

## US Rates Watch

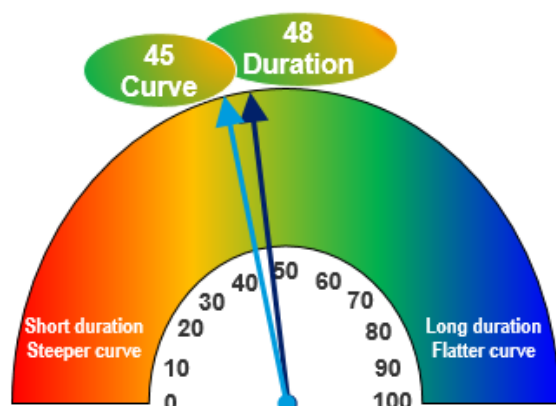
## UST fund outflows alongside peak in rates

## Mixed bag

Longs are more prominent in new positions created in recent weeks while remaining shorts are out of the money and vulnerable to covering. CTAs continue to reduce underweights, particularly at longer tenors, and are moving towards a more neutral curve stance. UST fund inflows are moderating, as they do historically when rates peak. We believe this is also supporting a retreat in asset manager futures positioning. Should rates continue to trend lower, reduced asset manager demand may serve to reduce the size of the basis trade. We see preliminary signs this is happening in recent data.

## 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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## Longs created, shorts destroyed

On the week through Thursday, open interest further out the curve increased materially with new longs created. At the front end, open interest declined with more shorts destroyed vs longs created. Our futures positioning proxy (for construction details see: Gauging positioning in Treasury Futures) points to a bias for rates to continue rallying (Exhibit 12). Longs outstanding are more prominent and ITM, while the few shorts outstanding remain OTM (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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Timestamp: 18 December 2023 05:00AM EST

12638291

18 December 2023

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

UST= Treasury security

CTA= Commodity trading advisor

OTM= out of the money

ITM=in the money

ED= Eurodollars

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

## CTAs trend longer and more neutral curve

Our bottoms up momentum signal suggests that CTAs should be neutral to modestly long duration and have fully covered the historic shorts in September (Exhibit 13). Our top down model, which is lagged due to construction (see: CTA impact on the rates market), shows a larger amount of short covering this past week at longer tenors (Exhibit 15). Longs at the front end have pulled back, suggesting that CTAs may be moving more neutral on the curve (Exhibit 14).

## CFTC data reflects AM duration bid retracing

10y equivalent asset manager futures holdings retreated this past week, driven by sharp declines in UXY and TU while SOFR positions picked up. Consistent with this, leveraged hedge fund short positioning also moderated with the largest short covering in TU. A retreat in asset manager futures positioning is consistent with what we have observed historically alongside yields peaking and fund flows slowing (Exhibit 40, Exhibit 41). This suggests that the size of the basis trade, largely driven by asset manager demand may continue to decline over time should rates continue to move lower.

## Small bid from foreign official alongside USD depreciation

There were some small signs of a recovery in official sector buying the week ending December 13th, with custodial holdings increasing \$3bn alongside a \$9bn decline in foreign reverse repo (Exhibit 34). We anticipate that USD weakness and growing conviction in cuts should allow the official sector to buy USTs, but so far bid has been limited. MoF data suggests that Japanese investors on net reduced foreign bond holdings the week ending Dec 8th by \$7bn, the largest decline since July (Exhibit 27).

## UST fund inflows likely peaking with rates

US Treasury fund inflows continue to cool. Short term UST funds saw their sixth consecutive week of outflows (Exhibit 37) and UST fund inflows have moderated across intermediate and longer tenors as well. US fixed income inflows this past week have been driven by credit funds (Exhibit 35). Moderating inflows into UST funds following the peak in yields is consistent with what we have observed historically (Exhibit 40). Consistent with this, duration levels reflected in asset manager futures positioning similarly trend with rate levels (Exhibit 41). While this suggests that investment fund demand may be wavering, UST buying can still be supported by duration extension and bid from other end users like banks, pensions, and foreign investors.

On an AUM weighted basis, US total return fixed income funds modestly underperformed benchmark alongside notable the rate rally (Exhibit 40). Underperformance though was only in 12 of 28 funds we track and rolling correlations suggests a covering of underweight positions (Exhibit 44). Funds with the most extreme performance are consistent over the past week vs the last four, implying no meaningful shifts in duration positioning on the week.

**Exhibit 2: On deck next week**

Calendar of upcoming events

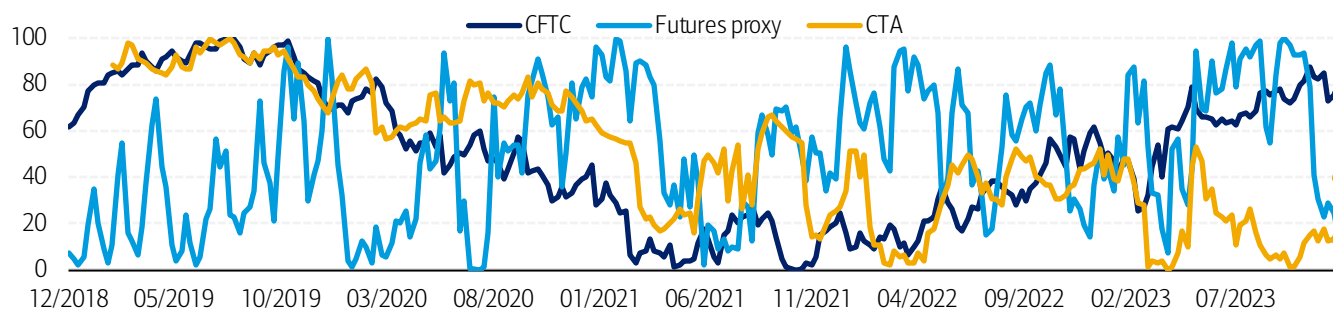
	US Data			Fed Speaker / Event	Treasury Auction			Treasury Settlements	
	Series	BofA	BB Consensus		Security	Amount (\$bn)	Prior Δ	Security	Amount
M, Dec 18	NAHB Housing Market Index	38	38	No events	13-week bills	75	0		
					26-week bills	68	0		
Tu, Dec 19	Housing Starts	1370k	1360k	12:30 Fed's Bostic speaks on US economy and business outlook	42-day bills	70	0	Bills	-14
	Building Permits	1480k	1460k						
W, Dec 20	Current Account Balance	-	-\$196.5bn	No events	17-week bills	-			
	Consumer Confidence	104	103.4		19-year 11-month bonds	13	0		
	Existing Home Sales	3.85M	3.77M						
Th, Dec 21	Initial Jobless Claims	213k	-	No events	4-week bills	-		Bills	11
	GDP (qoq saar)	4.90%	5.20%		8-week bills	-			
	Personal consumption (qoq saar)	3.30%	3.60%		4-year 10-month TIPS	20	1		
	GDP Price Index (qoq saar)	3.40%	-						
	Core PCE (qoq saar)	2.10%	-						
	Philly Fed Business Outlook	-7	-						
	Leading Indicators	-	-0.40%						
F, Dec 22	Personal Income	0.60%	0.40%	No events					
	Personal Spending	0.30%	0.20%						
	PCE Headline Prices (mom)	-0.10%	0.00%						
	PCE Headline Prices (yoy)	2.70%	2.80%						
	PCE Core Prices (mom)	0.10%	0.2						
	PCE Core Prices (yoy)	3.20%	3.40%						
	Personal saving rate	4.00%	-						
	Durable Goods Orders	-0.10%	2.60%						
	Durables Ex Transportation	0.10%	0.10%						
	Core Capital Goods Orders	0.10%	0.10%						
	Core Capital Goods Shipments	0.10%	-						
	U. of Michigan Sentiment	69.8	69.4						
	New Home Sales	695k	688k						

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 historically short

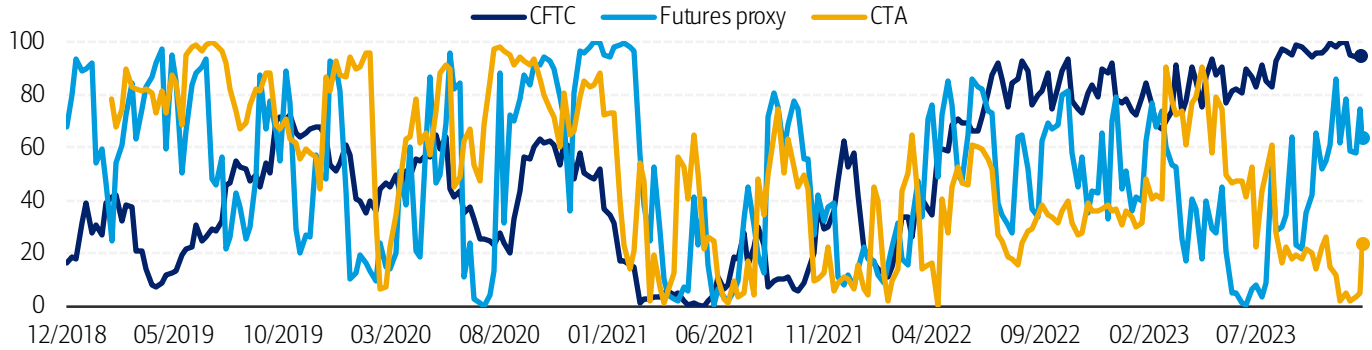


Source: BofA Global Research

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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 back-end to sell off more, CFTC AMs have longs further out curve

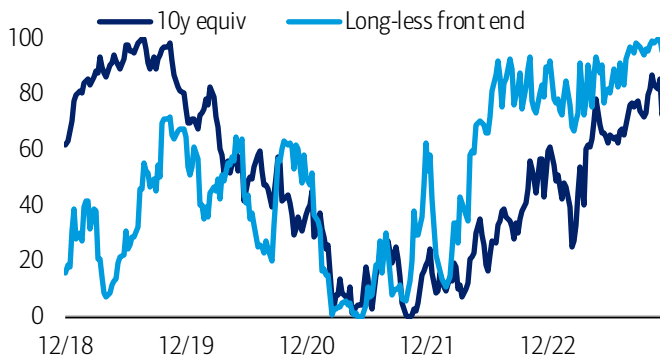


Source: BofA Global Research

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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

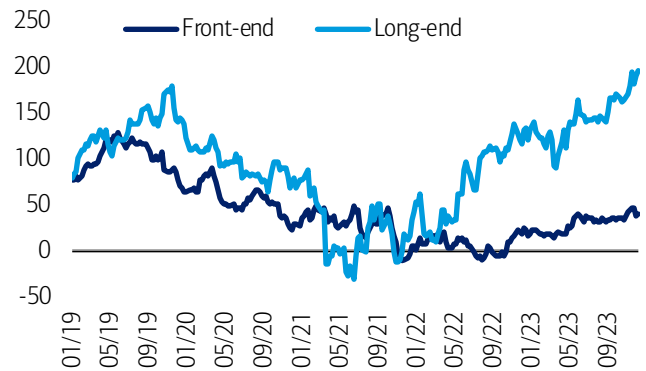


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

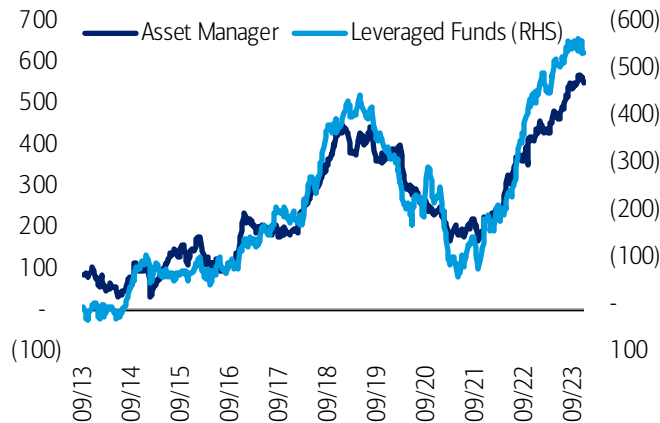


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

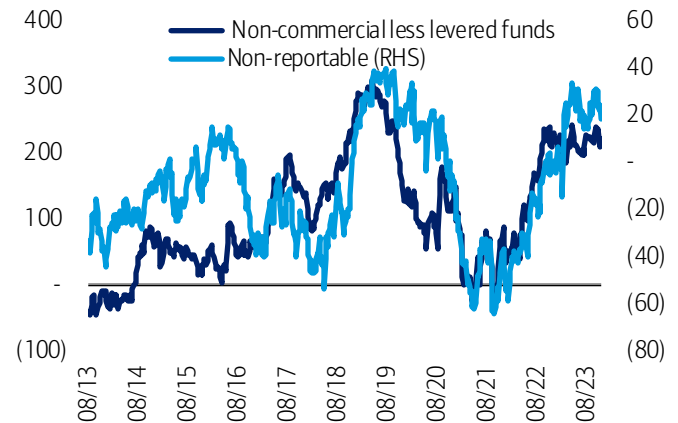


Source: BofA Global Research, Bloomberg

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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	-1	0	0	1	1
50 to 60	60	1	0	0	0	0
60 to 70	70	0	1	2	2	2
70 to 80	80	1	-1	-2	-3	-4
80 to 90	90	-3	-2	-2	-2	-4
90 to 100	100	-4	-3	-2	-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)

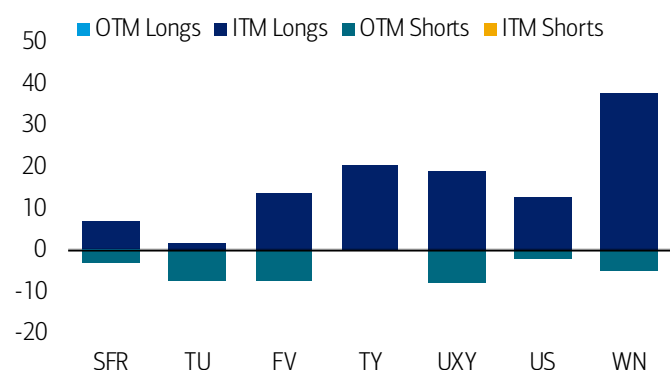
Positioning is contrarian signal: shorter positioning is usually followed by stronger 10y performance

	0	1w	4w	8w	12w	16w
0 to 10	10	2	3	4	4	6
10 to 20	20	-1	0	0	1	2
20 to 30	30	1	-4	-2	-2	-3
30 to 40	40	-7	-3	-4	-4	-5
40 to 50	50	-2	-2	-3	-2	-3
50 to 60	60	5	4	4	2	2
60 to 70	70	3	2	2	3	4
70 to 80	80	3	4	4	4	5
80 to 90	90	3	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

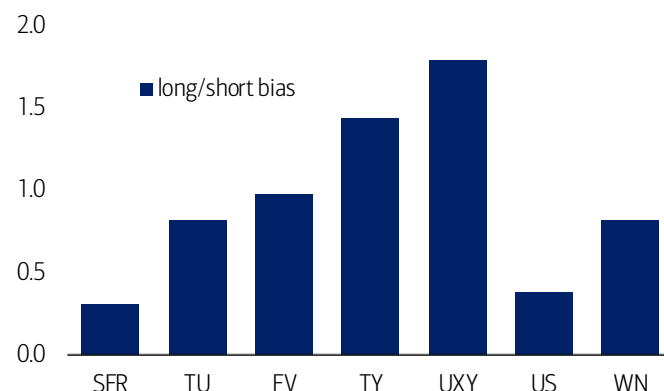
On the week, longs are ITM across contracts, shorts are OTM



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

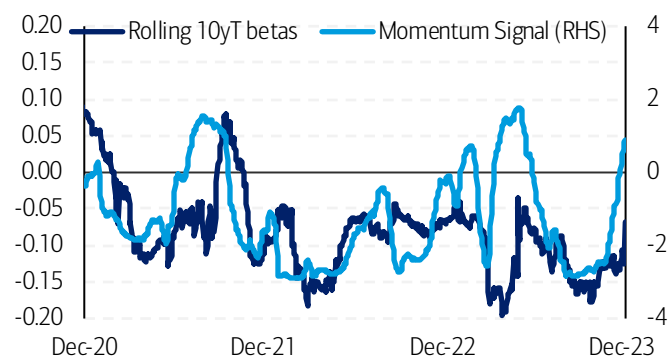
Bias for rates to rally especially in 10y



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

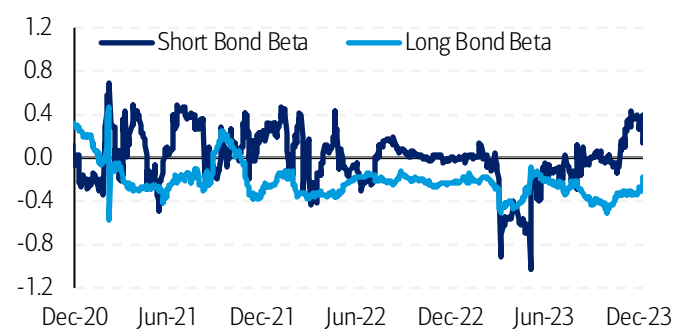
On the week, momentum signal continued to climb, CTAs saw notable short covering



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

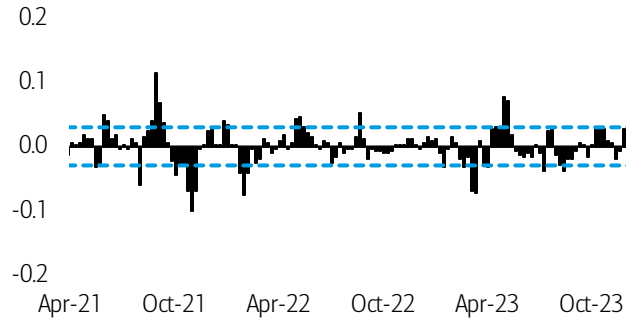
Top-down model suggests CTAs reduced longs at the front-end and covered shorts at back-end



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

Change in 10y beta is notably positive (above 1-sigma) on the week

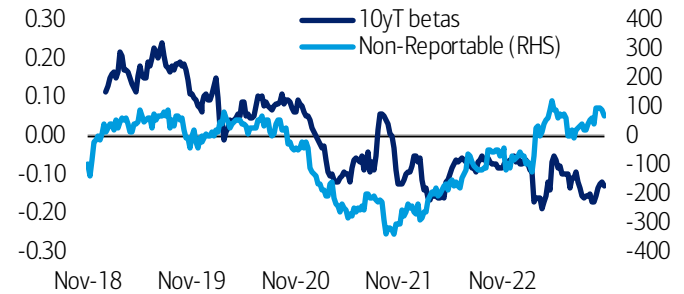


Source: BofA Global Research

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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



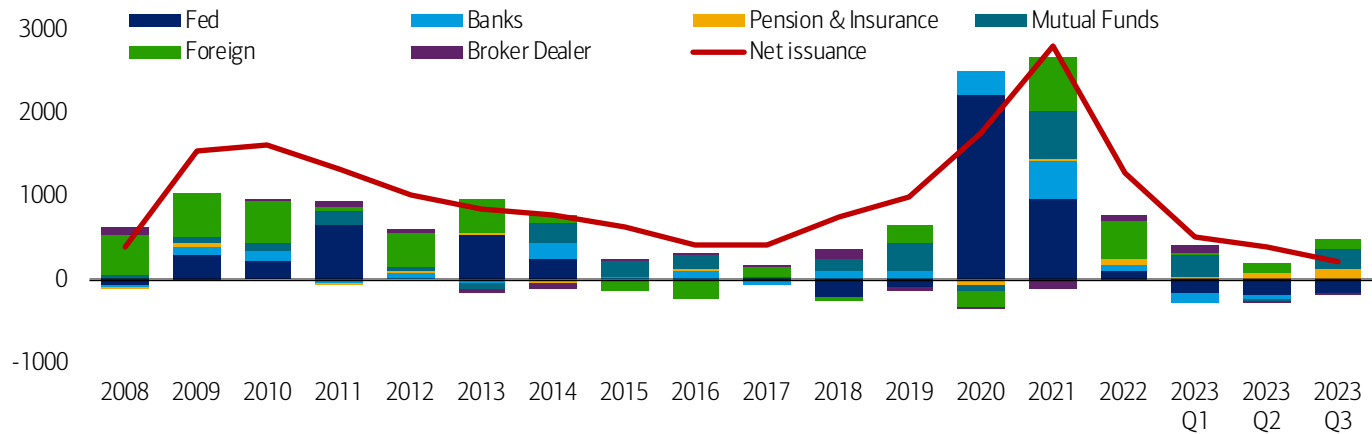
Source: BofA Global Research, Bloomberg

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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

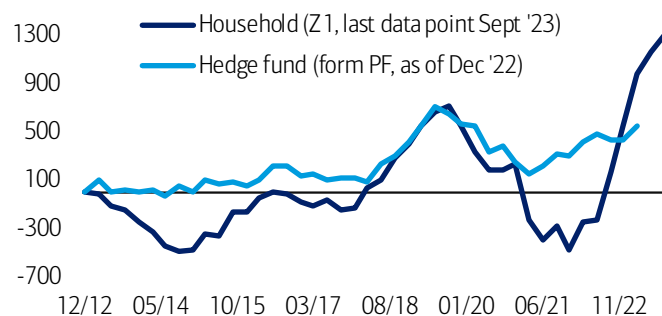


Source: BofA Global Research, Federal Reserve, Note: only reflects real money categories from flow of funds that generally invest in Treasury coupon securities, excludes households. Net issuance is coupon supply excluding Fed flows, which are shown as negative for periods where Fed is reducing size of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

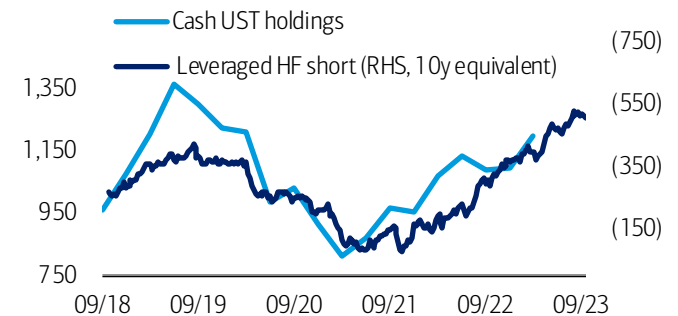


Source: BofA Global Research, Federal Reserve

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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



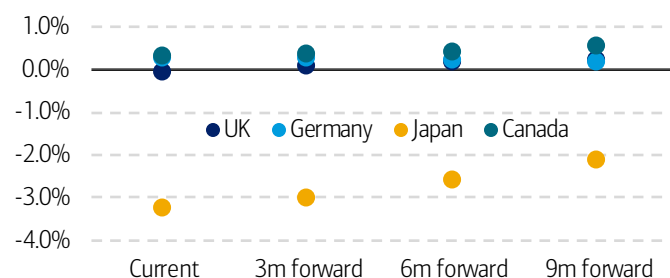
Source: BofA Global Research, Federal Reserve, Bloomberg

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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 does not reflect attractive environment for FX hedged carry trades in TSYs currently but forwards suggest improvement

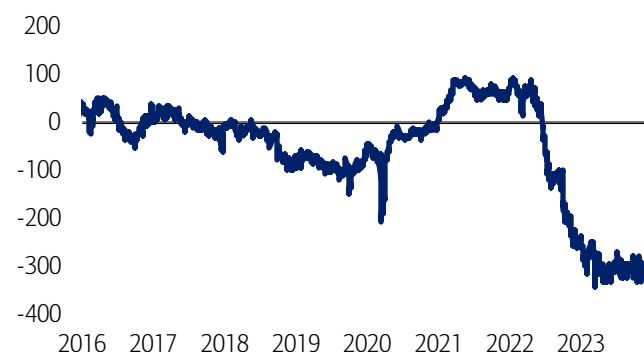


Source: BofA Global Research, Bloomberg. Note: pickup vs 10y local alternative except Japan which is relative to 20y JGB using 3m forward FX hedge

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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

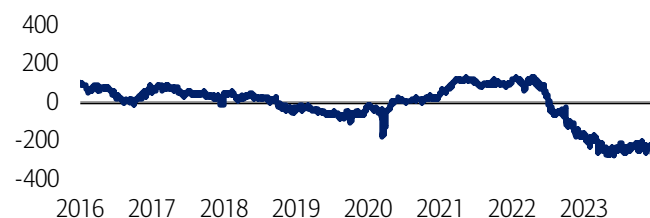


Source: BofA Global Research, Bloomberg

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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

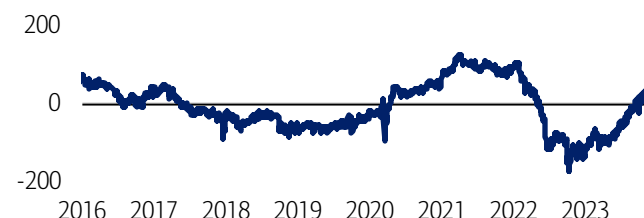


Source: BofA Global Research, Bloomberg

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

10y TSY offers near zero pickup vs 10y Bund

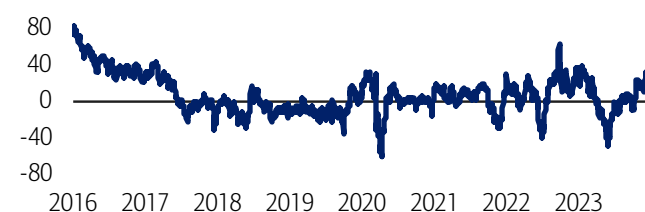


Source: BofA Global Research, Bloomberg

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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

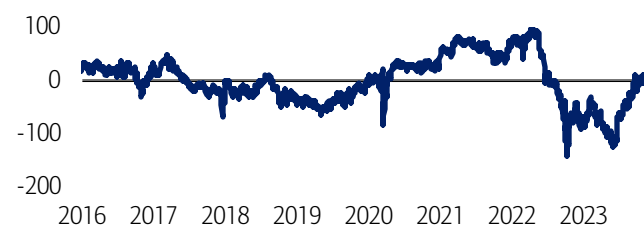


Source: BofA Global Research, Bloomberg

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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

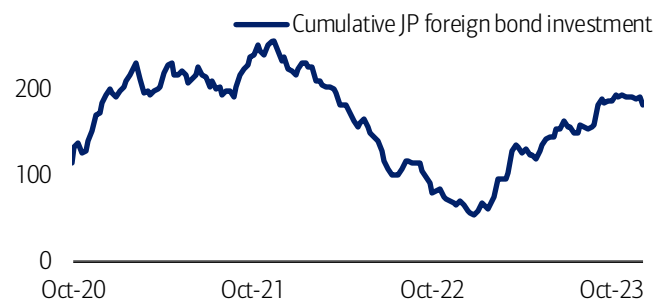
	12/14/2023		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB
10y UST	-2.56%	-3.29%	-2.37%	-3.15%	-2.25%	-2.97%	-1.68%	-2.49%
10y GER	-2.80%	-3.53%	-2.73%	-3.51%	-2.46%	-3.18%	-0.47%	-1.28%
10y FRA	-2.28%	-3.01%	-2.18%	-2.96%	-1.90%	-2.62%	0.01%	-0.80%
10y BEL	-2.23%	-2.96%	-2.14%	-2.92%	-1.86%	-2.58%	0.12%	-0.69%
10y ITA	-1.14%	-1.87%	-0.95%	-1.73%	-0.71%	-1.43%	1.44%	0.63%
10y SPA	-1.85%	-2.58%	-1.72%	-2.50%	-1.47%	-2.19%	0.56%	-0.26%
10y UK	-2.45%	-3.18%	-2.28%	-3.06%	-2.32%	-3.04%	-0.80%	-1.61%
10y CAN	-2.81%	-3.54%	-2.69%	-3.47%	-2.44%	-3.16%	-1.85%	-2.66%

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 dropped on the week

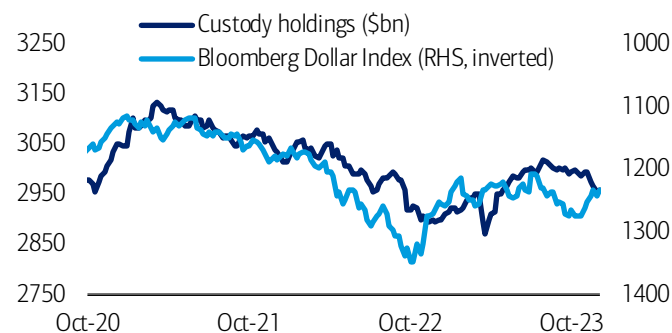


Source: BofA Global Research, Bloomberg

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

Custody holdings modestly increased on the week

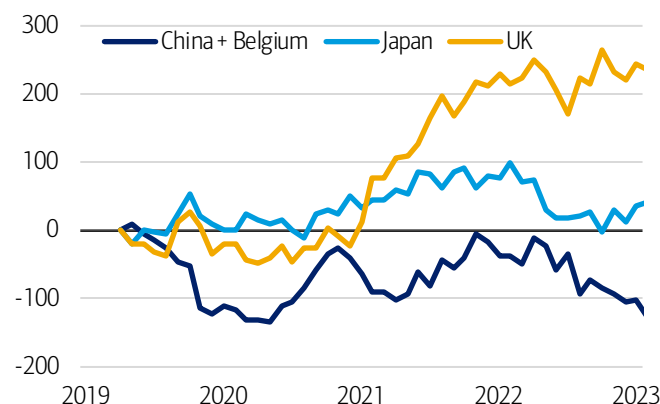


Source: BofA Global Research, NY Fed

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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

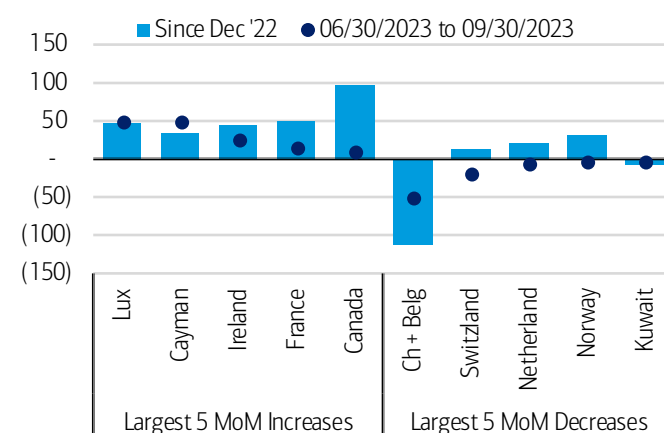


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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

Luxembourg was largest buyer, China+Belgium largest seller in 3Q

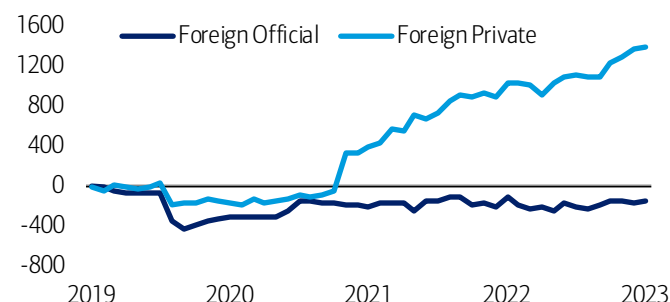


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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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



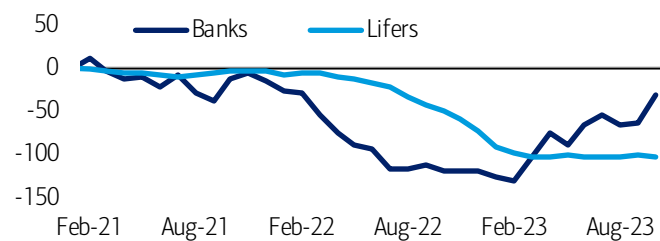
Source: BofA Global Research, Note: TIC data YTD through August adjusted for valuation

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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 buyers while lifer demand has been flat

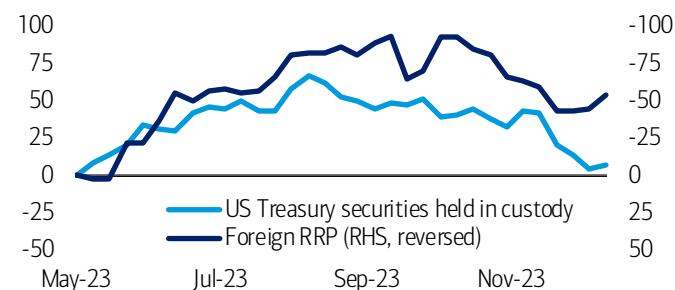


Source: Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is June '23

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

Custody holdings dropped & foreign RRP held flat



Source: BofA Global Research, Federal Reserve, Bloomberg

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# Fund flows and returns

## Exhibit 35: US fixed income fund flows (\$million)

US FI funds saw inflows on the week, mostly led by corp IG & HY funds, gov short funds saw outflows

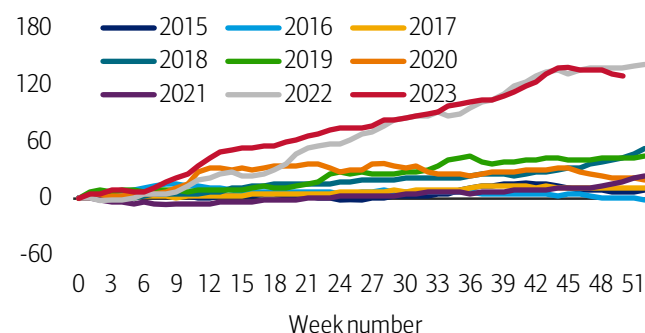
	12/13/2023	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	(1,906)	(1,943)	(568)	434	1,019
Gov: intermediate	(997)	(389)	(33)	152	303
Gov: long	13	487	1,498	1,517	1,251
Corp: IG	3,736	1,560	977	113	192
Corp: HY	1,981	1,255	1,794	473	(114)
Corp: all quality	46	71	45	42	40
MBS	141	199	276	270	261
Inflation	(435)	(900)	(682)	(541)	(463)
Muni	(109)	(40)	(14)	(199)	(139)
Mixed allocation	(171)	773	360	897	1,934
All US FI	2,407	1,056	3,604	2,982	3,882

Source: BofA Global Research, EPFR

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## Exhibit 36: Sovereign fund inflows by year (\$bn)

Flows YTD are slightly lower but on track with highs of last year

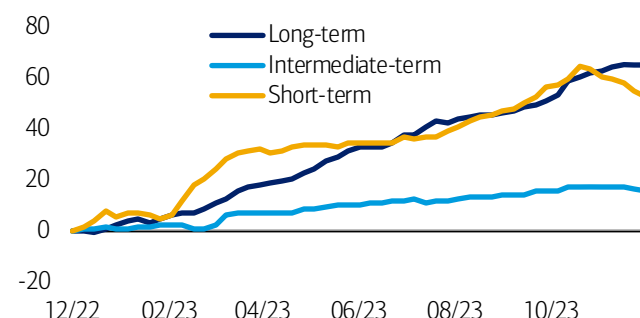


Source: BofA Global Research, EPFR

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## Exhibit 37: 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 recently

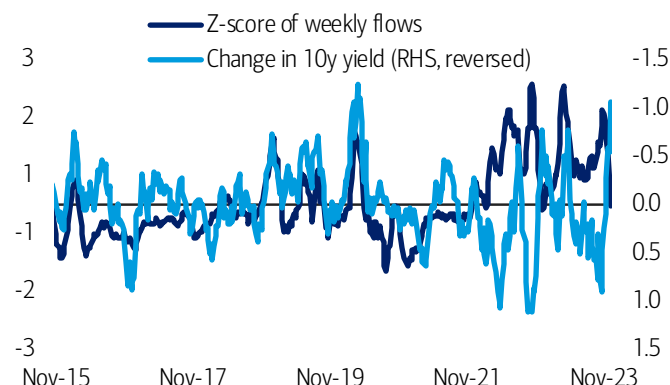


Source: BofA Global Research, EPFR

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## Exhibit 38: Fund flows and rate change (Z-score)

Fund flows recently have been historically strong alongside rates rally

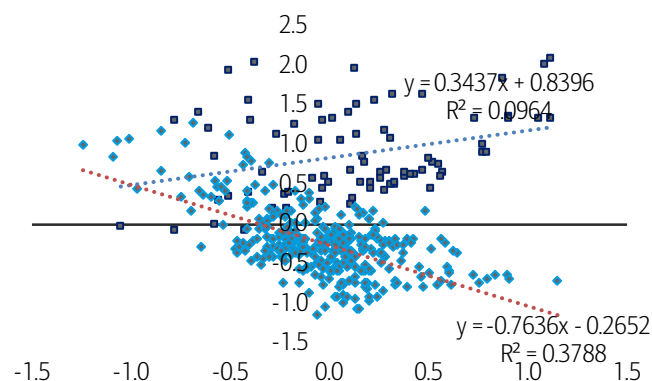


Source: BofA Global Research, EPFR

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## Exhibit 39: Fund flows and rate change

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

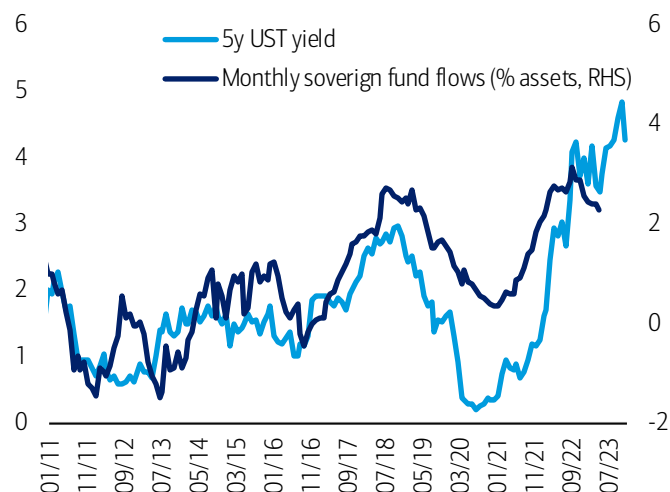


Source: BofA Global Research, EPFR, Bloomberg. Note: dark = post '22, light = '15-'22

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**Exhibit 40: Sovereign fund flows and UST yield**

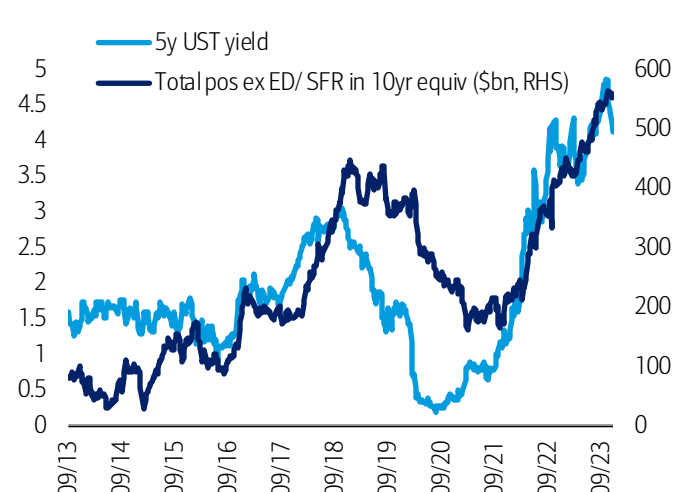
Inflows higher when yields are higher



Source: BofA Global Research, EPFR. Note: sovereign fund flows is midpoint of 12mo average  
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**Exhibit 41: 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 42: Total return FI fund performance vs benchmark**

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

	AUM (\$Bn)	12/14/2023	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	260	1.88%	0.00%	4.52%	-0.13%
Vanguard Total Bond Market Index Fund	202	1.85%	-0.02%	4.58%	-0.08%
PIMCO Income fund	132	1.36%	-0.51%	3.51%	-1.14%
The Bond Fund of America	79	1.85%	-0.02%	4.51%	-0.15%
MetWest Total Return Bond Fund	57	2.20%	0.33%	5.17%	0.52%
PIMCO Total Return Fund	53	1.84%	-0.03%	4.65%	0.00%
Dodge & Cox Income Fund	67	2.01%	0.14%	4.96%	0.31%
PGIM Total Return Bond Fund	43	2.04%	0.17%	4.88%	0.23%
BlackRock Strategic Income Opportunities Fund	36	1.27%	-0.60%	2.98%	-1.67%
Baird Aggregate Bond Fund	42	1.97%	0.10%	4.91%	0.26%
JPMorgan Core Bond Fund	43	1.78%	-0.09%	4.46%	-0.19%
DoubleLine Total Return Bond Fund	32	1.73%	-0.14%	4.54%	-0.11%
Fidelity Series Investment Grade Bond Fund	34	1.90%	0.03%	4.68%	0.03%
Fidelity Total Bond Fund	32	1.89%	0.02%	4.70%	0.05%
Western Asset Core Plus Bond Portfolio	22	2.45%	0.58%	6.27%	1.61%
Baird Core Plus Bond Fund	27	1.91%	0.03%	4.77%	0.11%
John Hancock Bond Fund	22	2.03%	0.16%	4.97%	0.32%
TIAA-CREF Bond Index Fund	21	1.85%	-0.02%	4.57%	-0.08%
BlackRock Total Return Fund	18	1.91%	0.04%	4.73%	0.07%
JPMorgan Core Plus Bond Fund	18	1.83%	-0.05%	4.67%	0.02%
Bridge Builder Core Bond Fund	17	1.89%	0.02%	4.62%	-0.03%
T Rowe Price New Income Fund	17	1.84%	-0.03%	4.45%	-0.20%
Western Asset Core Bond Fund	15	2.26%	0.39%	5.61%	0.96%
CREF Bond Market Account	10	1.85%	-0.02%	4.62%	-0.03%
Fidelity Investment Grade Bond Fund	8	1.91%	0.04%	4.64%	-0.02%
DoubleLine Core Fixed Income Fund	7	1.75%	-0.12%	4.56%	-0.09%
TCW Total Return Bond Fund	3	2.15%	0.28%	5.52%	0.87%
Janus Henderson Flexible Bond Fund	3	1.92%	0.05%	4.80%	0.15%
Weighted avg	1322	1.84%	-0.03%	4.54%	-0.11%
Agg		1.87%		4.65%	
10y return		2.29%		5.15%	

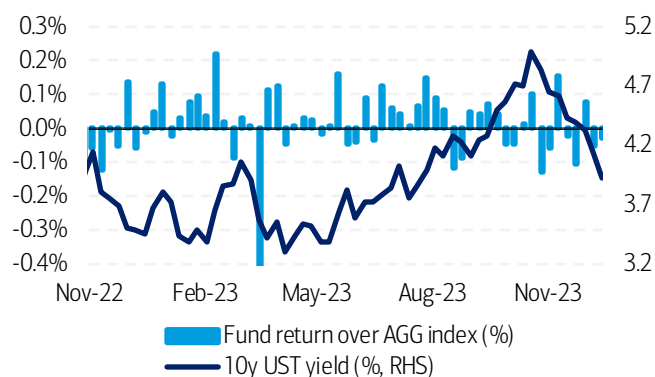
Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg Index

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**Exhibit 43: Total return funds, excess return vs. 10y rate**

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

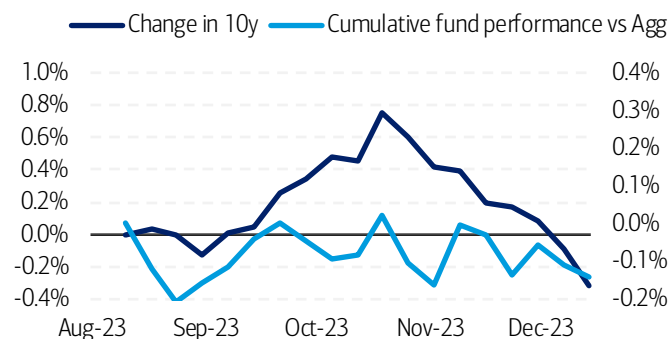


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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**Exhibit 44: 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 45: Total return funds' published UST allocations vs benchmark from Q2 and Q3 '23**

Funds increased underweight position from Q2 to Q3

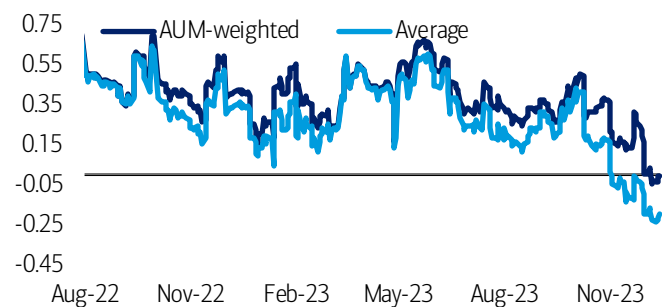
		AUM (\$bn)	Q2 '23 (%)	Q3 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	260.0	2.1	2.2	0.1
VBMFX	Vanguard Total Bond Market Index Fund	202.4	1.4	1.3	-0.1
PIMIX	PIMCO Income fund	131.6	-34.1	-34.8	-0.6
ABNDX	The Bond Fund of America	79.2	-14.0	-22.4	-8.4
DODIX	Dodge & Cox Income Fund	67.1	-32.7	-29.8	2.9
MWTIX	MetWest Total Return Bond Fund	56.6	-18.7	-17.4	1.3
PTTRX	PIMCO Total Return Fund	53.3	-18.6	-23.9	-5.3
PDBAX	PGIM Total Return Bond Fund	43.1	-34.2	-34.9	-0.7
PGBOX	JPMorgan Core Bond Fund	43.0	-2.2	-3.9	-1.7
BAGIX	Baird Aggregate Bond Fund	42.4	-17.7	-18.8	-1.1
BSIIX	BlackRock Strategic Income Opportunities Fund	36.0	-23.4	-24.0	-0.7
FSIGX	Fidelity Series Investment Grade Bond Fund	34.0	-10.1	-6.4	3.7
FTBFX	Fidelity Total Bond Fund	32.2	-12.5	-11.6	0.9
DBLTX	DoubleLine Total Return Bond Fund	31.7	-32.8	-34.6	-1.8
BCOIX	Baird Core Plus Bond Fund	27.5	-18.4	-19.1	-0.7
WACPX	Western Asset Core Plus Bond Portfolio	22.4	-38.0	-38.6	-0.6
JHBIX	John Hancock Bond Fund	22.1	-22.5	-21.6	0.9
TBIIX	TIAA-CREF Bond Index Fund	21.4	0.3	0.0	-0.3
MAHQX	BlackRock Total Return Fund	18.4	88.0	-1.9	-89.9
ONIAx	JPMorgan Core Plus Bond Fund	17.8	-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	16.7	-11.8	-8.6	3.2
WATFX	Western Asset Core Bond Fund	14.6	-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	8.2	-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	2.6	-39.6	-39.9	-0.3
<b>AUM weighted</b>		1321.6	-12.0	-13.8	-1.9

Source: BofA Global Research, funds' publicly available reports

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#### Exhibit 46: 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

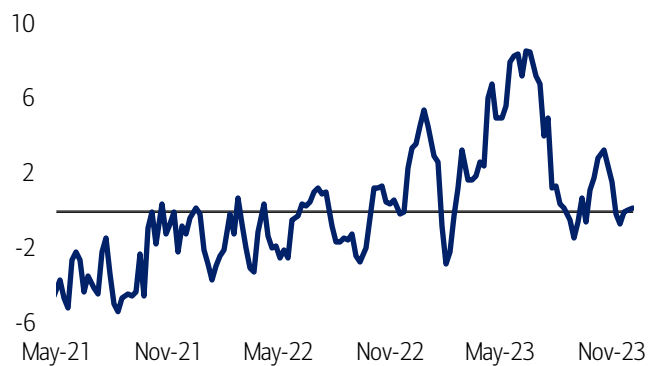


Source: BofA Global research, Bloomberg

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#### Exhibit 47: Primary dealer 2-6y holdings of TIPS (\$bn)

Primary dealer holdings moderately 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 48: Changes to bank balance sheet assets (\$bn)

Domestic bank balance saw an increase in assets driven by loans and leases

		Current (12/06/2023)	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>	23201	6	61	30	25	3
	Cash	3536	39	31	19	13	6
	UST & Agency	1521	-2	-6	0	2	-3
	MBS	2533	23	13	7	0	-4
	Loans and Leases	12301	-13	16	8	9	6
	Other	3309	-42	7	-4	1	-1
<b>Large Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	13513	45	44	15	18	2
	Cash	1774	63	34	11	13	7
	UST & Agency	1115	-6	-7	0	1	-2
	MBS	1927	11	9	6	2	-1
	Loans and Leases	6782	-4	8	3	3	1
	Other	1914	-19	0	-4	-1	-2
<b>Small Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	6569	9	8	4	2	0
	Cash	453	6	3	1	0	1
	UST & Agency	294	3	0	0	1	-1
	MBS	574	8	2	0	-2	-3
	Loans and leases	4449	-6	3	3	3	4
	Other	798	-3	0	0	0	-1
<b>All Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	20082	54	52	19	20	3
	Cash	2228	69	37	12	14	8
	UST & Agency	1409	-3	-7	0	2	-3
	MBS	2501	19	11	6	0	-4
	Loans and leases	11231	-10	11	6	6	5
	Other	2713	-21	0	-5	-2	-3
<b>Foreign (\$bn, NSA)</b>	<b>Total Assets</b>	3119	-48	9	11	5	0
	Cash	1308	-30	-6	7	-1	-2
	UST & Agency	112	2	1	0	0	0
	MBS	32	4	1	1	0	0
	Loans and leases	1070	-4	5	2	3	1
	Other	597	-21	8	1	2	2

Source: BofA Global Research, Federal Reserve, Bloomberg

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## Exhibit 49: Select bank balance sheet liabilities (\$bn, NSA)

Domestic liability increase in deposits

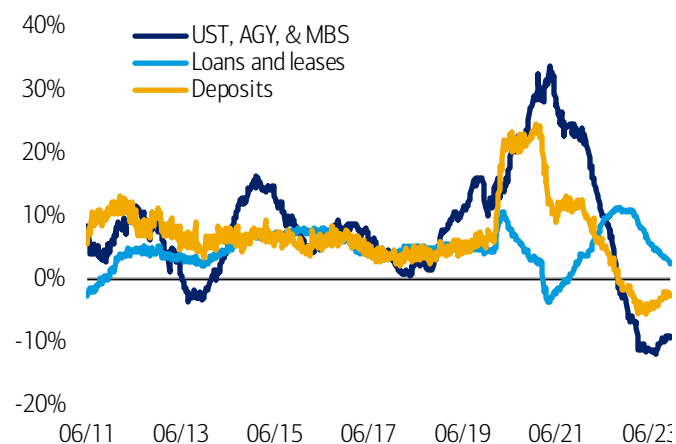
		Current (12/06/2023)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
<b>Deposits (\$bn, NSA)</b>	All	17454	65	37	14	12	-9
	Domestic	16173	67	33	12	11	-8
	Large Domestic	10855	52	28	8	8	-6
	Small Domestic	5318	15	4	4	3	-2
	Foreign	1281	-2	4	2	1	-1
	All	2321	-7	0	-5	3	9
<b>Other borrowing (\$bn, NSA)</b>	Domestic	1342	-9	0	-2	3	7
	Large Domestic	925	-7	0	0	5	6
	Small Domestic	417	-2	0	-2	-2	1
	Foreign	979	2	0	-4	0	2

Source: BofA Global Research, Federal Reserve, Bloomberg

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**Exhibit 50: YoY change in securities, loans, and deposits**

Securities growth usually only positive when deposit growth is positive

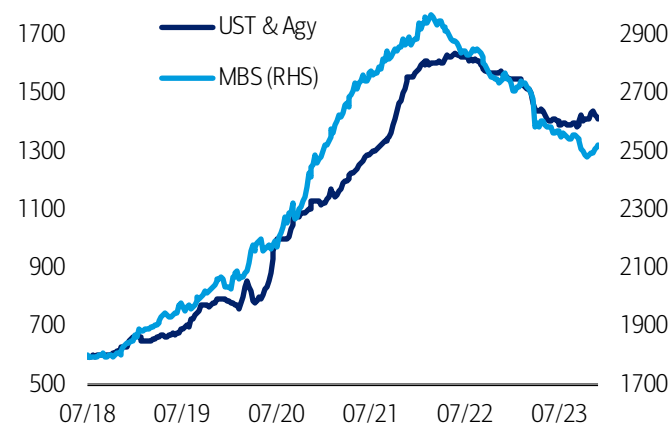


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 51: Domestic bank holdings of UST& Agy, MBS**

MBS shows signs of pickup recently



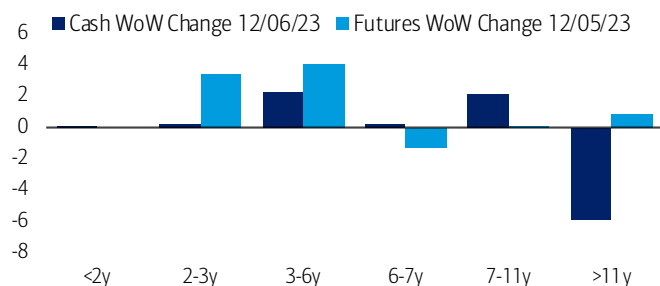
Source: BofA Global Research, Bloomberg, Federal Reserve

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# Primary dealer balance sheet

## Exhibit 52: Dealers WoW change in positions

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

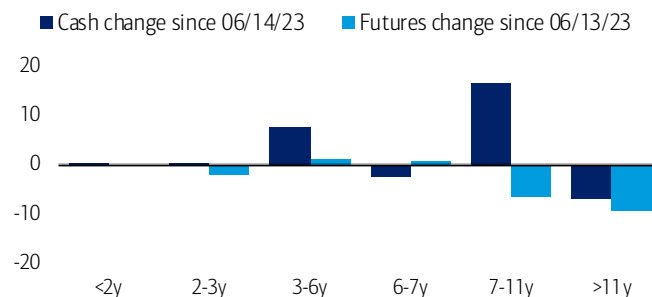


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 53: Dealers change in positions over last 6mo

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

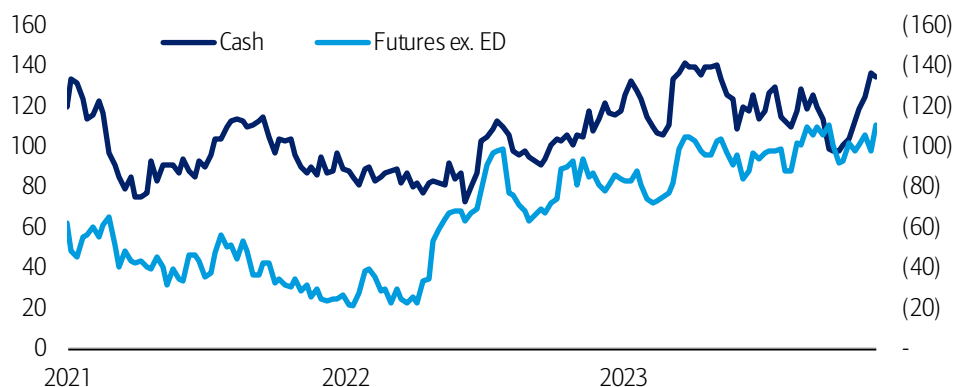


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 54: 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 55: Auction summary statistics

Z-score calculated on levels, Primary dealer participation has been picking up

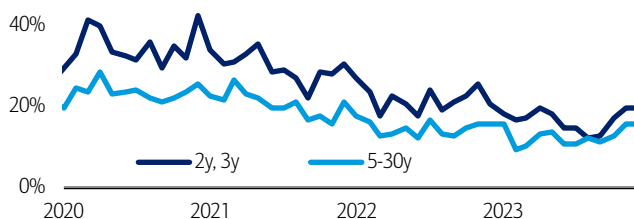
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	11/30/2023	17.6%	62.0%	20.3%	63.1%	15.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-3.3%	2.8%	0.0%
	1Y Z-score	0.2	-0.2	0.0	-0.1	0.0	-0.4
3y	11/15/2023	22.1%	56.0%	21.9%	66.6%	15.0%	0.0%
	MoM Change	0.0%	0.0%	0.0%	3.8%	1.9%	0.0%
	1Y Z-score	1.2	-1.2	0.8	0.3	-0.3	-0.5
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	11/15/2023	18.7%	60.3%	20.9%	53.0%	28.7%	0.1%
	MoM Change	0.0%	0.0%	0.0%	-13.2%	17.1%	0.1%
	1Y Z-score	0.6	-0.8	1.1	-1.9	1.5	2.5
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	11/15/2023	18.2%	65.1%	16.7%	57.5%	14.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-11.5%	3.7%	0.0%
	1Y Z-score	1.6	-0.8	-1.2	-2.0	0.1	-0.1

Source: BofA Global Research, Treasury

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## Exhibit 56: Primary dealer – average auction allotment

Dealer participation has picked up

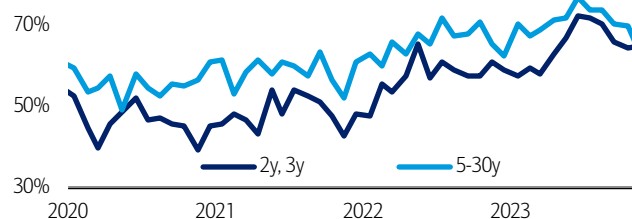


Source: BofA Global Research, Treasury

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## Exhibit 57: Investment fund – average auction allotment

Fund participation still elevated but shows sign of decline

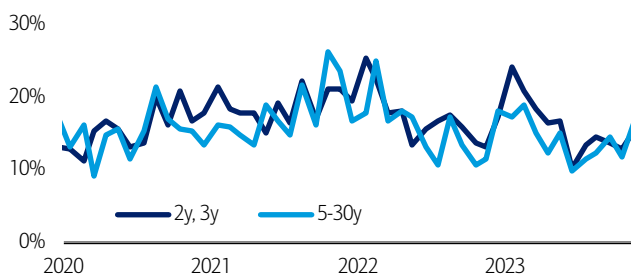


Source: BofA Global Research, Treasury

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## Exhibit 58: Foreign investment – average auction allotment

Foreign participation still below average despite modest uptick in recent weeks

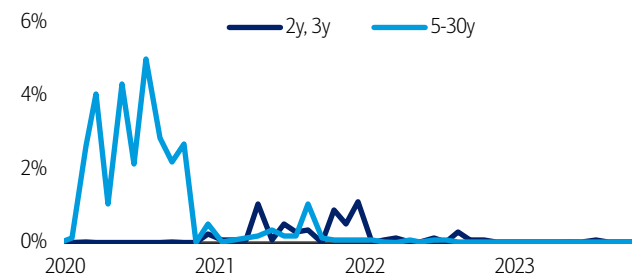


Source: BofA Global Research, Treasury

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## Exhibit 59: Depository institutions – average auction allotment

Participation is minimal



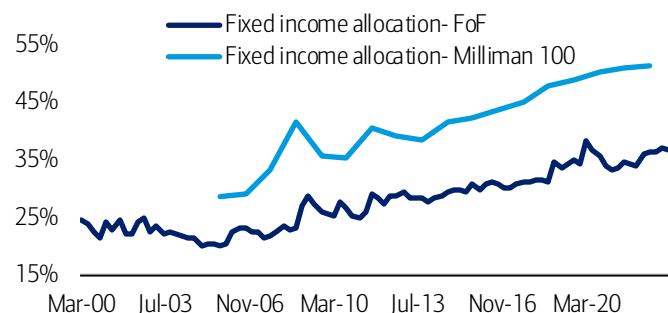
Source: BofA Global Research, Treasury

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# Pensions

## Exhibit 60: 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

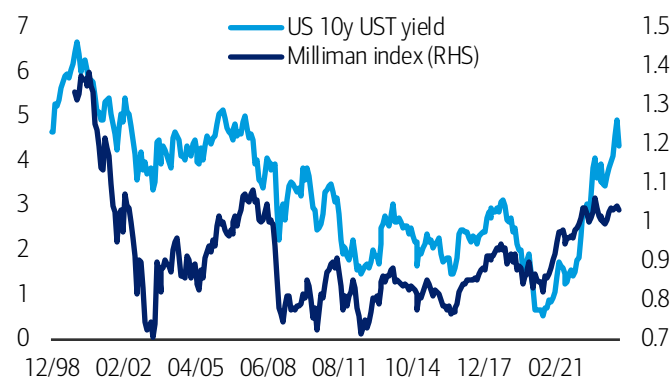


Source: BofA Global Research, Milliman, Federal Reserve

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## Exhibit 61: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

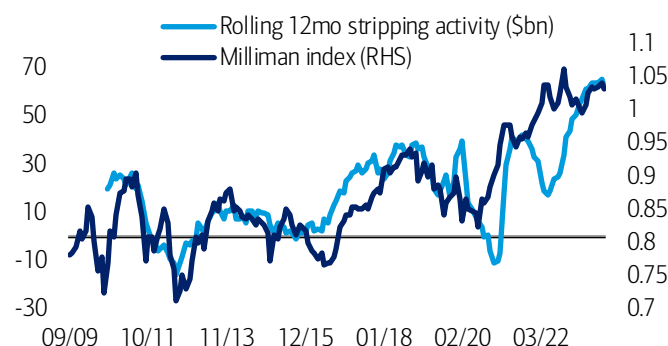


Source: BofA Global Research, Bloomberg

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## Exhibit 62: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

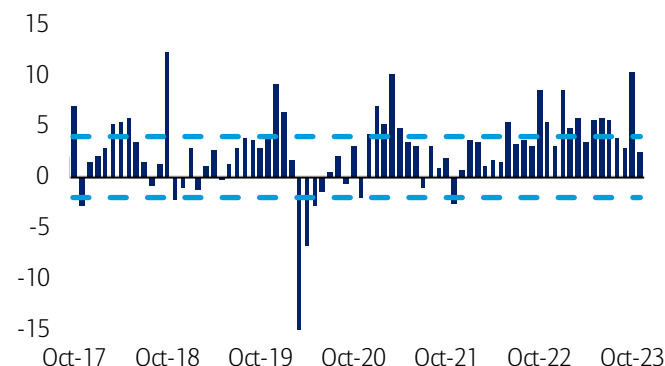


Source: BofA Global Research, Bloomberg

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## Exhibit 63: Change in USTs held in stripped form (\$bn)

Stripping activity ticked down in November

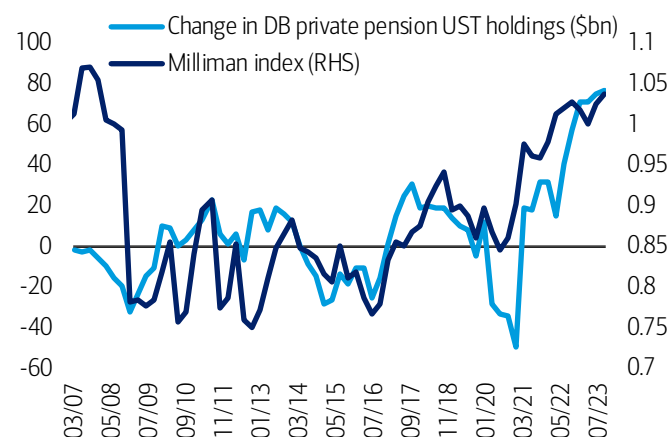


Source: BofA Global Research, Note: dashed line is 1stdev

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## Exhibit 64: 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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