

US Rates Watch

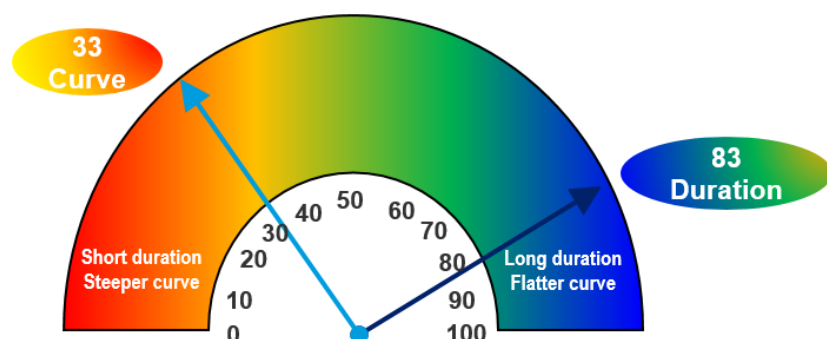
Inflows accelerate, fund performance suggests modest repositioning

Auction block

Fund inflows remain intact across the UST curve and funds overall appear to be curbing short duration views based on relative performance. However, most recent auction data shows a modest reduction in the dominance of investment funds. This week's 5y TIPS and 20y bond auction will be watched for any signs of a bid pullback as observed at last week's 30y auction. While nominal UST funds have overall seen very strong inflows, TIPS funds have observed persistent outflows.

Exhibit 1: Curve-o-meter

CTAs and hedge funds are in steepeners, speculators excluding leveraged funds are long



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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Positioning points to continued bias for steeper curve

Our futures positioning proxy (for construction details see: [Gauging positioning in Treasury Futures](#)) continues to reflect a bias for the curve to steepen. The front-end of the curve shows a lower concentration of out of the money longs while positioning at the back-end is more vulnerable to a continued move higher in rates (Exhibit 12). Open interest declined on the week reflecting covering of positions; TY saw the largest reduction in longs while both TY and US saw the largest reduction in shorts.

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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[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

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

FoF = flow of funds

Asset manager longs keep climbing

Asset managers continued to hit new record highs in 10y equivalent futures positions the week ending October 10th (Exhibit 7). Longs were added to the greatest extent in UXY, WN, and SOFR while positions were reduced in US. Leveraged hedge funds took the other side, with shorts added in UXY and WN but cut in US. Speculative positioning excluding leveraged funds was little changed on the week and sits around the 75th percentile over the last 5 yrs (Exhibit 8).

Models suggests only small shifts in CTA positioning

Our top-down model (see: [CTA impact on the rates market](#)) and cross over momentum signal both suggest that CTAs are making only small adjustments to positioning. Beta of returns to the 10y was slightly higher on the week, reflecting some short covering (Exhibit 15). Momentum has generally indicated relatively stable shorts (Exhibit 13). Non-reportable CFTC positioning showed an increase in shorts the week ending Oct 10th and stands in contrast to our models which suggest that CTAs have been short duration (Exhibit 16).

Our indicators also continue to indicate that CTAs are meaningfully in steepeners (Exhibit 14). A key risk to the steepener position that we also continue to favor is a flip in momentum which would likely drive material covering from CTAs and exacerbate flattening moves. We see few signs from the data that CTAs have been a meaningful driver of the flattening moves in recent days, as these positions generally remain intact.

No major foreign flows; confirmation of JP bank bid

There were limited foreign investor flows evidenced in both custodial holdings and MoF data. After the foreign official sector showed notable reductions in USD holdings last week both the foreign repo pool and custodial holdings were little changed the week ending Oct 11 (Exhibit 32).

MoF data showed roughly flat holdings of foreign bonds from Japanese investors. Monthly data confirms that the roughly \$30bn buying over the month of September was from banks (Exhibit 31). As discussed previously, banks were the more likely Japanese buyer base given the high FX hedging costs that has kept lifers out of the market.

Relative performance suggests fewer underweights

Flows into US fixed income funds last week were more than double their recent pace despite continued outflows from HY credit funds (Exhibit 33). Inflows were led by short-term UST funds, mixed allocation, and long-term UST funds.

Alongside the decline in rates last week, total return fixed income funds on an AUM-weighted basis outperformed the index slightly (Exhibit 38). While small, this outperformance alongside the rally reflects a continued divergence between excess returns and changes in the 10y rate that has been observed since the end of September (Exhibit 40 and Exhibit 42).

This divergence may represent re-positioning in funds that were previously underweight duration. Specifically, Blackrock Strategic Income, which was a notable outperformer alongside the selloff, outperformed last week alongside the rally. Some funds that had underperformed in recent weeks like Western Asset outperformed this past week. This suggests that some funds which had likely been long have not abandoned these views, while funds that were previously short may have adjusted.

Modest shifts in auction participation

Recent auction statistics show that investment funds have been playing a modestly less predominant role vs recent history particularly at the back end of the curve (Exhibit 50). Foreign investor activity increased to offset this reduction in takedown. We think this bid from foreign investors likely reflects conviction in a duration view. While FX hedged pickup has increased from deeply negative levels across several regions, it remains

roughly flat (Exhibit 21 to Exhibit 25). The UST yield curve will need to continue to dis-invert to make this pickup more attractive.

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, Oct 16	Empire Manufacturing	-6	-5	10:30 Fed's Harker (voter) Speaks on the Economic Outlook	13-week bills	75	2	Coupons	61
					26-week bills	68	2		
	Advance Retail Sales	0.30%	0.30%	8:00 Fed's Williams (voter) Moderates Discussion at Economic Club of NY	42-day bills	75	10	Bills	40
	Retail Sales Less Autos	0.30%	0.20%	10:45 Fed's Barkin Speaks on the Economic Outlook					
	Retail Sales Less Autos and Gas	0.10%	0.10%						
	Core Control	0.20%	-0.10%						
	Industrial Production	0.10%	-0.10%						
	Manufacturing Production	0.10%	-0.10%						
	Capacity Utilization	79.80%	79.50%						
	Business Inventories	-	0.30%						
	NAHB Housing Market Index	44	45						
	Net Long-term TIC Flows	-	-						
	MBA Mortgage Applications	-	-	12:30 Fed's Williams (voter) Participates in Moderated Discussion	17-week bills				
	Housing Starts	1350k	1393k	14:00 Federal Reserve Releases Beige Book	19-year 10-month bonds	13	0		
	Building Permits	1450k	1450k	15:15 Fed's Harker (voter) Speaks on Workforce Challenges					
	Initial Jobless Claims	214k	-	12:00 Fed's Powell (voter) Speaks at the Economic Club of New York	4-week bills			Bills	20
	Philadelphia Fed Business Outlook	-6	-6.4	13:20 Fed's Goolsbee (voter) Participates in Moderated Q&A	8-week bills				
	Leading Indicators	-	-0.40%	16:00 Fed's Bostic Speaks at the New School	5-year TIPS	22	3		
	Existing Home Sales	3.75M	3.90M	17:30 Fed's Harker (voter) Speaks on Economic Outlook					
				19:00 Fed's Logan (voter) Speaks in New York					
F, Oct 20				9:00 Fed's Harker (voter) Speaks on Economic Outlook					

Source: BofA Global Research, Bloomberg, US Treasury

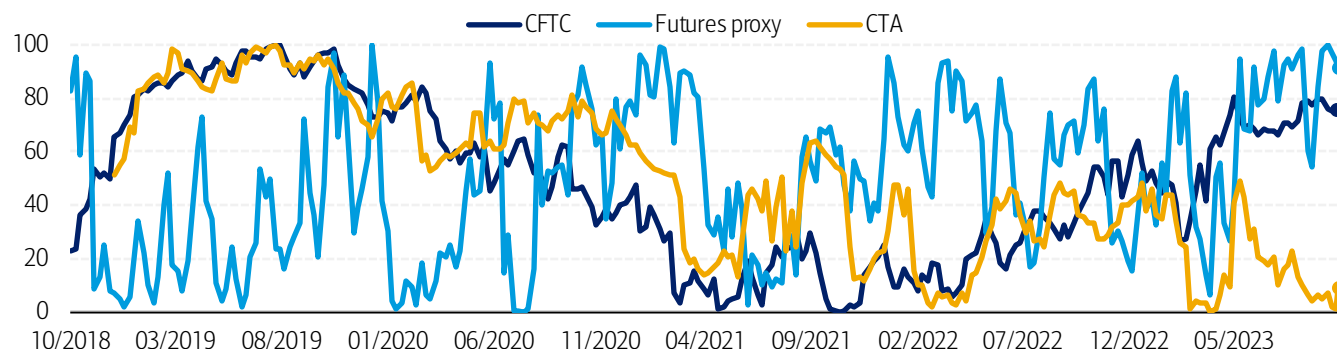
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Positioning indicators

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

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

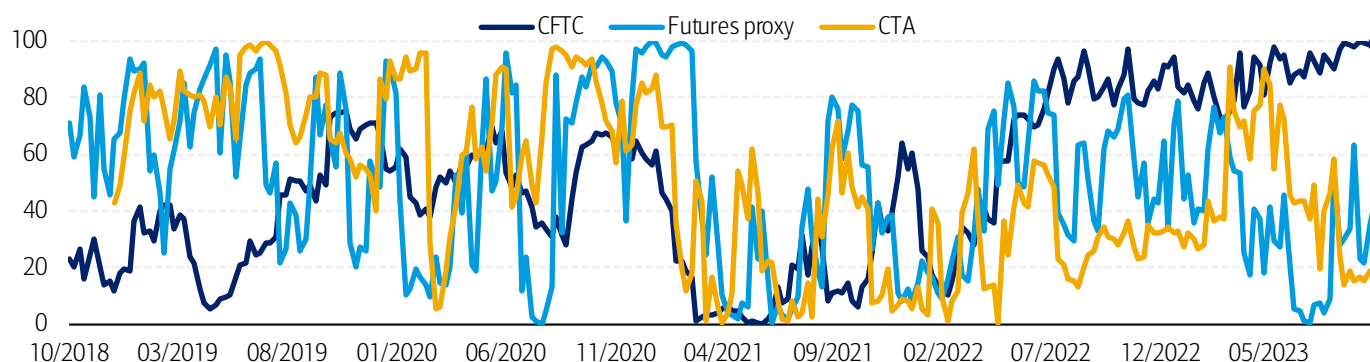


Source: BofA Global Research

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

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

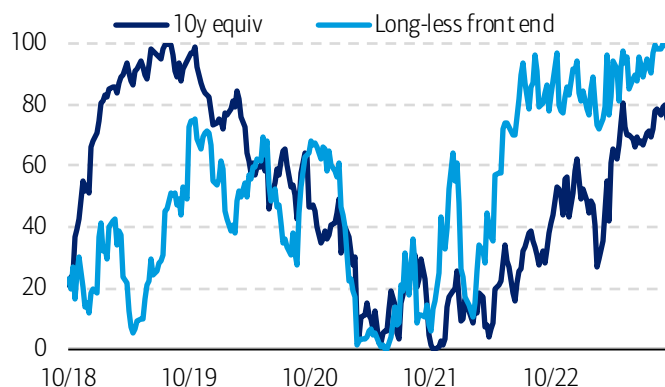


Source: BofA Global Research

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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

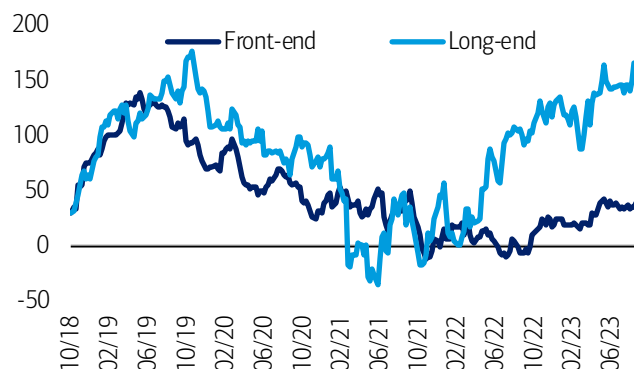


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

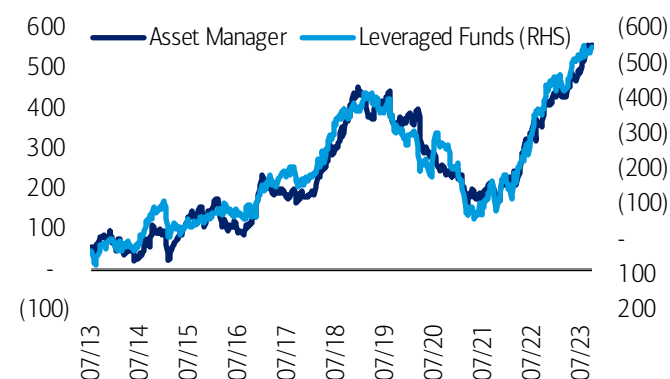


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

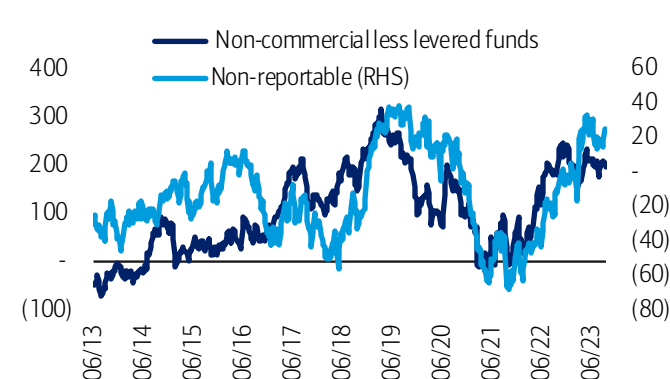


Source: BofA Global Research, Bloomberg

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

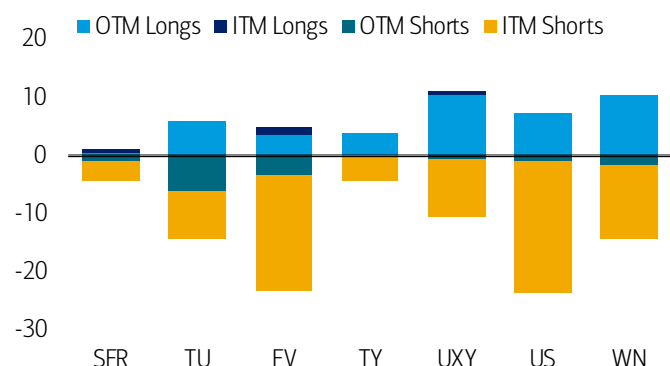
	0	1w	4w	8w	12w	16w
0 to 10	10	5	5	5	4	6
10 to 20	20	-3	-3	-1	-1	0
20 to 30	30	0	-3	-4	-3	-4
30 to 40	40	-5	-2	-3	-3	-4
40 to 50	50	-1	-1	-1	-1	-2
50 to 60	60	4	3	2	1	1
60 to 70	70	2	2	1	2	3
70 to 80	80	3	4	4	4	5
80 to 90	90	2	4	4	4	5
90 to 100	100	-1	-2	-1	0	0

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

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Exhibit 11: Proxies for futures positioning

On the week, shorts are ITM except mixed in TU, longs are largely OTM

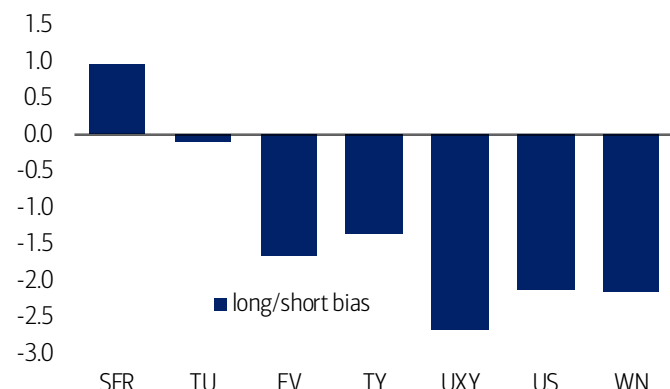


Source: BofA Global Research, Bloomberg

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Exhibit 12: Analysis of proxies for futures positioning

Bias for rates to sell off in belly and back-end

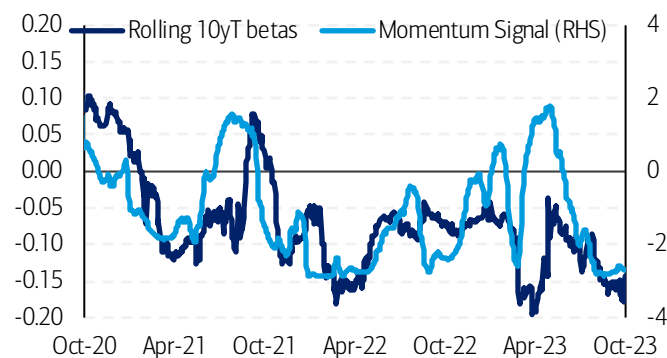


Source: BofA Global Research, Bloomberg, Note: reflects average positioning of futures stack over last 5 days

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Exhibit 13: CTA positioning in 10yT

On the week, CTAs covered shorts as momentum signal moderated

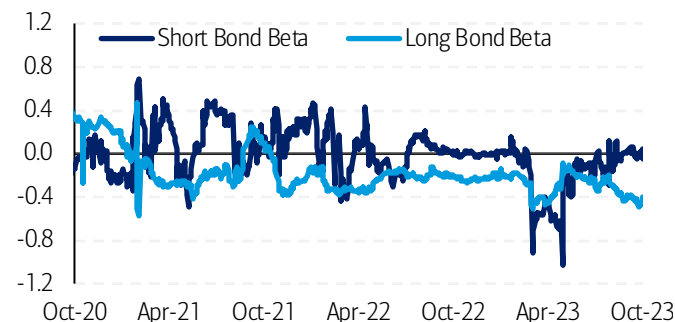


Source: BofA Global Research

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

Top-down model suggests CTAs are positioned for a steeper curve and are short the back-end

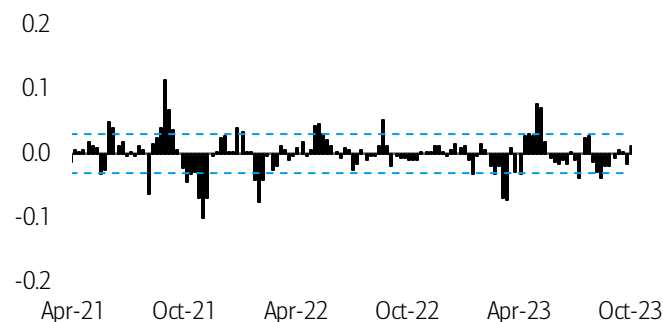


Source: BofA Global Research

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Exhibit 15: Changes in CTA 10yT beta

Change in 10y beta turned positive on the week

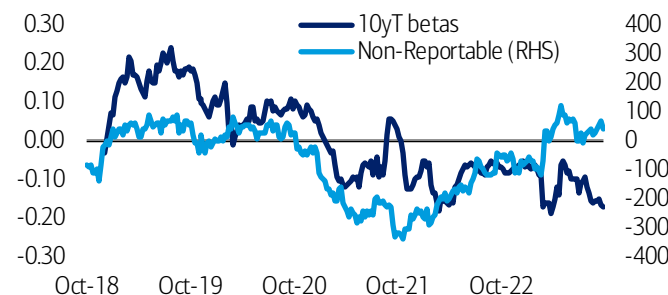


Source: BofA Global Research

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

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



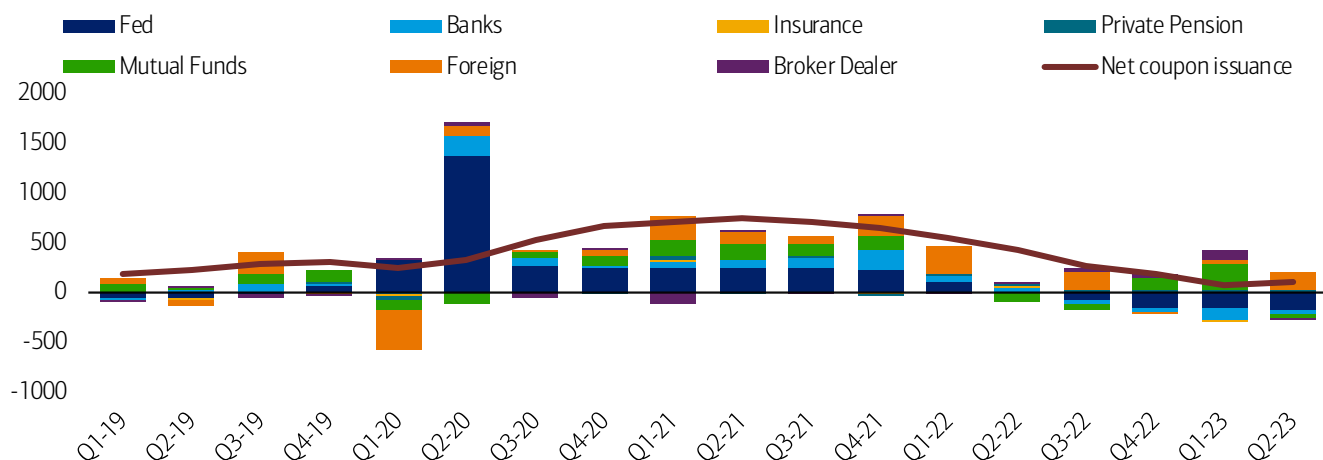
Source: BofA Global Research, Bloomberg

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Flow of funds

Exhibit 17: Changes in large holders of UST securities (\$bn)

In Q2 foreign investors were largest buyers while Fed and banks reduced UST holdings the most

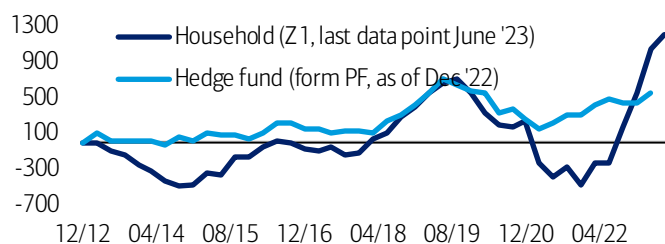


Source: BofA Global Research, Bloomberg. Note: change in levels adjusted for change in rates over the quarter

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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

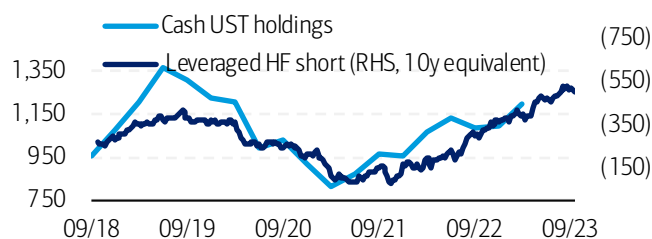


Source: BofA Global Research, Federal Reserve

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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



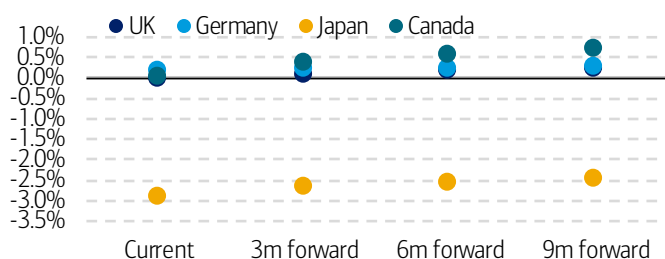
Source: BofA Global Research, Federal Reserve, Bloomberg

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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

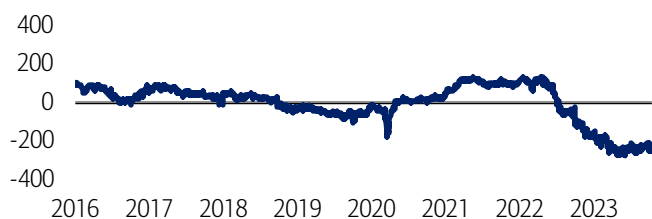


Source: BofA Global Research, Bloomberg

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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

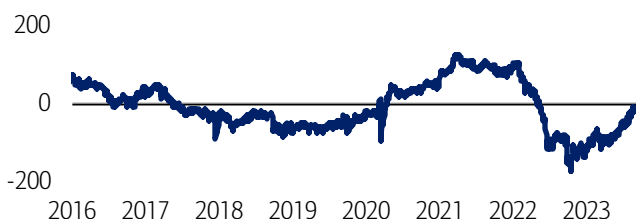


Source: BofA Global Research, Bloomberg

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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

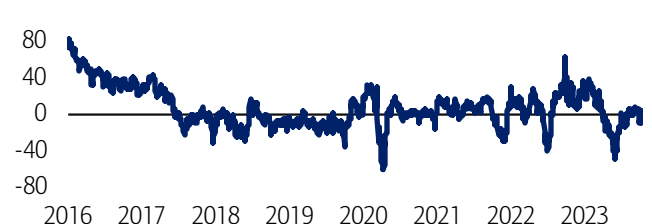


Source: BofA Global Research, Bloomberg

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

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

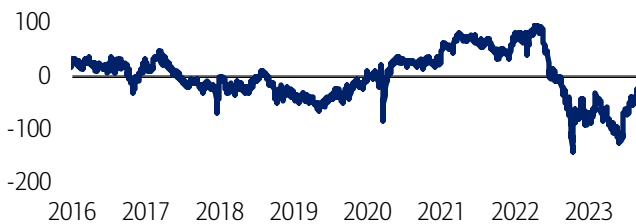


Source: BofA Global Research, Bloomberg

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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

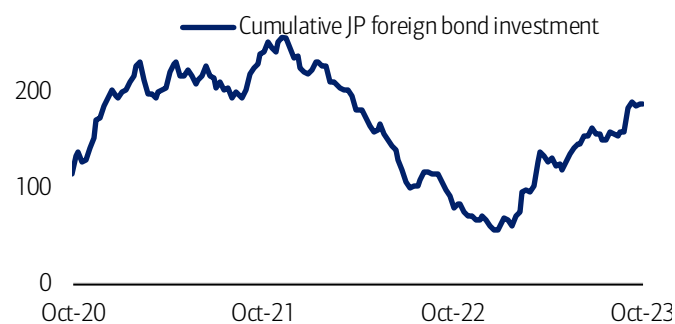
	10/12/2023		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB
10y UST	-2.17%	-2.93%	-2.14%	-2.93%	-2.22%	-2.94%	-1.23%	-2.05%
10y GER	-2.31%	-3.06%	-2.24%	-3.03%	-2.28%	-3.00%	0.48%	-0.34%
10y FRA	-1.70%	-2.45%	-1.66%	-2.45%	-1.75%	-2.47%	1.08%	0.26%
10y BEL	-1.65%	-2.40%	-1.56%	-2.35%	-1.65%	-2.37%	1.14%	0.32%
10y ITA	-0.35%	-1.11%	-0.24%	-1.03%	-0.52%	-1.24%	2.89%	2.07%
10y SPA	-1.21%	-1.96%	-1.13%	-1.92%	-1.23%	-1.95%	1.66%	0.84%
10y UK	-2.15%	-2.91%	-2.07%	-2.86%	-2.19%	-2.91%	0.17%	-0.65%
10y CAN	-2.21%	-2.97%	-2.17%	-2.96%	-2.26%	-2.98%	-1.33%	-2.15%

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 little changed on the week

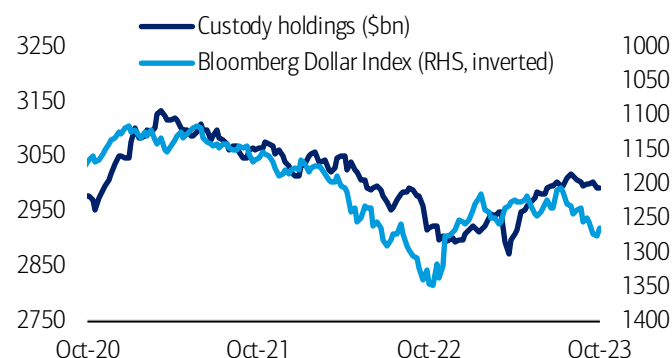


Source: BofA Global Research, Bloomberg

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

Custody holdings little changed on the week

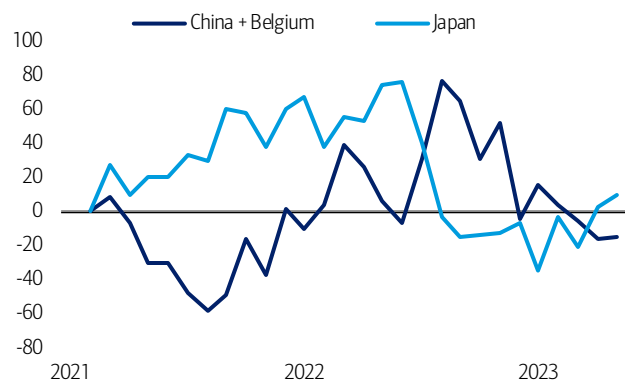


Source: BofA Global Research, NY Fed

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

China + Belgium and Japan have turned to net sellers since end of '22, Japan now a net buyer of UST

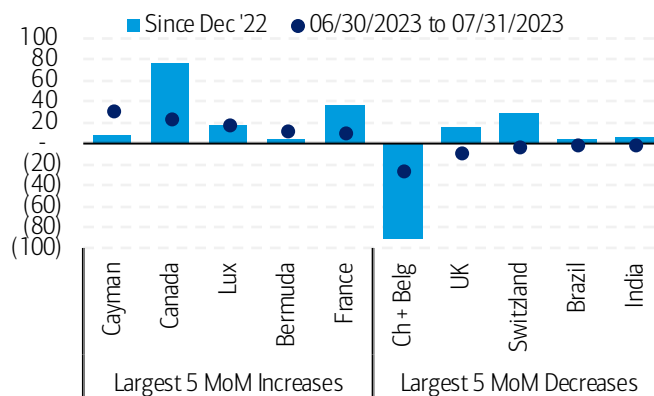


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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

Cayman was largest buyer, China + Belgium largest seller in July

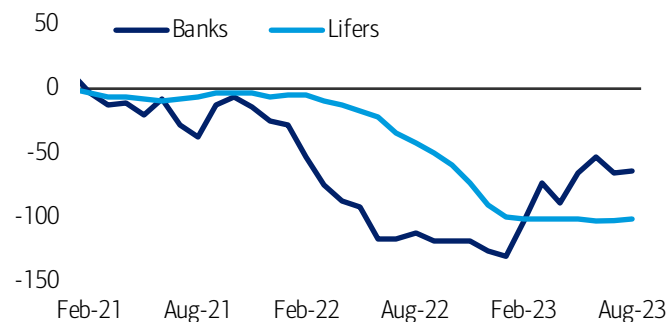


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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Exhibit 31: 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

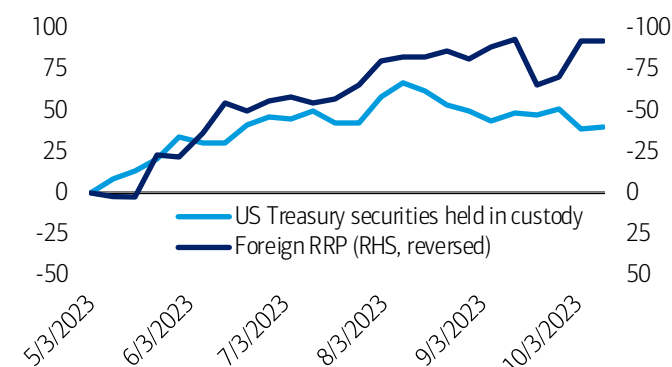


Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is June '23

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Exhibit 32: Cumulative change in custody holdings and foreign RRP since May 2023 (\$bn)

Dropped in custody holdings has been offset by increase in foreign RRP



Source: BofA Global Research, Federal Reserve, Bloomberg

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Fund flows and returns

Exhibit 33: US fixed income fund flows (\$million)

US FI funds saw inflows on the week, primarily led by govt short & mixed allocation funds, outflows seen primarily in corp HY funds

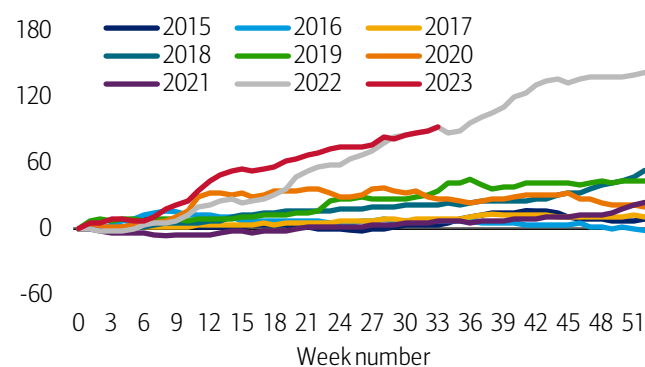
	10/11/2023	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	3,972	2,345	1,995	1,690	1,096
Gov: intermediate	361	534	460	307	285
Gov: long	1,650	1,128	919	1,122	1,169
Corp: IG	100	(970)	(652)	(323)	325
Corp:HY	(1,627)	(1,793)	(736)	(648)	(118)
Corp: all quality	(16)	25	38	37	26
MBS	196	101	94	212	233
Inflation	(202)	(272)	(325)	(230)	(456)
Muni	(169)	(652)	(370)	(223)	(215)
Mixed allocation	2,517	1,963	1,640	1,854	1,406
All USFI	6,567	2,236	3,122	3,715	3,250

Source: BofA Global Research, EPFR

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Exhibit 34: Sovereign fund inflows by year (\$bn)

Flows YTD are on track with highs of last year

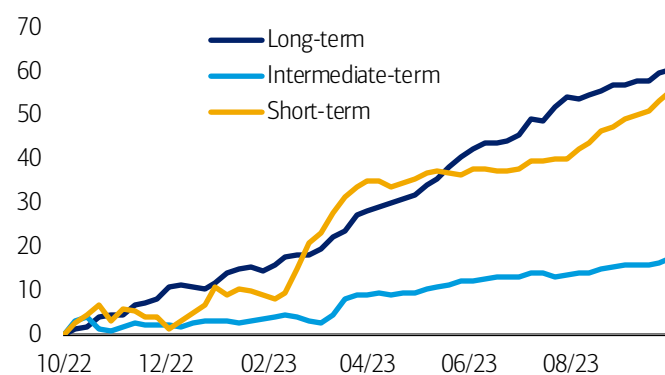


Source: BofA Global Research, EPFR

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Exhibit 35: Sovereign inflows by tenor (\$bn)

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

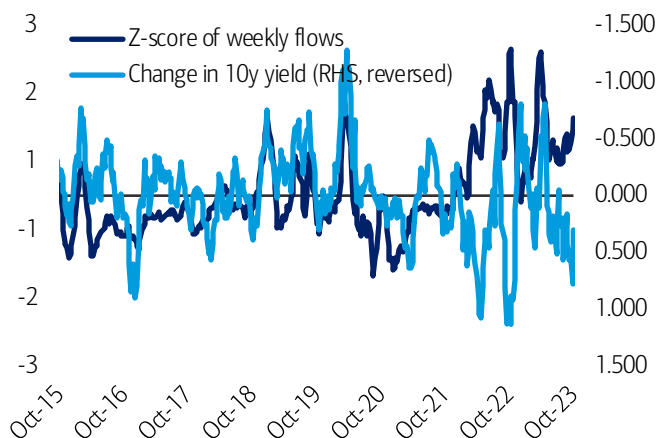


Source: BofA Global Research, EPFR

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Exhibit 36: Fund flows and rate change (Z-score)

Fund flows recently have been historically strong alongside rates rally

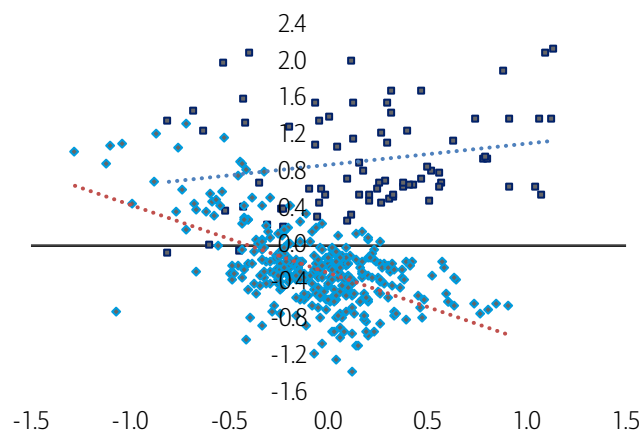


Source: BofA Global Research, EPFR

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Exhibit 37: 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 38: Total return FI fund performance vs benchmark

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

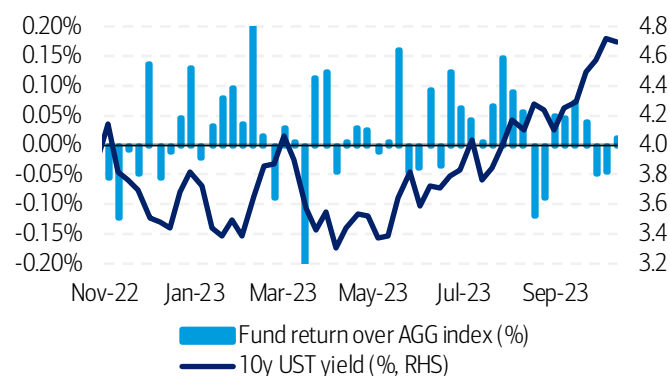
	AUM (\$Bn)	10/12/2023	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	250	0.18%	0.04%	-2.24%	0.07%
Vanguard Total Bond Market Index Fund	197	0.17%	0.03%	-2.21%	0.10%
PIMCO Income fund	127	0.13%	-0.01%	-2.03%	0.29%
The Bond Fund of America	74	0.08%	-0.06%	-2.31%	0.00%
MetWest Total Return Bond Fund	58	0.09%	-0.05%	-2.96%	-0.65%
PIMCO Total Return Fund	52	0.08%	-0.06%	-2.79%	-0.48%
Dodge & Cox Income Fund	57	0.17%	0.03%	-2.56%	-0.25%
PGIM Total Return Bond Fund	40	0.19%	0.05%	-2.42%	-0.11%
BlackRock Strategic Income Opportunities Fund	35	0.31%	0.17%	-0.97%	1.34%
Baird Aggregate Bond Fund	39	0.11%	-0.03%	-2.45%	-0.14%
JPMorgan Core Bond Fund	39	0.10%	-0.04%	-2.21%	0.10%
DoubleLine Total Return Bond Fund	31	0.12%	-0.02%	-2.52%	-0.21%
Fidelity Series Investment Grade Bond Fund	33	0.08%	-0.06%	-2.45%	-0.14%
Fidelity Total Bond Fund	31	0.20%	0.06%	-2.47%	-0.16%
Western Asset Core Plus Bond Portfolio	22	0.32%	0.18%	-4.04%	-1.73%
Baird Core Plus Bond Fund	24	0.21%	0.07%	-2.25%	0.06%
John Hancock Bond Fund	22	0.09%	-0.05%	-2.87%	-0.56%
TIAA-CREF Bond Index Fund	21	0.17%	0.03%	-2.34%	-0.03%
BlackRock Total Return Fund	17	0.19%	0.05%	-2.57%	-0.26%
JPMorgan Core Plus Bond Fund	16	0.15%	0.01%	-2.38%	-0.07%
Bridge Builder Core Bond Fund	16	0.20%	0.06%	-2.33%	-0.02%
T Rowe Price New Income Fund	16	-0.05%	-0.19%	-2.25%	0.06%
Western Asset Core Bond Fund	14	0.18%	0.04%	-3.38%	-1.07%
CREF Bond Market Account	10	0.11%	-0.03%	-2.35%	-0.04%
Fidelity Investment Grade Bond Fund	8	0.08%	-0.06%	-2.43%	-0.12%
DoubleLine Core Fixed Income Fund	7	0.11%	-0.03%	-2.35%	-0.04%
TCW Total Return Bond Fund	3	0.00%	-0.14%	-3.66%	-1.35%
Janus Henderson Flexible Bond Fund	3	0.09%	-0.05%	-2.62%	-0.31%
Weighted avg	1264	0.15%	0.01%	-2.35%	-0.04%
Agg		0.14%		-2.31%	
10y return		0.22%		-4.11%	

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

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Exhibit 39: 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

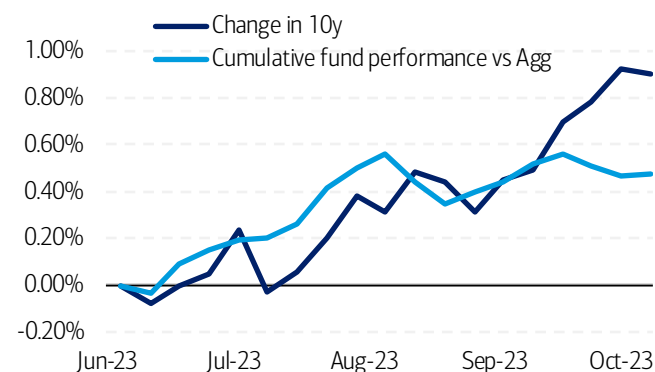


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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Exhibit 40: Cumulative return of TR FI funds over benchmark vs 10yT

Funds have modestly outperformed since the middle 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 41: Total return funds' published UST allocations vs benchmark from Q1 and Q2 '23

Funds moderated underweight UST position from Q1 to Q2

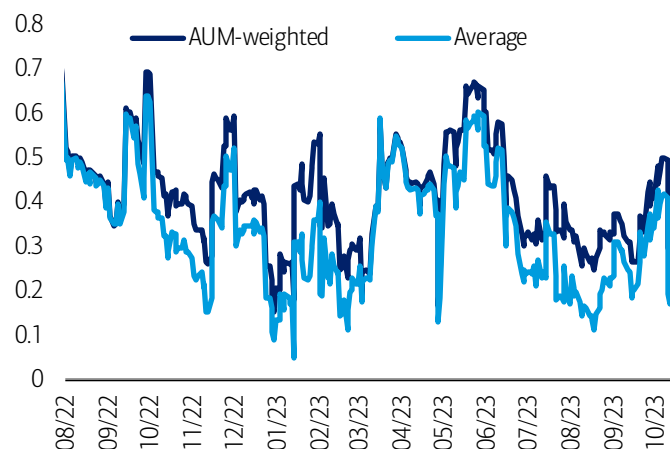
		AUM (\$bn)	Q1 '23 (%)	Q2 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	250.0	2.4	2.1	-0.3
VBMFX	Vanguard Total Bond Market Index Fund	197.0	1.7	1.4	-0.3
PIMIX	PIMCO Income fund	127.4	-43.4	-34.1	9.3
ABNDX	The Bond Fund of America	74.3	-11.3	-14.0	-2.7
MWTIX	MetWest Total Return Bond Fund	58.1	-16.5	-18.7	-2.2
DODIX	Dodge & Cox Income Fund	56.5	-28.1	-32.7	-4.6
PTTRX	PIMCO Total Return Fund	52.5	-15.4	-18.6	-3.2
PDBAX	PGIM Total Return Bond Fund	40.5	-33.7	-34.2	-0.5
BAGIX	Baird Aggregate Bond Fund	39.3	-16.9	-17.7	-0.8
PGBOX	JPMorgan Core Bond Fund	38.9	-5.0	-2.2	2.8
BSIIX	BlackRock Strategic Income Opportunities Fund	34.9	-17.3	-23.4	-6.1
FSIGX	Fidelity Series Investment Grade Bond Fund	33.3	-7.5	-10.1	-2.6
DBLTX	DoubleLine Total Return Bond Fund	31.4	-32.7	-32.8	-0.1
FTBFX	Fidelity Total Bond Fund	31.2	-12.0	-12.5	-0.4
BCOIX	Baird Core Plus Bond Fund	24.3	-18.5	-18.4	0.1
WACPX	Western Asset Core Plus Bond Portfolio	22.1	-33.7	-38.0	-4.3
JHBIX	John Hancock Bond Fund	21.6	-22.8	-22.5	0.3
TBIIX	TIAA-CREF Bond Index Fund	20.9	0.8	0.3	-0.5
MAHQX	BlackRock Total Return Fund	17.3	-13.7	88.0	101.7
ONIAI	JPMorgan Core Plus Bond Fund	16.4	-5.1	-2.9	2.2
PRCIX	T Rowe Price New Income Fund	15.9	-16.2	-11.8	4.4
BBTBX	Bridge Builder Core Bond Fund	15.9	-22.1	-23.0	-0.9
WATFX	Western Asset Core Bond Fund	14.0	-30.7	-31.1	-0.4
QCBMIX	CREF Bond Market Account	10.2	-21.1	-22.6	-1.5
FBNDX	Fidelity Investment Grade Bond Fund	8.2	-5.7	-0.3	5.4
DBLFX	DoubleLine Core Fixed Income Fund	6.6	-16.9	-17.9	-1.0
JFLEX	Janus Henderson Flexible Bond Fund	2.7	-11.3	-17.9	-6.7
TGLMX	TCW Total Return Bond Fund	2.6	-38.5	-39.6	-1.1
AUM weighted		1264.1	-13.3	-11.9	1.4

Source: BofA Global Research, funds' publicly available reports

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Exhibit 42: 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

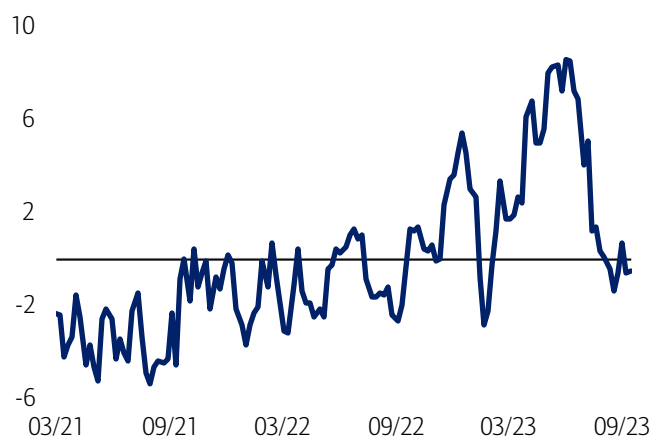


Source: BofA Global research, Bloomberg

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Exhibit 43: Primary dealer 2-6y holdings of TIPS (\$bn)

Primary dealer holdings have modestly recovered from the decline since end of June



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

BofA GLOBAL RESEARCH

Bank balance sheets

Exhibit 44: Changes to bank balance sheet assets (\$bn)

Domestic bank balance saw increase driven by cash, securities portfolio declined

		Current	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
All (\$bn, NSA)	Total Assets	22864	33	-13	8	8	3
	Cash	3314	42	-17	4	8	4
	UST & Agency	1514	-19	5	2	0	-3
	MBS	2529	-8	-12	-5	-4	-5
	Loans and Leases	12207	-1	7	9	9	9
	Other	3300	19	4	-1	-5	-1
Large Domestic (\$bn, NSA)	Total Assets	13321	11	2	16	6	0
	Cash	1638	20	7	16	11	5
	UST & Agency	1112	-16	4	1	1	-3
	MBS	1923	-4	-6	-1	-1	-2
	Loans and Leases	6745	-4	0	2	2	2
	Other	1903	15	-1	-2	-6	-2
Small Domestic (\$bn, NSA)	Total Assets	6530	4	-4	0	4	2
	Cash	444	14	-4	0	1	1
	UST & Agency	296	-3	2	1	0	-1
	MBS	578	-3	-6	-4	-3	-4
	Loans and leases	4420	0	4	4	6	6
	Other	792	-5	-1	-1	0	0
All Domestic (\$bn, NSA)	Total Assets	19851	15	-2	17	10	2
	Cash	2082	34	3	16	11	5
	UST & Agency	1407	-18	6	2	1	-3
	MBS	2501	-7	-12	-5	-4	-5
	Loans and leases	11166	-4	4	6	7	8
	Other	2695	11	-2	-3	-6	-2
Foreign (\$bn, NSA)	Total Assets	3012	18	-11	-8	-2	1
	Cash	1233	8	-20	-13	-4	-1
	UST & Agency	106	-1	-1	0	-1	0
	MBS	28	0	1	0	0	0
	Loans and leases	1041	3	3	3	2	1
	Other	604	9	6	1	1	2

Source: BofA Global Research, Federal Reserve, Bloomberg

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Exhibit 45: Select bank balance sheet liabilities (\$bn, NSA)

Domestic liability growth driven by deposits

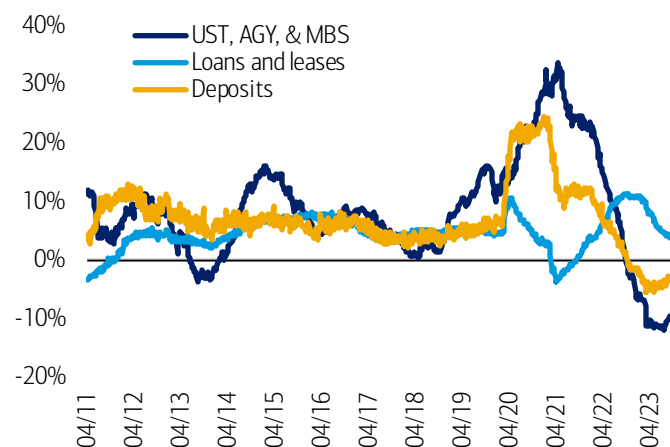
		Current	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
Deposits (\$bn, NSA)	All	17332	42	-2	2	6	-9
	Domestic	16054	42	-7	5	6	-9
	Large Domestic	10768	14	-7	2	-1	-7
	Small Domestic	5286	27	0	3	7	-1
	Foreign	1278	0	5	-2	0	0
Other borrowing (\$bn, NSA)	All	2358	54	22	15	6	12
	Domestic	1340	8	13	12	5	9
	Large Domestic	911	18	17	15	8	7
	Small Domestic	428	-10	-3	-3	-4	2
	Foreign	1018	46	8	3	1	3

Source: BofA Global Research, Federal Reserve, Bloomberg

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Exhibit 46: YoY change in securities, loans, and deposits

Securities growth usually only positive when deposit growth is positive

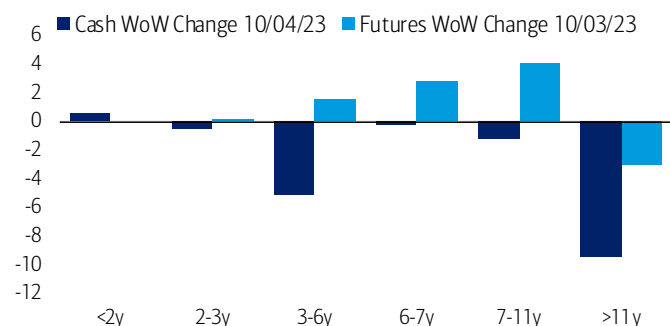


Source: BofA Global Research, Bloomberg, Federal Reserve

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Primary dealer balance sheet**Exhibit 47: Dealers WoW change in positions**

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

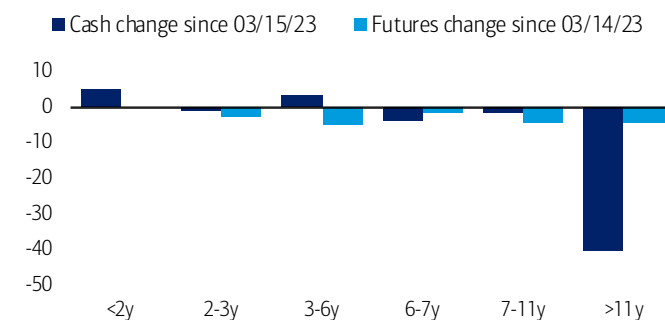


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 48: Dealers change in positions since bank risk events

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



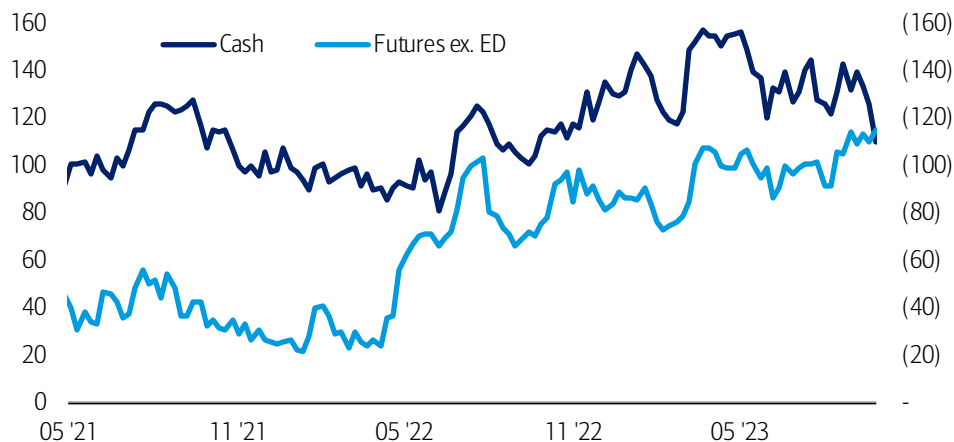
Source: BofA Global Research, NY Fed, CFTC

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Exhibit 49: Dealers total sector positions

10y equivalent, \$bn, short futures modestly picked up, & long cash dropped on the week



Source: BofA Global Research, NY Fed, CFTC

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Auction statistics

Exhibit 50: Auction summary statistics

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

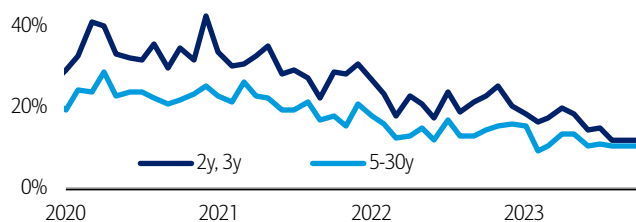
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	10/2/2023	13.3%	68.5%	18.2%	68.8%	13.9%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-1.1%	1.5%	0.0%
	1Y Z-score	-1.1	1.0	-0.7	1.0	-0.5	-0.4
3y	9/15/2023	10.8%	69.4%	19.8%	63.5%	13.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-7.7%	-3.1%	0.0%
	1Y Z-score	-1.3	0.9	0.2	-0.1	-0.7	-0.3
5y	10/2/2023	12.2%	19.7%	68.1%	73.7%	13.4%	0.1%
	MoM Change	0.0%	0.0%	0.0%	-1.1%	3.4%	0.1%
	1Y Z-score	-0.4	0.9	0.0	0.8	-0.1	1.2
7y	10/2/2023	8.1%	75.3%	16.6%	70.7%	13.0%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-10.0%	4.7%	0.0%
	1Y Z-score	-0.9	1.0	-0.7	-0.1	0.0	-0.5
10y	9/15/2023	12.4%	67.7%	19.9%	67.6%	16.2%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-1.5%	-1.4%	0.0%
	1Y Z-score	-0.7	0.5	0.3	0.3	0.2	-0.6
20y	10/2/2023	9.6%	68.8%	21.7%	72.9%	15.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-2.6%	5.0%	0.0%
	1Y Z-score	-0.1	-0.6	1.2	-0.1	0.3	#DIV/0!
30y	9/15/2023	10.9%	69.0%	20.1%	66.8%	14.9%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-2.7%	-0.5%	0.0%
	1Y Z-score	-0.1	-0.2	0.5	-0.8	0.3	-0.7

Source: BofA Global Research, Treasury

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Exhibit 51: Primary dealer – average auction allotment

Dealer participation has declined

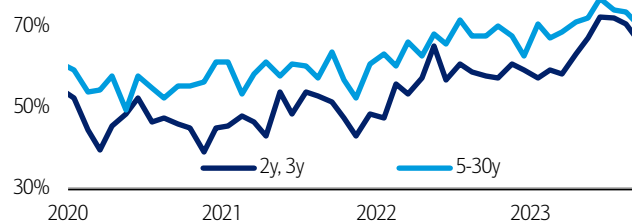


Source: BofA Global Research, Treasury

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Exhibit 52: Investment fund – average auction allotment

Fund participation still elevated

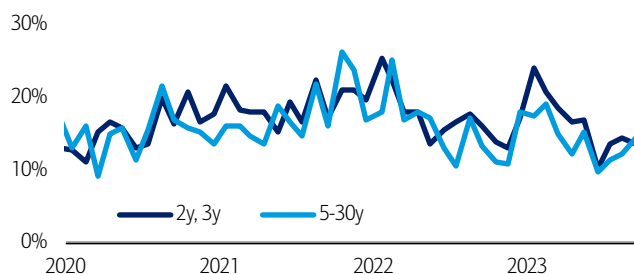


Source: BofA Global Research, Treasury

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Exhibit 53: Foreign investment – average auction allotment

Foreign participation still below average despite modest uptick in recent weeks

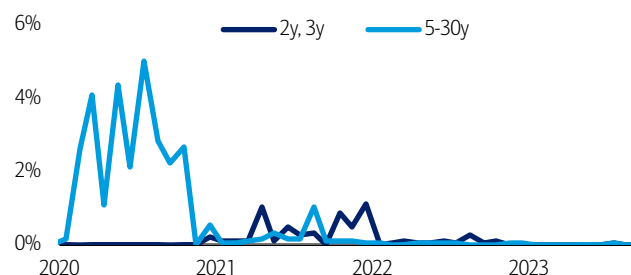


Source: BofA Global Research, Treasury

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Exhibit 54: Depository institutions – average auction allotment

Participation is minimal



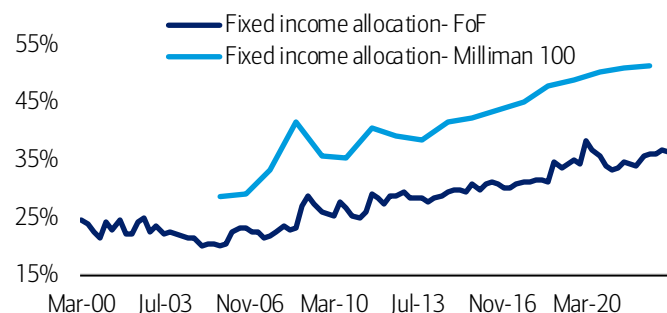
Source: BofA Global Research, Treasury

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Pensions

Exhibit 55: 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

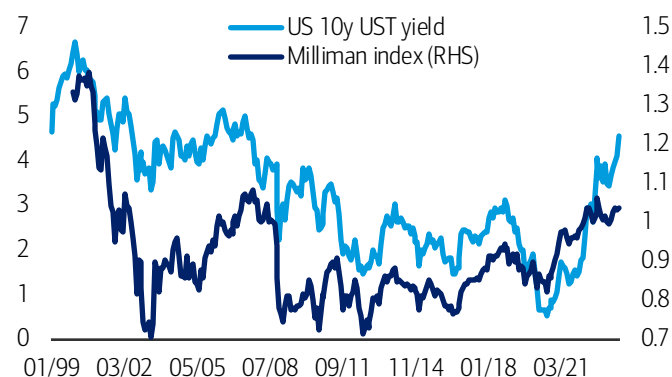


Source: BofA Global Research, Milliman, Federal Reserve

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Exhibit 56: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

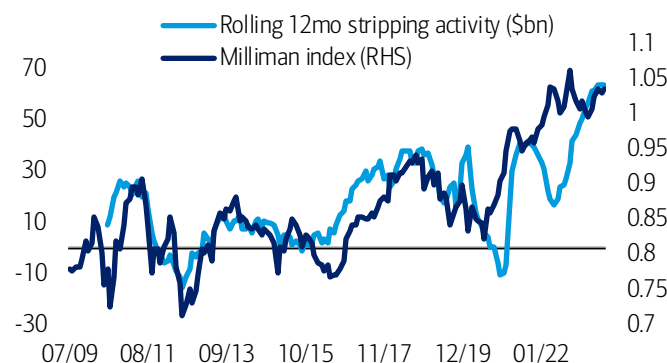


Source: BofA Global Research, Bloomberg

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Exhibit 57: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

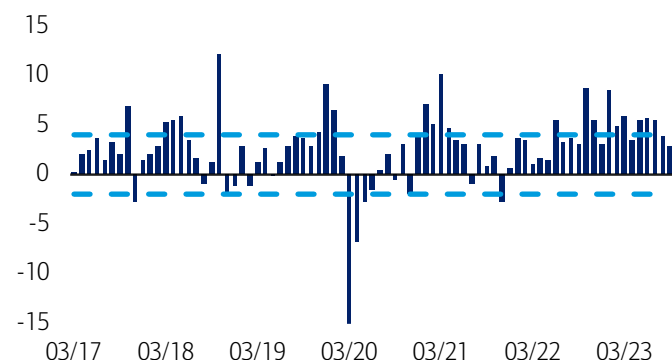


Source: BofA Global Research, Bloomberg

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Exhibit 58: Change in USTs held in stripped form (\$bn)

Stripping activity cooled modestly in August

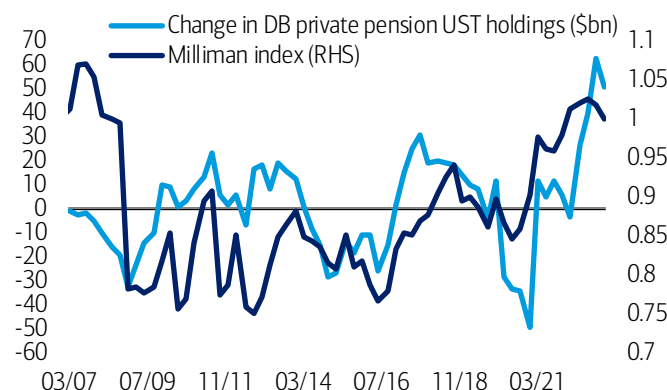


Source: BofA Global Research, Note: dashed line is 1stdev

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Exhibit 59: 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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