

US Rates Watch

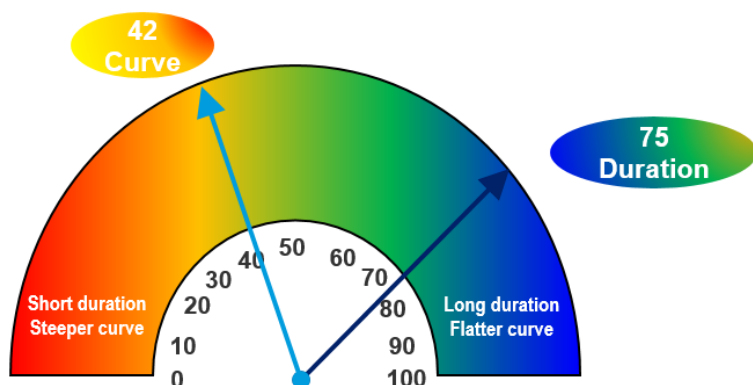
CTAs accelerate short covering; US fund inflows shift to front end

Yield swerve

Last week Treasury indicated a willingness to calibrate supply to demand (see report: [November refunding recap](#)). This likely encouraged demand from real money investors alongside data indicating that the Fed is at a restrictive policy setting. We saw open interest across the curve reflect steepeners closed and new longs added at the belly (see report: [Long 5y outright or through proxies](#)). CTAs also continued to cover back-end shorts. UST fund inflows shifted from the long end to front end of the curve while asset managers continue to hit new record longs in futures. We see the potential for US fixed income funds to cover underweight UST allocations based on Q3 reports and AUM-weighted performance which also suggests underweight positioning.

Exhibit 1: Curve-o-meter

CTAs and hedge funds remain more 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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Curve repositioning and belly buying

On the week through Thursday, open interest increased with signs of notable positioning adjustments across the curve. There were more longs vs shorts created, to the greatest degree in TU and FV. Longs were destroyed at the front end of the curve while shorts were closed at the back end. This suggests some covering of steepener positions and more buying in the belly. Our futures positioning proxy (for construction details see report: [Gauging positioning in Treasury Futures](#)) shows a more mixed bias across the curve with more longs in the money and shorts out of the money vs recent weeks (Exhibit 11). The front end shows a stronger bias to rally given a higher concentration of out of the money shorts, while the back end is still prone to selloff (Exhibit 12).

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

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

Asset manager longs build further

CFTC data indicates that asset managers hit new historic longs in 10y equivalent terms for the second consecutive week (Exhibit 7). Long positions grew to the greatest extent in FV and TY but were reduced in WN. Leveraged funds similarly hit another record of historical shorts in 10y equivalent terms and added meaningfully to shorts in FV and TY alongside asset manager demand. Speculative positioning excluding leveraged funds also increased on the week and sits above the 85th percentile over the last 5 years (Exhibit 5).

CTAs accelerate short covering

One risk to curve steepener positions that we have been flagging is that CTAs have appeared to be in them—with a notable short at the long-end of the curve vs the front-end (Exhibit 14). Over the past couple of weeks, we have seen a reduction in the negative CTA beta (see: [CTA impact on the rates market](#)) to long rates, indicating that this position has been moderating. We saw this continue this past week (Exhibit 15). However, there is still room for this position to unwind according to our top-down model and cross-over momentum indicator should rates continue to rally (Exhibit 13).

USD selloff could curb official selling

Since early August, NY Fed custodial holdings have fallen over \$30bn reflecting the official sector reducing UST holdings (Exhibit 34). This has coincided with a \$20bn build in foreign RRP holdings as foreign officials secured liquidity to intervene alongside USD appreciation pressures. While the official sector reduced holdings by \$6bn the week ending Nov 1, a continued depreciation of USD would reduce selling pressures.

US FI funds have room to add

US fixed income funds saw another week of strong inflows (Exhibit 35). While our report last week highlighted strong inflows into long-term UST funds, this past week showed stronger inflows into short-term UST funds. Credit funds saw modest inflows after several weeks of outflows.

US total return fixed income funds on an AUM weighted basis underperformed benchmark alongside the continued rally in rates (Exhibit 40). However, almost half of the funds we track outperformed which suggests that recently the more off-side positions have been concentrated in larger funds.

Our fund allocation tracker shows that from Q2 to Q3 US benchmark funds reduced their UST allocations further below benchmark (Exhibit 43). On an AUM weighted basis this allocation was cut by about 2 percentage points and 20/28 funds reduced positions. This conflicts with our FX and Rates Sentiment Survey (FXRS, see report: [I have a dollar](#)) which implied that global benchmark funds held overweight US duration positions throughout the year. This divergence could stem from benchmark and regional composition of funds as well as risk vs dollar allocation differences. However, both our FXRS and US fund data do show room for funds to add to duration allocations: US funds covering underweights and global funds adding back to overweight positions.

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, Nov 6				No major data	13-week bills	75	0		
					26-week bills	68	0		
Tu, Nov 7	Trade Balance	-\$60.0bn	-\$60.5bn	9:50 Fed's Schmid Speaks at Dallas/Kansas City Energy Conference	42-day bills	75	0	Bills	30
	Consumer Credit	-	\$10.0bn	13:25 Fed's Logan (voter) Participates in Moderated Discussion	3-year notes	48	2		
				13:30 Fed's Logan (voter) Speaks at Dallas/Kansas City Fed Energy Conference					
W, Nov 8	MBA Mortgage Applications	-	-	No major data	10-year notes	40	5		
	Wholesale Inventories	-	0.00%		17-week bills				
Th, Nov 9	Initial Jobless Claims	221k	-	9:30 Fed's Bostic and Barkin Speak on Survey Data	4-week bills			Bills	-7
				12:00 Fed's Paese Speaks About the Economy and Monetary Policy	8-week bills				
				14:00 Fed's Powell (voter) Speaks on Panel at IMF Conference	30-year bonds	24	4		
F, Nov 10	U. of Michigan Sentiment	63	63.5	7:30 Fed's Logan (voter) Speaks at ECB Money Markets Conference					
	Monthly Budget Statement	-\$75.0bn	-	9:00 Fed's Bostic Speaks About Economic Mobility					

Source: BofA Global Research, Bloomberg, US Treasury

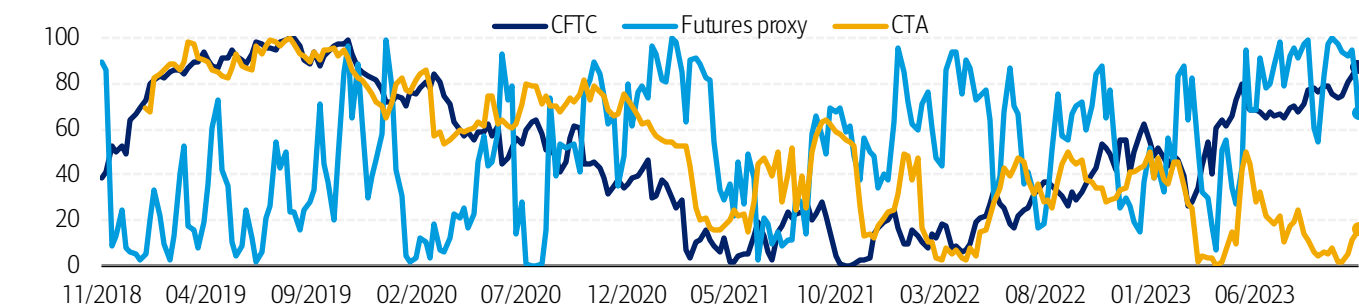
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Positioning indicators

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 shows positioning is historically short

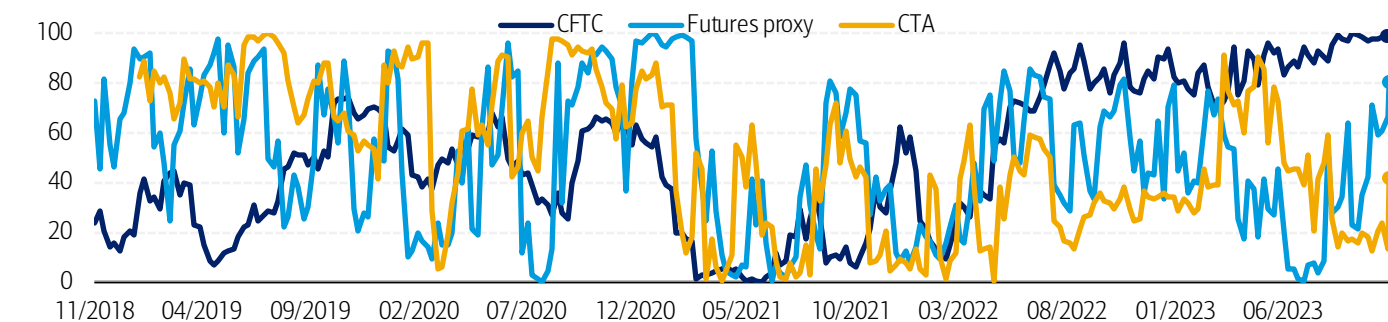


Source: BofA Global Research

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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

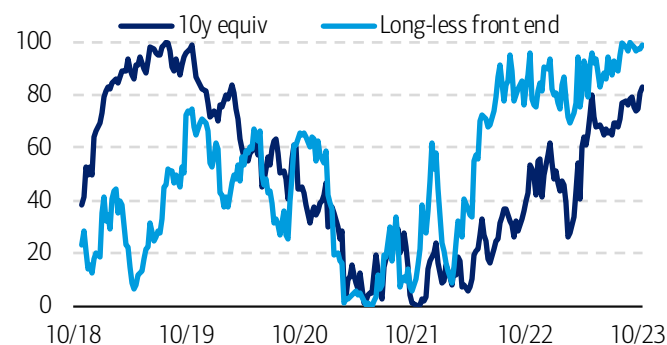


Source: BofA Global Research

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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

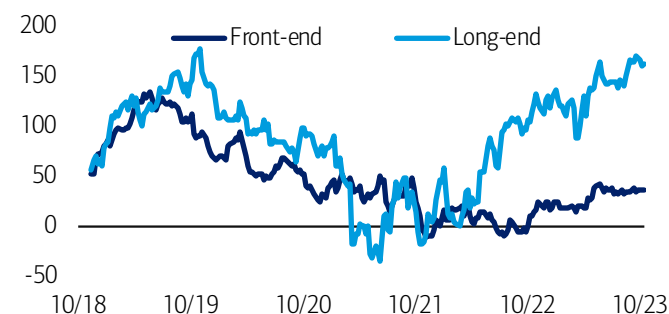


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

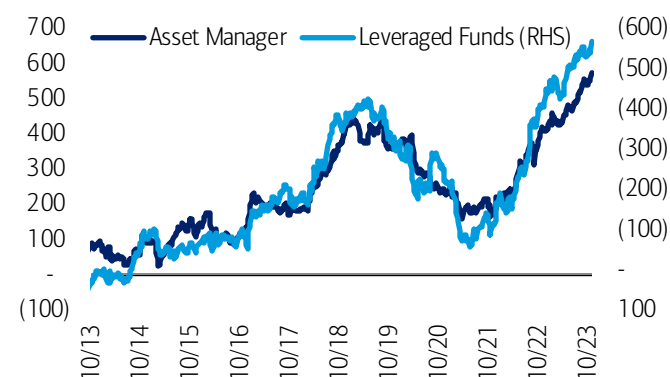


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

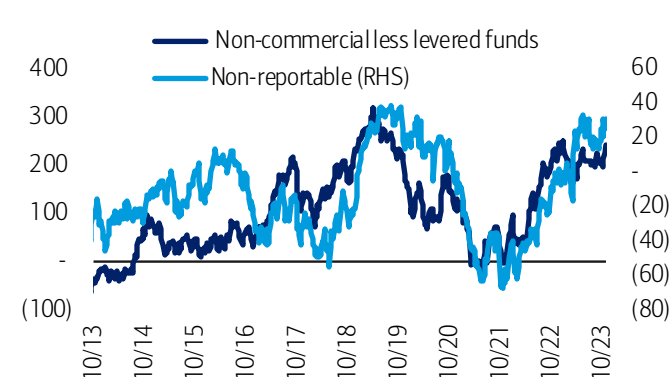


Source: BofA Global Research, Bloomberg

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

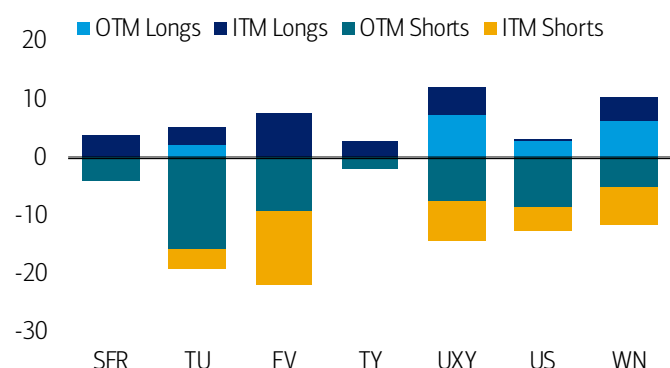
	0	1w	4w	8w	12w	16w
0 to 10	10	6	6	5	5	7
10 to 20	20	-3	-2	-1	-1	0
20 to 30	30	1	-3	-3	-3	-4
30 to 40	40	-5	-2	-3	-3	-5
40 to 50	50	-3	-2	-2	-2	-2
50 to 60	60	4	3	3	2	2
60 to 70	70	3	2	2	3	4
70 to 80	80	3	4	4	4	5
80 to 90	90	2	4	4	4	5
90 to 100	100	-1	-2	-1	0	0

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 mixed across contracts, longs are ITM in SFR and FV

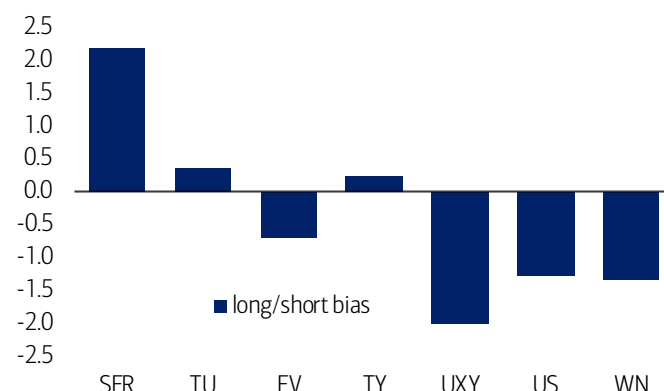


Source: BofA Global Research, Bloomberg

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Exhibit 12: Analysis of proxies for futures positioning

Bias for rates to sell off in the back-end but signal a buy in SFR

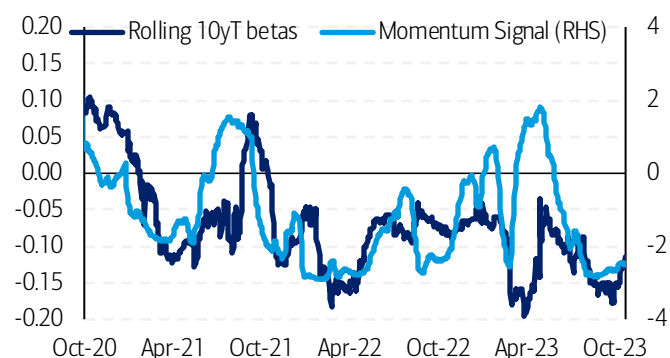


Source: BofA Global Research, Bloomberg, Note: reflects average positioning of futures stack over last 5 days

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Exhibit 13: CTA positioning in 10yT

On the week, CTAs covered shorts as momentum signal continued to moderate

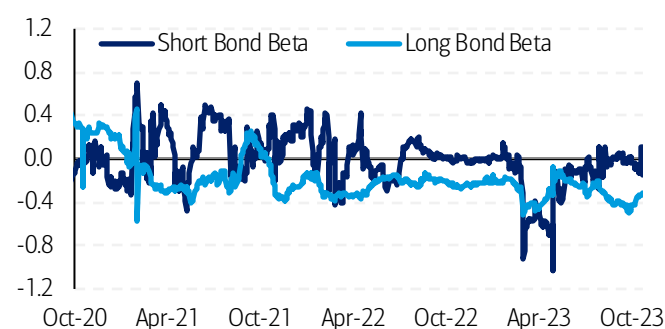


Source: BofA Global Research

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

Top-down model suggests CTAs positioning turned short at the front-end

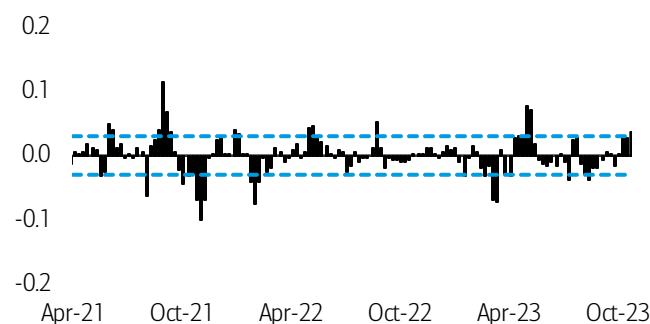


Source: BofA Global Research

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Exhibit 15: Changes in CTA 10yT beta

Change in 10y beta is positive on the week

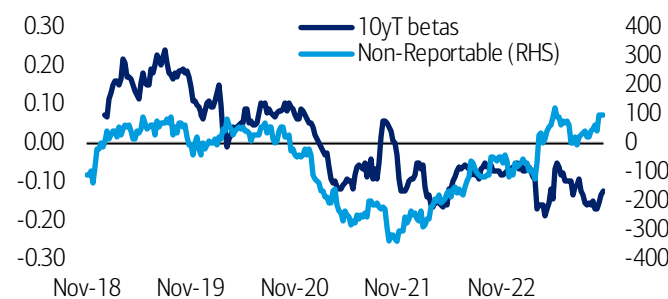


Source: BofA Global Research

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

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



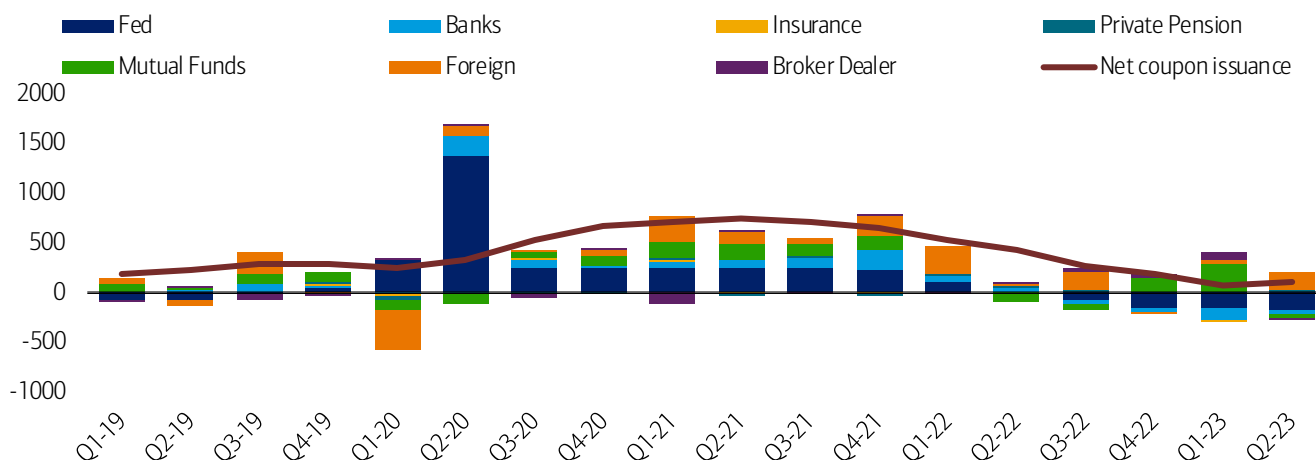
Source: BofA Global Research, Bloomberg

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Flow of funds

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

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

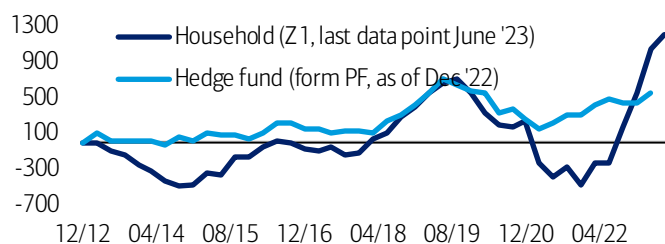


Source: BofA Global Research, Bloomberg, Note: change in levels adjusted for change in rates over the quarter

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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

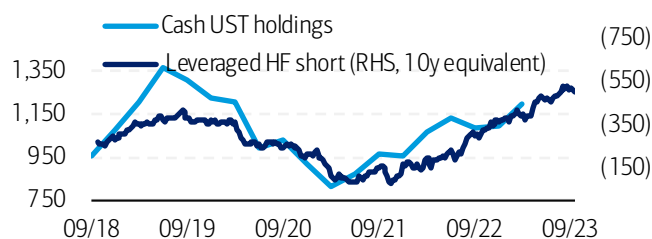


Source: BofA Global Research, Federal Reserve

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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



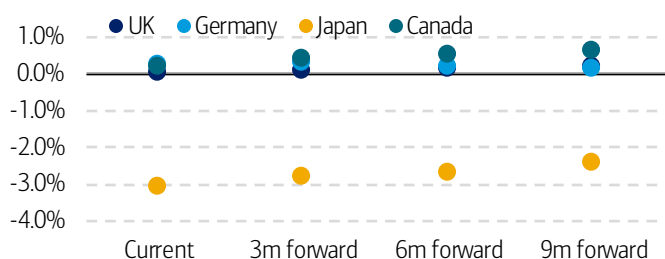
Source: BofA Global Research, Federal Reserve, Bloomberg

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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

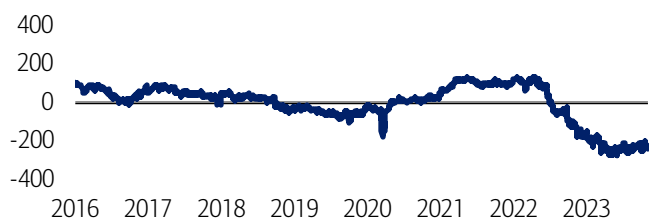


Source: BofA Global Research, Bloomberg

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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

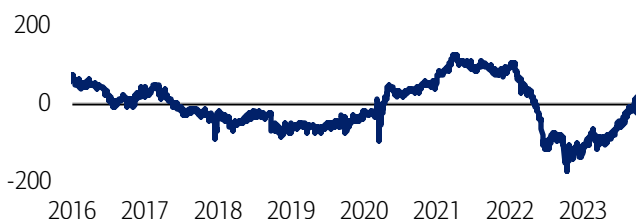


Source: BofA Global Research, Bloomberg

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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

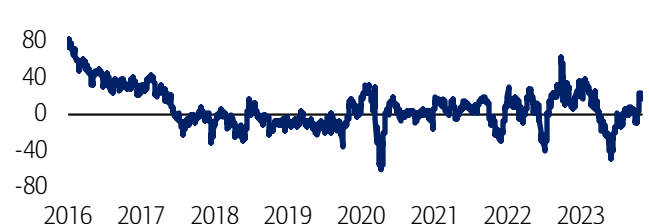


Source: BofA Global Research, Bloomberg

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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

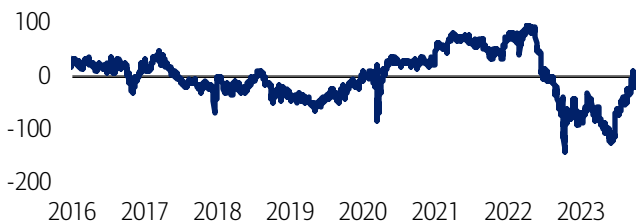


Source: BofA Global Research, Bloomberg

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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

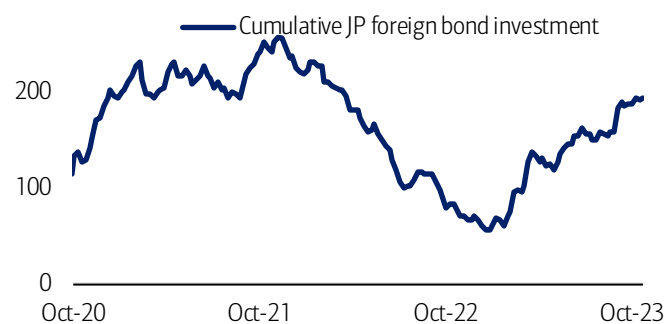
	11/2/2023		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB
10y UST	-2.33%	-3.11%	-2.18%	-2.97%	-2.14%	-2.93%	-1.14%	-2.00%
10y GER	-2.56%	-3.33%	-2.44%	-3.23%	-2.24%	-3.03%	-0.02%	-0.89%
10y FRA	-1.97%	-2.74%	-1.82%	-2.62%	-1.66%	-2.45%	0.51%	-0.36%
10y BEL	-1.93%	-2.70%	-1.78%	-2.58%	-1.56%	-2.35%	0.57%	-0.30%
10y ITA	-0.67%	-1.44%	-0.49%	-1.28%	-0.24%	-1.03%	2.12%	1.26%
10y SPA	-1.52%	-2.29%	-1.35%	-2.15%	-1.13%	-1.92%	1.06%	0.20%
10y UK	-2.34%	-3.12%	-2.18%	-2.97%	-2.07%	-2.86%	-0.54%	-1.41%
10y CAN	-2.51%	-3.28%	-2.40%	-3.19%	-2.17%	-2.96%	-1.40%	-2.27%

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 ticked up on the week

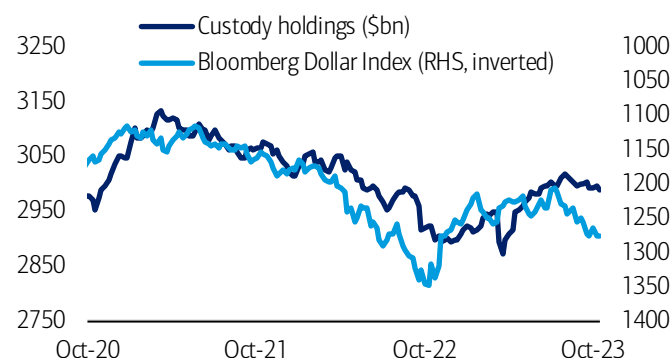


Source: BofA Global Research, Bloomberg

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

Custody holdings dropped on the week

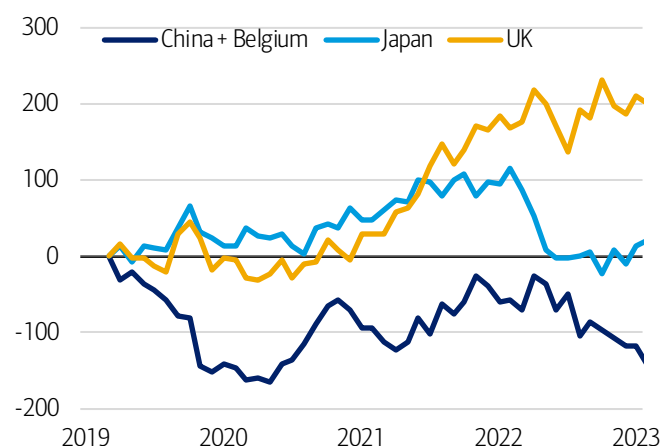


Source: BofA Global Research, NY Fed

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

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

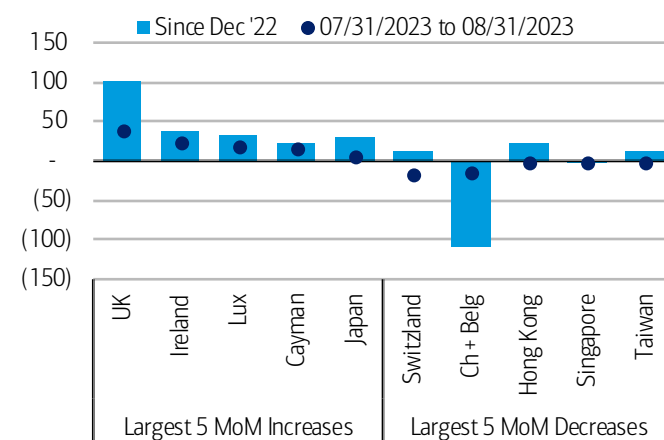


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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

UK was largest buyer, Switzerland largest seller in August

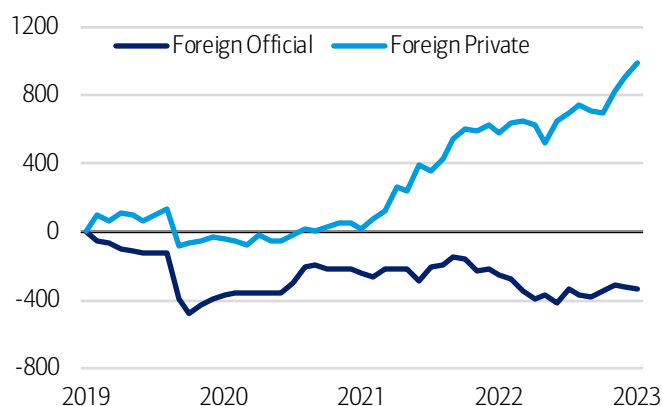


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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

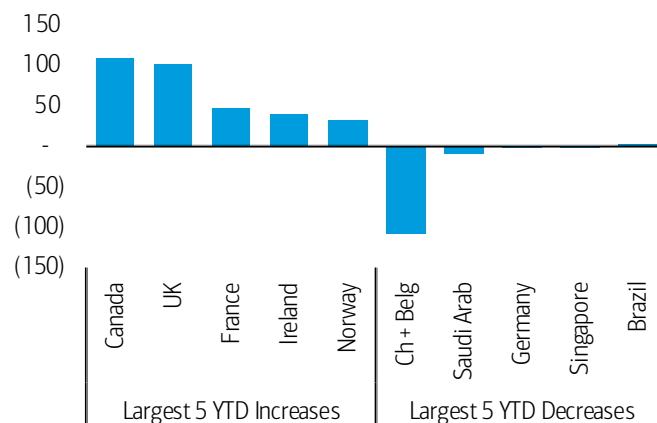
While official UST holdings have declined in recent years, foreign private investors have more than offset



Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow
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Exhibit 32: Largest YTD changes in foreign TSY holdings (\$bn)

Canada, UK were largest buyers, while China was largest seller

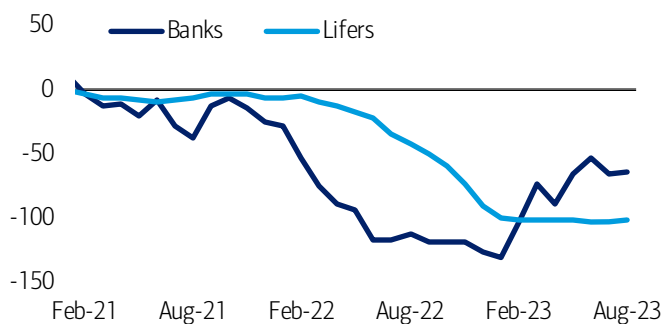


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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

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

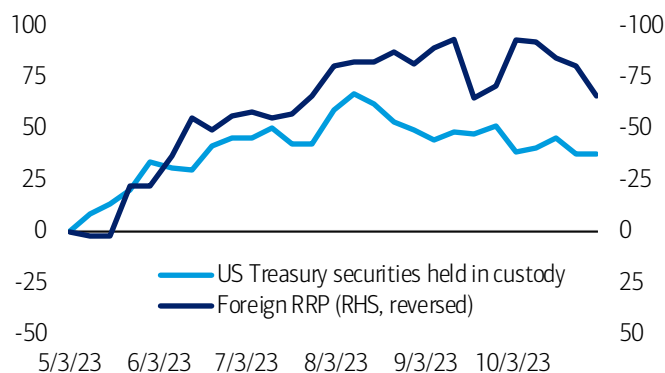


Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is June '23

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

Custody holdings held flat while foreign RRP declined



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 primarily in govt short & long funds, outflows seen primarily in muni funds

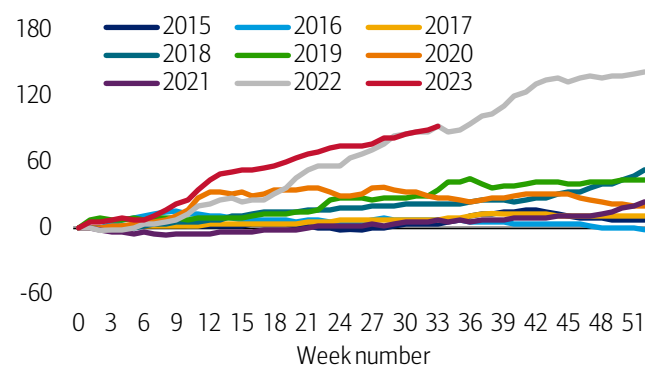
	11/1/2023	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	5,348	3,017	2,348	2,131	1,239
Gov: intermediate	(92)	365	417	430	346
Gov: long	1,579	2,736	1,817	1,475	1,285
Corp: IG	633	(929)	(862)	(868)	187
Corp:HY	747	(843)	(1,003)	(715)	(319)
Corp: all quality	14	14	32	31	29
MBS	(314)	549	353	254	245
Inflation	(198)	(370)	(341)	(386)	(439)
Muni	(1,022)	(375)	(497)	(393)	(168)
Mixed allocation	993	1,425	1,543	1,539	1,644
All US FI	8,277	5,169	3,536	3,396	3,569

Source: BofA Global Research, EPFR

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

Flows YTD are on track with highs of last year

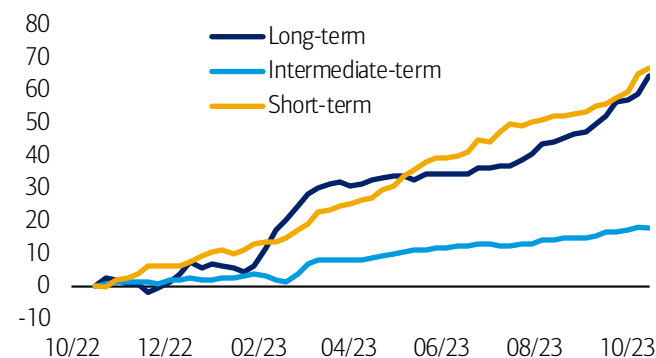


Source: BofA Global Research, EPFR

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Exhibit 37: Sovereign inflows by tenor (\$bn)

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

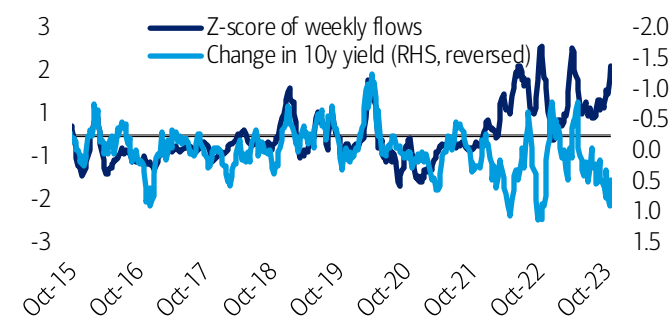


Source: BofA Global Research, EPFR

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

Fund flows recently have been historically strong alongside rates rally

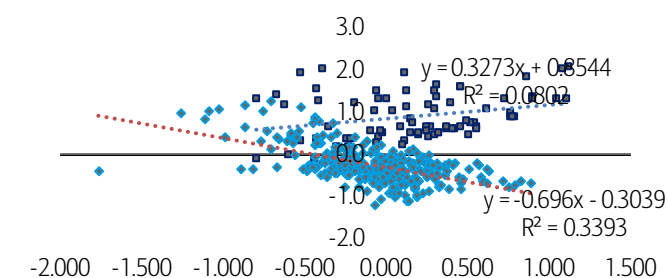


Source: BofA Global Research, EPFR

BofA GLOBAL RESEARCH

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: Total return FI fund performance vs benchmark

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

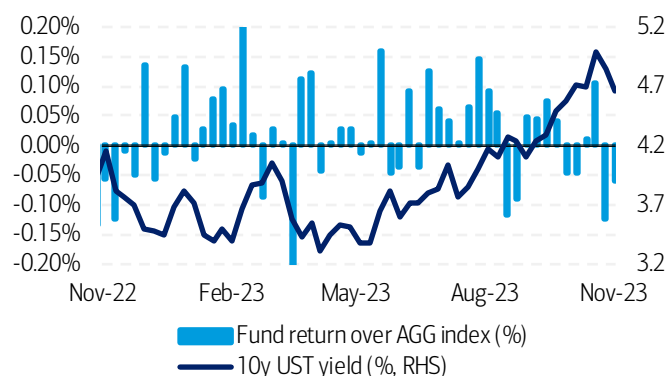
	AUM (\$Bn)	11/2/2023	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	250	1.19%	-0.18%	0.71%	-0.12%
Vanguard Total Bond Market Index Fund	197	1.17%	-0.20%	0.70%	-0.14%
PIMCO Income fund	126	1.33%	-0.04%	0.91%	0.07%
The Bond Fund of America	75	1.39%	0.02%	0.78%	-0.05%
MetWest Total Return Bond Fund	55	1.50%	0.13%	0.70%	-0.13%
PIMCO Total Return Fund	51	1.57%	0.20%	0.82%	-0.02%
Dodge & Cox Income Fund	57	1.54%	0.17%	0.93%	0.10%
PGIM Total Return Bond Fund	40	1.25%	-0.12%	0.73%	-0.10%
BlackRock Strategic Income Opportunities Fund	35	0.87%	-0.50%	0.80%	-0.03%
Baird Aggregate Bond Fund	40	1.31%	-0.06%	0.76%	-0.07%
JPMorgan Core Bond Fund	40	1.23%	-0.14%	0.60%	-0.23%
DoubleLine Total Return Bond Fund	31	1.26%	-0.11%	0.53%	-0.31%
Fidelity Series Investment Grade Bond Fund	33	1.26%	-0.11%	0.76%	-0.08%
Fidelity Total Bond Fund	31	1.44%	0.07%	0.91%	0.07%
Western Asset Core Plus Bond Portfolio	22	2.06%	0.69%	1.29%	0.45%
Baird Core Plus Bond Fund	25	1.38%	0.01%	0.87%	0.03%
John Hancock Bond Fund	21	1.60%	0.23%	0.82%	-0.01%
TIAA-CREF Bond Index Fund	21	1.28%	-0.09%	0.80%	-0.04%
BlackRock Total Return Fund	17	1.48%	0.11%	0.76%	-0.07%
JPMorgan Core Plus Bond Fund	16	1.24%	-0.13%	0.79%	-0.04%
Bridge Builder Core Bond Fund	16	1.28%	-0.09%	0.80%	-0.03%
T Rowe Price New Income Fund	16	1.41%	0.04%	0.46%	-0.38%
Western Asset Core Bond Fund	14	1.70%	0.34%	0.93%	0.09%
CREF Bond Market Account	10	1.33%	-0.04%	0.72%	-0.11%
Fidelity Investment Grade Bond Fund	8	1.26%	-0.11%	0.75%	-0.09%
DoubleLine Core Fixed Income Fund	7	1.24%	-0.13%	0.55%	-0.28%
TCW Total Return Bond Fund	3	1.52%	0.15%	0.31%	-0.53%
Janus Henderson Flexible Bond Fund	3	1.46%	0.09%	0.82%	-0.02%
Weighted avg	1257	1.31%	-0.06%	0.77%	-0.07%
Agg		1.37%		0.84%	
10y return		1.86%		0.59%	

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, excess return vs. 10y rate

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

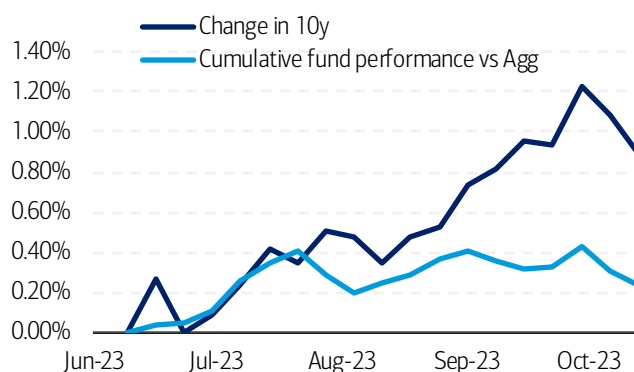


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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Exhibit 42: 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 43: Total return funds' published UST allocations vs benchmark from Q1 and Q2 '23

Funds moderated underweight UST position from Q1 to Q2

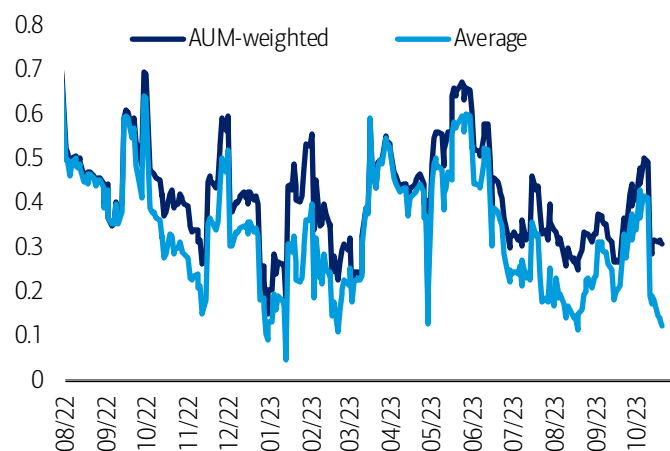
		AUM (\$bn)	Q2 '23 (%)	Q3 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	250.0	2.1	2.2	0.1
VBMFX	Vanguard Total Bond Market Index Fund	197.0	1.4	1.3	-0.1
PIMIX	PIMCO Income fund	125.5	-34.1	-34.8	-0.6
ABNDX	The Bond Fund of America	74.6	-14.0	-22.4	-8.4
DODIX	Dodge & Cox Income Fund	56.5	-32.7	-29.8	2.9
MWTIX	MetWest Total Return Bond Fund	54.7	-18.7	-17.4	1.3
PTTRX	PIMCO Total Return Fund	51.1	-18.6	-23.9	-5.3
PGBOX	JPMorgan Core Bond Fund	40.3	-2.2	-3.9	-1.7
BAGIX	Baird Aggregate Bond Fund	40.1	-17.7	-18.8	-1.1
PDBAX	PGIM Total Return Bond Fund	40.0	-34.2	-34.9	-0.7
BSIIX	BlackRock Strategic Income Opportunities Fund	35.2	-23.4	-24.0	-0.7
FSIGX	Fidelity Series Investment Grade Bond Fund	32.5	-10.1	-6.4	3.7
DBLTX	DoubleLine Total Return Bond Fund	31.4	-32.8	-34.6	-1.8
FTBFX	Fidelity Total Bond Fund	30.7	-12.5	-11.6	0.9
BCOIX	Baird Core Plus Bond Fund	24.7	-18.4	-19.1	-0.7
WACPX	Western Asset Core Plus Bond Portfolio	21.6	-38.0	-38.6	-0.6
JHBIX	John Hancock Bond Fund	21.1	-22.5	-21.6	0.9
TBIIX	TIAA-CREF Bond Index Fund	20.5	0.3	0.0	-0.3
MAHQX	BlackRock Total Return Fund	17.3	88.0	-1.9	-89.9
ONIA	JPMorgan Core Plus Bond Fund	16.4	-2.9	-3.1	-0.2
BBTBX	Bridge Builder Core Bond Fund	16.2	-23.0	-24.6	-1.6
PRCIX	T Rowe Price New Income Fund	15.8	-11.8	-8.6	3.2
WATFX	Western Asset Core Bond Fund	14.0	-31.1	-32.1	-1.0
QCBMIX	CREF Bond Market Account	10.0	-22.6	-23.0	-0.4
FBNDX	Fidelity Investment Grade Bond Fund	7.7	-0.3	3.5	3.8
DBLFX	DoubleLine Core Fixed Income Fund	6.6	-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
AUM weighted		1257.1	-11.8	-13.7	-1.9

Source: BofA Global Research, funds' publicly available reports

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Exhibit 44: 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

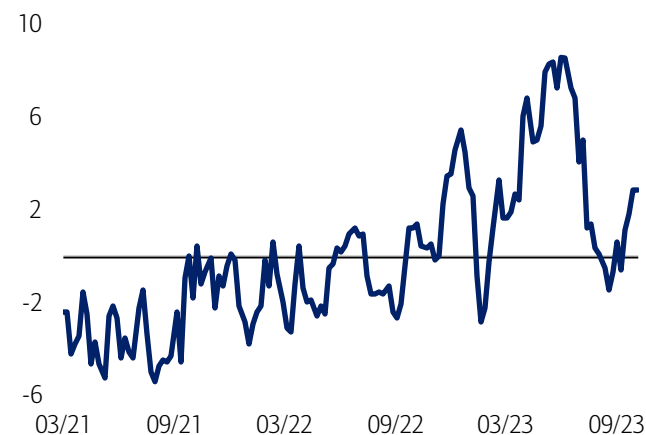


Source: BofA Global research, Bloomberg

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Exhibit 45: 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 46: Changes to bank balance sheet assets (\$bn)

Domestic bank balance saw increase in loans

		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	22874	9	12	2	7	2
	Cash	3354	21	21	4	8	4
	UST & Agency	1517	2	-4	1	1	-3
	MBS	2513	5	-6	-9	-5	-5
	Loans and Leases	12232	25	6	7	6	8
	Other	3258	-44	-6	-1	-4	-1
Large Domestic (\$bn, NSA)	Total Assets	13276	-5	-8	4	6	-2
	Cash	1595	4	-6	7	7	3
	UST & Agency	1117	4	-3	1	1	-2
	MBS	1913	7	-4	-5	-2	-2
	Loans and Leases	6770	22	5	3	2	2
	Other	1882	-42	-1	-1	-3	-3
Small Domestic (\$bn, NSA)	Total Assets	6523	-3	-1	-1	-1	2
	Cash	435	-4	1	0	-1	1
	UST & Agency	297	2	0	1	1	-1
	MBS	574	-2	-2	-3	-3	-4
	Loans and leases	4428	6	2	3	3	6
	Other	790	-4	-2	-1	-1	0
All Domestic (\$bn, NSA)	Total Assets	19799	-8	-9	3	5	0
	Cash	2029	0	-4	6	6	4
	UST & Agency	1414	6	-3	2	2	-3
	MBS	2486	5	-5	-9	-5	-5
	Loans and leases	11198	27	7	5	5	7
	Other	2671	-46	-3	-2	-3	-3
Foreign (\$bn, NSA)	Total Assets	3075	17	20	-1	1	2
	Cash	1325	21	25	-2	2	0
	UST & Agency	103	-3	-1	-1	-1	0
	MBS	26	0	0	0	0	0
	Loans and leases	1034	-2	-1	1	1	1
	Other	586	2	-2	1	-1	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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Exhibit 47: Select bank balance sheet liabilities (\$bn, NSA)

Domestic liability decline in deposits

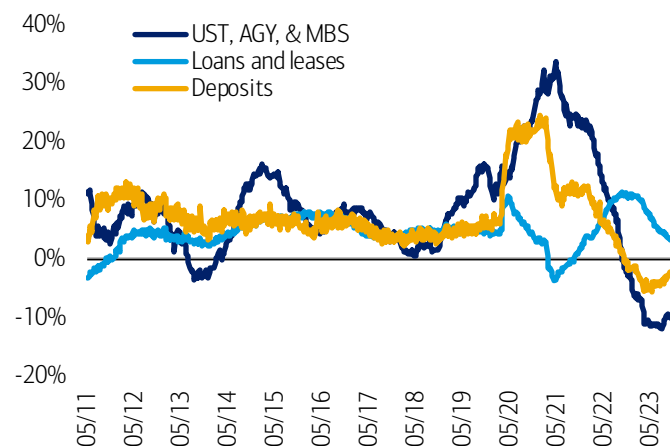
		Current	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
Deposits (\$bn, NSA)	All	17206	-22	-21	-10	-10	-9
	Domestic	15933	-33	-20	-9	-10	-9
	Large Domestic	10662	-29	-23	-11	-11	-8
	Small Domestic	5271	-4	3	1	1	-1
	Foreign	1272	11	-1	-1	0	0
Other borrowing (\$bn, NSA)	All	2352	-7	12	10	11	11
	Domestic	1354	2	6	7	10	9
	Large Domestic	921	2	7	9	12	7
	Small Domestic	432	0	-1	-2	-2	2
	Foreign	999	-8	7	3	1	3

Source: BofA Global Research, Federal Reserve, Bloomberg

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Exhibit 48: YoY change in securities, loans, and deposits

Securities growth usually only positive when deposit growth is positive

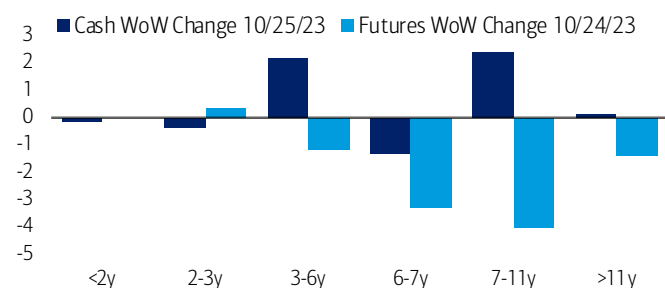


Source: BofA Global Research, Bloomberg, Federal Reserve

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Primary dealer balance sheet**Exhibit 49: Dealers WoW change in positions**

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

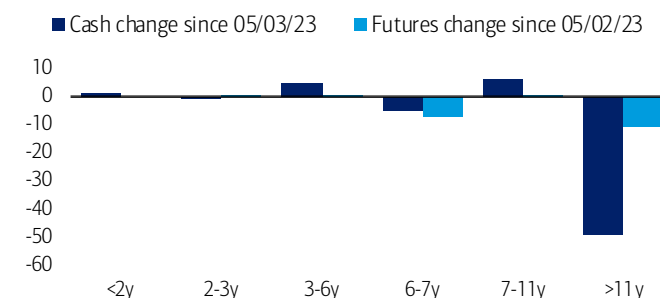


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 50: Dealers change in positions over last 6mo

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

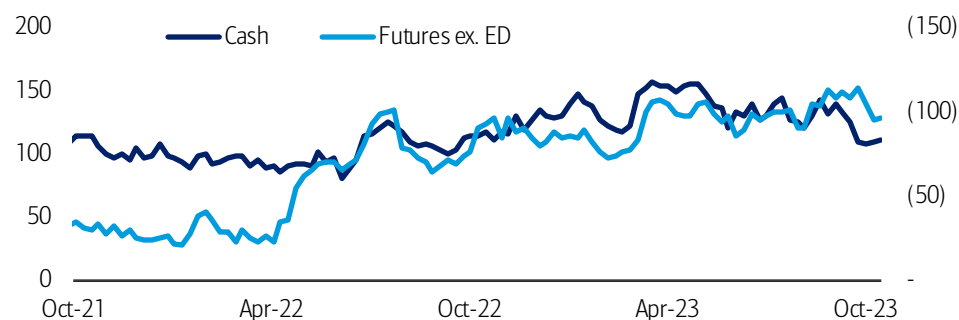


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 51: Dealers total sector positions

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



Source: BofA Global Research, NY Fed, CFTC

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Auction statistics

Exhibit 52: Auction summary statistics

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

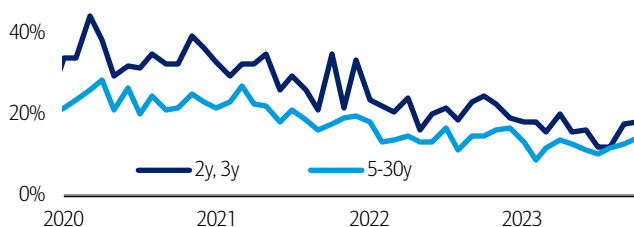
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	10/2/2023	14.0%	65.0%	21.0%	68.8%	13.9%	0.0%
	MoM Change	-1.0%	0.0%	1.0%	-1.1%	1.5%	0.0%
	1Y Z-score	-1.0	0.6	0.0	1.0	-0.5	-0.4
3y	10/16/2023	22.1%	56.0%	21.9%	62.8%	13.1%	0.0%
	MoM Change	1.8%	-1.7%	-0.2%	-0.7%	-0.4%	0.0%
	1Y Z-score	0.9	-1.1	0.9	-0.2	-0.8	0.1
5y	10/2/2023	11.2%	17.6%	71.1%	73.7%	13.4%	0.1%
	MoM Change	-2.6%	-0.7%	3.2%	-1.1%	3.4%	0.1%
	1Y Z-score	-0.7	-0.4	0.7	0.8	-0.1	1.2
7y	10/2/2023	14.6%	65.5%	19.9%	70.7%	13.0%	0.0%
	MoM Change	4.8%	-9.8%	4.9%	-10.0%	4.7%	0.0%
	1Y Z-score	0.4	-0.5	0.3	-0.1	0.0	-0.5
10y	10/16/2023	18.7%	60.3%	20.9%	66.1%	11.6%	0.0%
	MoM Change	4.9%	-6.0%	1.0%	-1.5%	-4.6%	0.0%
	1Y Z-score	0.5	-0.7	0.8	-0.1	-0.4	-0.6
20y	10/2/2023	9.3%	65.4%	25.4%	72.9%	15.4%	0.0%
	MoM Change	-2.1%	-3.1%	5.2%	-2.6%	5.0%	0.0%
	1Y Z-score	-0.3	-1.3	2.3	-0.1	0.3	#DIV/0!
30y	10/16/2023	18.2%	65.1%	16.7%	69.0%	10.6%	0.0%
	MoM Change	2.4%	0.6%	-3.0%	2.1%	-4.2%	0.0%
	1Y Z-score	1.9	-0.9	-1.4	-0.4	-0.9	1.1

Source: BofA Global Research, Treasury

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Exhibit 53: Primary dealer – average auction allotment

Dealer participation has leveled

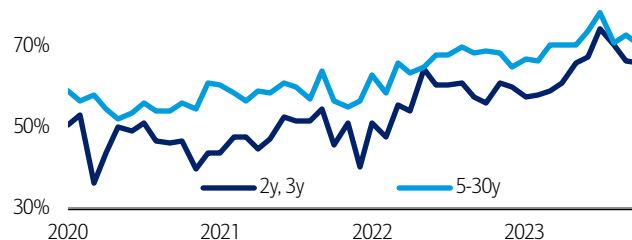


Source: BofA Global Research, Treasury

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Exhibit 54: Investment fund – average auction allotment

Fund participation still elevated but shows sign of decline

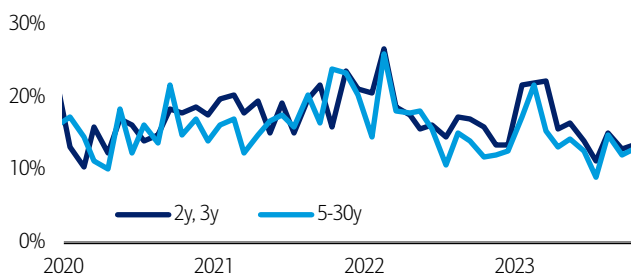


Source: BofA Global Research, Treasury

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Exhibit 55: Foreign investment – average auction allotment

Foreign participation still below average despite modest uptick in recent weeks

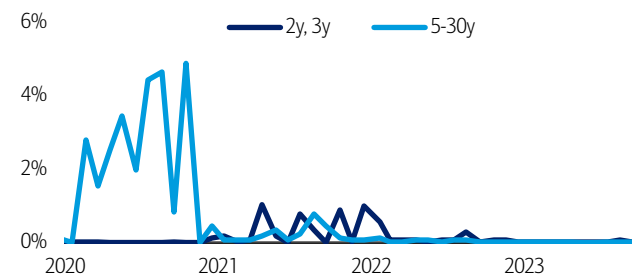


Source: BofA Global Research, Treasury

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Exhibit 56: Depository institutions – average auction allotment

Participation is minimal



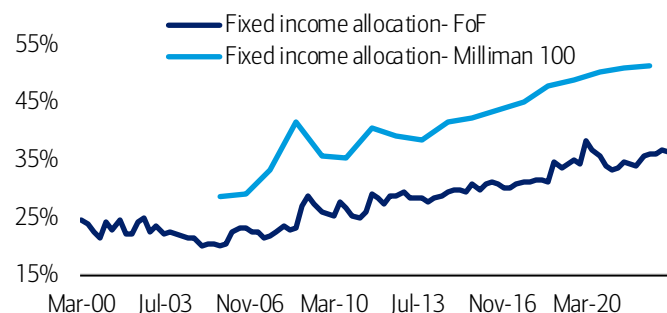
Source: BofA Global Research, Treasury

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Pensions

Exhibit 57: 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

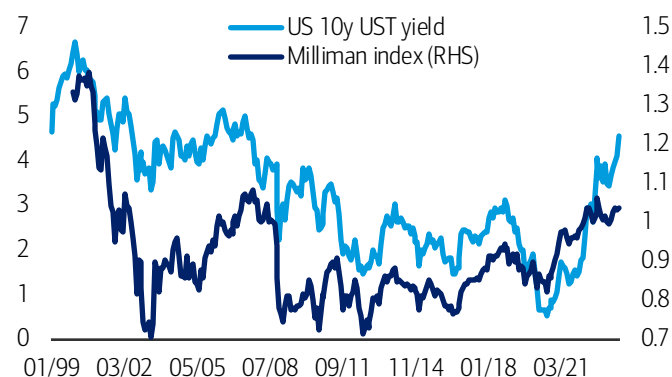


Source: BofA Global Research, Milliman, Federal Reserve

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Exhibit 58: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

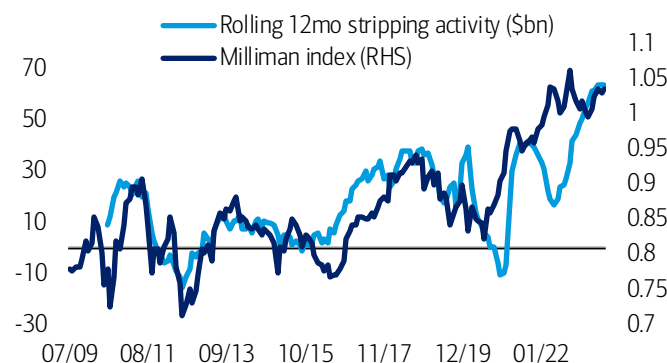


Source: BofA Global Research, Bloomberg

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Exhibit 59: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

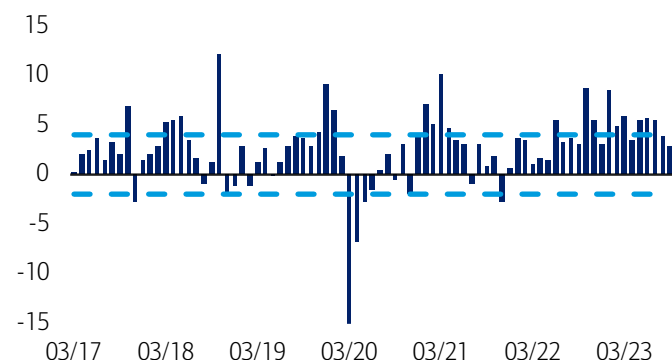


Source: BofA Global Research, Bloomberg

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Exhibit 60: Change in USTs held in stripped form (\$bn)

Stripping activity cooled modestly in August

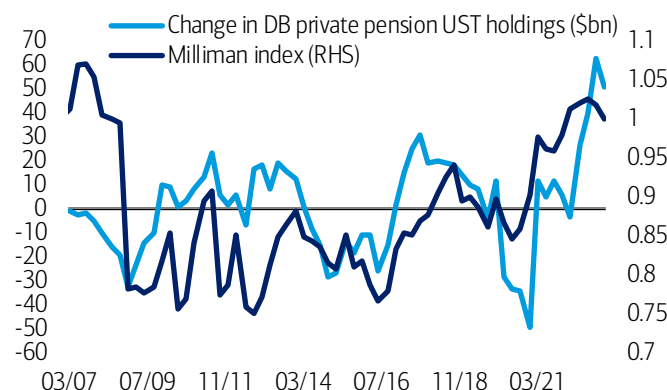


Source: BofA Global Research, Note: dashed line is 1stdev

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Exhibit 61: 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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