

# US Rates Watch

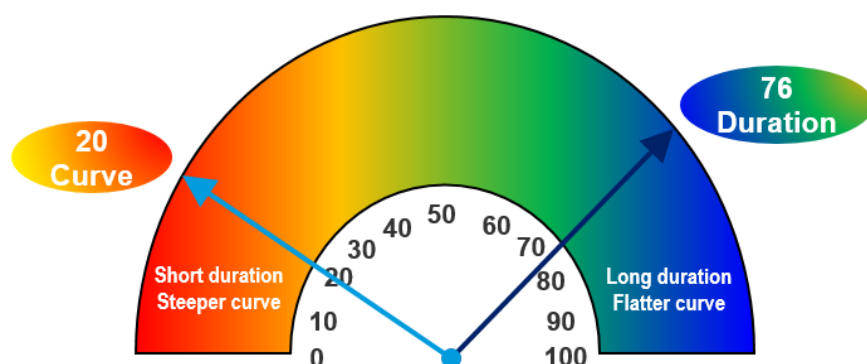
## Foreign officials reduce USD allocations; divergence between RM + FM extends

### Positioning divergence extends

Alongside recent rate volatility, our indicators reflect a growing divergence in positioning between the real money and fast money community. Asset manager longs reflected in CFTC data extend further alongside continued inflows into UST funds. This dip buying behavior is consistent with the dynamic recently observed from global benchmark funds (see: [Dipping in](#)). On the other side, leveraged hedge funds are extending shorts likely a combination of a growing basis trade and momentum following strategies. The Fed's foreign RRP (reverse repo) facility and custodial holdings showed an \$18bn drop over the last two weeks, perhaps reflecting FX intervention activity.

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

Longs are vulnerable to covering, CTAs remain is steepener and short



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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### OTM longs continue to indicate bias for selloff

Our futures positioning proxy (for construction details see: Gauging positioning in Treasury Futures) still shows a bias for rates to selloff across the curve (Exhibit 12). UXY, FV, and TU are contracts with the largest amount of OTM long positions and therefore show the greatest vulnerability to long covering (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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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

COB = close of business

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

## Asset manager longs continue to drive LF shorts

Asset managers extend longs yet again, with notable increases in WN and US contracts. Leveraged hedge funds continue to take the other side and extend their futures short particularly in WN and TY (Exhibit 7). We continue to think that while part of the leveraged hedge fund short may reflect a directional view on rates (consistent with short rates momentum driving CTA positions), a large portion indicates a growing basis trade in the market. Non-commercial positioning excluding leveraged hedge funds also extended longs and is now at the 80th percentile over the past 5 years (Exhibit 9).

## CTAs in shorts and steepeners

Our cross-over momentum signal continued to point shorter on the week, indicating shorter positioning than March '23 (Exhibit 13). Our top-down model (see: [CTA impact on the rates market](#)) also suggests that CTAs continue to add to shorts (Exhibit 15) which are more concentrated in the back-end. This also signals that CTAs are positioned in curve steepeners (Exhibit 14). Non-reportable CFTC positioning contradicts this, implying that longs were added for a second consecutive week and is not as stretched as our CTA models imply (Exhibit 16).

## UST funds continue to see inflows

Despite the recent selloff, flows into US fixed income funds picked up the week ending August 23 and were concentrated in mixed allocation and short-term government funds (Exhibit 30). Outflows were observed across corporate, inflation, and municipal funds. Auctions show that while investment fund takedown is still elevated, participation has moderated from the recent highs (Exhibit 47) and foreign investor takedown is off recent lows (Exhibit 48).

Over the week ending August 24, on an AUM-weighted basis, total return fixed income funds showed another week of underperformance (Exhibit 33). While not as extreme as last week, underperformance was observed even alongside a rally in rates (Exhibit 34). Excess return correlation to 10y USTs showed a modest uptick (Exhibit 37), but remains well below the levels observed in June which suggests a moderation in underweights. Funds that saw the strongest performance this past week tended to see some of the most notable underperformance the prior 4 weeks and are likely the most skewed to long duration vs their benchmarks or were in flatteners.

## Pension buying may pick up with improved funded status

As discussed in [Pension de-risking opportunity](#), while pension de-risking has picked up over the last year—defined benefit private pension funded status remains highly sensitive to changes in interest rates. Pension bid for duration picked up alongside elevated funded status at the end of last year and both Milliman data and the Fed's flow of funds show a gradual increase in fixed income allocations (Exhibit 50). However, this de-risking was not enough to insulate pension funds from changes in rates.

Stripping activity suggests that demand is still relatively elevated despite volatility in funded status over recent months (Exhibit 53). According to Milliman, pension funded status is back above 103%, supported by the recent run up in interest rates (Exhibit 51). We expect though that pension demand will remain slow moving. As shown in Exhibit 54 even last year when funded status hit a peak of 106%, demand totaled around \$60bn over a 12 month period. That compares to around \$277bn of 30y gross issuance that we expect in FY 24, a \$45bn increase vs the prior year.

## Official outflows may reflect modest intervention activity

Since August 9th, the Fed's foreign RRP together with US Treasury securities held in custody have declined by about \$18bn with \$14bn lower securities holdings and \$4bn lower RRP balances (Exhibit 29).

This reduction in USD holdings from foreign official institutions may reflect some intervention activity after upward pressure on USD vs JPY & CNY (see: [FX intervention](#)).

[another potential headwind to UST demand](#)). However, front-end swap spreads have only seen modest downward pressure and dealer balance sheets did not show a significant increase in short-term paper the week ending August 16th (Exhibit 42).

Japanese investors sold about \$2bn in foreign bonds the week ending August 18th (Exhibit 24). This outflow does not reflect any official flows as it only captures activity from private investors.

## 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)	Security	Amount
M, Aug 28				<i>Fed's Barr speaks about banking services</i>	13-week bills	69		
					26-week bills	62		
					2-year notes	45		
					5-year notes	46		
Tu, Aug 29				<i>Fed's Barr speaks about banking services</i>	42-day bills	60	Bills	34
	Case-Shiller HPI (yoy)	-0.7%	-		7-year notes	36		
	JOLTS Job Openings	-	9400k					
	Consumer Confidence	120	116.4					
W, Aug 30	ADP Employment	-	200k		17-week bills	NA		
	Wholesale Inventories	-	-0.30%					
	GDP (qoq saar)	NA	2.40%					
	Personal consumption (qoq saar)	NA	1.80%					
	GDP Price Index (qoq saar)	NA	2.20%					
	Core PCE (qoq saar)	NA	3.80%					
	Advance Goods Trade Balance	-\$91.0bn	-\$90.0bn					
	Pending Home Sales	-0.50%	-1.00%					
Th, Aug 31	Initial Jobless Claims	NA	235k		4-week bills	NA	Bills	30
	Personal Income	0.30%	0.30%		8-week bills	NA	Coupons	47
	Personal Spending	0.70%	0.70%					
	PCE Headline Prices (mom)	0.20%	0.20%					
	PCE Headline Prices (yoy)	3.30%	3.30%					
	PCE Core Prices (mom)	0.30%	0.20%					
	PCE Core Prices (yoy)	4.30%	4.20%					
	Personal saving rate	3.90%	-					
	Chicago Purchasing Managers	43	44.1					
			-					
F, Sep 1				<i>Fed's Bostic speaks on US monetary policy</i>				
	Change in Nonfarm Payrolls	NA	168k					
	Private Payrolls	NA	150k					
	Unemployment Rate	NA	3.50%	<i>Fed's Mester speaks on inflation</i>				
	Average Hourly Earnings mom	NA	0.30%					
	Average Weekly Hours	NA	34.3					
	Construction Spending (mom)	0.60%	0.50%					
	ISM Manufacturing	NA	47.0					
	Total Vehicle Sales	NA	15.50m					

Source: BofA Global Research, Bloomberg, US Treasury

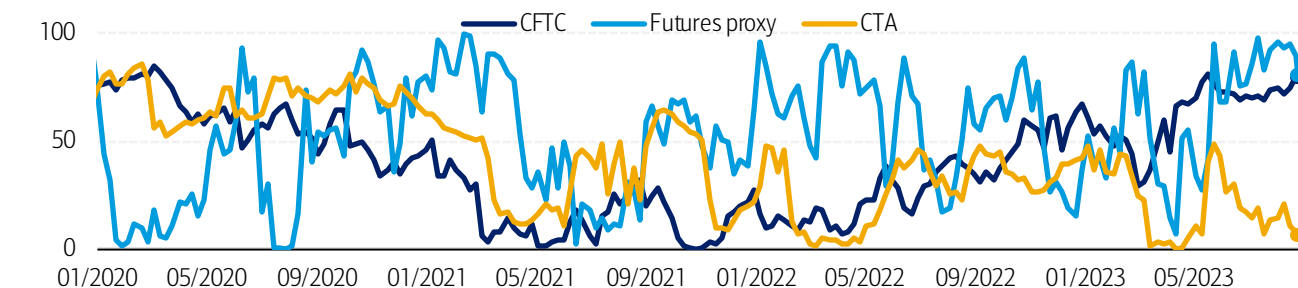
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## Positioning indicators

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

Futures positioning proxy shows bias for rates to sell off, CFTC data adjusted for LFs is long, top down CTA model is lagged and shows historic shorts that may have been previously covered

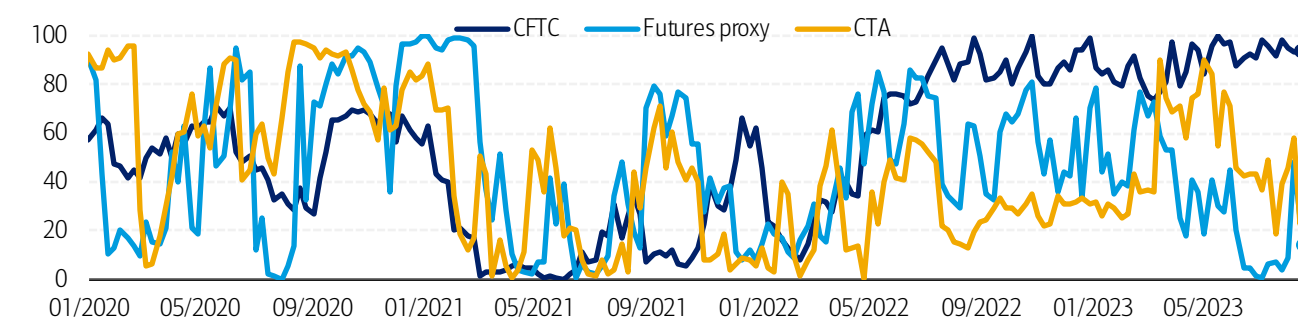


Source: BofA Global Research

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

CTAs are in steepener but futures positioning proxy shows bias for back-end to sell off more

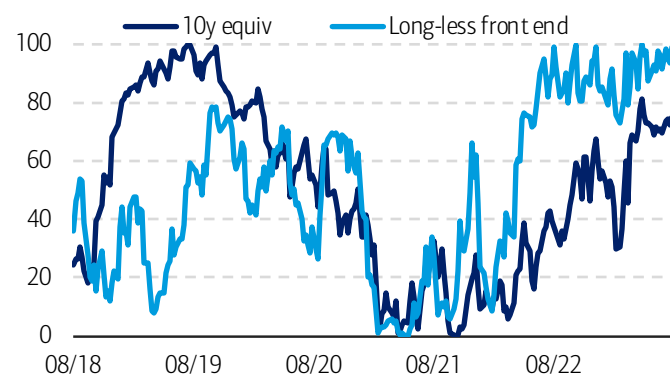


Source: BofA Global Research

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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

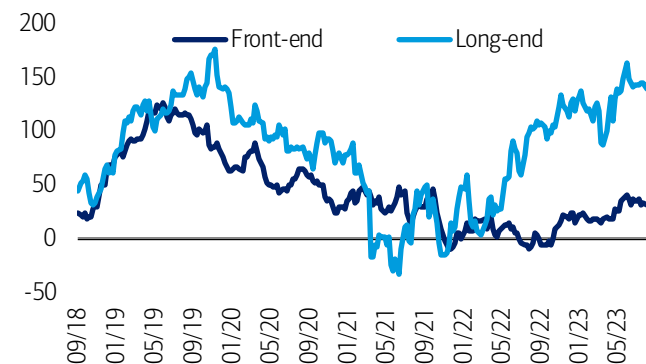


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

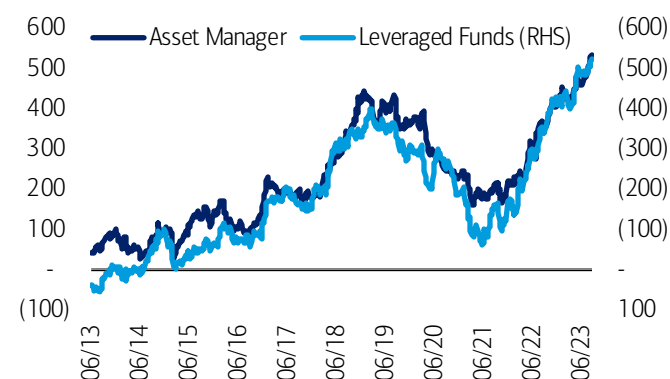


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

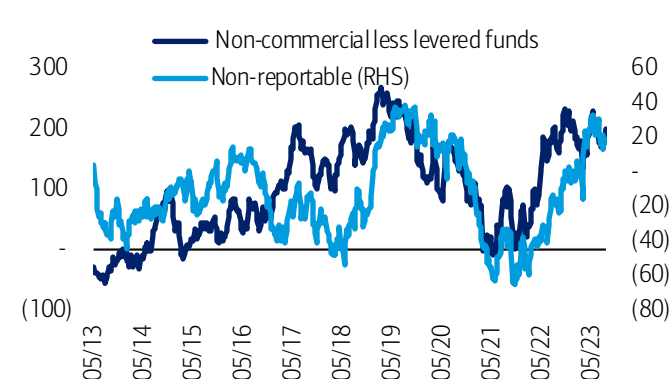


Source: BofA Global Research, Bloomberg

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

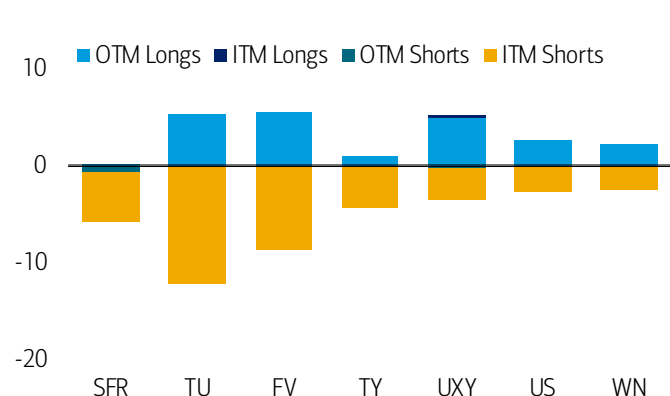
	0	1w	4w	8w	12w	16w
0 to 10	10	4	3	2	2	2
10 to 20	20	-3	-4	-2	-2	-2
20 to 30	30	-3	-2	-3	-3	-4
30 to 40	40	-3	-4	-3	-3	-4
40 to 50	50	1	2	1	0	-1
50 to 60	60	2	1	1	0	0
60 to 70	70	3	2	2	3	3
70 to 80	80	3	4	4	4	5
80 to 90	90	2	4	4	4	5
90 to 100	100	-1	-2	-1	0	0

Source: BofA Global Research, Bloomberg, average performance calculated over last 5y

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### Exhibit 11: Proxies for futures positioning

Shorts are ITM while longs are OTM across contracts

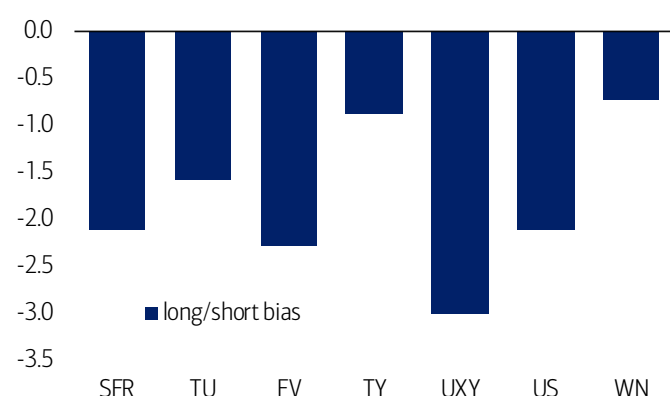


Source: BofA Global Research, Bloomberg

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

Bias for rates to sell off across the curve, particularly strong in UXY

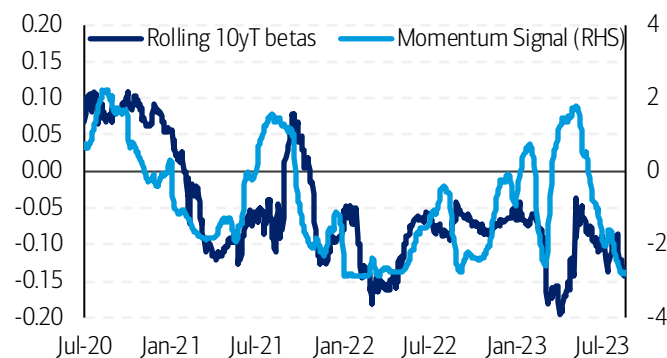


Source: BofA Global Research, Bloomberg, Note: reflects average positioning of futures stack over last 5 days

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**Exhibit 13: CTA positioning in 10yT**

CTA added shorts on the week consistent with momentum signal

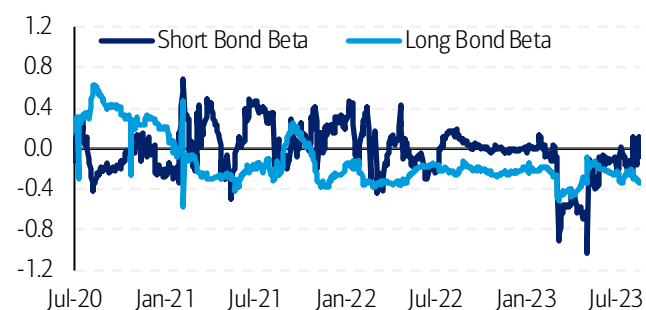


Source: BofA Global Research

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

Top-down model suggests CTAs added shorts in long duration bonds

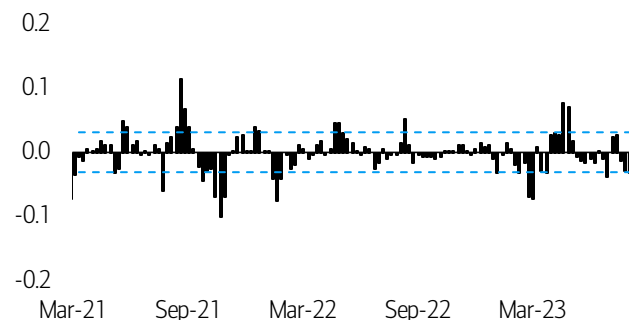


Source: BofA Global Research

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

Change in 10yT beta more negative on the week

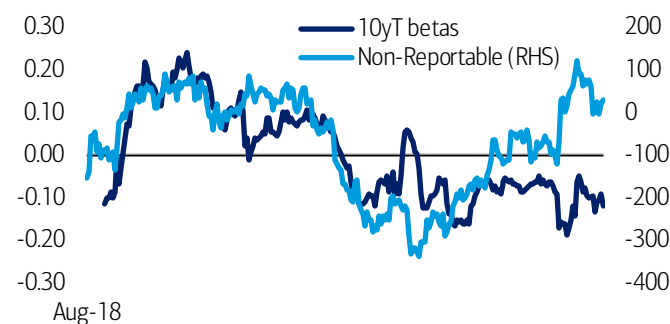


Source: BofA Global Research

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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



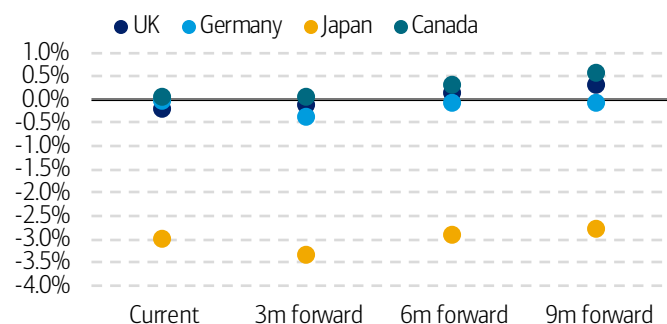
Source: BofA Global Research, Bloomberg

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## FX hedged pickup and foreign flows

**Exhibit 17: 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 18: 10Y UST pickup to 20Y JGB, with 3m fx hedge (bps)**

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

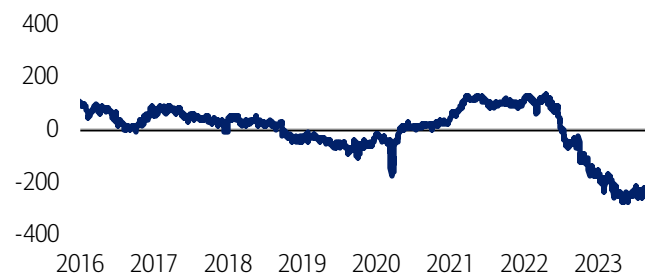


Source: BofA Global Research, Bloomberg

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

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

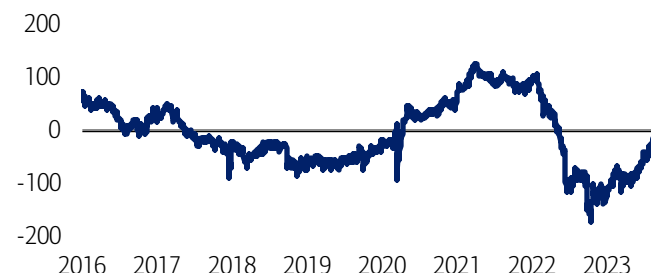


Source: BofA Global Research, Bloomberg

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

10y TSY offers near zero pickup vs 10y Bund

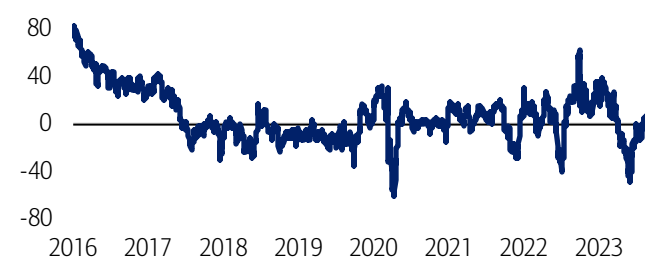


Source: BofA Global Research, Bloomberg

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

10y TSY erased previous modest hedged pickup to 10y CAD gov bond

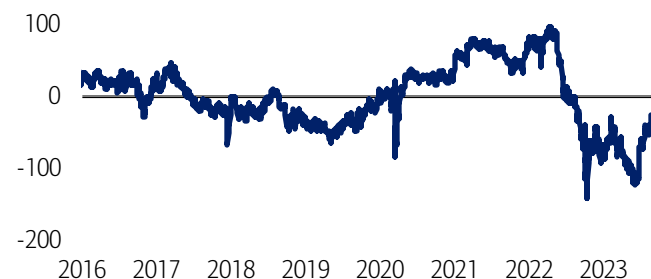


Source: BofA Global Research, Bloomberg

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

10y TSY offers negative pickup vs 10y Gilt but shows improvement recently



Source: BofA Global Research, Bloomberg

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**Exhibit 23: 3m rolling JPY currency hedge**

From the perspective of Japanese investor, pickup has been unattractive except vs the EU periphery

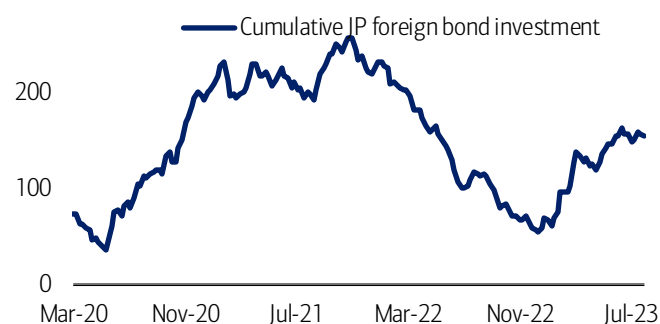
	8/24/2023		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB
10y UST	-2.31%	-3.05%	-2.25%	-2.97%	-2.39%	-2.98%	-0.50%	-1.11%
10y GER	-2.23%	-2.97%	-2.12%	-2.84%	-2.04%	-2.62%	0.42%	-0.19%
10y FRA	-1.71%	-2.45%	-1.58%	-2.30%	-1.50%	-2.09%	1.03%	0.42%
10y BEL	-1.58%	-2.32%	-1.46%	-2.19%	-1.39%	-1.97%	1.05%	0.44%
10y ITA	-0.59%	-1.32%	-0.43%	-1.15%	-0.43%	-1.01%	2.73%	2.12%
10y SPA	-1.21%	-1.95%	-1.07%	-1.80%	-1.02%	-1.61%	1.62%	1.00%
10y UK	-2.07%	-2.81%	-1.81%	-2.54%	-1.93%	-2.52%	-0.18%	-0.79%
10y CAN	-2.33%	-3.07%	-2.31%	-3.03%	-2.35%	-2.93%	-0.68%	-1.29%

Source: BofA Global Research, Bloomberg

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

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

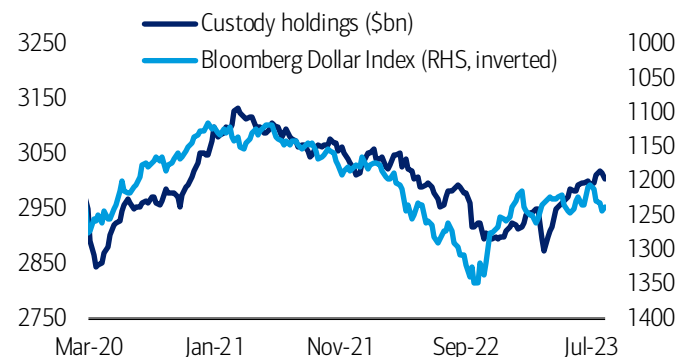


Source: BofA Global Research, Bloomberg

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

Custody holdings also dropped on the week

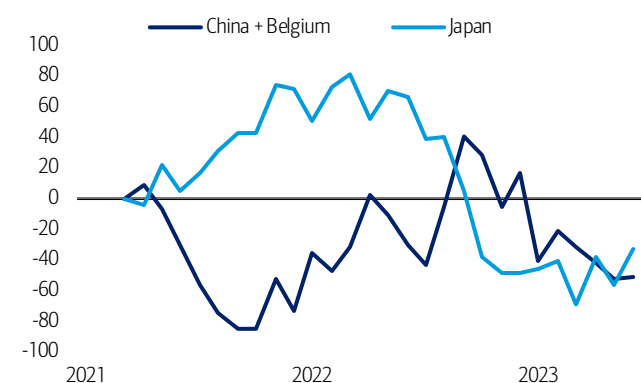


Source: BofA Global Research, NY Fed

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

China + Belgium and Japan have turned to net sellers since end of '22

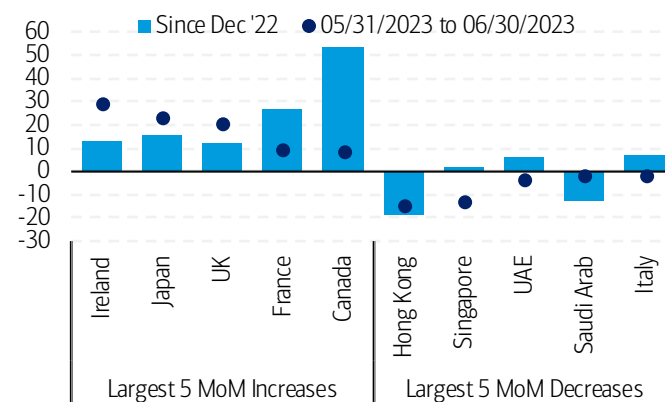


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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

Ireland was largest buyer, Hong Kong largest seller in June

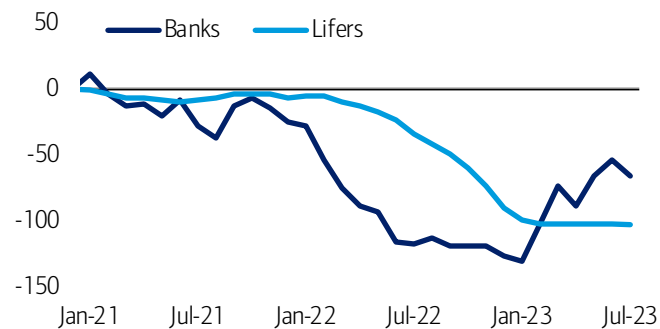


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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### Exhibit 28: Cumulative change in Japanese investor foreign bond holdings (\$bn)

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

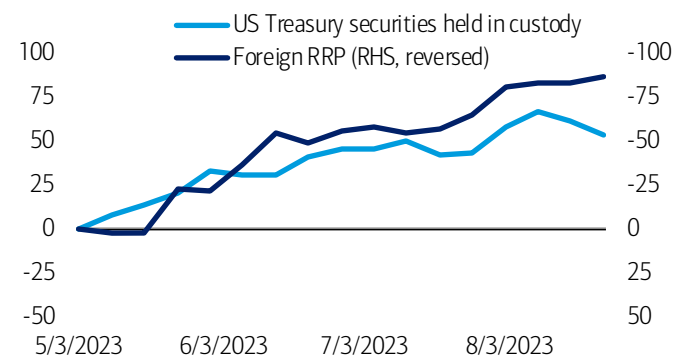


Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is June '23

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### Exhibit 29: Cumulative change in custody holdings and foreign RRP since May 2023 (\$bn)

Custody holdings dipped further on the week while RRP held steady



Source: BofA Global Research, Federal Reserve, Bloomberg

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# Fund flows and returns

## Exhibit 30: US fixed income fund flows (\$million)

US FI funds saw inflows primarily led by govt short and mixed allocation funds, corp HY funds led outflows

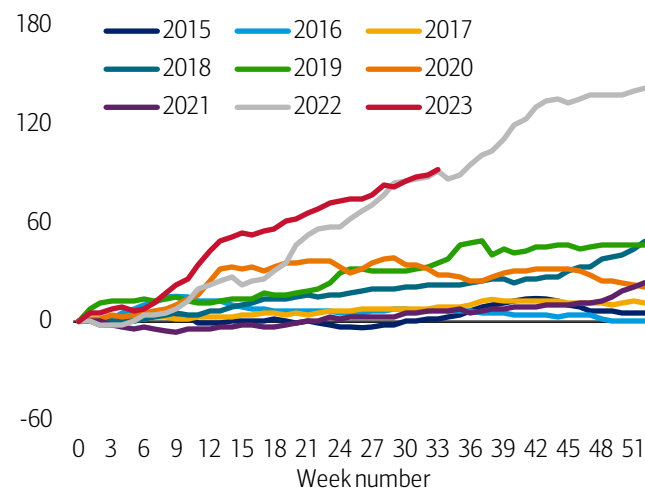
	8/23/2023	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	2,955	1,606	1,142	873	1,457
Gov: intermediate	808	434	212	248	340
Gov: long	911	917	1,422	1,282	1,126
Corp: IG	(396)	(207)	369	356	241
Corp:HY	(950)	(616)	(18)	176	(228)
Corp: all quality	21	26	66	58	15
MBS	100	380	354	435	138
Inflation	(276)	(265)	(182)	(243)	(512)
Muni	(231)	(170)	141	243	(397)
Mixed allocation	2,253	2,551	2,369	2,439	1,072
All US FI	5,272	4,405	5,653	5,537	2,698

Source: BofA Global Research, EPFR

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## Exhibit 31: Sovereign fund inflows by year (\$bn)

Flows YTD are on track with highs of last year

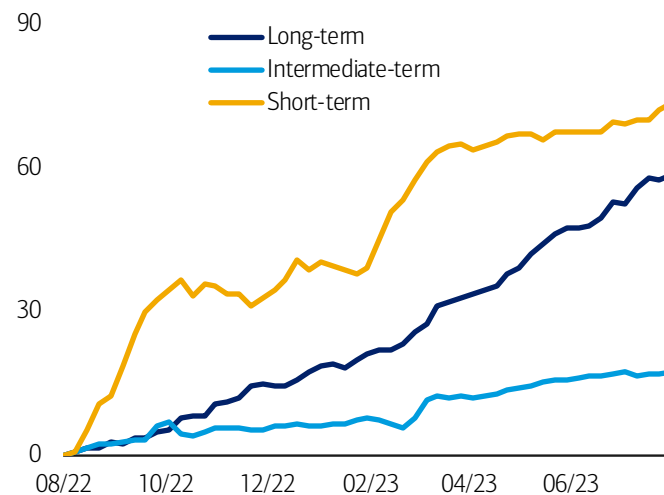


Source: BofA Global Research, EPFR

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## Exhibit 32: Sovereign inflows by tenor (\$bn)

Inflows have been concentrated in long-term and short-term funds



Source: BofA Global Research, EPFR

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**Exhibit 33: Total return FI fund performance vs benchmark**

Over the last week, AUM weighted fund performance underperformed benchmark

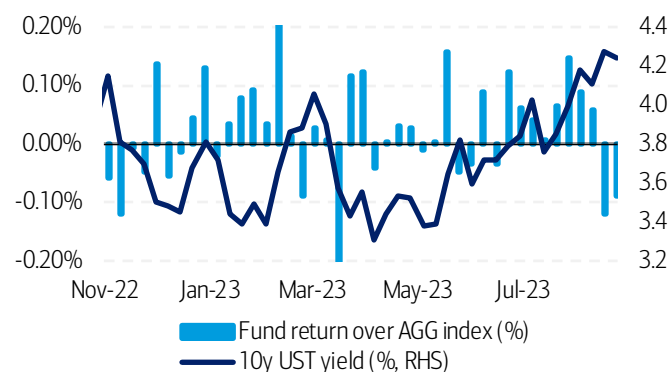
	AUM (\$Bn)	8/24/2023	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	255	0.50%	-0.05%	-1.15%	-0.13%
Vanguard Total Bond Market Index Fund	203	0.49%	-0.05%	-1.13%	-0.12%
PIMCO Income fund	127	0.31%	-0.23%	-0.57%	0.44%
The Bond Fund of America	75	0.35%	-0.20%	-1.22%	-0.21%
MetWest Total Return Bond Fund	61	0.43%	-0.11%	-1.32%	-0.30%
PIMCO Total Return Fund	55	0.43%	-0.11%	-0.99%	0.02%
Dodge & Cox Income Fund	58	0.49%	-0.05%	-1.14%	-0.12%
PGIM Total Return Bond Fund	42	0.43%	-0.11%	-1.00%	0.01%
BlackRock Strategic Income Opportunities Fund	35	0.42%	-0.12%	-0.40%	0.62%
Baird Aggregate Bond Fund	40	0.50%	-0.04%	-1.07%	-0.05%
JPMorgan Core Bond Fund	39	0.40%	-0.14%	-1.09%	-0.07%
DoubleLine Total Return Bond Fund	33	0.58%	0.04%	-1.01%	0.00%
Fidelity Series Investment Grade Bond Fund	34	0.39%	-0.16%	-1.10%	-0.09%
Fidelity Total Bond Fund	31	0.41%	-0.14%	-1.06%	-0.04%
Western Asset Core Plus Bond Portfolio	24	0.86%	0.32%	-2.20%	-1.19%
Baird Core Plus Bond Fund	24	0.51%	-0.04%	-0.92%	0.10%
John Hancock Bond Fund	22	0.47%	-0.08%	-1.26%	-0.24%
TIAA-CREF Bond Index Fund	21	0.49%	-0.06%	-1.15%	-0.13%
BlackRock Total Return Fund	18	0.39%	-0.15%	-1.29%	-0.28%
JPMorgan Core Plus Bond Fund	17	0.43%	-0.12%	-1.13%	-0.11%
Bridge Builder Core Bond Fund	16	0.54%	-0.01%	-1.05%	-0.04%
T Rowe Price New Income Fund	16	0.33%	-0.21%	-1.20%	-0.19%
Western Asset Core Bond Fund	15	0.56%	0.02%	-1.50%	-0.48%
CREF Bond Market Account	11	0.50%	-0.04%	-1.09%	-0.08%
Fidelity Investment Grade Bond Fund	9	0.50%	-0.04%	-1.13%	-0.11%
DoubleLine Core Fixed Income Fund	7	0.55%	0.01%	-1.03%	-0.01%
TCW Total Return Bond Fund	3	0.51%	-0.04%	-1.75%	-0.73%
Janus Henderson Flexible Bond Fund	3	0.31%	-0.24%	-1.18%	-0.17%
Weighted avg	1293	0.46%	-0.09%	-1.08%	-0.06%
Agg		0.55%		-1.02%	
10y return		0.37%		-2.39%	

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

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**Exhibit 34: Total return funds, excess return vs. 10y rate**

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

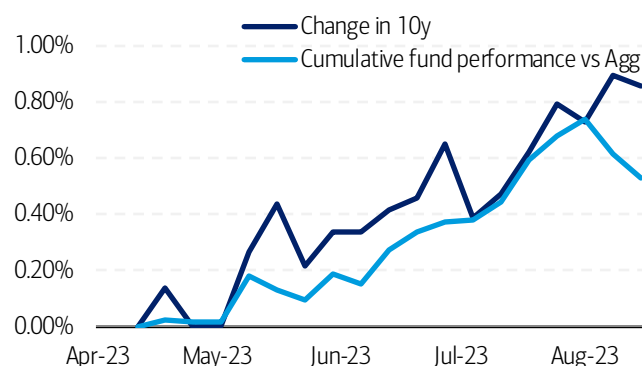


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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**Exhibit 35: 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 36: Total return funds' published UST allocations vs benchmark from Q1 and Q2 '23**

Funds moderated underweight UST position from Q1 to Q2

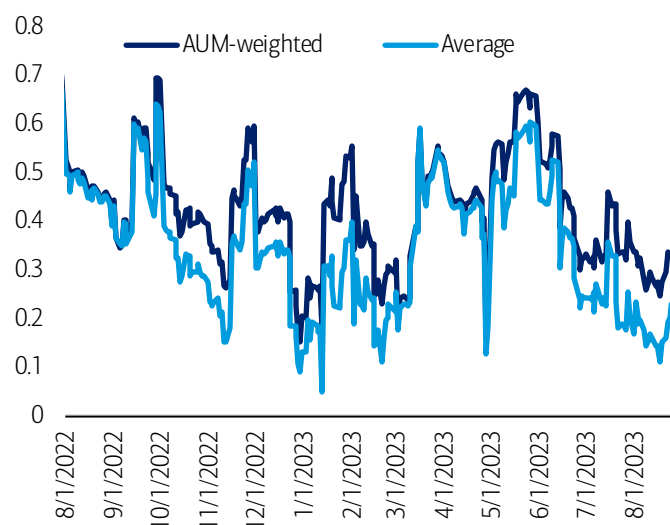
		AUM (\$bn)	Q1 '23 (%)	Q2 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	255.2	2.4	2.1	-0.3
VBMFX	Vanguard Total Bond Market Index Fund	203.4	1.7	1.4	-0.3
PIMIX	PIMCO Income fund	126.7	-43.4	-34.1	9.3
ABNDX	The Bond Fund of America	75.4	-11.3	-14.0	-2.7
MWTIX	MetWest Total Return Bond Fund	60.8	-16.5	-18.7	-2.2
DODIX	Dodge & Cox Income Fund	57.5	-28.1	-32.7	-4.6
PTTRX	PIMCO Total Return Fund	54.6	-15.4	-18.6	-3.2
PDBAX	PGIM Total Return Bond Fund	41.6	-33.7	-34.2	-0.5
BAGIX	Baird Aggregate Bond Fund	39.6	-16.9	-17.7	-0.8
PGBOX	JPMorgan Core Bond Fund	39.3	-5.0	-2.2	2.8
BSIIX	BlackRock Strategic Income Opportunities Fund	35.3	-17.3	-23.4	-6.1
FSIGX	Fidelity Series Investment Grade Bond Fund	34.2	-7.5	-10.1	-2.6
DBLTX	DoubleLine Total Return Bond Fund	33.2	-32.7	-32.8	-0.1
FTBFX	Fidelity Total Bond Fund	31.4	-12.0	-12.5	-0.4
BCOIX	Baird Core Plus Bond Fund	24.4	-18.5	-18.4	0.1
WACPX	Western Asset Core Plus Bond Portfolio	23.7	-33.7	-38.0	-4.3
JHBIX	John Hancock Bond Fund	22.2	-22.8	-22.5	0.3
TBIIX	TIAA-CREF Bond Index Fund	21.3	0.8	0.3	-0.5
MAHQX	BlackRock Total Return Fund	17.9	-13.7	88.0	101.7
ONIAx	JPMorgan Core Plus Bond Fund	16.8	-5.1	-2.9	2.2
BBTBX	Bridge Builder Core Bond Fund	16.2	-22.1	-23.0	-0.9
PRCIX	T Rowe Price New Income Fund	15.5	-16.2	-11.8	4.4
WATFX	Western Asset Core Bond Fund	14.7	-30.7	-31.1	-0.4
QCBMIX	CREF Bond Market Account	10.7	-21.1	-22.6	-1.5
FBNDX	Fidelity Investment Grade Bond Fund	8.9	-5.7	-0.3	5.4
DBLFX	DoubleLine Core Fixed Income Fund	6.8	-16.9	-17.9	-1.0
JFLEX	Janus Henderson Flexible Bond Fund	2.9	-11.3	-17.9	-6.7
TGLMX	TCW Total Return Bond Fund	2.7	-38.5	-39.6	-1.1
<b>AUM weighted</b>		1293.0	-13.2	-11.8	1.4

Source: BofA Global Research, funds' publicly available reports

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**Exhibit 37: 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

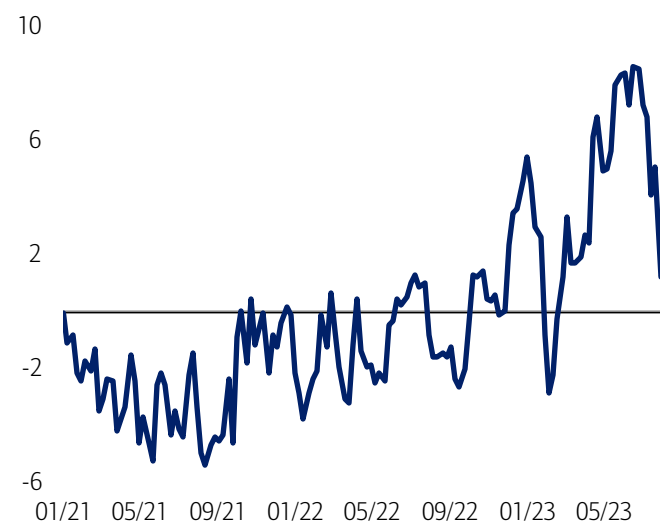


Source: BofA Global research, Bloomberg

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**Exhibit 38: Primary dealer 2-6y holdings of TIPS (\$bn)**

Primary dealer holdings have declined meaningfully since end of June



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

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# Bank balance sheets

## Exhibit 39: Changes to bank balance sheet assets (\$bn)

Domestic bank balance sheet increases driven by cash holdings

		Current	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>	22821	3	4	-1	-5	-2
	Cash	3309	-7	1	6	-1	-2
	UST & Agency	1498	-6	-2	-2	-1	-4
	MBS	2565	0	-5	-4	-3	-6
	Loans and Leases	12132	6	11	2	3	11
	Other	3318	9	0	-3	-2	-1
<b>Large Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	13244	54	-3	-8	-9	-5
	Cash	1548	41	4	2	-2	1
	UST & Agency	1101	0	-1	-1	-1	-4
	MBS	1936	3	-4	-2	-2	-2
	Loans and Leases	6729	-3	2	-2	-2	3
	Other	1930	13	-5	-4	-2	-2
<b>Small Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	6534	3	12	5	5	3
	Cash	461	2	3	1	1	0
	UST & Agency	289	-1	0	0	0	-1
	MBS	603	-3	-1	-1	-1	-4
	Loans and leases	4382	3	9	5	6	7
	Other	799	1	2	1	0	0
<b>All Domestic (\$bn, NSA)</b>	<b>Total Assets</b>	19778	57	9	-3	-3	-2
	Cash	2008	44	7	3	-1	1
	UST & Agency	1391	-1	-1	-2	-1	-4
	MBS	2540	0	-5	-4	-3	-6
	Loans and leases	11110	0	10	3	4	10
	Other	2730	14	-3	-3	-2	-2
<b>Foreign (\$bn, NSA)</b>	<b>Total Assets</b>	3043	-55	-5	2	-1	-1
	Cash	1300	-51	-6	2	-1	-3
	UST & Agency	108	-6	-1	-1	0	0
	MBS	25	0	0	0	0	0
	Loans and leases	1022	6	0	0	0	1
	Other	588	-4	2	0	0	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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## Exhibit 40: Select bank balance sheet liabilities (\$bn, NSA)

Domestic bank balance sheet increase driven by deposits + other borrowing

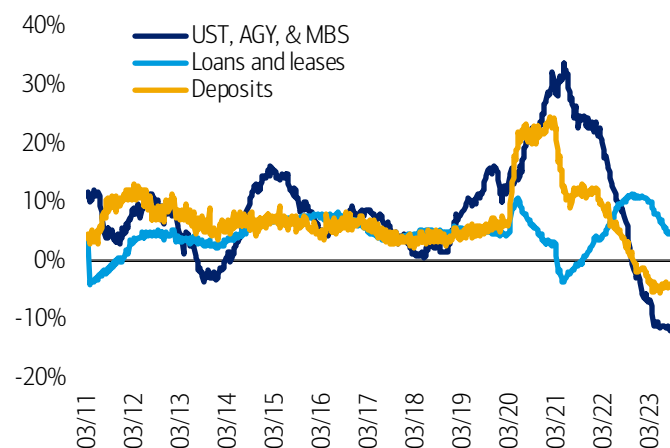
		Current	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
<b>Deposits (\$bn, NSA)</b>	All	17306	-8	18	14	16	-14
	Domestic	16029	15	20	12	14	-13
	Large Domestic	10770	14	4	1	3	-11
	Small Domestic	5260	1	16	11	11	-2
	Foreign	1276	-23	-2	1	2	-1
<b>Other borrowing (\$bn, NSA)</b>	All	2227	-10	-18	-21	-22	11
	Domestic	1260	15	-9	-14	-18	10
	Large Domestic	812	20	-3	-8	-12	6
	Small Domestic	448	-5	-6	-6	-7	4
	Foreign	967	-26	-9	-7	-4	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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**Exhibit 41: YoY change in securities, loans, and deposits**

Securities growth usually only positive when deposit growth is positive

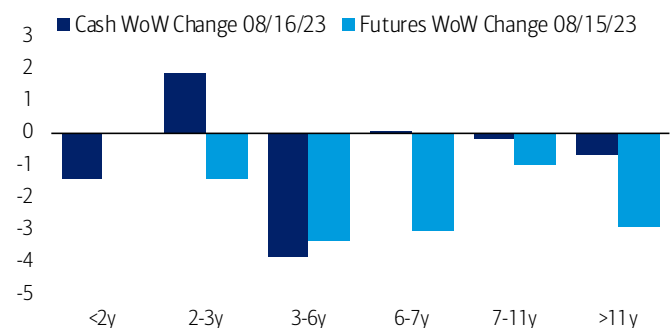


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Primary dealer balance sheet****Exhibit 42: Dealers WoW change in positions**

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

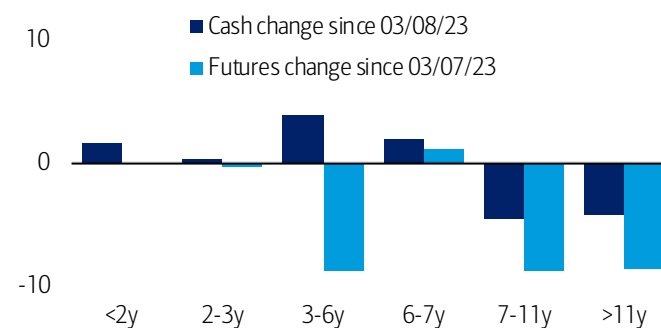


Source: BofA Global Research, NY Fed, CFTC

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**Exhibit 43: Dealers change in positions since bank risk events**

10y equivalent, \$bn, cash positions lower at the back-end

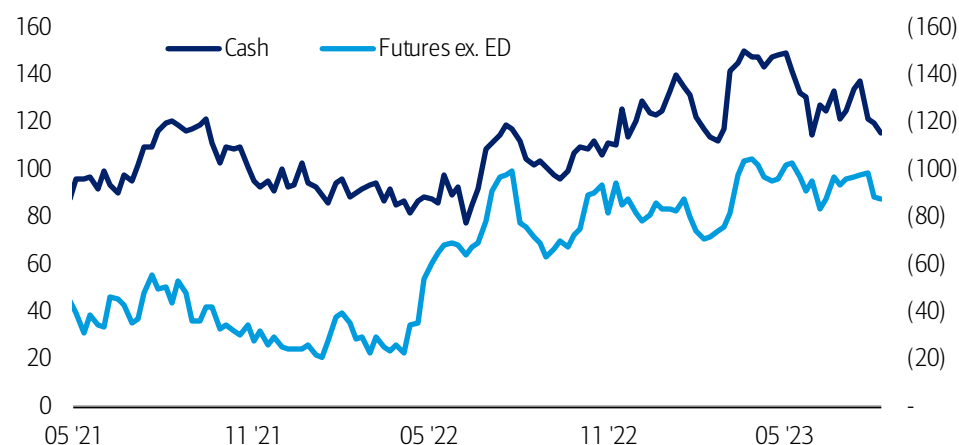


Source: BofA Global Research, NY Fed, CFTC

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**Exhibit 44: Dealers total sector positions**

10y equivalent, \$bn, futures shorts little changed on the week while cash longs dropped



Source: BofA Global Research, NY Fed, CFTC

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# Auction statistics

## Exhibit 45: Auction summary statistics

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

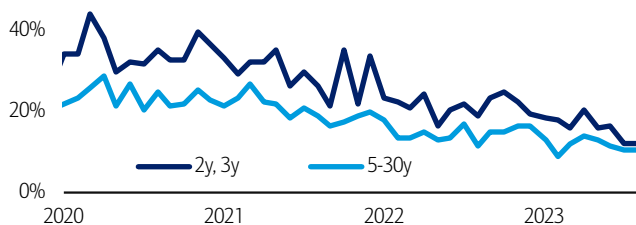
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	7/31/2023	13.3%	68.5%	18.2%	70.0%	13.7%	0.1%
	MoM Change	0.0%	0.0%	0.0%	-4.8%	4.3%	0.1%
	1Y Z-score	-1.4	1.3	-0.7	1.6	-0.7	1.9
3y	8/15/2023	10.8%	69.4%	19.8%	71.2%	16.6%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-3.0%	3.2%	0.0%
	1Y Z-score	-1.5	1.1	0.3	1.3	0.0	-0.4
5y	7/31/2023	12.2%	19.7%	68.1%	70.9%	13.4%	0.1%
	MoM Change	0.0%	0.0%	0.0%	-6.8%	5.1%	0.0%
	1Y Z-score	-0.6	1.2	0.1	0.3	0.0	1.4
7y	7/31/2023	8.1%	75.3%	16.6%	68.5%	14.9%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-12.6%	5.3%	0.0%
	1Y Z-score	-1.0	1.1	-0.8	-0.5	0.3	1.0
10y	8/15/2023	12.4%	67.7%	19.9%	69.1%	17.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-7.9%	9.9%	0.0%
	1Y Z-score	-0.7	0.4	0.4	0.6	0.3	0.8
20y	7/31/2023	9.6%	68.8%	21.7%	76.0%	12.3%	0.0%
	MoM Change	1.8%	-5.8%	4.1%	-2.9%	1.7%	0.0%
	1Y Z-score	-0.2	-0.7	1.6	0.6	-0.4	-0.3
30y	8/15/2023	10.9%	69.0%	20.1%	69.6%	15.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-8.1%	6.5%	0.0%
	1Y Z-score	-0.1	-0.2	0.6	-0.4	0.4	0.8

Source: BofA Global Research, Treasury

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## Exhibit 46: Primary dealer – average auction allotment

Dealer participation has declined

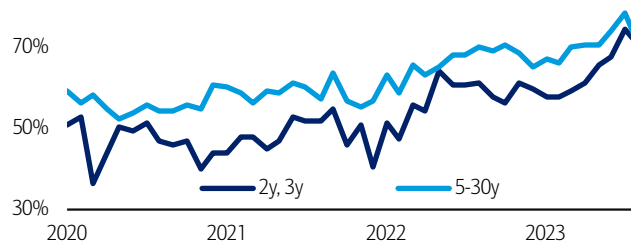


Source: BofA Global Research, Treasury

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## Exhibit 47: Investment fund – average auction allotment

Fund participation still elevated

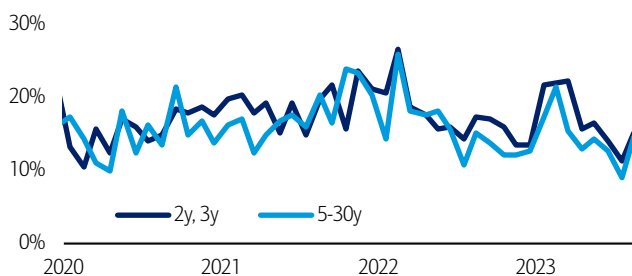


Source: BofA Global Research, Treasury

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## Exhibit 48: Foreign investment – average auction allotment

Foreign participation still below average despite modest uptick in recent weeks

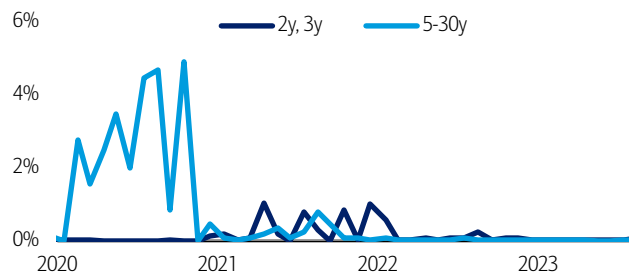


Source: BofA Global Research, Treasury

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## Exhibit 49: Depository institutions – average auction allotment

Participation is minimal



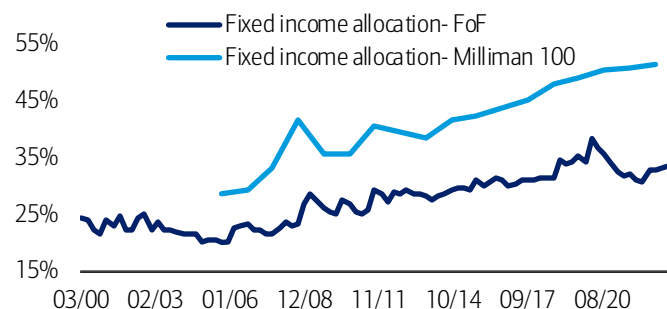
Source: BofA Global Research, Treasury

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# Pensions

## Exhibit 50: 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

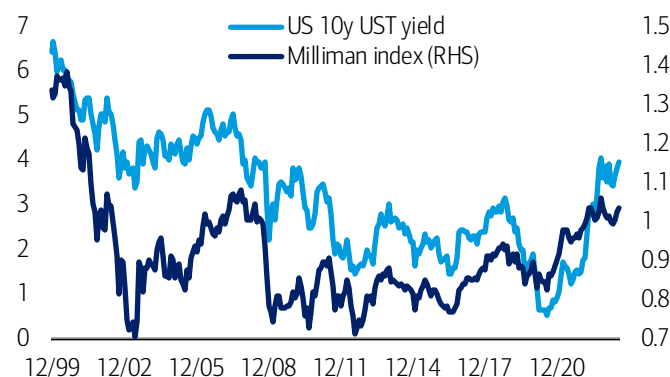


Source: BofA Global Research, Milliman, Federal Reserve

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## Exhibit 51: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

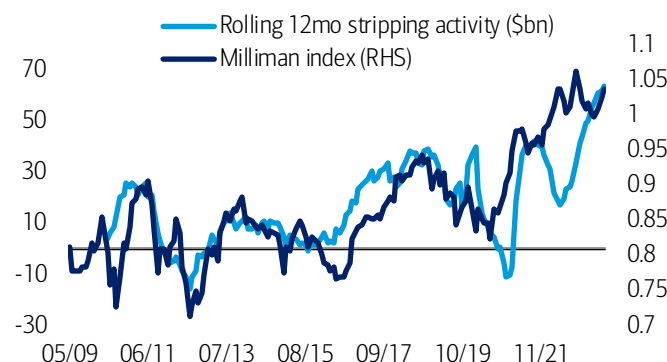


Source: BofA Global Research, Bloomberg

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## Exhibit 52: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

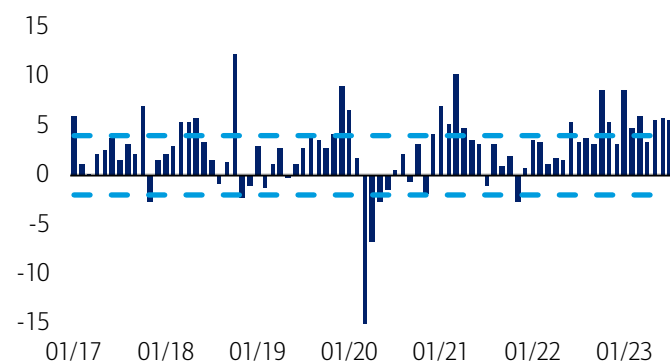


Source: BofA Global Research, Bloomberg

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## Exhibit 53: Change in USTs held in stripped form (\$bn)

Stripping activity has recently been consistently above average

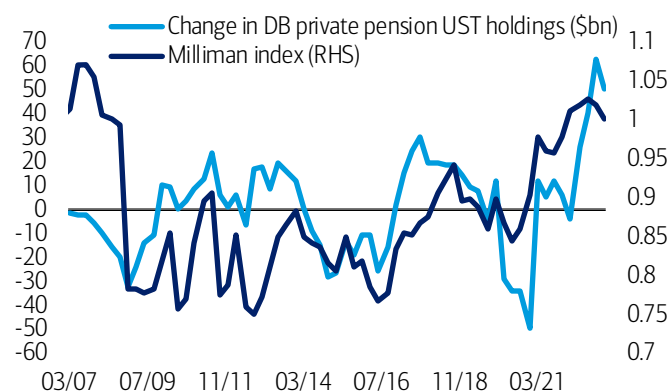


Source: BofA Global Research, Note: dashed line is 1stdev

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## Exhibit 54: 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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