

US Rates Watch

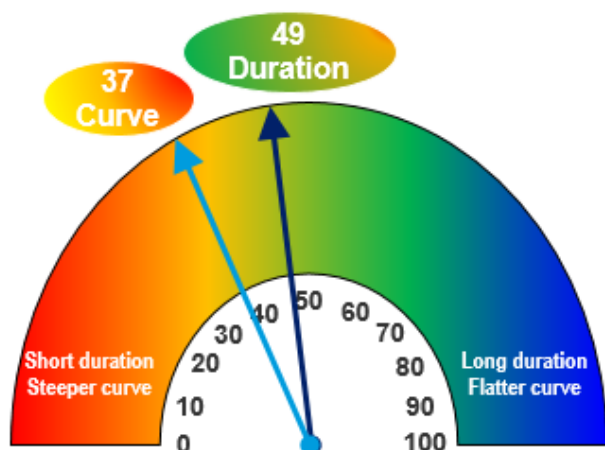
Bear flattening pain trade for CTAs; fund flows continue to cool

Grizzly bear

Our top-down CTA model suggests a continued build in front-end longs, which can become more vulnerable on the back of a firm CPI print and/or a Fed that pushes back on pricing of cuts. Fund performance indicates that while shorts may be covered, positioning in larger funds could be skewed towards shorter tenors driving mixed performance. Despite the weaker USD, the foreign official sector continues to reduce UST holdings and banks have expressed a preference for MBS vs USTs.

Exhibit 1: Curve-o-meter

CTAs and hedge funds remain modestly more in steepeners, duration positioning is more neutral with spec-ex leveraged funds long, but net out of the money position 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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Longs prominent but remain ITM

Our futures positioning proxy (for construction details see: Gauging positioning in Treasury Futures) suggests that longs across the curve remain prominent but are in the money, while almost all of the outstanding shorts are out of the money (Exhibit 11). This supports more of a bias for rates to rally (Exhibit 12). On the week through Thursday, open interest was modestly lower—with more shorts destroyed vs created and more longs created vs destroyed.

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

CTAs continue covering shorts & are long front end

Our bottoms up momentum signal suggests that CTAs should be neutral to modestly long duration and have fully covered the historic shorts in September (Exhibit 13). Our top down model, which is lagged due to construction (see: CTA impact on the rates market), shows still more limited covering at longer tenors but continues to indicate a meaningful build in long positions at the front-end (Exhibit 14). This suggests that CTAs remain in steepeners. Bear flattening therefore remains a risk if this position comes under pressure.

Asset managers back to building longs

Despite the continued outflow from UST funds, asset manager futures positions recovered on the week after moderating in the weeks prior (Exhibit 7). The biggest build in positions were TY, US, and FV while SOFR futures positing turned further short. Leveraged funds saw the biggest growth in futures shorts in TU. Non-commercial ex-leveraged fund positioning remains historically long (Exhibit 8).

Flow of funds shows strong fund, foreign, and LDI demand

Flow of funds for Q3 indicated buying across three main investor categories: funds, foreign, and LDI (Exhibit 17). This largely squares with the higher frequency data we monitor with Q3 UST fund inflows (Exhibit 36), TIC data showing strong foreign private demand (Exhibit 32), and stripping activity elevated (Exhibit 61).

The household sector, which also reflects hedge fund activity, showed continued buying (Exhibit 18), albeit at a slower pace than recent quarters. This is consistent with slower growth in the hedge fund basis trade in Q3 that is reflected in futures positioning.

Foreign official sector stays net seller

Foreign official custodial holdings showed another sharp decline, totaling \$10.5bn on the week and \$38bn since the middle of November (Exhibit 28). The drop stands in contrast with the recent depreciation pressures and suggests that foreign officials have not been buyers in the recent rally in front-end rates. Japanese investor holdings remain steady since early September, reflecting little conviction in participating alongside recent rate volatility (Exhibit 27).

Fund outflows continue

Fund flow data for the week ending Dec 6th showed significant outflows in US fixed income funds, diverging from the notable inflows observed in 2023 (Exhibit 35). Fund outflows remain concentrated in short-term funds, but were observed across the curve as well as inflation funds. Mixed allocation and HY funds, however, saw inflows vs recent weeks. Outflows likely continue to weigh on fund auction participation, driving higher takedown from primary dealers (Exhibit 55).

On an AUM weighted basis, US total return fixed income funds modestly underperformed benchmark alongside the rate rally (Exhibit 40). Underperformance was only in 11 of 28 funds we track, and we continue to see that rolling correlations of fund outperformance vs changes in the 10y rate is moderating (Exhibit 44), which suggests a covering of underweight positions. Funds may also be positioned in shorter tenors vs benchmark (in “steepeners” vs the benchmark), which might also explain the mixed performance.

Pension funded status declines modestly but demand firm

The Milliman PFI funded ratio declined to 103.2%. While funds saw the largest monthly investment return of the year, gains were offset by the liability increase with rates declining (Exhibit 59). As we have discussed, pension funded status remains highly rate sensitive as DB private pensions have not fully de-risked (Exhibit 58).

Stripping activity for November dropped from the significant uptick in October (Exhibit 61), but this decline was largely driven by front-end P-strips rolling off. The net demand at the long end was around \$5.5bn, still firm vs recent levels. With pension funded status

elevated, we expect demand to remain supported. Flow of funds data shows that defined benefit private pensions bought at around a \$25bn/ quarter pace in Q2 & Q3, suggesting that demand could be closer to our annual estimate of around \$110bn in US Rates
Viewpoint: Pension de-risking.

Notable build in dealer UST cash long position

Consistent with our view that crowded dealer balance sheets were the largest driver behind the recent repo spike (see report: [SOFR jump: repo ripple now small wave](#)), dealer holdings of USTs in 10y equivalents increased notably the week ending November 29th (Exhibit 50, Exhibit 52). Holdings growth was more prominent in longer dated tenors. While we are not sure what drove this increase in dealer positions, leveraged hedge funds increased futures holdings at the back end the week ending Nov 28th—suggesting that they may have been reducing basis risk and offloading cash holdings to dealers.

Banks show modest preference for MBS

Data as of Nov 29 shows a modest preference from banks for MBS vs USTs (Exhibit 49). Since the start of November, UST holdings declined about \$18bn while MBS have increased \$30bn. This preference might reflect a view for lower volatility as the Fed pivots to cuts and a desire for maximizing yield. We think that securities demand overall can continue to grow with greater signs that the US economy is slowing, shifting demand away from loans.

Exhibit 2: On deck next week

Calendar of upcoming events

	US Data			Fed Speaker / Event	Treasury Auction			Treasury Settlements	
	Series	BofA	BB Consensus		Security	Amount (\$bn)	Prior Δ	Security	Amount
M, Dec 11				<i>Fed blackout period</i>	13-week bills	75	0		
					26-week bills	68	0		
					3-year notes	50	2		
					9-year 11-month notes	37	2		
Tu, Dec 12	NFIB Small Business Optimism	-	90.7	<i>Fed blackout period</i>	42-day bills	70	0	Bills	-12
	Consumer Price Index (yoy)	3.10%	3.10%		29-year 11-month bonds	21	1		
	CPI Ex Food & Energy (yoy)	4.10%	4%						
	Consumer Price Index (mom)	0.00%	0.00%						
	CPI Ex Food & Energy (mom)	0.30%	0.30%						
	Monthly Budget Statement	-\$345bn	-						
W, Dec 13	MBA Mortgage Applications	-	-	FOMC Rate Decision	17-week bills				
	Producer Price Index (mom)	-0.10%	0.10%	<i>Fed Chair holds press conference following FOMC meeting</i>					
	PPI Ex Food & Energy (mom)	0.30%	0.20%						
	PPI Ex Food, Energy, Trade (mom)	0.20%	-						
	FOMC Rate Decision (mid-point)	5.38%	5.38%						
Th, Dec 14	Initial Jobless Claims	224k	-	<i>No events</i>	4-week bills			Bills	11
	Import Price Index (mom)	-0.50%	-0.9		8-week bills				
	Import Price Index ex Petroleum (mom)	0%	-						
	Advance Retail Sales	-	-0.10%						
	Retail Sales Less Autos	-	0.00%						
	Retail Sales Less Autos and Gas	-	0.20%						
	Core Control	-	0.20%						
	Business Inventories	-	0%						
F, Dec 15	Empire Manufacturing	3.5	3.8	<i>No events</i>				Coupons	64
	Industrial Production	0.60%	0.20%						
	Manufacturing Production	0.50%	-						
	Capacity Utilization	79.20%	79.10%						
	S&P Global US manufacturing PMI	-	49.3						
	S&P Global US services PMI	-	50.7						

Source: BofA Global Research, Bloomberg, US Treasury

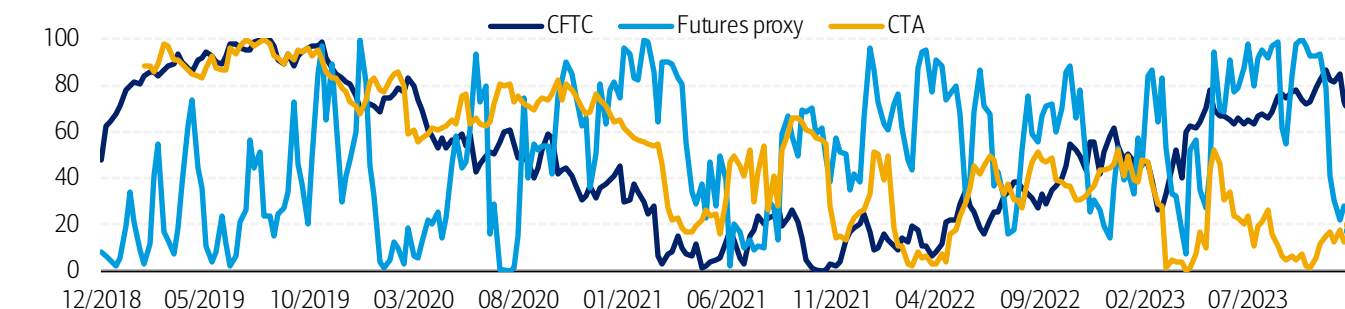
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Positioning indicators

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

Futures positioning proxy shows bias for rates to rally, CFTC data adjusted for LFs is long, top down CTA model shows positioning is historically short

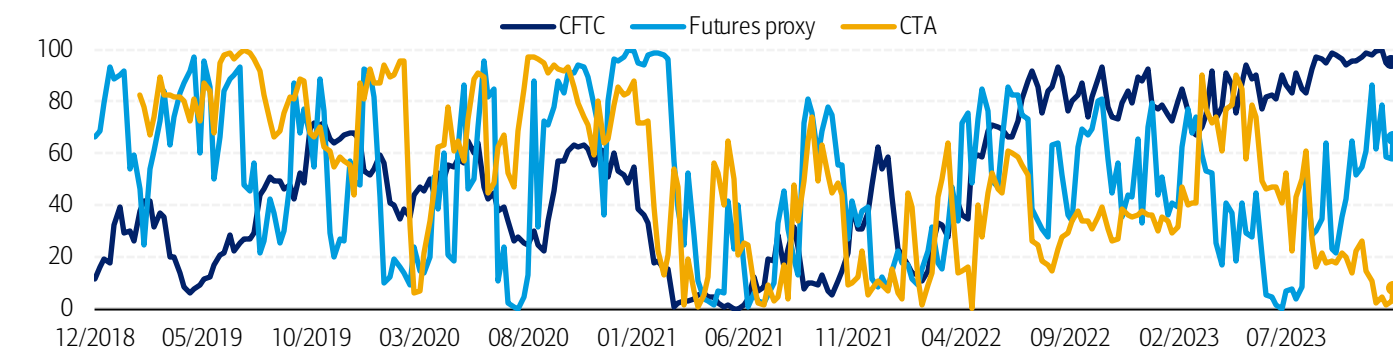


Source: BofA Global Research

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

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

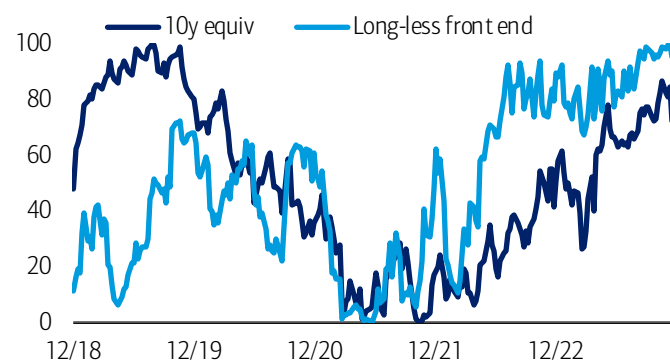


Source: BofA Global Research

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Exhibit 5: 5y percentile of non-commercial ex LF positioning

Positioning is historically long and largely concentrated at the back-end

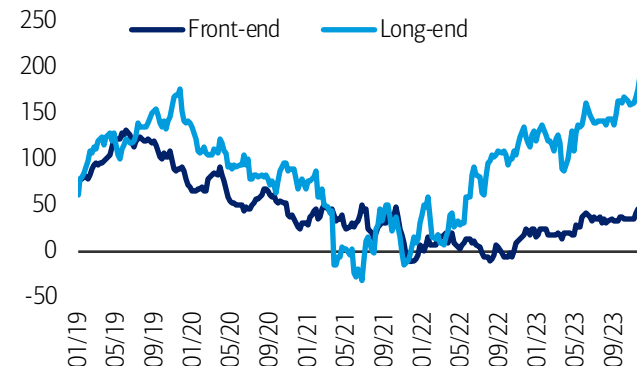


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

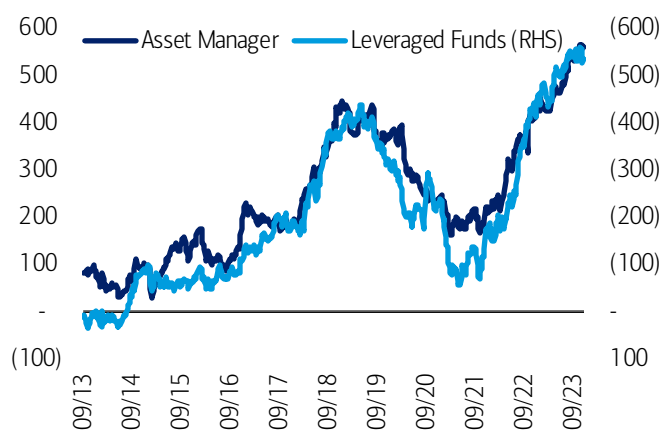


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

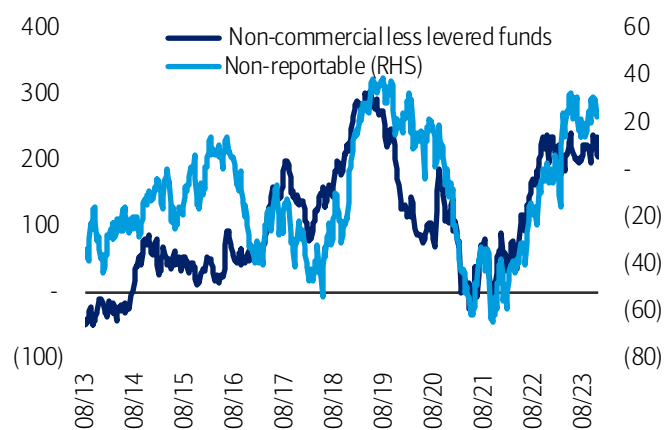


Source: BofA Global Research, Bloomberg

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Exhibit 8: Non-commercial ex LFs and non-reportable positioning (10y equivalent, \$bn)

Directional positions trend together



Source: BofA Global Research, Bloomberg

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Exhibit 9: 10y rate change for given percentile of non-commercial ex-Leveraged fund positioning (higher percentile = longer)

Positioning is a momentum signal: longer positioning is usually followed by stronger 10y performance

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

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

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Exhibit 10: 10y rate change for given percentile of leveraged fund positioning (higher percentile = longer)

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

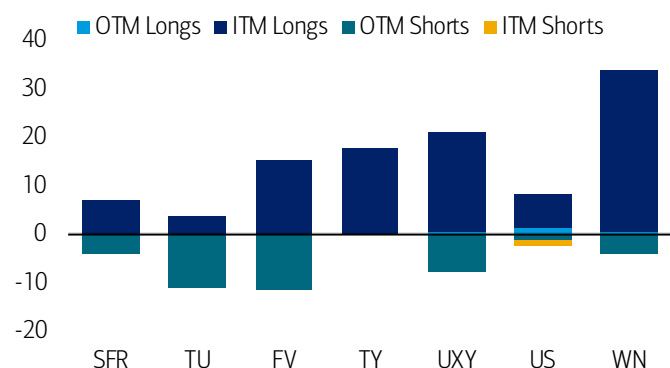
	0	1w	4w	8w	12w	16w
0 to 10	10	4	3	5	5	6
10 to 20	20	-2	-1	0	1	1
20 to 30	30	1	-3	-2	-2	-3
30 to 40	40	-6	-2	-4	-4	-5
40 to 50	50	-3	-2	-2	-2	-3
50 to 60	60	5	4	4	2	2
60 to 70	70	3	2	2	3	4
70 to 80	80	3	4	4	4	5
80 to 90	90	3	4	4	4	5
90 to 100	100	-1	-2	-1	0	0

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

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Exhibit 11: Proxies for futures positioning

On the week, longs are ITM across contracts, shorts are OTM but mixed in US

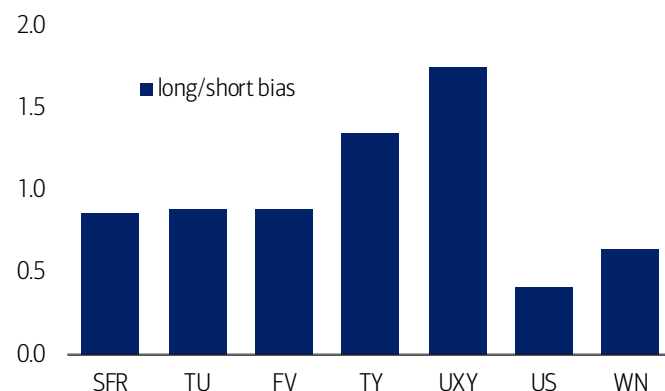


Source: BofA Global Research, Bloomberg

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Exhibit 12: Analysis of proxies for futures positioning

Bias for rates to rally especially in 10y

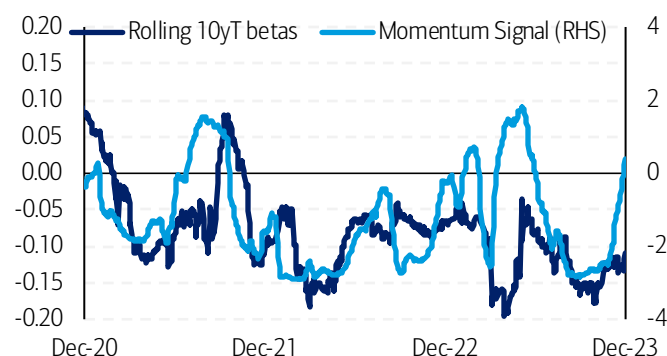


Source: BofA Global Research, Bloomberg, Note: reflects average positioning of futures stack over last 5 days

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Exhibit 13: CTA positioning in 10yT

On the week, momentum signal turned to long. CTAs saw more short covering

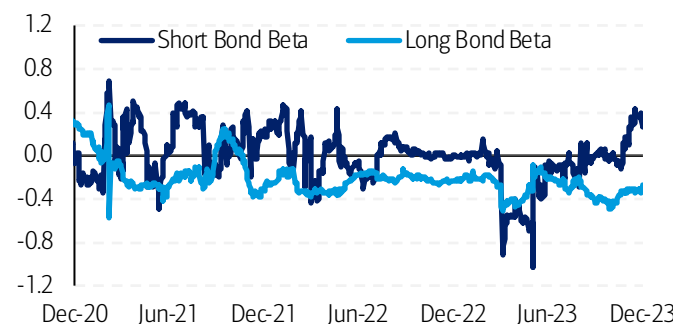


Source: BofA Global Research

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

Top-down model suggests CTAs reduced longs at the front-end but still shows a steepening bias

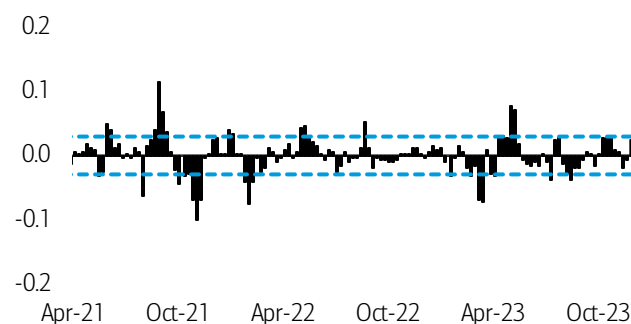


Source: BofA Global Research

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Exhibit 15: Changes in CTA 10yT beta

Change in 10y beta turned positive on the week

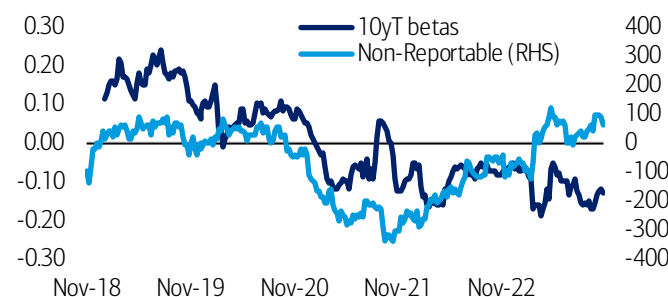


Source: BofA Global Research

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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



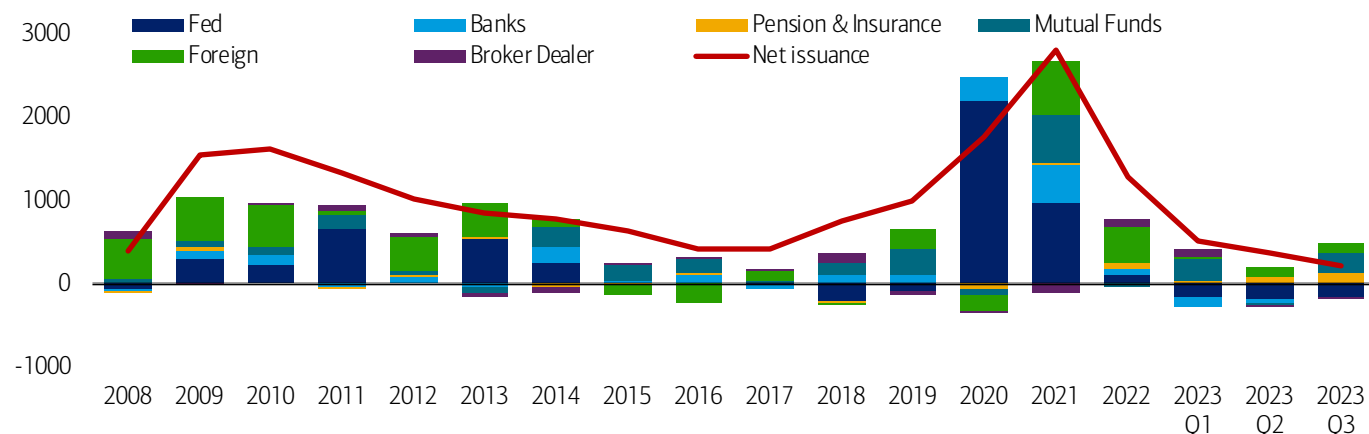
Source: BofA Global Research, Bloomberg

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Flow of funds

Exhibit 17: Large Treasury investor demand & coupon issuance (\$bn)

Mutual funds, foreign investors, pension & insurance were the largest buyers in Q3

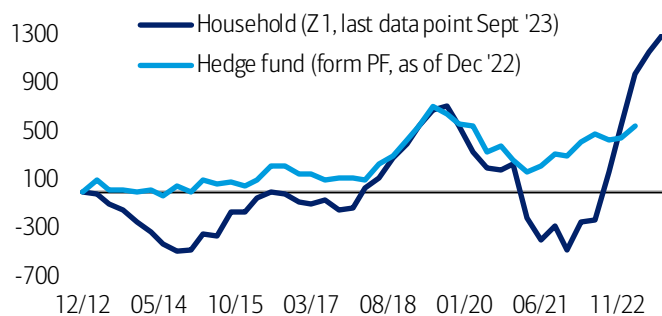


Source: BofA Global Research, Federal Reserve, Note: only reflects real money categories from flow of funds that generally invest in Treasury coupon securities, excludes households. Net issuance is coupon supply excluding Fed flows, which are shown as negative for periods where Fed is reducing size of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

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Exhibit 18: Change in UST holdings (\$bn)

Hedge funds UST holdings increased last year based on Flow of Funds data and form PF

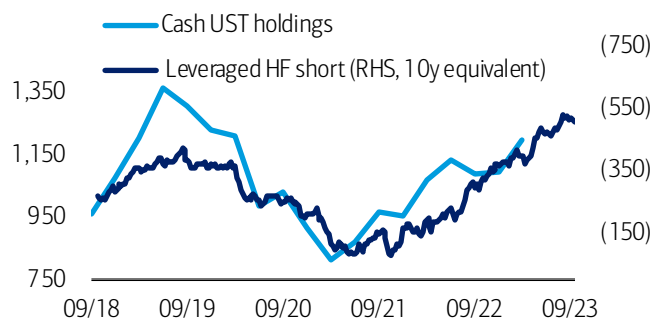


Source: BofA Global Research, Federal Reserve

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Exhibit 19: Hedge fund cash UST holdings vs leveraged fund shorts (\$bn)

Form PF confirms that cash long has grown alongside futures short



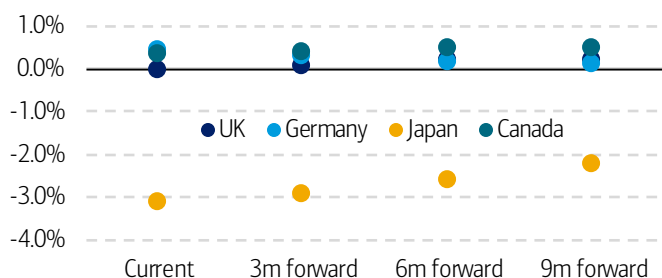
Source: BofA Global Research, Federal Reserve, Bloomberg

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FX hedged pickup and foreign flows

Exhibit 20: FX hedged pickup of TSYs vs local alternatives implied by forwards

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

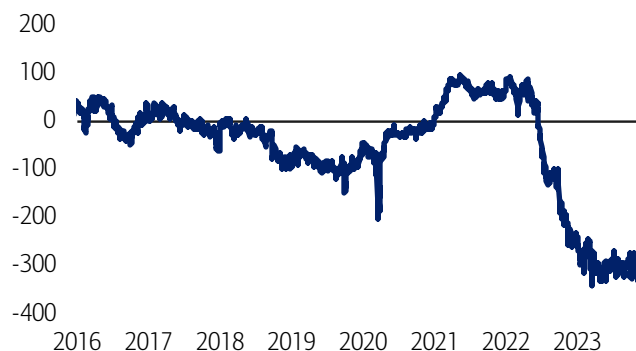


Source: BofA Global Research, Bloomberg. Note: pickup vs 10y local alternative except Japan which is relative to 20y JGB using 3m forward FX hedge

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Exhibit 21: 10Y UST pickup to 20Y JGB, with 3m fx hedge (bps)

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

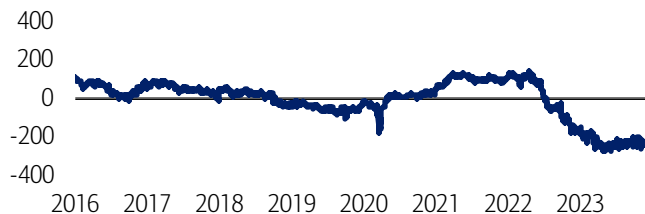


Source: BofA Global Research, Bloomberg

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

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

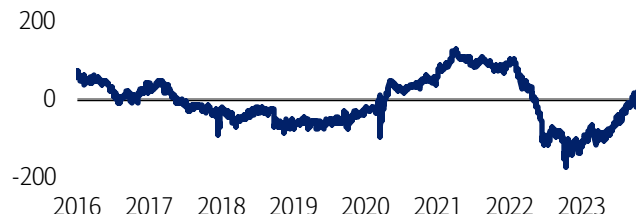


Source: BofA Global Research, Bloomberg

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

10y TSY offers near zero pickup vs 10y Bund

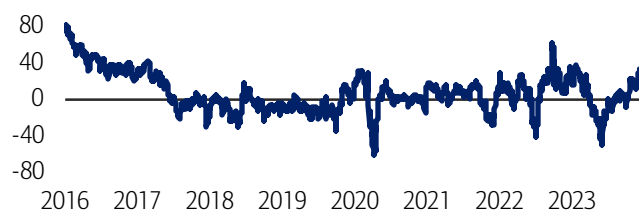


Source: BofA Global Research, Bloomberg

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

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

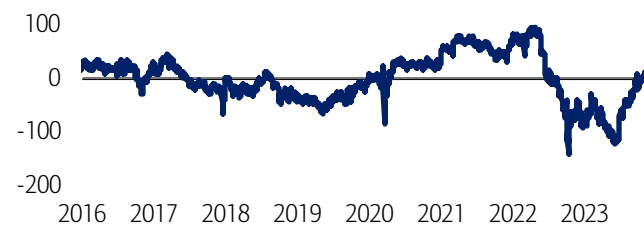


Source: BofA Global Research, Bloomberg

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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

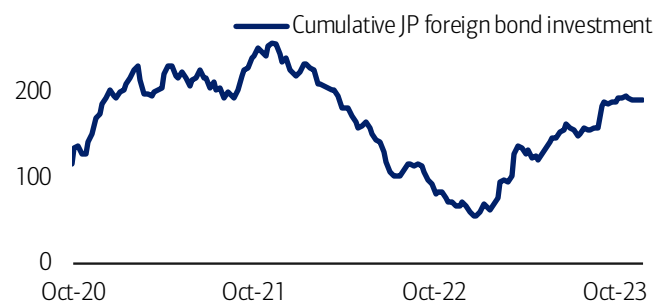
	12/7/2023		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB
10y UST	-2.40%	-3.15%	-2.34%	-3.08%	-2.22%	-2.93%	-1.76%	-2.61%
10y GER	-2.79%	-3.53%	-2.56%	-3.31%	-2.48%	-3.18%	-0.62%	-1.47%
10y FRA	-2.25%	-3.00%	-2.01%	-2.75%	-1.90%	-2.61%	-0.17%	-1.02%
10y BEL	-2.21%	-2.95%	-1.97%	-2.71%	-1.87%	-2.57%	-0.06%	-0.91%
10y ITA	-1.06%	-1.80%	-0.84%	-1.59%	-0.64%	-1.34%	1.19%	0.34%
10y SPA	-1.79%	-2.54%	-1.58%	-2.32%	-1.43%	-2.14%	0.35%	-0.50%
10y UK	-2.32%	-3.06%	-2.14%	-2.89%	-2.28%	-2.98%	-1.10%	-1.95%
10y CAN	-2.72%	-3.47%	-2.55%	-3.30%	-2.40%	-3.11%	-1.99%	-2.84%

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 unchanged on the week

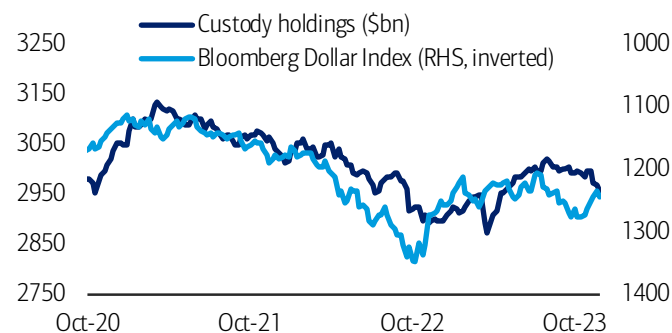


Source: BofA Global Research, Bloomberg

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

Custody holdings dropped on the week

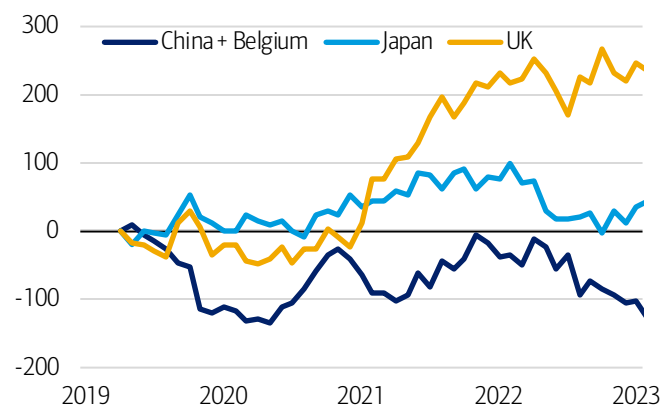


Source: BofA Global Research, NY Fed

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

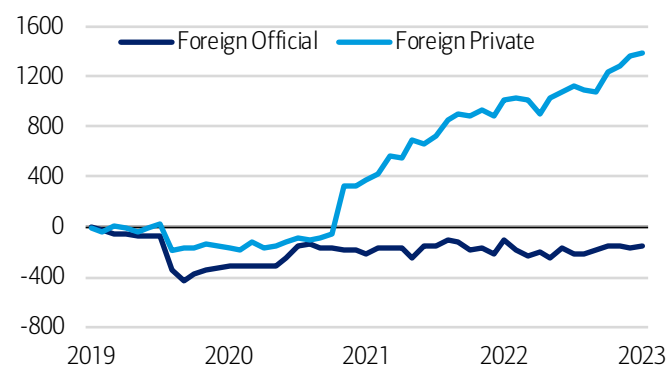
China + Belgium have turned to net sellers since end of '22, Japan roughly flat after selling last year



Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow
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Exhibit 31: Cumulative UST flows from foreign investors (\$bn)

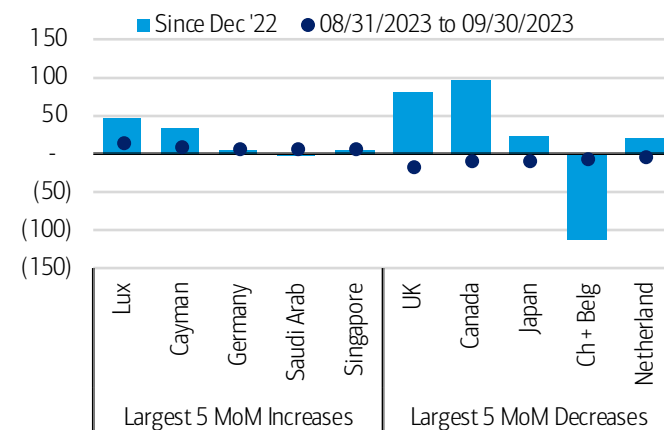
While official UST holdings have declined in recent years, foreign private investors have more than offset



Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow
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Exhibit 30: Largest MoM changes in foreign TSY holdings (\$bn)

Luxembourg was largest buyer, UK largest seller in September



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

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Exhibit 32: Foreign buyers and sellers of USTs in 2023

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

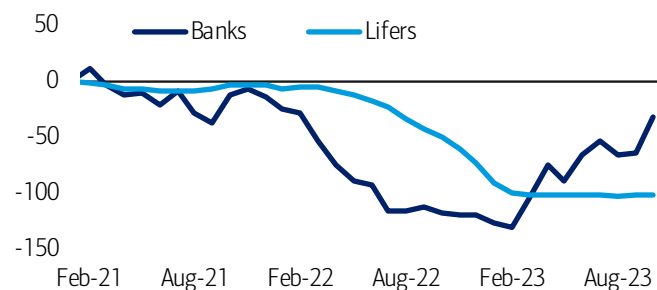


Source: BofA Global Research, Note: TIC data YTD through August adjusted for valuation

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

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

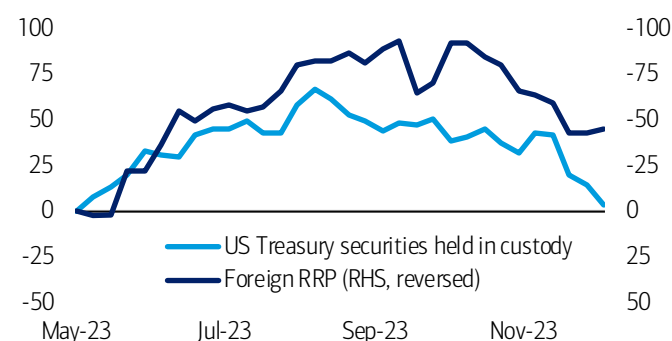


Source: Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is June '23

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

Custody holdings dropped & foreign RRP held flat



Source: BofA Global Research, Federal Reserve, Bloomberg

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Fund flows and returns

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

US FI funds saw outflows on the week, mostly led by govt short, inflation, & muni funds, mixed allocation & corp HY saw inflows

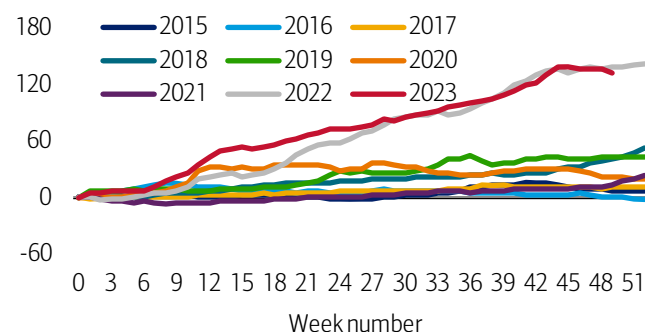
	12/6/2023	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	(3,297)	(2,228)	(210)	642	1,087
Gov: intermediate	(200)	(140)	100	244	319
Gov: long	(303)	825	1,752	1,544	1,255
Corp: IG	392	888	259	(151)	164
Corp:HY	1,483	1,518	1,347	301	(166)
Corp: all quality	75	80	48	41	40
MBS	(187)	193	374	283	255
Inflation	(1,256)	(910)	(652)	(525)	(472)
Muni	(1,060)	62	(10)	(224)	(151)
Mixed allocation	1,657	319	465	964	1,925
All USFI	(2,255)	516	3,325	2,962	3,833

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

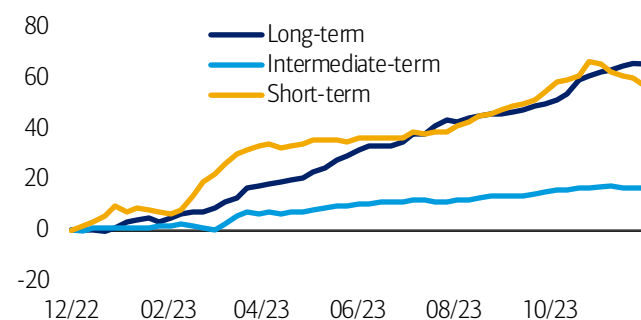


Source: BofA Global Research, EPFR

BoFA GLOBAL RESEARCH

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

Inflows have been concentrated in long-term and short-term funds, inflows in short-term funds saw a declining trend recently

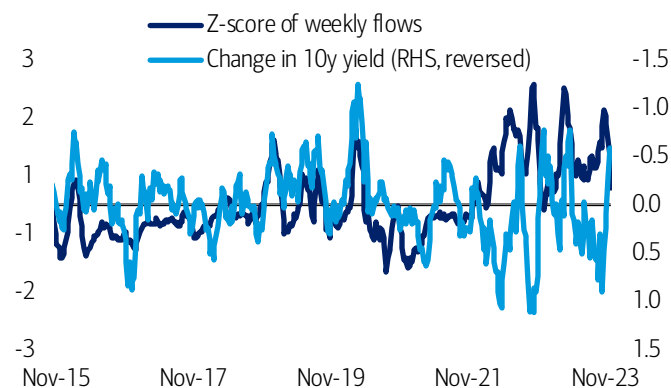


Source: BofA Global Research, EPFR

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

Fund flows recently have been historically strong alongside rates rally

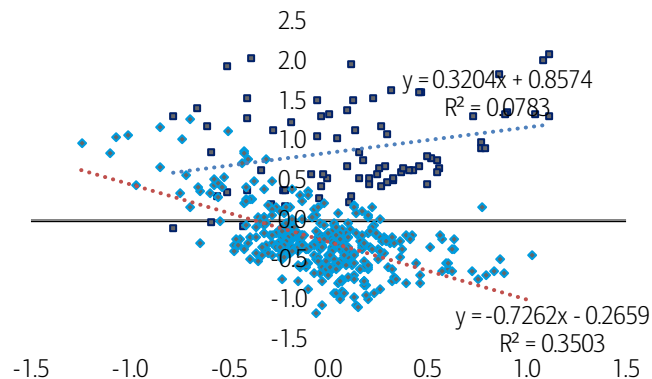


Source: BofA Global Research, EPFR

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Exhibit 39: Fund flows and rate change

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



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

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Exhibit 40: Total return FI fund performance vs benchmark

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

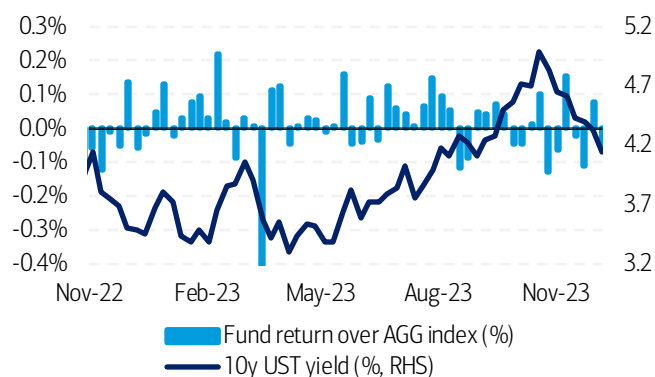
	AUM (\$Bn)	12/7/2023	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	260	1.36%	-0.09%	4.03%	-0.15%
Vanguard Total Bond Market Index Fund	202	1.34%	-0.11%	4.09%	-0.09%
PIMCO Income fund	132	1.08%	-0.37%	3.46%	-0.72%
The Bond Fund of America	78	1.34%	-0.11%	4.11%	-0.07%
MetWest Total Return Bond Fund	56	1.55%	0.10%	4.43%	0.25%
PIMCO Total Return Fund	53	1.63%	0.18%	4.23%	0.05%
Dodge & Cox Income Fund	58	1.55%	0.10%	4.36%	0.19%
PGIM Total Return Bond Fund	42	1.46%	0.01%	4.25%	0.07%
BlackRock Strategic Income Opportunities Fund	36	0.95%	-0.50%	2.68%	-1.50%
Baird Aggregate Bond Fund	42	1.58%	0.13%	4.32%	0.15%
JPMorgan Core Bond Fund	42	1.50%	0.06%	4.00%	-0.17%
DoubleLine Total Return Bond Fund	32	1.64%	0.19%	3.99%	-0.19%
Fidelity Series Investment Grade Bond Fund	33	1.41%	-0.04%	4.21%	0.04%
Fidelity Total Bond Fund	31	1.38%	-0.07%	4.10%	-0.08%
Western Asset Core Plus Bond Portfolio	22	1.95%	0.50%	5.70%	1.52%
Baird Core Plus Bond Fund	27	1.42%	-0.03%	4.20%	0.02%
John Hancock Bond Fund	22	1.53%	0.08%	4.42%	0.24%
TIAA-CREF Bond Index Fund	21	1.45%	0.00%	4.09%	-0.09%
BlackRock Total Return Fund	18	1.42%	-0.03%	4.15%	-0.02%
JPMorgan Core Plus Bond Fund	17	1.57%	0.12%	4.14%	-0.03%
Bridge Builder Core Bond Fund	17	1.47%	0.02%	4.09%	-0.09%
T Rowe Price New Income Fund	16	1.36%	-0.09%	3.99%	-0.19%
Western Asset Core Bond Fund	14	1.72%	0.27%	4.90%	0.73%
CREF Bond Market Account	10	1.45%	0.00%	4.08%	-0.10%
Fidelity Investment Grade Bond Fund	8	1.51%	0.06%	4.11%	-0.07%
DoubleLine Core Fixed Income Fund	7	1.44%	-0.01%	4.05%	-0.13%
TCW Total Return Bond Fund	3	1.94%	0.49%	4.94%	0.76%
Janus Henderson Flexible Bond Fund	3	1.51%	0.07%	4.54%	0.37%
Weighted avg	1302	1.40%	-0.05%	4.07%	-0.11%
Agg		1.45%		4.18%	
10y return		1.77%		4.75%	

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

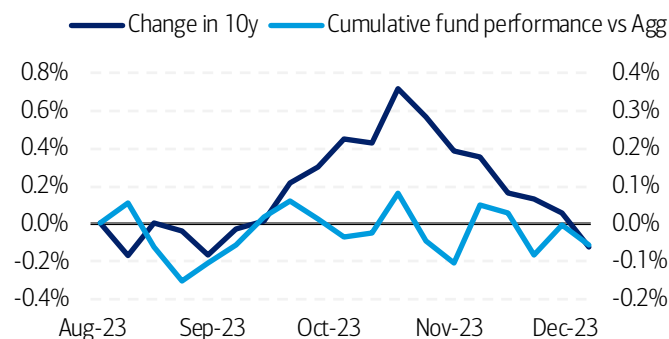


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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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 Q2 and Q3 '23

Funds increased underweight position from Q2 to Q3

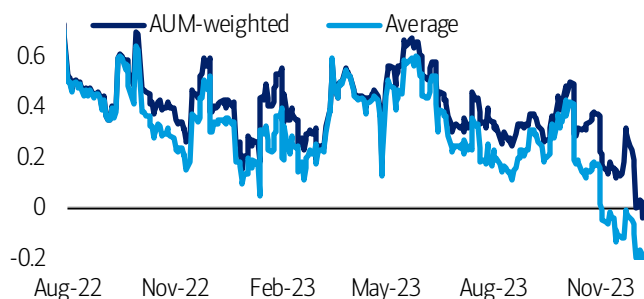
		AUM (\$bn)	Q2 '23 (%)	Q3 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	260.0	2.1	2.2	0.1
VBMFX	Vanguard Total Bond Market Index Fund	202.4	1.4	1.3	-0.1
PIMIX	PIMCO Income fund	131.6	-34.1	-34.8	-0.6
ABNDX	The Bond Fund of America	78.5	-14.0	-22.4	-8.4
DODIX	Dodge & Cox Income Fund	58.1	-32.7	-29.8	2.9
MWTIX	MetWest Total Return Bond Fund	55.8	-18.7	-17.4	1.3
PTTRX	PIMCO Total Return Fund	53.3	-18.6	-23.9	-5.3
PDBAX	PGIM Total Return Bond Fund	42.2	-34.2	-34.9	-0.7
PGBOX	JPMorgan Core Bond Fund	42.2	-2.2	-3.9	-1.7
BAGIX	Baird Aggregate Bond Fund	41.5	-17.7	-18.8	-1.1
BSIIX	BlackRock Strategic Income Opportunities Fund	35.8	-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	31.7	-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	26.7	-18.4	-19.1	-0.7
WACPX	Western Asset Core Plus Bond Portfolio	22.2	-38.0	-38.6	-0.6
JHBIX	John Hancock Bond Fund	22.1	-22.5	-21.6	0.9
TBIIX	TIAA-CREF Bond Index Fund	21.4	0.3	0.0	-0.3
MAHQX	BlackRock Total Return Fund	18.1	88.0	-1.9	-89.9
ONIAx	JPMorgan Core Plus Bond Fund	17.4	-2.9	-3.1	-0.2
BBTBX	Bridge Builder Core Bond Fund	16.9	-23.0	-24.6	-1.6
PRCIX	T Rowe Price New Income Fund	16.5	-11.8	-8.6	3.2
WATFX	Western Asset Core Bond Fund	14.3	-31.1	-32.1	-1.0
QCBMIX	CREF Bond Market Account	10.4	-22.6	-23.0	-0.4
FBNDX	Fidelity Investment Grade Bond Fund	7.7	-0.3	3.5	3.8
DBLFX	DoubleLine Core Fixed Income Fund	6.9	-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	2.5	-39.6	-39.9	-0.3
AUM weighted		1302.0	-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

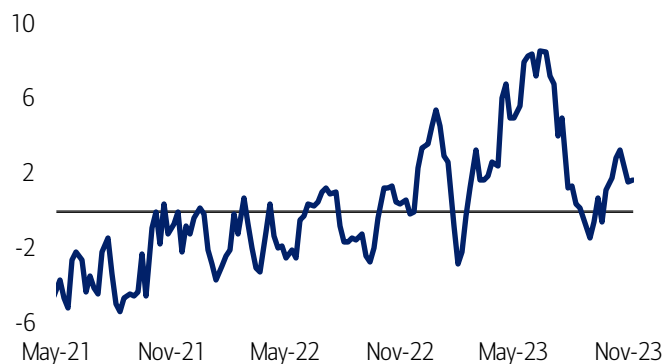


Source: BofA Global research, Bloomberg

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Exhibit 45: Primary dealer 2-6y holdings of TIPS (\$bn)

Primary dealer holdings declined in November



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

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Bank balance sheets

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

Domestic bank balance saw a decline in assets driven by cash

		Current (11/29/2023)	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	23210	96	56	43	26	4
	Cash	3525	0	31	27	12	7
	UST & Agency	1525	-4	-4	2	3	-3
	MBS	2548	8	7	3	-2	-5
	Loans and Leases	12308	45	14	10	11	7
	Other	3304	46	8	2	3	-2
Large Domestic (\$bn, NSA)	Total Assets	13468	44	17	17	13	0
	Cash	1712	12	9	9	8	5
	UST & Agency	1121	-4	-4	1	2	-2
	MBS	1948	7	7	3	0	-1
	Loans and Leases	6786	29	4	4	3	1
	Other	1901	0	1	0	-1	-3
Small Domestic (\$bn, NSA)	Total Assets	6560	17	6	3	1	2
	Cash	452	2	3	1	0	1
	UST & Agency	294	-2	0	0	1	-1
	MBS	572	1	0	-1	-2	-4
	Loans and leases	4452	10	3	3	4	5
	Other	791	5	0	0	0	0
All Domestic (\$bn, NSA)	Total Assets	20028	61	23	20	14	2
	Cash	2164	14	12	10	8	6
	UST & Agency	1415	-6	-4	1	3	-3
	MBS	2521	8	7	3	-3	-5
	Loans and leases	11238	39	7	7	7	6
	Other	2691	5	2	0	-1	-3
Foreign (\$bn, NSA)	Total Assets	3182	35	33	22	11	3
	Cash	1361	-14	19	16	4	1
	UST & Agency	110	2	1	1	0	0
	MBS	28	0	0	0	0	0
	Loans and leases	1071	5	7	3	3	1
	Other	612	41	6	3	3	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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

Domestic liability decrease in deposits

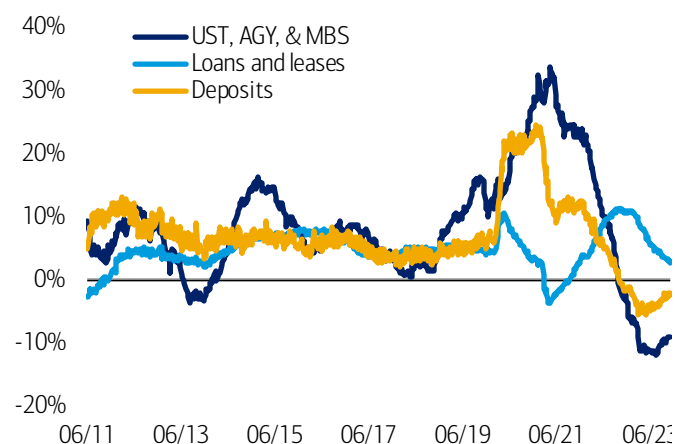
		Current (11/29/2023)	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
Deposits (\$bn, NSA)	All	17396	27	10	8	5	-8
	Domestic	16110	37	2	6	2	-7
	Large Domestic	10804	32	0	4	1	-6
	Small Domestic	5307	4	2	2	2	-1
	Foreign	1286	-10	9	2	3	-1
Other borrowing (\$bn, NSA)	All	2332	-10	2	-2	5	10
	Domestic	1348	-2	-4	1	5	7
	Large Domestic	932	-2	-2	3	7	6
	Small Domestic	416	0	-2	-2	-2	1
	Foreign	983	-8	7	-4	0	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

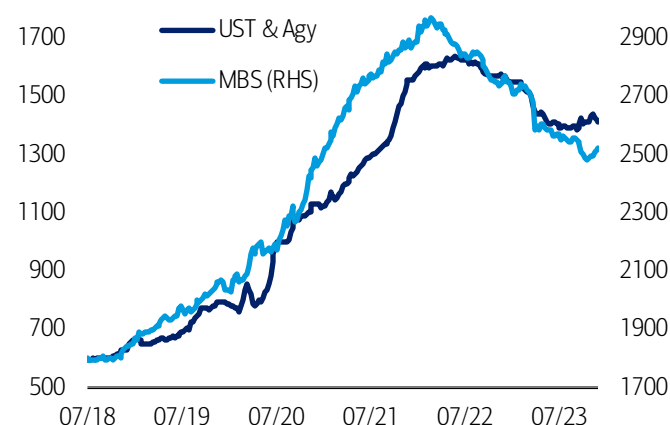


Source: BofA Global Research, Bloomberg, Federal Reserve

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Exhibit 49: Domestic bank holdings of UST& Agy, MBS

Holdings appear to be leveling off after declining last year



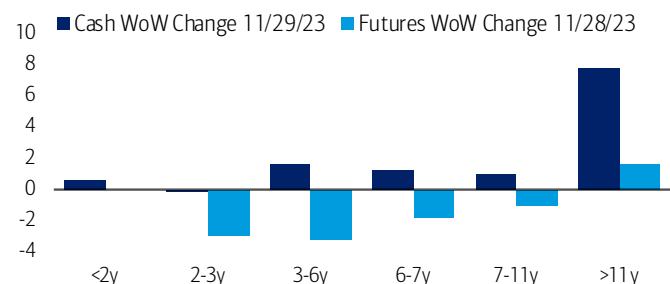
Source: BofA Global Research, Bloomberg, Federal Reserve

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Primary dealer balance sheet

Exhibit 50: Dealers WoW change in positions

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

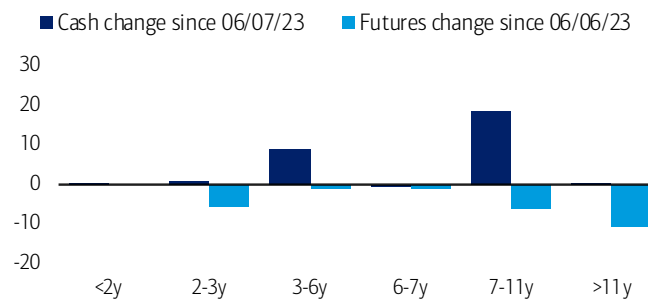


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 51: Dealers change in positions over last 6mo

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

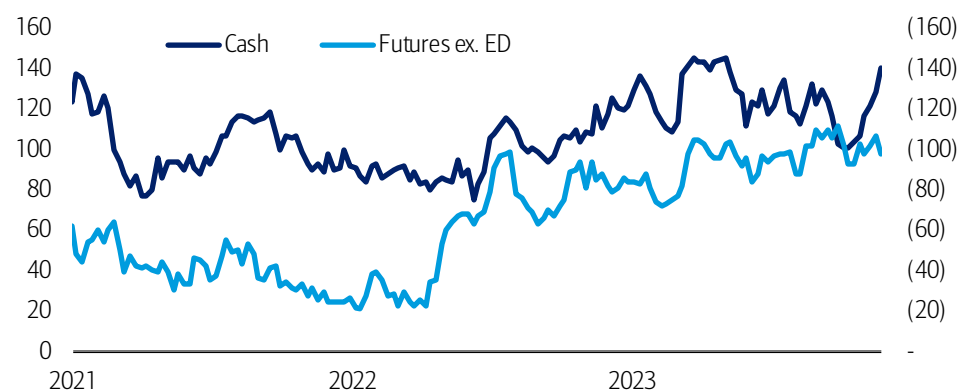


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 52: Dealers total sector positions

10y equivalent, \$bn, long cash position increased on the week



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

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Auction statistics

Exhibit 53: Auction summary statistics

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

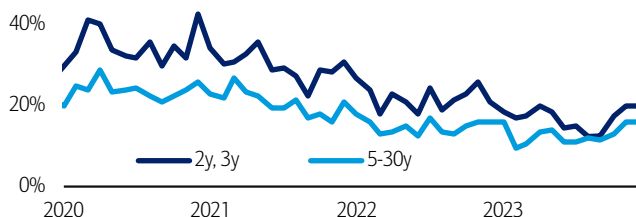
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	11/30/2023	17.6%	62.0%	20.3%	63.1%	15.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-3.3%	2.8%	0.0%
	1Y Z-score	0.2	-0.2	0.0	-0.1	0.0	-0.4
3y	11/15/2023	22.1%	56.0%	21.9%	66.6%	15.0%	0.0%
	MoM Change	0.0%	0.0%	0.0%	3.8%	1.9%	0.0%
	1Y Z-score	1.2	-1.2	0.8	0.3	-0.3	-0.5
5y	11/30/2023	19.4%	19.1%	61.5%	70.6%	11.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	2.7%	0.6%	0.0%
	1Y Z-score	1.7	0.4	-1.5	-0.2	-0.6	-0.6
7y	11/30/2023	11.0%	70.6%	18.4%	62.0%	14.2%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-13.0%	2.5%	0.0%
	1Y Z-score	-0.5	0.3	0.2	-1.3	0.3	-0.5
10y	11/15/2023	18.7%	60.3%	20.9%	53.0%	28.7%	0.1%
	MoM Change	0.0%	0.0%	0.0%	-13.2%	17.1%	0.1%
	1Y Z-score	0.6	-0.8	1.1	-1.9	1.5	2.5
20y	11/30/2023	11.9%	72.9%	15.2%	73.9%	13.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	2.9%	-0.6%	0.0%
	1Y Z-score	1.1	0.4	-1.1	0.3	-0.2	#DIV/0!
30y	11/15/2023	18.2%	65.1%	16.7%	57.5%	14.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-11.5%	3.7%	0.0%
	1Y Z-score	1.6	-0.8	-1.2	-2.0	0.1	-0.1

Source: BofA Global Research, Treasury

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Exhibit 54: Primary dealer – average auction allotment

Dealer participation has picked up

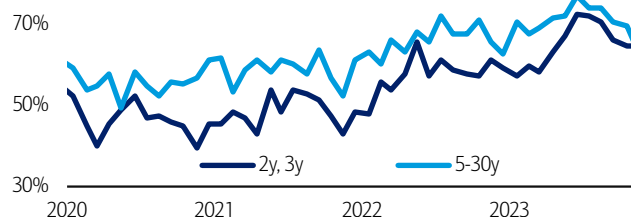


Source: BofA Global Research, Treasury

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Exhibit 55: Investment fund – average auction allotment

Fund participation still elevated but shows sign of decline

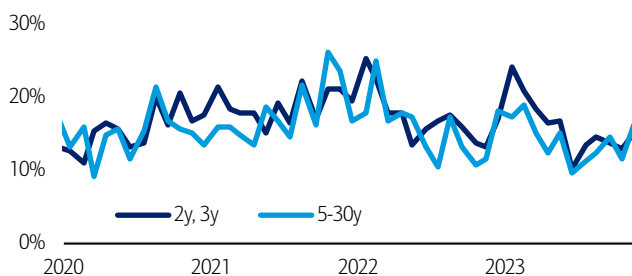


Source: BofA Global Research, Treasury

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Exhibit 56: Foreign investment – average auction allotment

Foreign participation still below average despite modest uptick in recent weeks

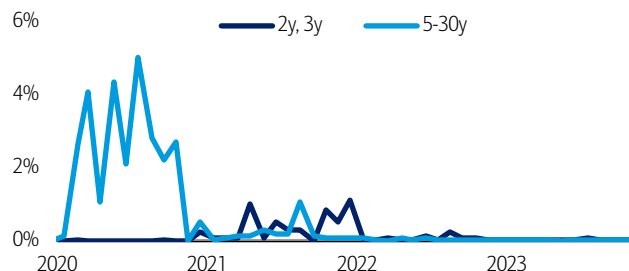


Source: BofA Global Research, Treasury

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Exhibit 57: Depository institutions – average auction allotment

Participation is minimal



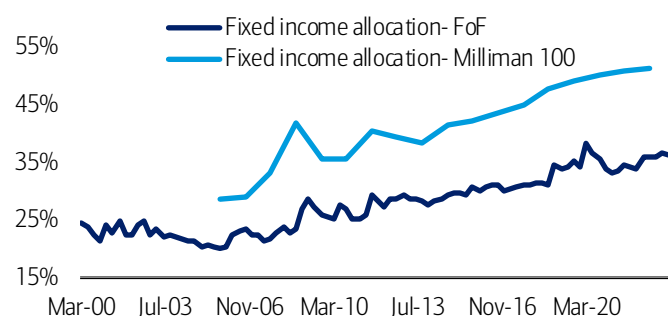
Source: BofA Global Research, Treasury

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Pensions

Exhibit 58: 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

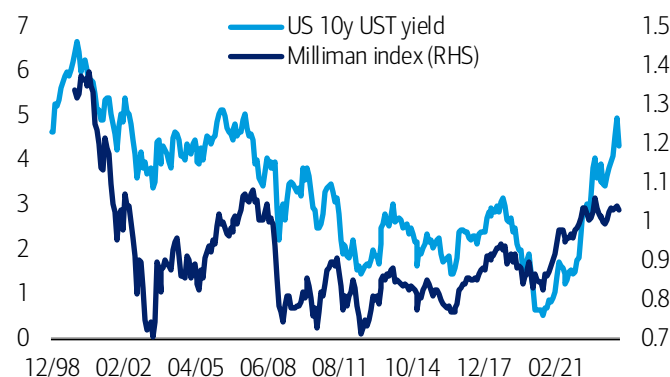


Source: BofA Global Research, Milliman, Federal Reserve

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Exhibit 59: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

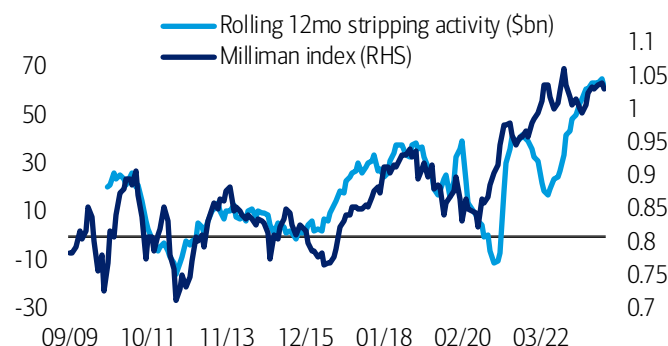


Source: BofA Global Research, Bloomberg

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Exhibit 60: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

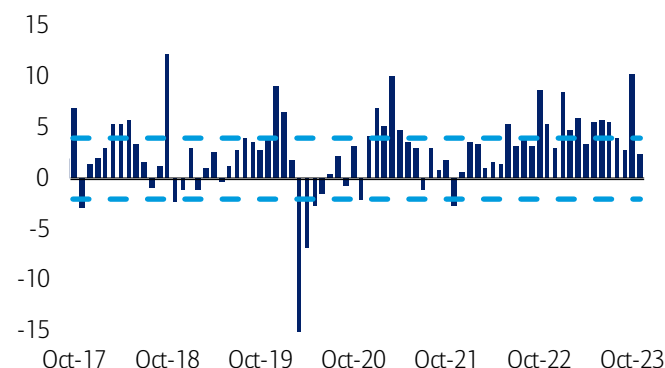


Source: BofA Global Research, Bloomberg

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Exhibit 61: Change in USTs held in stripped form (\$bn)

Stripping activity ticked down in November

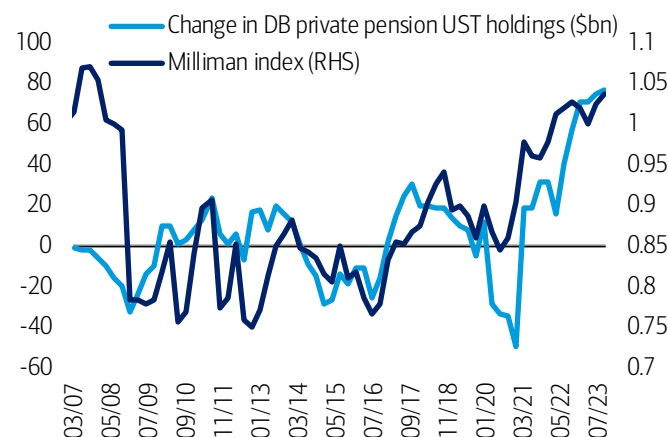


Source: BofA Global Research, Note: dashed line is 1stdev

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Exhibit 62: 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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