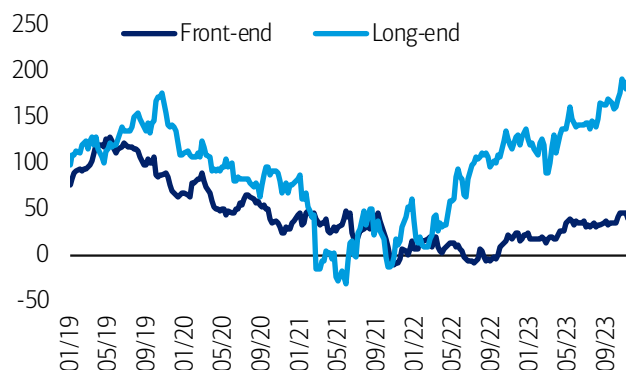


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

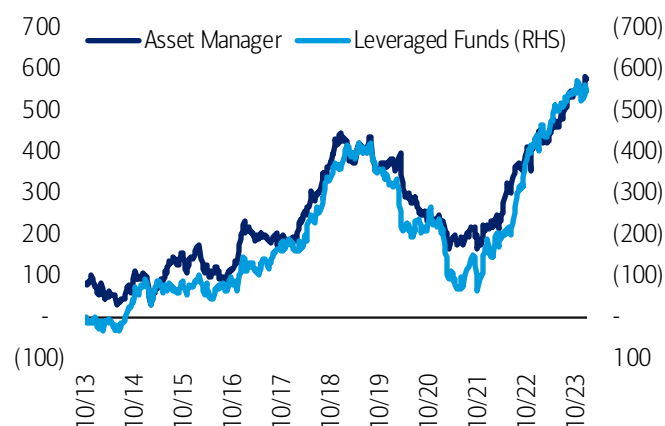


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

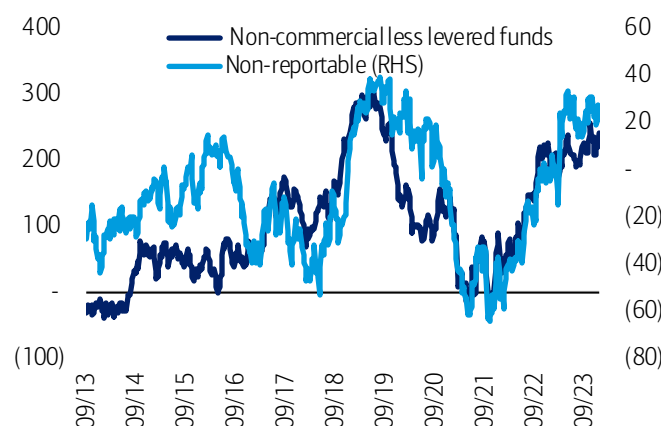


Source: BofA Global Research, Bloomberg

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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	1	1	1	1	1
70 to 80	80	1	-1	-2	-3	-3
80 to 90	90	-4	-4	-3	-3	-4
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)

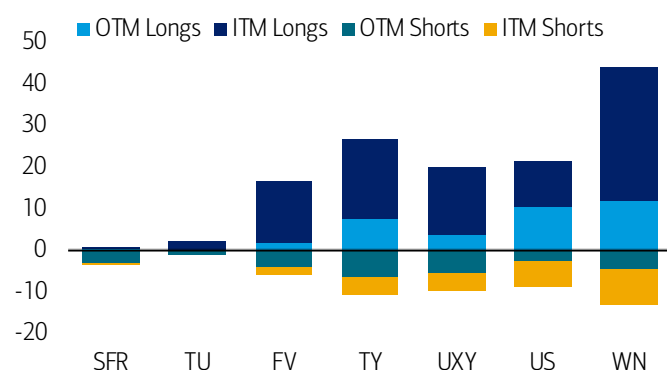
Positioning is contrarian signal: shorter positioning is usually followed by stronger 10y performance

	0	1w	4w	8w	12w	16w
0 to 10	10	1	0	1	1	2
10 to 20	20	-1	2	2	2	4
20 to 30	30	1	-4	-3	-2	-3
30 to 40	40	-5	-2	-3	-4	-5
40 to 50	50	-3	-3	-3	-3	-4
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

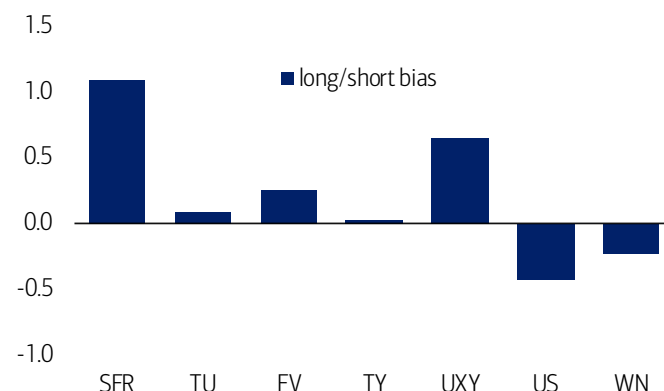
On the week, longs are ITM primarily in FV - UXY, and WN, shorts are mixed



Source: BofA Global Research, Bloomberg  
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### Exhibit 12: Analysis of proxies for futures positioning

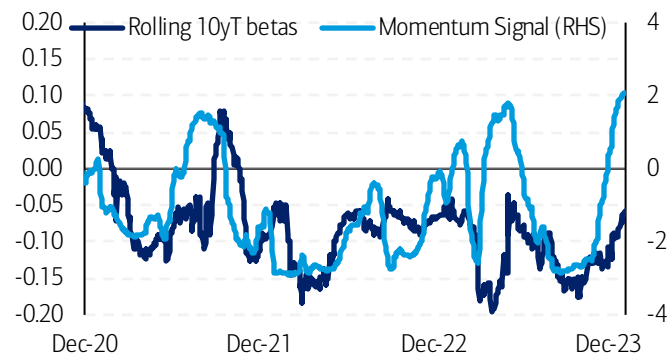
Bias for rates to rally in SFR and UXY



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

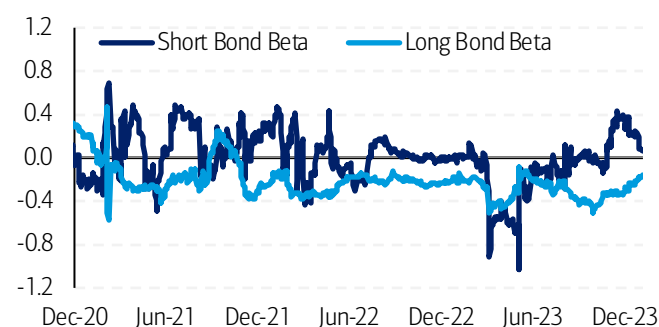
On the week, momentum signal moderated, CTAs continued to cover shorts



Source: BofA Global Research  
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### Exhibit 14: CTA positioning in longer duration and shorter duration bonds

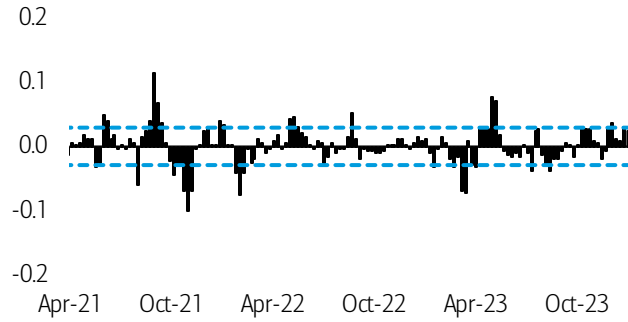
Top-down model suggests CTAs reduced longs at the front-end and covered shorts at the back-end



Source: BofA Global Research  
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**Exhibit 15: Changes in CTA 10yT beta**

Change in 10y beta continued to increase

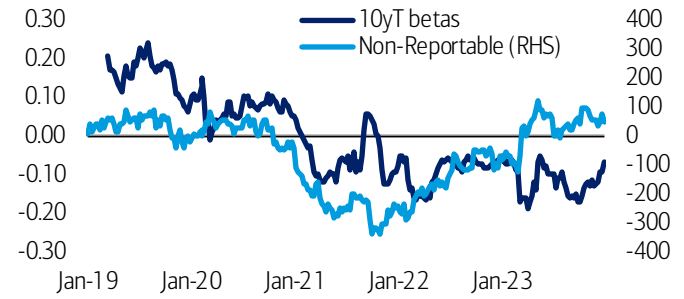


Source: BofA Global Research

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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



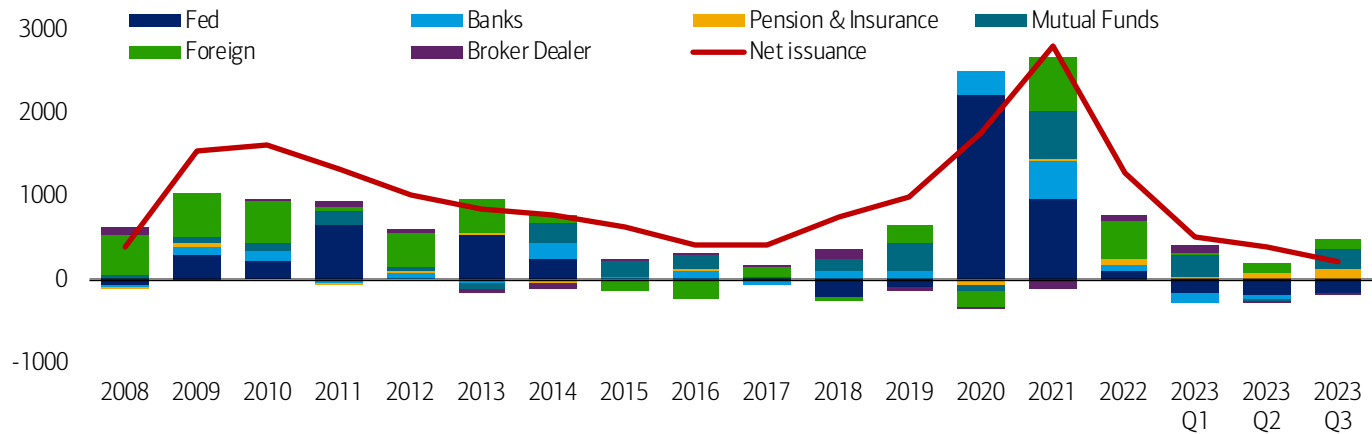
Source: BofA Global Research, Bloomberg

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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

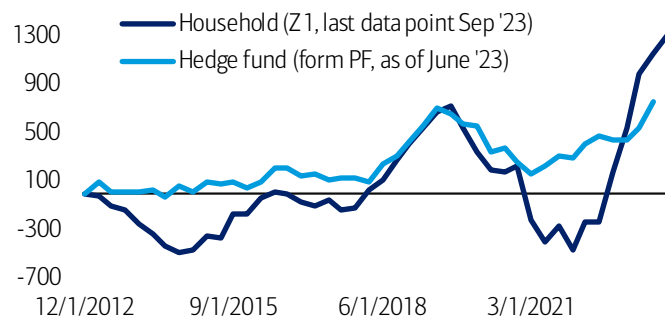


Source: BofA Global Research, Federal Reserve, Note: only reflects real money categories from flow of funds that generally invest in Treasury coupon securities, excludes households. Net issuance is coupon supply excluding Fed flows, which are shown as negative for periods where Fed is reducing size of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

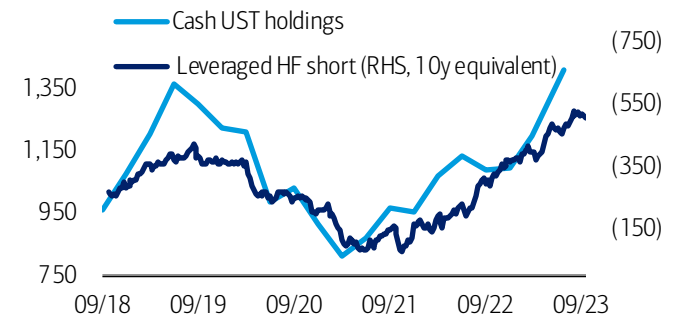


Source: BofA Global Research, Federal Reserve

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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



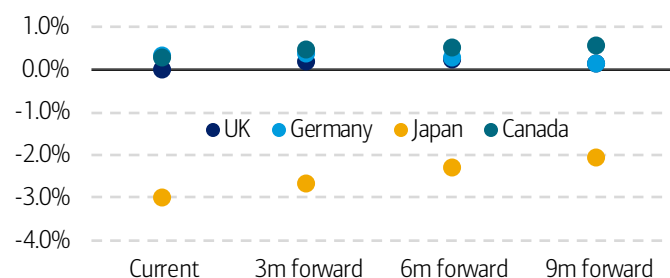
Source: BofA Global Research, Federal Reserve, Bloomberg

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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

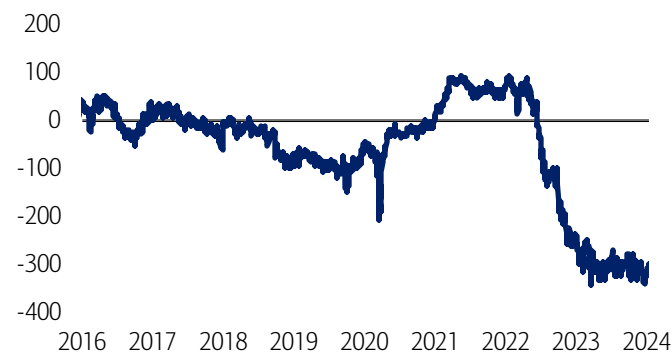


Source: BofA Global Research, Bloomberg. Note: pickup vs 10y local alternative except Japan which is relative to 20y JGB using 3m forward FX hedge

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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

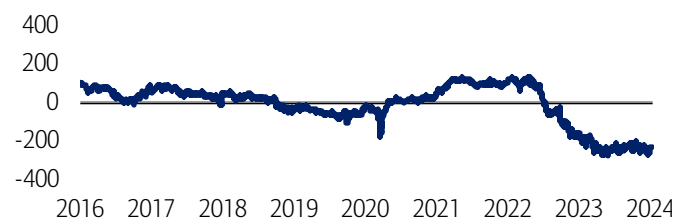


Source: BofA Global Research, Bloomberg

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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

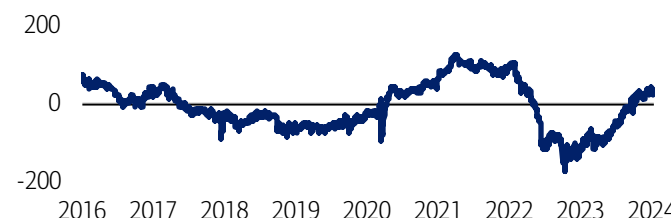


Source: BofA Global Research, Bloomberg

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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

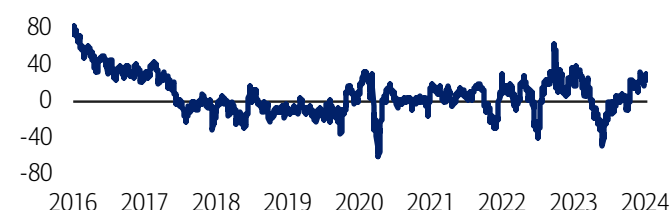


Source: BofA Global Research, Bloomberg

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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

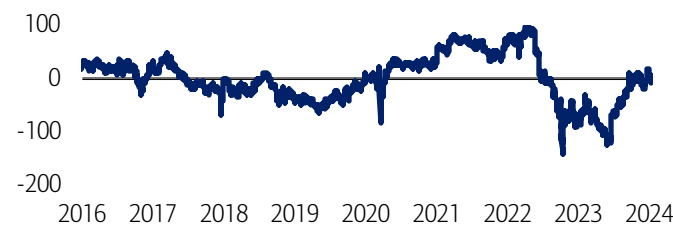


Source: BofA Global Research, Bloomberg

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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

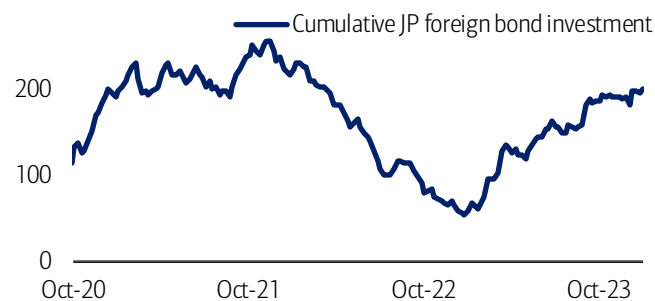
	1/11/2024		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB
10y UST	-2.32%	-3.03%	-2.29%	-3.05%	-2.62%	-3.35%	-1.89%	-2.73%
10y GER	-2.57%	-3.28%	-2.68%	-3.43%	-2.94%	-3.67%	-0.79%	-1.63%
10y FRA	-2.08%	-2.79%	-2.14%	-2.90%	-2.41%	-3.14%	-0.34%	-1.18%
10y BEL	-2.04%	-2.75%	-2.10%	-2.86%	-2.36%	-3.09%	-0.25%	-1.09%
10y ITA	-1.02%	-1.72%	-1.00%	-1.76%	-1.25%	-1.98%	1.03%	0.19%
10y SPA	-1.66%	-2.37%	-1.69%	-2.45%	-1.97%	-2.70%	0.19%	-0.65%
10y UK	-2.26%	-2.97%	-2.36%	-3.12%	-2.60%	-3.33%	-1.13%	-1.97%
10y CAN	-2.56%	-3.27%	-2.60%	-3.35%	-2.89%	-3.62%	-2.09%	-2.93%

Source: BofA Global Research, Bloomberg

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

Long & medium term bonds (\$bn) holdings picked up on the week

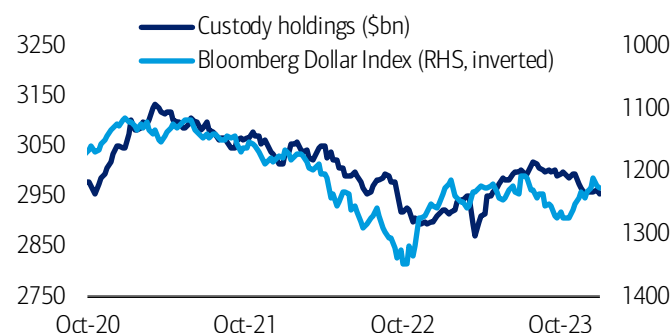


Source: BofA Global Research, Bloomberg

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

Custody holdings dropped on the week

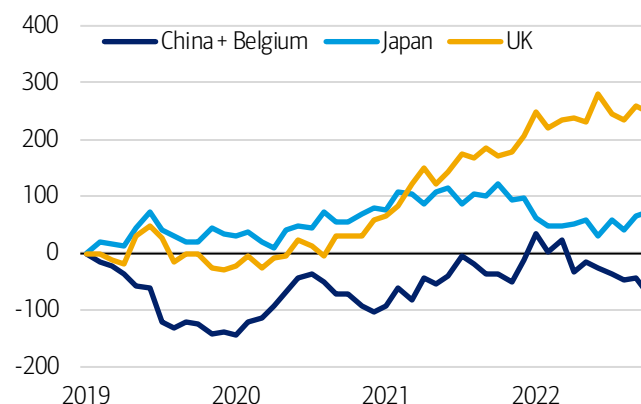


Source: BofA Global Research, NY Fed

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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

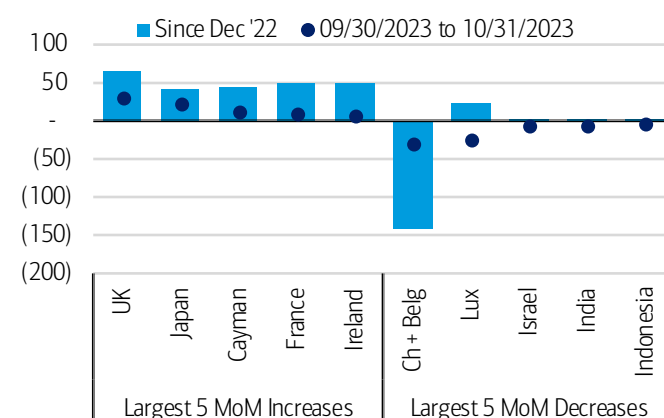


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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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

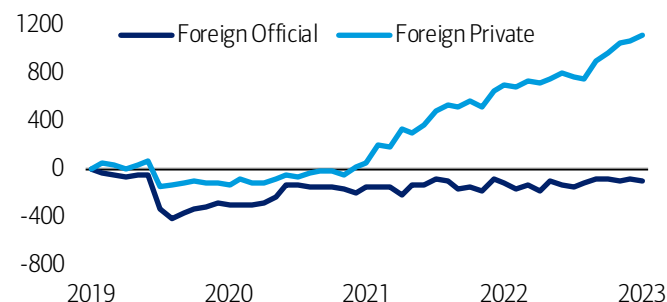


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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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 (\$bn)

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



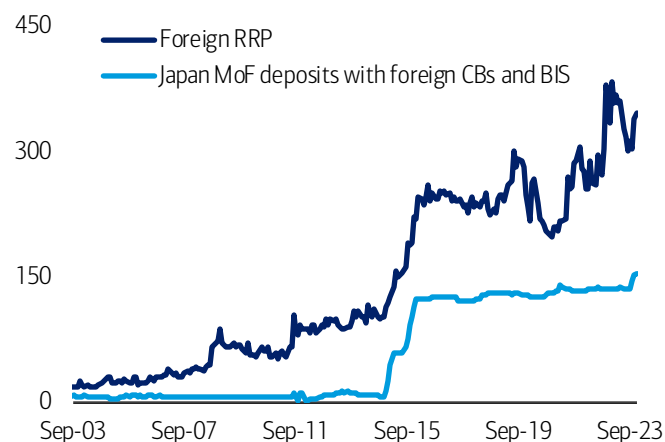
Source: BofA Global Research, Note: TIC data YTD through August adjusted for valuation

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### Exhibit 33: 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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### Exhibit 35: Monthly change in Japanese investor foreign bond holdings (\$USD, bn)

Pensions showed strong demand in December

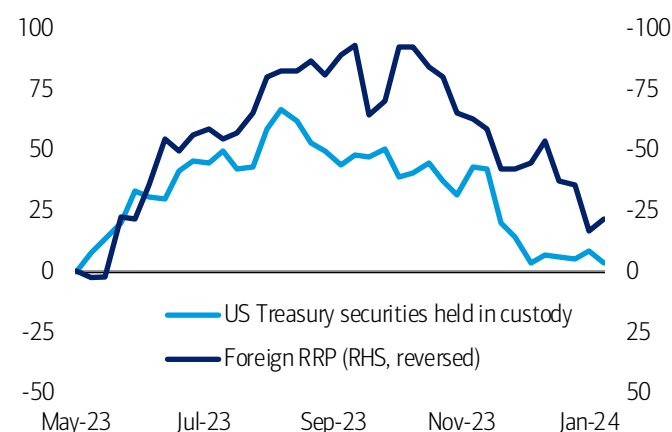
	Pension	Lifer	Bank	
Dec - 23	7.3	-0.5	3.5	
Nov - 23	-3.3	-6.6	-5.5	
Oct - 23	-1.4	-1.8	4	
Sep - 23	-5	-1.2	31.9	
Aug - 23	7.7	1.6	2.5	
Jul - 23	4.3	-0.5	-12.9	
Jun - 23	3	-0.4	12.1	
May - 23	-0.1	-0.4	23.5	
Apr - 23	2.1	0.5	-15.3	
Mar - 23	3.4	0.1	28.8	
Feb - 23	3.4	-2.8	27.9	
Jan - 23	10.3	-8.5	-4.2	

Source: BofA Global Research, Japanese MoF

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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

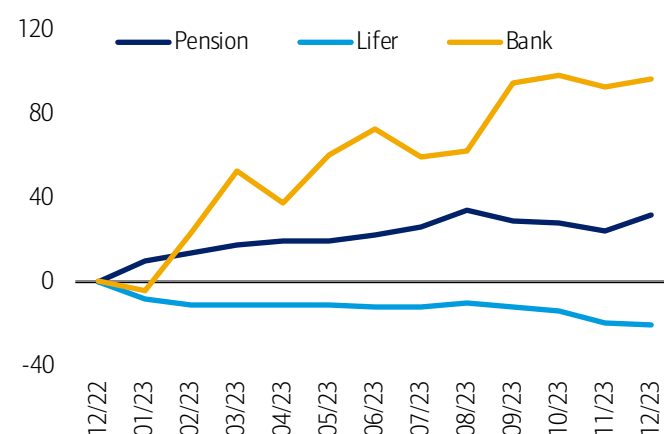


Source: BofA Global Research, Federal Reserve, Bloomberg

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### Exhibit 36: Cumulative change in Japanese investor foreign bond holdings (\$USD, bn)

Banks were the largest buyers in 2023



Source: BofA Global Research, Japanese MoF

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# Fund flows and returns

## Exhibit 37: US fixed income fund flows (\$million)

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

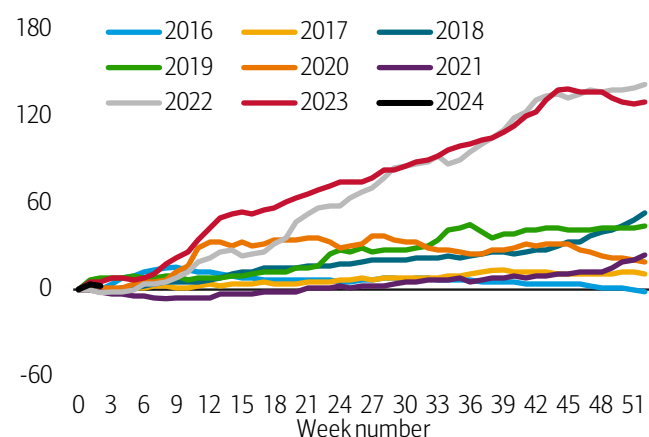
	1/10/2024	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	(2,675)	(446)	(1,194)	(527)	872
Gov: intermediate	964	516	63	150	323
Gov: long	921	479	483	1,158	1,235
Corp: IG	6,298	2,157	1,859	1,370	349
Corp:HY	1,331	206	731	1,265	(50)
Corp: all quality	58	76	73	55	41
MBS	665	42	120	198	266
Inflation	(156)	(676)	(788)	(680)	(477)
Muni	178	(45)	(42)	(24)	(54)
Mixed allocation	4,663	2,495	1,634	1,072	2,025
All US FI	11,834	4,911	2,983	4,040	4,174

Source: BofA Global Research, EPFR

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

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

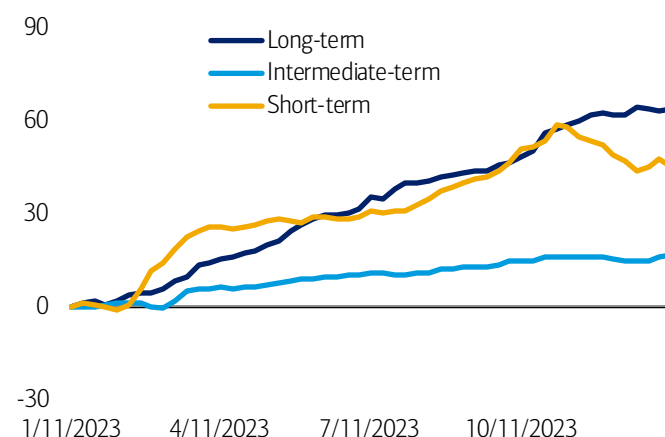


Source: BofA Global Research, EPFR

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## Exhibit 39: 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

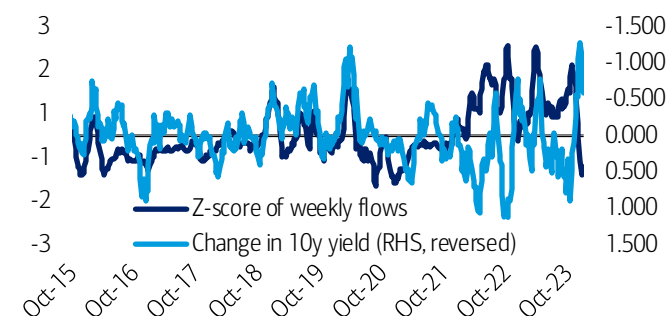


Source: BofA Global Research, EPFR

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## Exhibit 40: Fund flows and rate change (Z-score)

Fund flows recently have been historically strong alongside rates rally

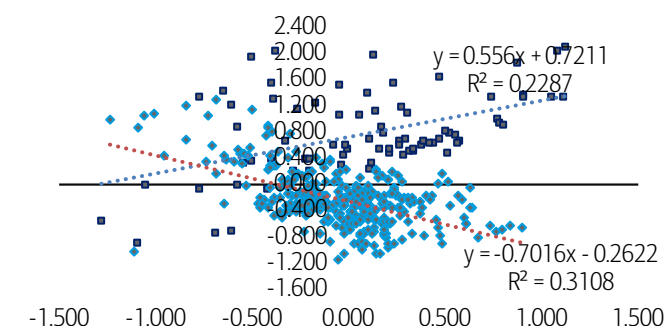


Source: BofA Global Research, EPFR

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## Exhibit 41: Fund flows and rate change

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

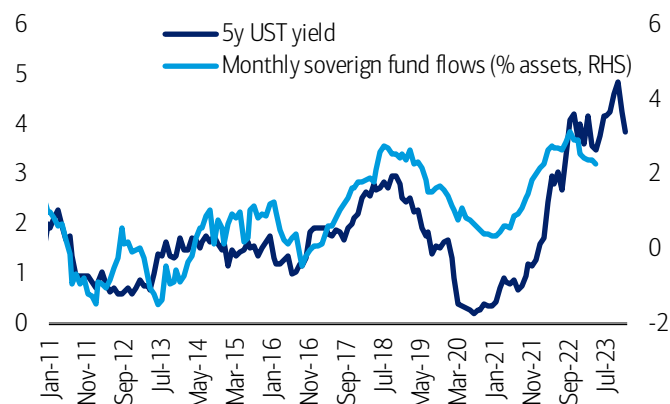


Source: BofA Global Research, EPFR, Bloomberg, Note: dark = post '22, light = '15-'22

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**Exhibit 42: Sovereign fund flows and UST yield**

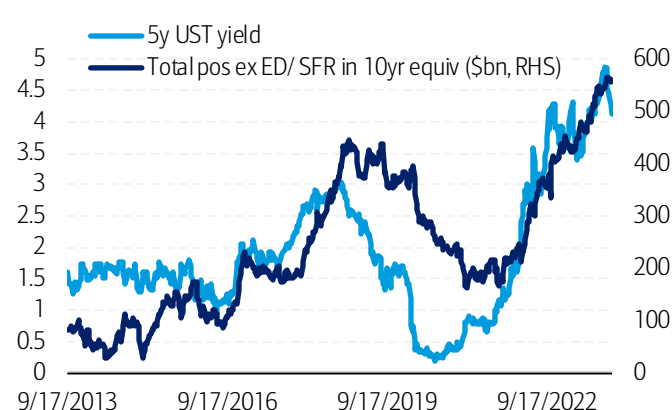
Inflows higher when yields are higher



Source: BofA Global Research, EPFR. Note: sovereign fund flows is midpoint of 12mo average  
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**Exhibit 43: 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 44: Total return FI fund performance vs benchmark**

Over the last week, AUM weighted fund performance was in line with benchmark

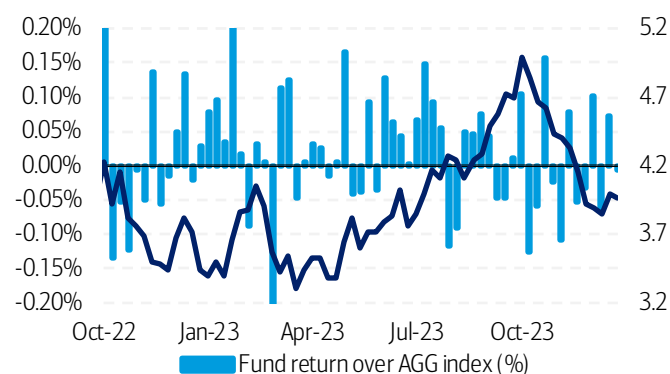
	AUM (\$Bn)	1/11/2024	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	272	0.38%	-0.12%	-0.06%	-0.06%
Vanguard Total Bond Market Index Fund	210	0.48%	-0.02%	-0.06%	-0.06%
PIMCO Income fund	137	0.69%	0.19%	0.66%	0.66%
The Bond Fund of America	80	0.60%	0.10%	0.12%	0.12%
MetWest Total Return Bond Fund	56	0.52%	0.02%	0.01%	0.01%
PIMCO Total Return Fund	55	0.53%	0.04%	0.29%	0.29%
Dodge & Cox Income Fund	70	0.56%	0.06%	0.07%	0.07%
PGIM Total Return Bond Fund	43	0.59%	0.10%	0.18%	0.18%
BlackRock Strategic Income Opportunities Fund	36	0.30%	-0.20%	0.44%	0.44%
Baird Aggregate Bond Fund	43	0.51%	0.01%	0.04%	0.04%
JPMorgan Core Bond Fund	43	0.39%	-0.11%	0.01%	0.01%
DoubleLine Total Return Bond Fund	32	0.34%	-0.16%	0.22%	0.22%
Fidelity Series Investment Grade Bond Fund	36	0.48%	-0.02%	0.11%	0.11%
Fidelity Total Bond Fund	34	0.50%	0.00%	0.11%	0.11%
Western Asset Core Plus Bond Portfolio	22	0.62%	0.12%	0.02%	0.02%
Baird Core Plus Bond Fund	28	0.50%	0.00%	0.14%	0.14%
John Hancock Bond Fund	23	0.52%	0.03%	0.09%	0.09%
TIAA-CREF Bond Index Fund	23	0.37%	-0.13%	-0.07%	-0.07%
BlackRock Total Return Fund	19	0.48%	-0.01%	-0.07%	-0.07%
JPMorgan Core Plus Bond Fund	18	0.42%	-0.08%	0.07%	0.07%
Bridge Builder Core Bond Fund	17	0.41%	-0.08%	0.12%	0.12%
T Rowe Price New Income Fund	17	0.45%	-0.05%	0.06%	0.06%
Western Asset Core Bond Fund	14	0.54%	0.05%	-0.17%	-0.17%
CREF Bond Market Account	11	0.45%	-0.05%	0.08%	0.08%
Fidelity Investment Grade Bond Fund	9	0.35%	-0.15%	0.02%	0.02%
DoubleLine Core Fixed Income Fund	7	0.54%	0.04%	0.40%	0.40%
TCW Total Return Bond Fund	2	0.50%	0.00%	0.08%	0.08%
Janus Henderson Flexible Bond Fund	3	0.62%	0.13%	0.36%	0.36%
Weighted avg	1359	0.49%	-0.01%	0.11%	0.11%
Agg		0.50%		0.00%	
10y return		0.33%		-0.45%	

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

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**Exhibit 45: Total return funds, excess return vs. 10y rate**

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

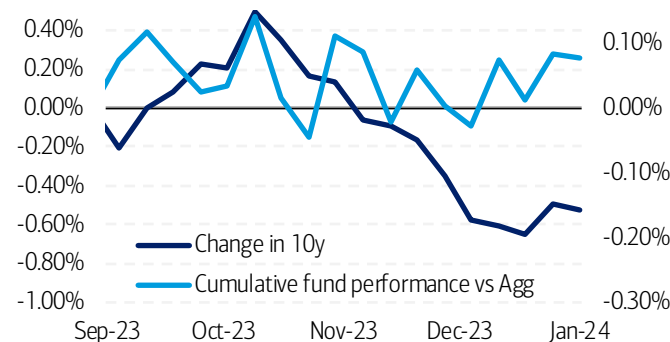


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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**Exhibit 46: 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 47: Total return funds' published UST allocations vs benchmark from Q2 and Q3 '23**

Funds increased underweight position from Q2 to Q3

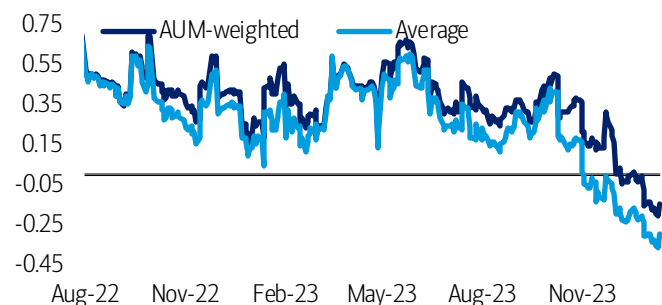
		AUM (\$bn)	Q2 '23 (%)	Q3 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	272.2	2.1	2.2	0.1
VBMFX	Vanguard Total Bond Market Index Fund	210.2	1.4	1.3	-0.1
PIMIX	PIMCO Income fund	137.5	-34.1	-34.8	-0.6
ABNDX	The Bond Fund of America	80.2	-14.0	-22.4	-8.4
DODIX	Dodge & Cox Income Fund	70.2	-32.7	-29.8	2.9
MWTIX	MetWest Total Return Bond Fund	55.7	-18.7	-17.4	1.3
PTTRX	PIMCO Total Return Fund	54.8	-18.6	-23.9	-5.3
PDBAX	PGIM Total Return Bond Fund	43.3	-34.2	-34.9	-0.7
PGBOX	JPMorgan Core Bond Fund	43.2	-2.2	-3.9	-1.7
BAGIX	Baird Aggregate Bond Fund	42.7	-17.7	-18.8	-1.1
BSIIX	BlackRock Strategic Income Opportunities Fund	36.1	-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	31.5	-32.8	-34.6	-1.8
BCOIX	Baird Core Plus Bond Fund	27.9	-18.4	-19.1	-0.7
JHBIX	John Hancock Bond Fund	23.1	-22.5	-21.6	0.9
TBIIX	TIAA-CREF Bond Index Fund	22.6	0.3	0.0	-0.3
WACPX	Western Asset Core Plus Bond Portfolio	21.9	-38.0	-38.6	-0.6
MAHQX	BlackRock Total Return Fund	18.6	88.0	-1.9	-89.9
ONIAI	JPMorgan Core Plus Bond Fund	17.9	-2.9	-3.1	-0.2
BBTBX	Bridge Builder Core Bond Fund	17.4	-23.0	-24.6	-1.6
PRCIX	T Rowe Price New Income Fund	16.7	-11.8	-8.6	3.2
WATFX	Western Asset Core Bond Fund	14.4	-31.1	-32.1	-1.0
QCBMIX	CREF Bond Market Account	10.8	-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	7.1	-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>		1359.5	-11.9	-13.7	-1.9

Source: BofA Global Research, funds' publicly available reports

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#### Exhibit 48: 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

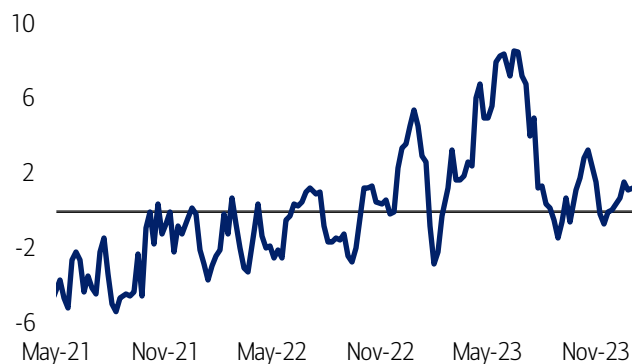


Source: BofA Global Research, Bloomberg

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#### Exhibit 49: Primary dealer 2-6y holdings of TIPS (\$bn)

Primary dealer holdings recovered in December

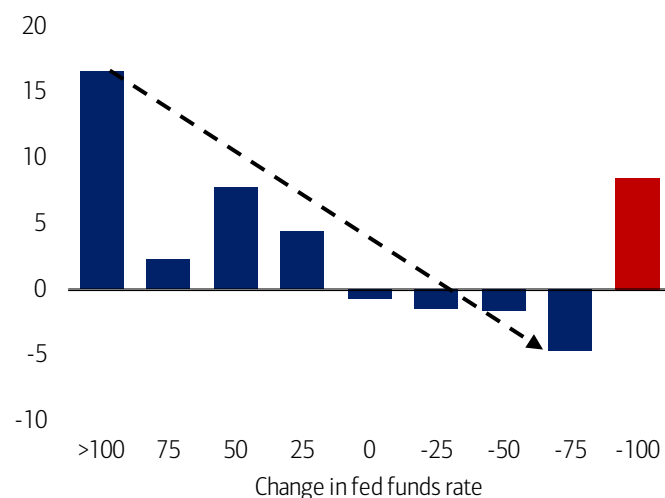


Source: BofA Global Research, Note: cumulative change since 2021 reflects adjustment for change in market value

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#### Exhibit 50: Rolling 3mo change in US duration exposure from FXRS Survey vs rolling 3mo change in Fed funds rate

Duration allocation is stable/ lower as Fed cuts

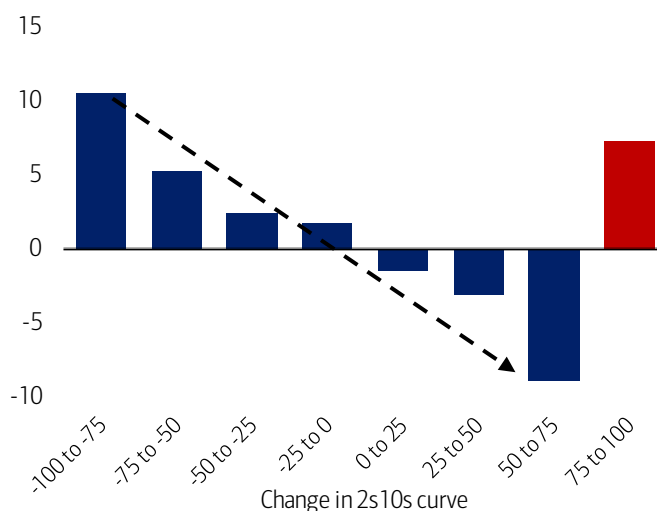


Source: BofA Global Research, Bloomberg

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#### Exhibit 51: Rolling 3mo change in US duration exposure from FXRS Survey vs rolling 3mo change in 2y10y curve

As curve steepens duration allocation is reduced

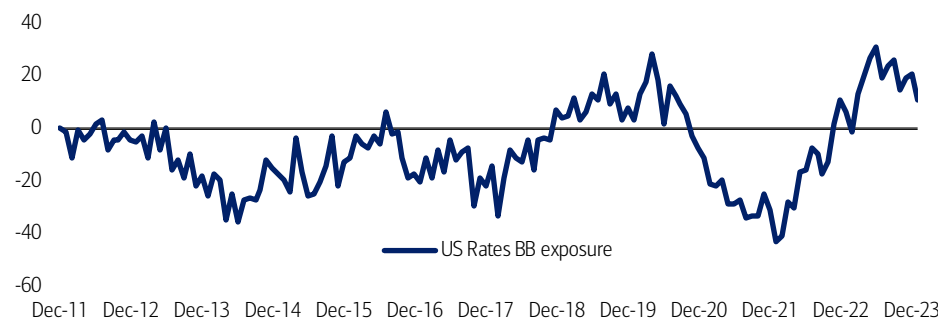


Source: BofA Global Research, Bloomberg

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#### Exhibit 52: Duration exposure: USD

Duration longs somewhat pared back, catching up with sentiment



Source: BofA Global Research FX and Rates Sentiment Survey

BB is the Bull-Bear Index for exposure and view. It weights responses to create an index ranging from -100 to +100, zero representing neutral. See appendix for formulas.

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# Bank balance sheets

## Exhibit 53: Changes to bank balance sheet assets (\$bn)

US banks saw decline in balance sheet driven by loans

		Current (01/03/2024)	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>	23251	-131	12	37	24	5
	Cash	3490	4	-12	10	9	6
	UST & Agency	1577	-21	14	4	5	-1
	MBS	2524	10	-2	5	4	-4
	Loans and Leases	12343	-43	10	13	9	5
	Other	3318	-81	3	5	-2	-1
<b>Large Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	13572	-119	15	30	15	3
	Cash	1765	-30	-2	16	6	6
	UST & Agency	1174	-14	15	4	5	-1
	MBS	1909	-1	-5	3	3	-1
	Loans and Leases	6775	-39	-2	3	1	1
	Other	1949	-33	9	4	0	-2
<b>Small Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	6623	8	13	11	7	1
	Cash	491	14	9	6	4	1
	UST & Agency	296	-1	0	0	0	-1
	MBS	585	11	3	2	1	-3
	Loans and leases	4471	-4	5	4	3	4
	Other	781	-12	-4	-2	-2	-1
<b>All Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	20195	-111	28	41	22	4
	Cash	2255	-16	7	22	10	7
	UST & Agency	1470	-15	15	4	5	-2
	MBS	2494	10	-2	5	4	-3
	Loans and leases	11246	-44	3	7	5	5
	Other	2730	-45	5	2	-2	-3
<b>Foreign (\$bn, NSA)</b>	<b>Total Assets</b>	3056	-20	-16	-3	2	1
	Cash	1234	20	-19	-12	-2	-1
	UST & Agency	107	-5	-1	0	0	0
	MBS	30	0	-1	0	0	0
	Loans and leases	1097	1	7	6	4	1
	Other	588	-36	-2	3	0	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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## Exhibit 54: Select bank balance sheet liabilities (\$bn, NSA)

US banks saw decline in deposits on liability side

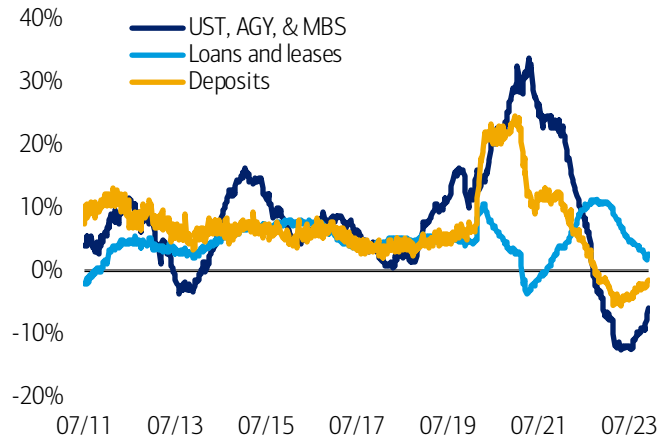
		Current (01/03/2024)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
<b>Deposits (\$bn, NSA)</b>	All	17577	-34	31	34	20	-7
	Domestic	16307	-43	33	33	19	-6
	Large Domestic	10960	-42	26	27	14	-5
	Small Domestic	5347	-1	7	6	5	-1
	Foreign	1271	9	-2	1	1	-1
<b>Other borrowing (\$bn, NSA)</b>	All	2353	30	8	4	-1	9
	Domestic	1348	4	2	1	-1	7
	Large Domestic	925	3	0	0	0	6
	Small Domestic	423	2	1	1	-1	1
	Foreign	1005	25	6	3	0	2

Source: BofA Global Research, Federal Reserve, Bloomberg

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**Exhibit 55: YoY change in securities, loans, and deposits**

Securities growth usually only positive when deposit growth is positive

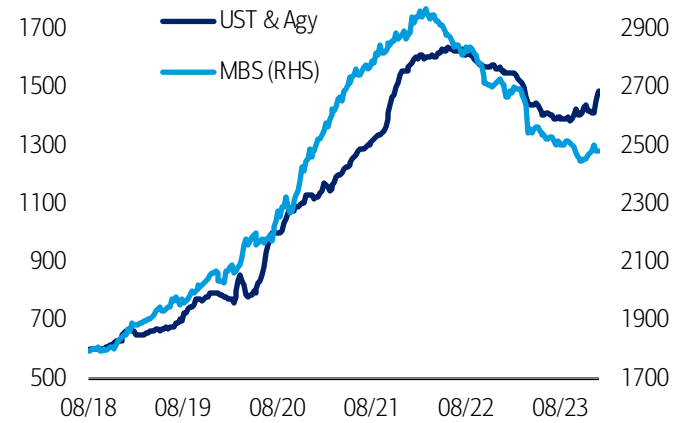


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 56: Domestic bank holdings of UST& Agy, MBS**

UST &amp; Agency shows signs of pickup

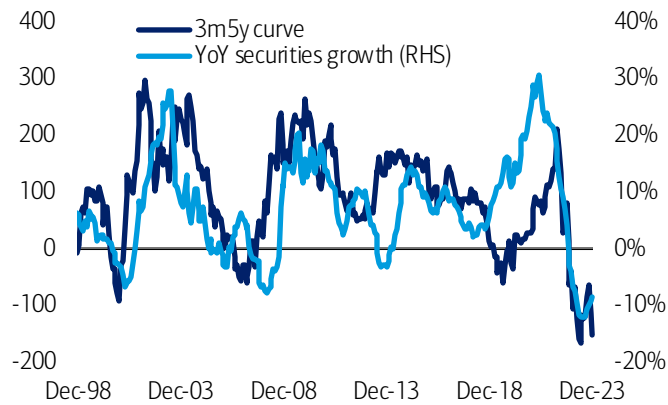


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 57: Front-end curve and YoY bank securities portfolio change**

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



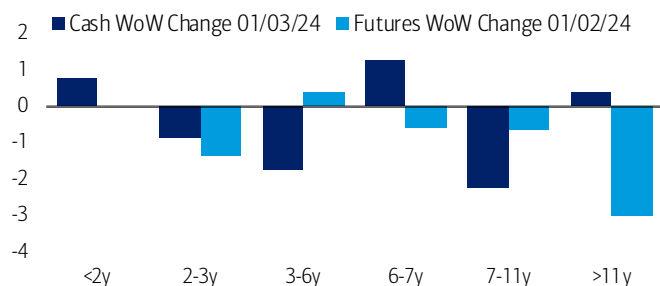
Source: BofA Global Research, Bloomberg

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# Primary dealer balance sheet

## Exhibit 58: Dealers WoW change in positions

10y equivalent, \$bn, futures positions lower in the back-end, cash positions lower in the belly

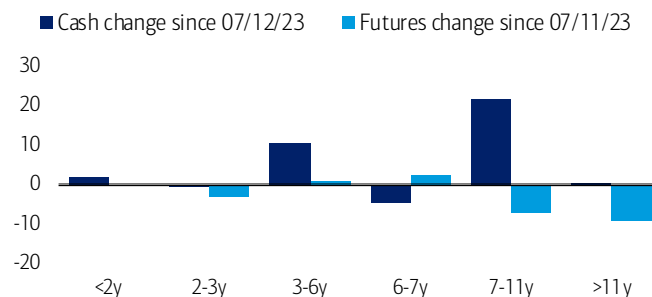


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 59: Dealers change in positions over last 6mo

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

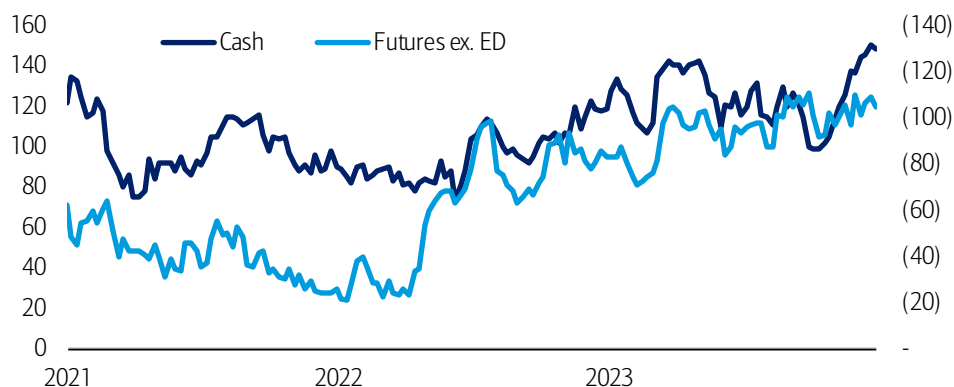


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 60: Dealers total sector positions

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



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

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# Auction statistics

## Exhibit 61: Auction summary statistics

Z-score calculated on levels, Investment fund participation in auctions remains robust but has moderated from peak

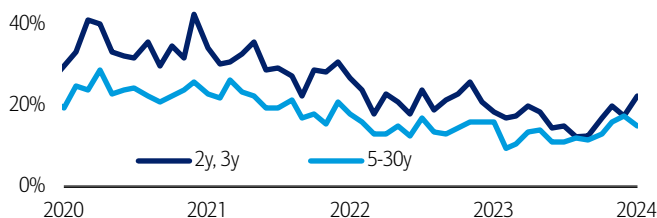
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	1/2/2024	17.6%	62.0%	20.3%	67.7%	11.2%	0.0%
	MoM Change	0.0%	0.0%	0.0%	4.6%	-4.3%	0.0%
	1Y Z-score	0.3	-0.3	0.1	0.5	-1.0	0.0
3y	12/15/2023	22.1%	56.0%	21.9%	60.0%	11.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-6.6%	-3.4%	0.0%
	1Y Z-score	1.1	-1.1	0.7	-0.9	-1.1	0.7
5y	1/2/2024	19.4%	19.1%	61.5%	75.0%	8.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	4.4%	-2.8%	0.0%
	1Y Z-score	1.5	0.3	-1.3	1.1	-1.3	-0.7
7y	1/2/2024	11.0%	70.6%	18.4%	69.0%	11.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	7.0%	-2.7%	0.0%
	1Y Z-score	-0.3	0.2	0.1	-0.4	-0.5	-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	1/2/2024	11.9%	72.9%	15.2%	68.9%	15.2%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-5.0%	1.9%	0.0%
	1Y Z-score	0.9	0.5	-1.1	-1.1	0.1	#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 62: Primary dealer – average auction allotment

Dealer participation has picked up

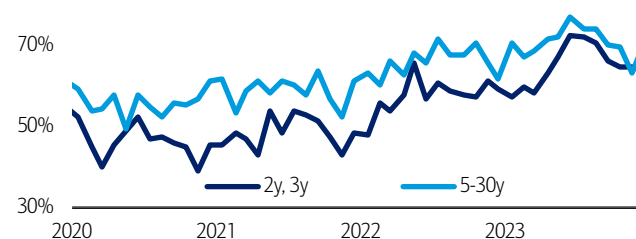


Source: BofA Global Research, Treasury

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## Exhibit 63: Investment fund – average auction allotment

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

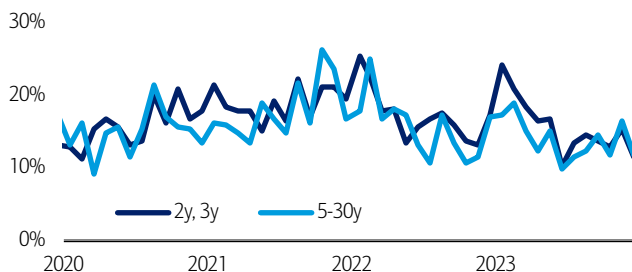


Source: BofA Global Research, Treasury

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## Exhibit 64: Foreign investment – average auction allotment

Foreign participation still below average and declined recently

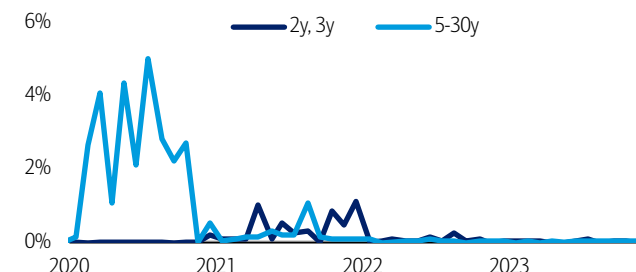


Source: BofA Global Research, Treasury

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## Exhibit 65: Depository institutions – average auction allotment

Participation is minimal



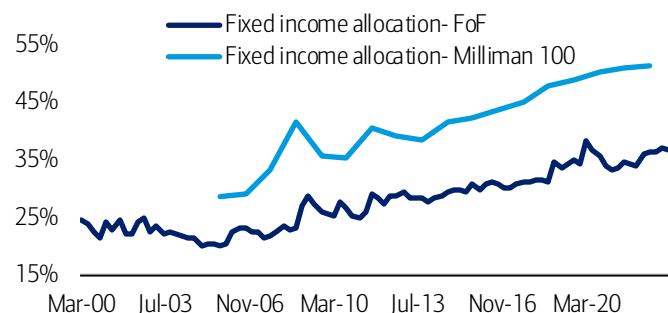
Source: BofA Global Research, Treasury

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# Pensions

## Exhibit 66: 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

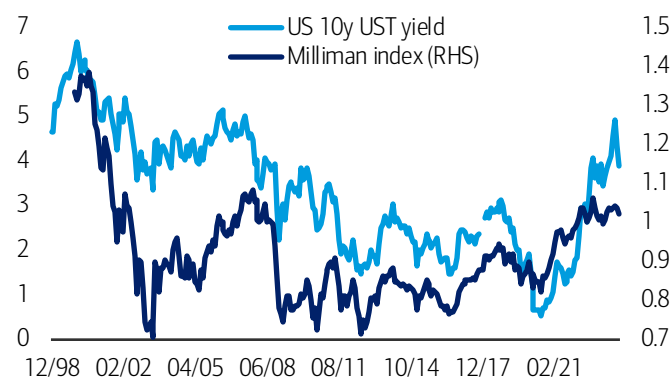


Source: BofA Global Research, Milliman, Federal Reserve

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## Exhibit 67: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

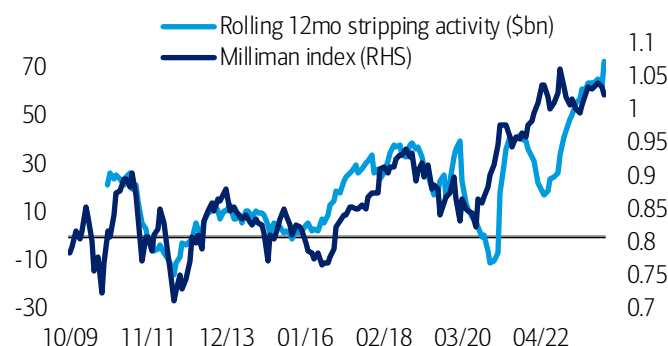


Source: BofA Global Research, Bloomberg

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## Exhibit 68: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

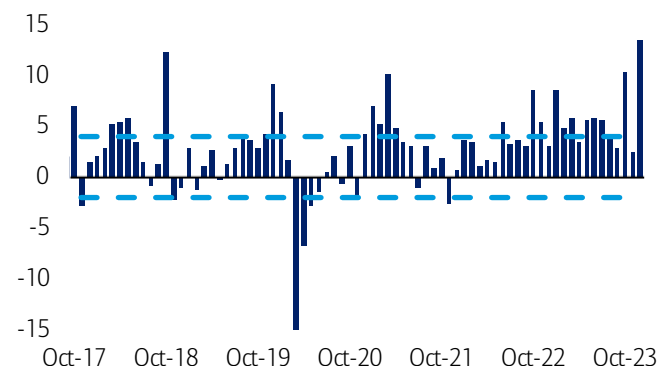


Source: BofA Global Research, Bloomberg

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## Exhibit 69: Change in USTs held in stripped form (\$bn)

USTs held in stripped form saw a historic increase in December

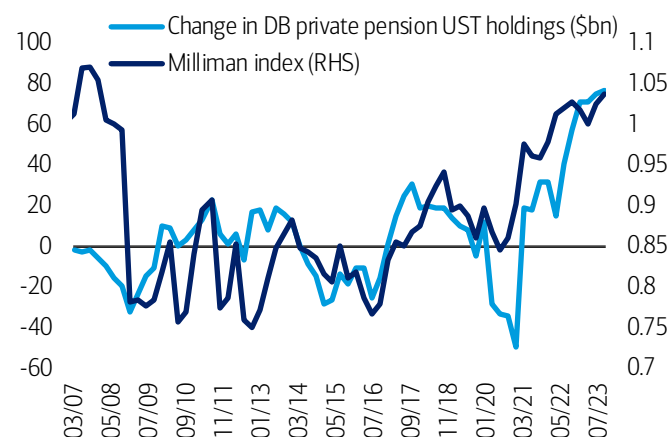


Source: BofA Global Research, Note: dashed line is 1stdev

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## Exhibit 70: 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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# 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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