

## US Rates Watch

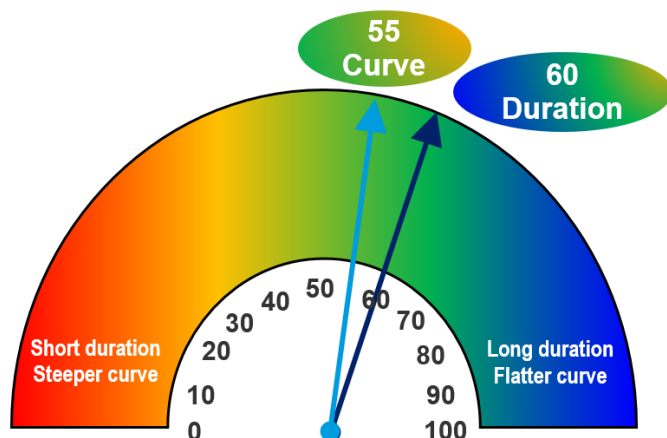
# Conviction in cuts supports strong real money bid

### Get it while it lasts

Flows data evidence demand from real money investors. February stripping activity suggests a notable bid from pensions alongside a continued improvement in funding status. Japanese pensions also took part in the buying activity and dominated the otherwise weak picture for foreign flows. Banks appear to be slowly adding to UST holdings. Futures open interest suggests more shorts covered vs new longs created. We see still some shorts outstanding that are vulnerable, but most positions are long. CFTC data continues to show a reduction in scale of the basis position. We think in part this may be driven by asset managers pivoting duration risk from futures to credit.

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

Positioning is mixed across curve and duration



**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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### Shorts closed but remainder are vulnerable

On the week through Thursday, open interest contracted—suggesting that positions were on net unwound vs created. Short covering was concentrated in FV, TY, and UXY. Longs were also created across the curve. Our futures positioning proxy (for construction details see: [Gauging positioning in Treasury Futures](#)) suggests that the net out of the money position is short but these positions are far less prominent across most points on the curve (Exhibit 11).

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

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Refer to important disclosures on page 21 to 22.

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UST= Treasury security

CTA= Commodity trading advisor

OTM= out of the money

ITM=in the money

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

DB = defined benefit

## CTAs back to adding duration

Both our top-down model and bottom's up momentum signal (see: [CTA impact on the rates market](#)) indicate that CTAs have likely been adding to duration in recent weeks (Exhibit 13). They also show lower short-bond vs long-bond betas, suggesting that their curve positioning is skewed flatter (Exhibit 14). Anecdotally, this puts them in a different position vs many macro investors who are setting up for Fed cuts and steeper curve. If the curve does indeed move sharply steeper on data flow, there appears to be room for CTAs to unwind front-end underweights vs the back end.

## Decline in spec ex-hedge fund duration positioning

The basis position in the market continued to retreat this past week, albeit at a much more modest pace compared with prior weeks (Exhibit 7). Asset managers covered longs across the curve except UXY & TY, and hedge funds closed shorts to the greatest degree in TY & WN. Our proxy for speculative positioning excluding leverage hedge funds declined on the week (Exhibit 8). It currently sits at 78th percentile over the past five years, still suggesting relatively long positioning.

We think the reduction in UST futures could be driven by a combination of reduction in duration longs and/or funds pivoting from UST futures to IG credit, given the extent of recent issuance and demand for the product. Generally, we expect the basis position to continue to retreat should rates move lower (Exhibit 43). The recent decline in dealer cash holdings in the 7-11y part of the curve also suggest a moderation in the size of the basis trade in the market (Exhibit 59).

## Q4 flow of funds shows slowing household demand

Flow of funds data for Q4 showed strong demand from banks and mutual funds, but weaker demand elsewhere (Exhibit 17). Recall, Q4 was quite volatile and split between significant selloff and subsequent rally following the November refunding & Fed meetings. Pensions & insurers were net sellers and the increase from the household sector was far more modest. After taking down \$750bn of USTs in Q1-Q3, households only increased holdings by around \$23bn, adjusted for valuation (Exhibit 18). This also coincides with a slower growth in the size of the basis position in Q4, with 10y equivalent leverage hedge fund shorts increasing \$28bn in Q4 vs \$150bn in Q1-Q3.

## Strong Japanese pension bid continues

Japanese MoF data for February reflected strong pension demand for the month of February but was more muted from banks and lifers (Exhibit 35). While this flow reflects changes in foreign bond holdings not limited to USTs, Japanese pension buying is consistent with the strong stripping activity observed in February.

Custodial holdings declined on the week as did USD cash held at the foreign RRP (Exhibit 34). Weekly MoF data showed a small increase in foreign bond holdings the week ending March 1 (Exhibit 27). We generally do not believe that expected JGB curve adjustments will have a major impact on Japanese UST demand as FX hedged pickup has been unattractive for some time now (Exhibit 21). Demand has likely been supported by investors that are taking a duration view on the market rather than buying for carry.

## Strong flows into credit and Agg funds

US fixed income fund inflows remain elevated (Exhibit 37). Inflows were dominated by mixed allocation and IG funds while short-term and long-term UST funds saw outflows. Mixed allocation inflows remain robust likely supporting dip-buying behavior in UST and IG credit markets.

Alongside the notable rally in duration on the week, 19 of the 28 funds we track underperformed vs the benchmark (Exhibit 44). MBS performed the best on the week followed by IG and USTs. Rolling daily correlations suggest a moderate drop in correlation between excess returns and changes in rates, suggesting an add to duration overall (Exhibit 48).

## Stripping activity suggests sustained pension bid

Milliman data shows an increase in defined benefit private pension funded status in February to about 105% driven by higher interest rates (Exhibit 68). February stripping activity was elevated at around \$6bn, suggesting that pension demand for long-end duration remains supported (Exhibit 70). We anticipate demand will stay elevated alongside strong funded status (Exhibit 69).

### 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 (\$bn)
M, Mar 11				<i>Fed blackout period</i>	13-week bills 26-week bills 3-year notes	79 70 56	0 0 2		
Tu, Mar 12	NFIB Small Business Optimism	-	-	<i>Fed blackout period</i>	42-day bills	80	0	Bills	14
	Consumer Price Index (yoy)	3.10%	3.10%		9-year 11-month notes	39	2		
	CPI Ex Food & Energy (yoy)	3.70%	3.70%						
	Consumer Price Index (mom)	0.40%	0.40%						
	CPI Ex Food & Energy (mom)	0.30%	0.30%						
	Monthly Budget Statement	-\$335bn	-						
W, Mar 13				<i>Fed blackout period</i>	17-week bills 29-year 11-month bonds				
	MBA Mortgage Applications	-	-			22	1		
Th, Mar 14	Initial Jobless Claims	221k	-	<i>Fed blackout period</i>	4-week bills			Bills	12
	Advance Retail Sales	NR	0.80%		8-week bills				
	Retail Sales Less Autos	NR	0.50%						
	Retail Sales Less Autos and Gas	NR	0.20%						
	Core Control	NR	-						
	Producer Price Index (mom)	0.40%	0.30%						
	PPI Ex Food & Energy (mom)	0.20%	0.20%						
	PPI Ex Food, Energy, Trade (mom)	0.30%	-						
	Business Inventories	-	0.30%						
F, Mar 15	Empire Manufacturing	-8	-8	<i>Fed blackout period</i>				Coupons	61
	Import Price Index (mom)	0.30%	0.20%						
	Import Price Index ex Petroleum (mom)	0.00%	-						
	Industrial Production	0.20%	0.00%						
	Manufacturing Production	0.20%	-						
	Capacity Utilization	78.60%	78.40%						
	U. of Michigan Sentiment	78	77						

Source: BofA Global Research, Bloomberg, US Treasury

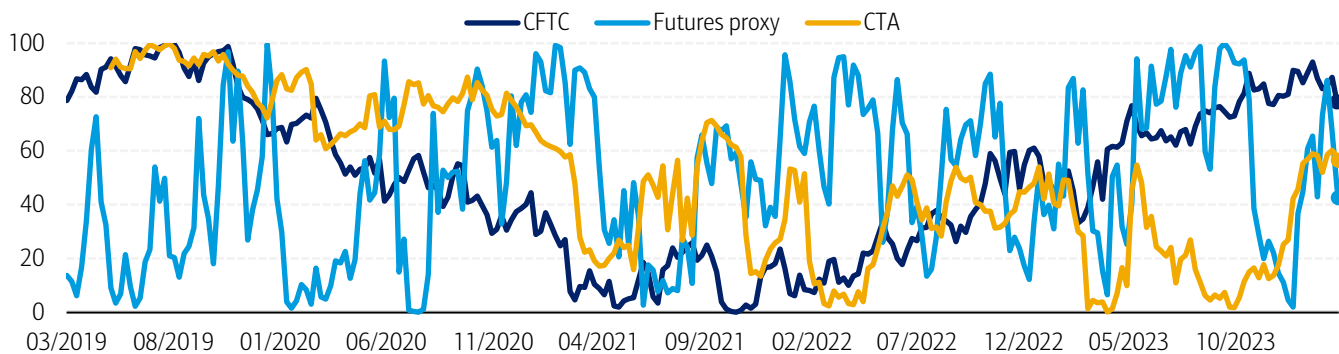
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## Positioning indicators

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

CFTC data retreated from historic long; futures proxy & CTA mixed

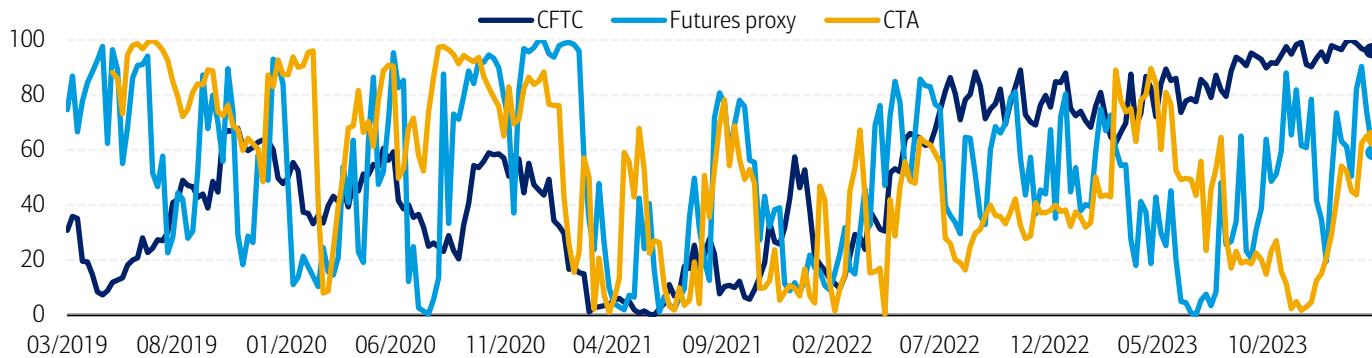


Source: BofA Global Research

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

CTAs & futures positioning proxy show no clear curve bias, CFTC AMs have longs further out curve

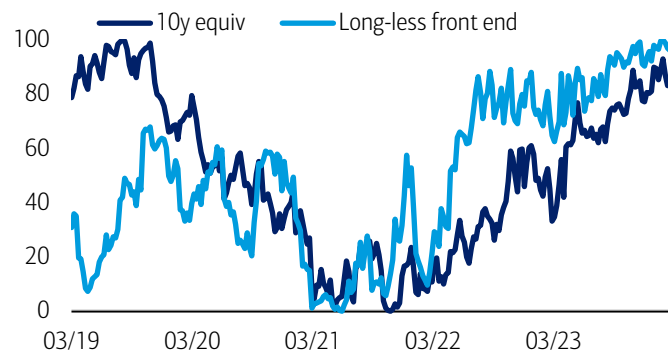


Source: BofA Global Research

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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

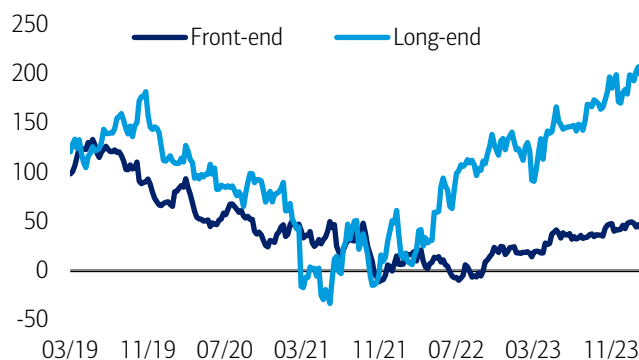


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

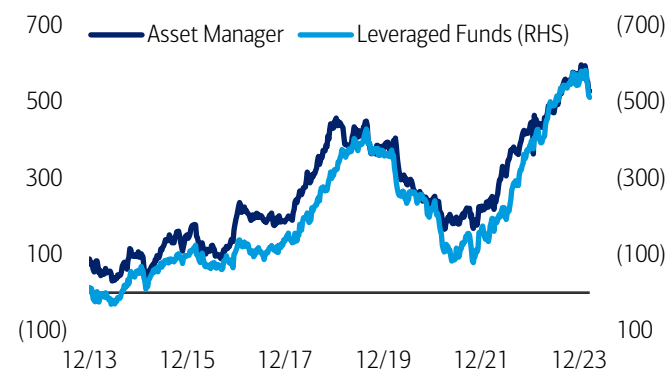


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

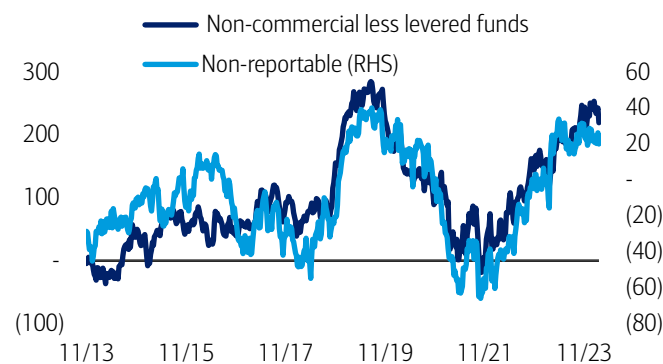


Source: BofA Global Research, Bloomberg

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

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

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

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

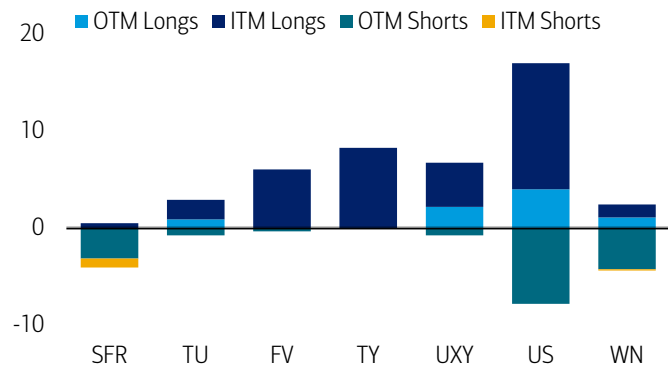
	0	1w	4w	8w	12w	16w
0 to 10	10	-1	-1	-1	-3	-4
10 to 20	20	4	4	3	4	4
20 to 30	30	-3	-4	-2	-2	-1
30 to 40	40	-1	-3	-3	-3	-5
40 to 50	50	-5	-3	-3	-3	-4
50 to 60	60	4	4	4	2	2
60 to 70	70	3	2	2	3	4
70 to 80	80	3	4	4	4	5
80 to 90	90	2	4	4	4	5
90 to 100	100	-1	-2	-1	0	0

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

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**Exhibit 11: Proxies for futures positioning**

On the week, positioning is concentrated in longs and largely ITM

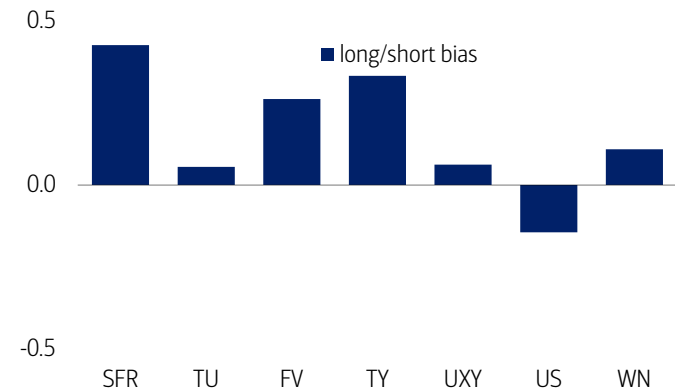


Source: BofA Global Research, Bloomberg

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

Bias is for rates to rally

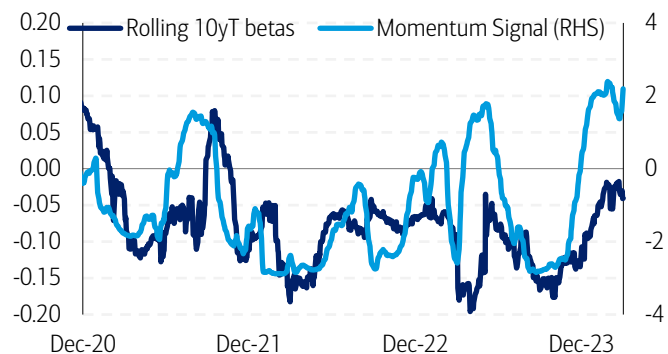


Source: BofA Global Research, Bloomberg, Note: reflects average positioning of futures stack over last 5 days

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

Momentum signal rose further while CTAs reduced shorts

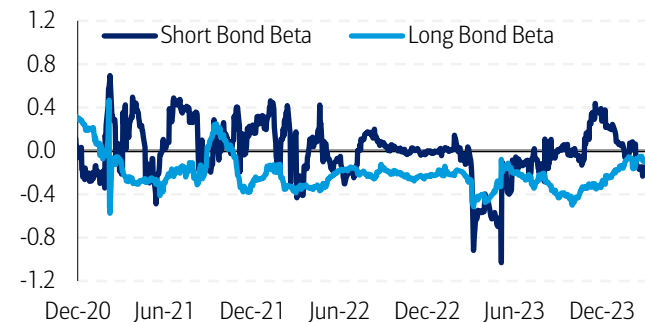


Source: BofA Global Research

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

Top-down model suggests CTAs are shorter front end vs back end

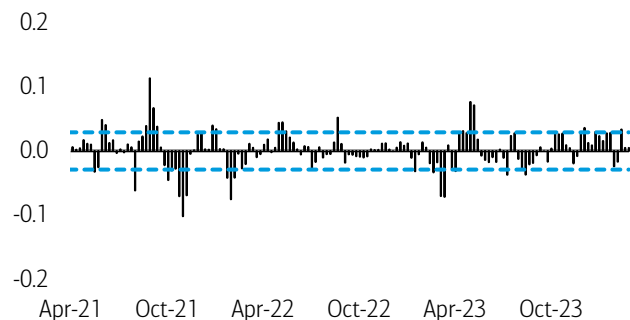


Source: BofA Global Research

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

Change in 10y beta modestly higher on the week

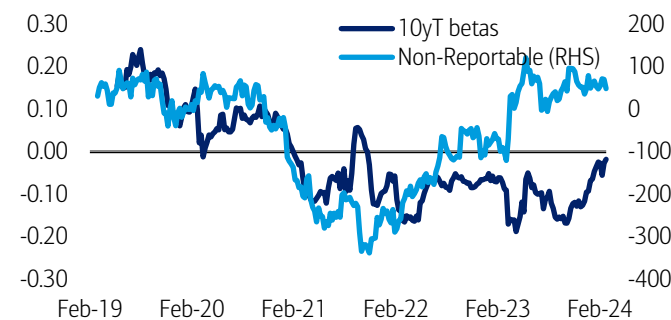


Source: BofA Global Research

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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



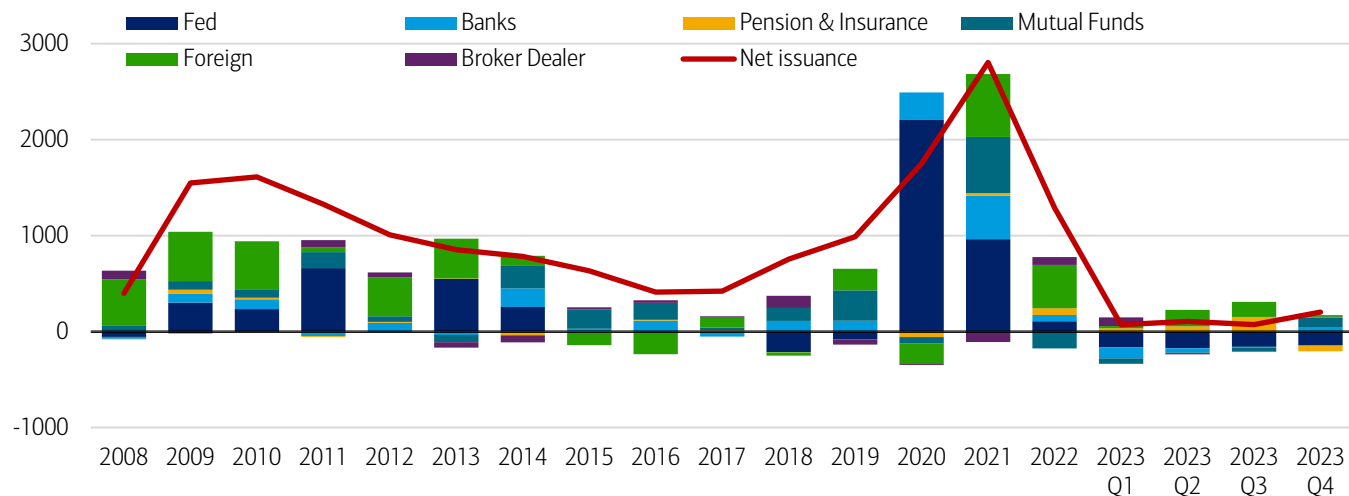
Source: BofA Global Research, Bloomberg

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# Flow of funds

## Exhibit 17: UST supply versus sources of demand (\$bn)

More demand from banks in Q4, but selling from pensions & insurance

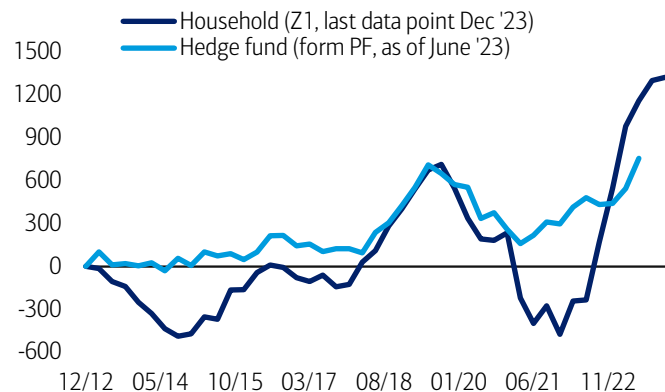


**Source:** BofA Global Research, Federal Reserve, Note: only reflects real money categories from flow of funds that generally invest in Treasury coupon securities, excludes households. Net issuance is coupon supply excluding Fed flows, which are shown as negative for periods where Fed is reducing size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

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

Household increase in UST holdings slowed in Q4

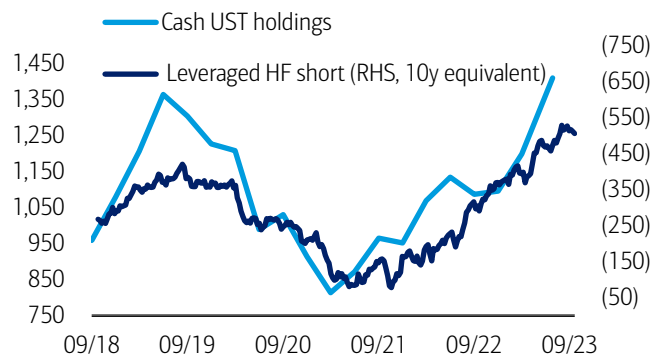


**Source:** BofA Global Research, Federal Reserve, Bloomberg

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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



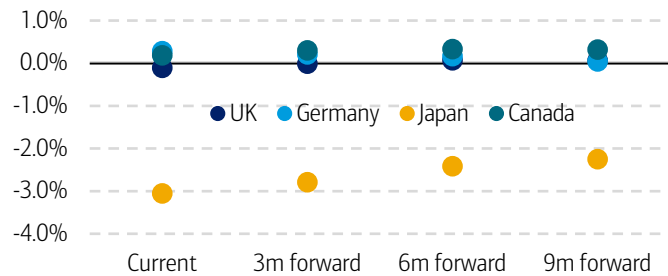
**Source:** BofA Global Research, Federal Reserve, Bloomberg

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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 suggests modest pickup for UK, German, CAD investors

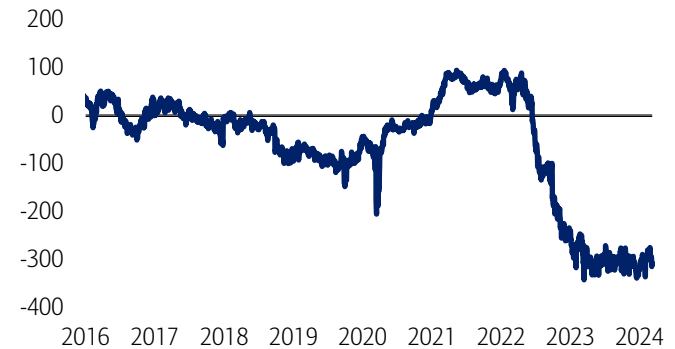


Source: BofA Global Research, Bloomberg. Note: pickup vs 10y local alternative except Japan which is relative to 20y JGB using 3m forward FX hedge

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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 20y JGBs

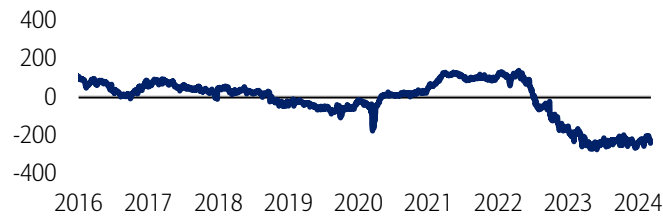


Source: BofA Global Research, Bloomberg

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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 10y JGBs

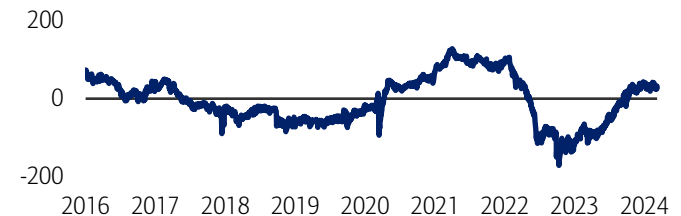


Source: BofA Global Research, Bloomberg

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

10y TSY offers now offer slight positive pickup vs 10y Bund

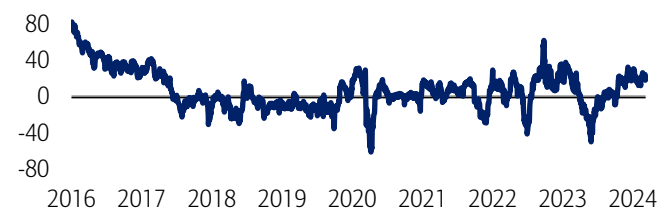


Source: BofA Global Research, Bloomberg

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

10y TSY hedged pickup improved to 10y CAD gov bond

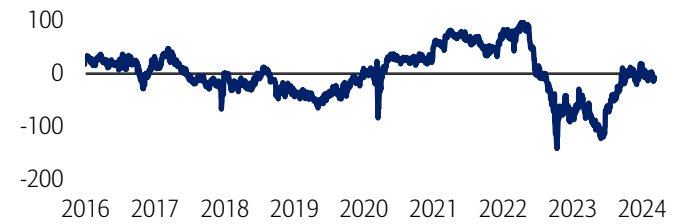


Source: BofA Global Research, Bloomberg

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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

	3/7/2024		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB	Pickup to 10y JGB	Pickup to 20y JGB
10y UST	-2.31%	-3.05%	-2.24%	-2.98%	-2.13%	-2.93%	-2.12%	-2.88%
10y GER	-2.59%	-3.33%	-2.50%	-3.24%	-2.43%	-3.22%	-1.18%	-1.93%
10y FRA	-2.14%	-2.89%	-2.02%	-2.75%	-1.92%	-2.71%	-0.68%	-1.44%
10y BEL	-2.06%	-2.80%	-1.93%	-2.66%	-1.81%	-2.60%	-0.58%	-1.34%
10y ITA	-1.28%	-2.03%	-1.04%	-1.78%	-0.86%	-1.66%	0.59%	-0.17%
10y SPA	-1.78%	-2.52%	-1.61%	-2.35%	-1.45%	-2.25%	-0.17%	-0.93%
10y UK	-2.20%	-2.95%	-2.10%	-2.84%	-2.03%	-2.82%	-1.42%	-2.18%
10y CAN	-2.50%	-3.25%	-2.46%	-3.19%	-2.30%	-3.09%	-2.18%	-2.94%

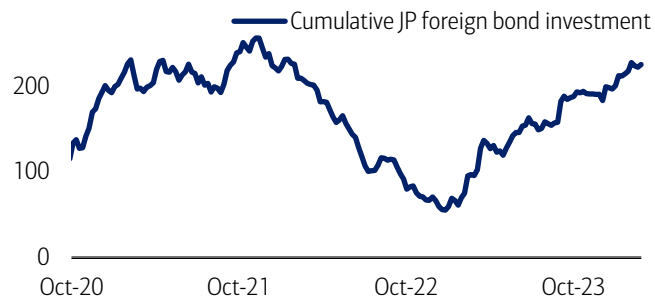
Source: BofA Global Research, Bloomberg

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### Exhibit 27: Japan investment in foreign bonds, cumulative weekly (\$bn)

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

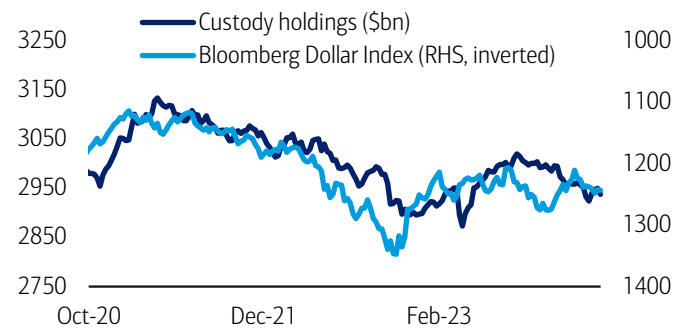


Source: BofA Global Research, Bloomberg

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### Exhibit 28: Foreign custody holdings and USD

Custodial holdings reduced on the week

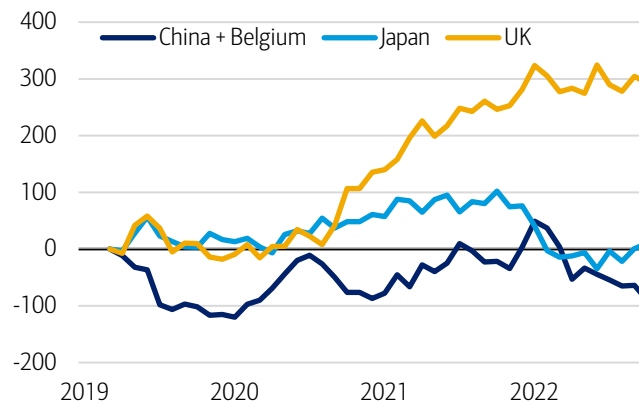


Source: BofA Global Research, Bloomberg

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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; UK largest buyer

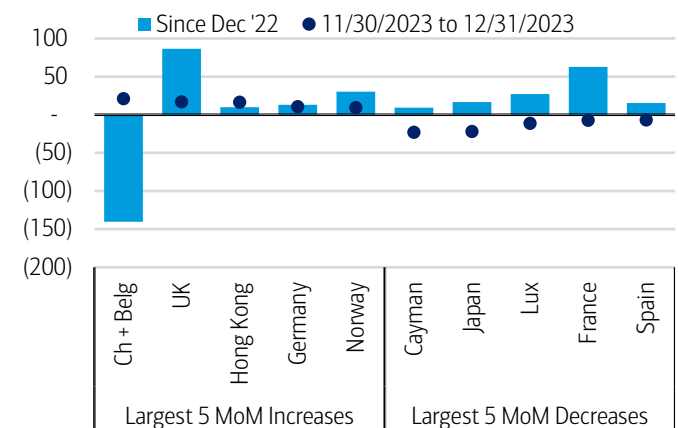


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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

China + Belgium were the largest buyer, Cayman the largest seller in December

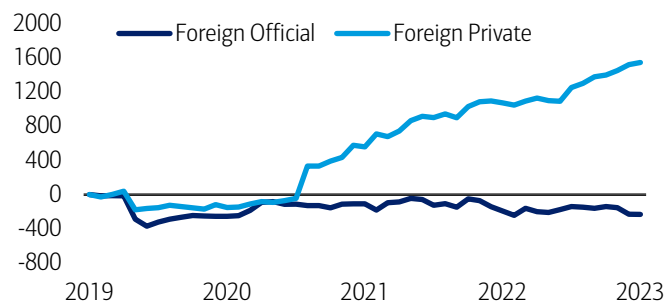


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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

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



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

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### Exhibit 32: Foreign buyers and sellers of USTs in 2023 (\$bn)

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

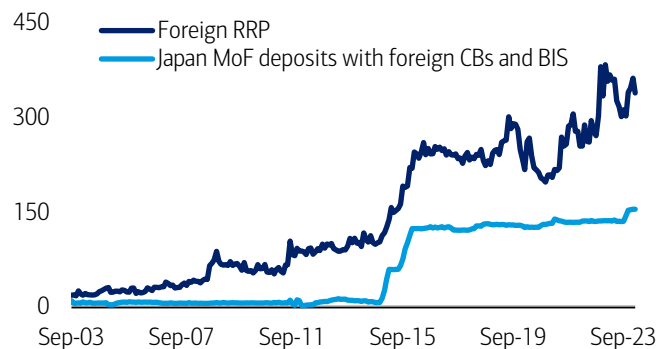


Source: BofA Global Research, Note: TIC data YTD through August adjusted for valuation

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**Exhibit 33: Japanese deposits with other central banks and Fed foreign repo pool (\$bn)**

Vast majority of \$154bn in MoF deposits likely at Fed's foreign repo pool

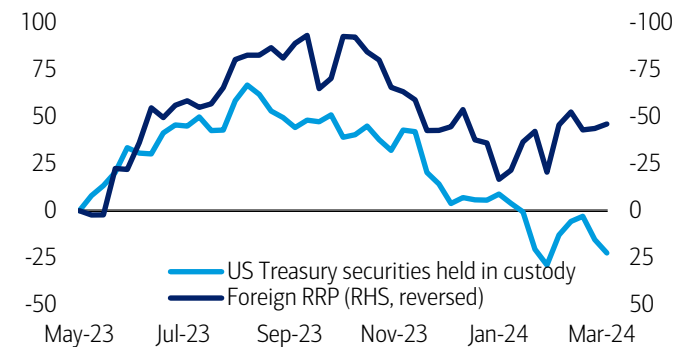


Source: Japan MoF, Federal Reserve, Bloomberg

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

Custody holdings &amp; RRP both down on the week



Source: BofA Global Research, Federal Reserve, Bloomberg

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**Exhibit 35: Monthly change in Japanese investor foreign bond holdings (\$USD, bn)**

Pensions were largest Japanese buyers in February

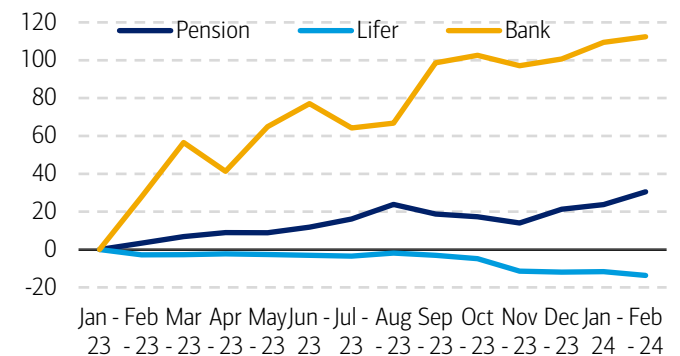
	Pension	Lifer	Bank
Feb - 24	6.8	-2.0	2.9
Jan - 24	2.4	0.3	8.9
Dec - 23	7.3	-0.5	3.5
Nov - 23	-3.3	-6.6	-5.5
Oct - 23	-1.4	-1.8	4.0
Sep - 23	-5.0	-1.2	31.9
Aug - 23	7.7	1.6	2.5
Jul - 23	4.3	-0.5	-12.9
Jun - 23	3.0	-0.4	12.1
May - 23	-0.1	-0.4	23.6
Apr - 23	2.1	0.5	-15.2
Mar - 23	3.4	0.1	28.7
Feb - 23	3.4	-2.8	27.8

Source: BofA Global Research, Japanese MoF

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**Exhibit 36: Cumulative change in Japanese investor foreign bond holdings (\$USD, bn)**

Banks were the largest buyers in 2023



Source: BofA Global Research, Japanese MoF

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**Fund flows and returns****Exhibit 37: US fixed income fund flows (\$million)**

Inflows on the week driven by mixed allocation, gov intermediate, and corp IG funds

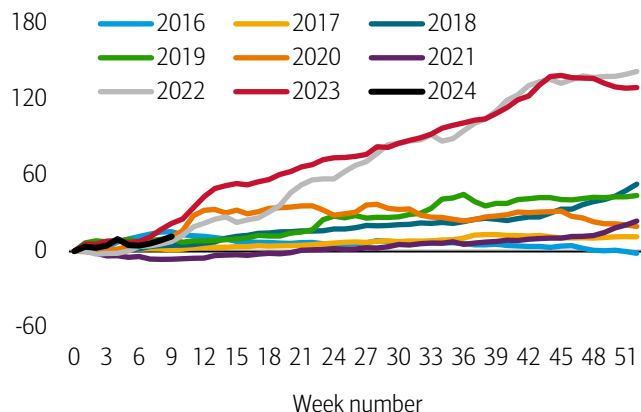
	3/6/2024	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	(871)	(380)	(645)	(579)	496
Gov: intermediate	2,744	1,517	931	793	473
Gov: long	(260)	1,077	1,031	847	1,281
Corp: IG	3,562	1,872	1,263	1,561	499
Corp:HY	1,072	342	576	452	273
Corp: all quality	104	77	93	87	51
MBS	257	341	316	225	276
Inflation	(349)	(155)	(122)	(307)	(399)
Muni	482	316	495	315	16
Mixed allocation	5,819	5,180	4,820	4,045	2,215
All US FI	12,840	10,195	8,675	7,420	4,894

Source: BofA Global Research, EPFR

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**Exhibit 38: Sovereign fund inflows by year (\$bn)**

Flows on the week picked up

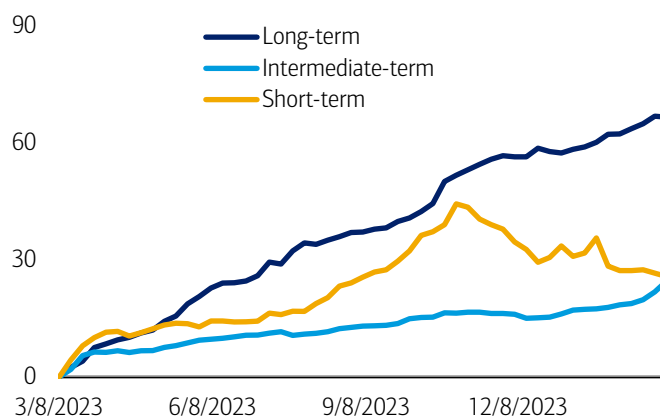


Source: BofA Global Research, EPFR

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**Exhibit 39: Sovereign inflows by tenor (\$bn)**

Inflows have been concentrated in long-term funds, inflows in short-term &amp; intermediate-term funds now at a similar level

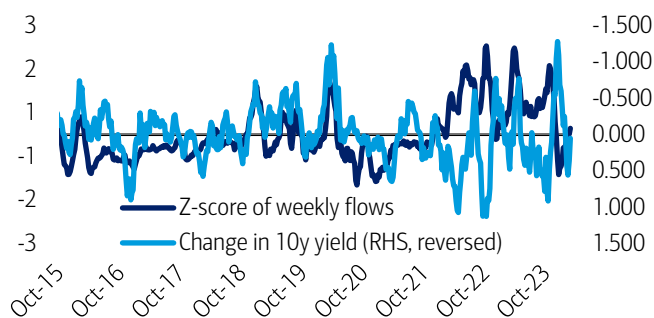


Source: BofA Global Research, EPFR

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**Exhibit 40: Fund flows and rate change (Z-score)**

Fund flows recently have been historically strong alongside rates rally

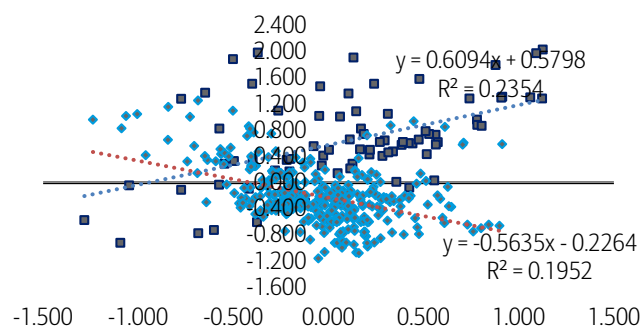


Source: BofA Global Research, EPFR

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**Exhibit 41: Fund flows and rate change**

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

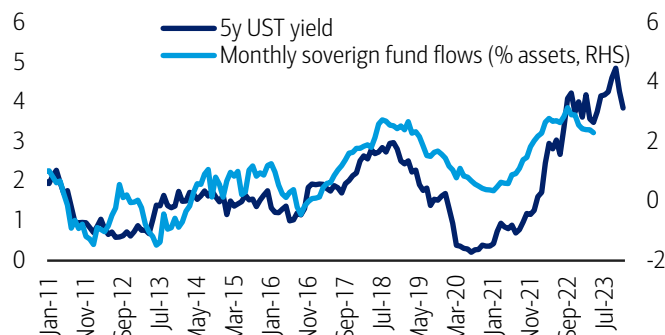


Source: BofA Global Research, EPFR, Bloomberg. Note: dark = post '22, light = '15-'22

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**Exhibit 42: Sovereign fund flows and UST yield**

Inflows higher when yields are higher

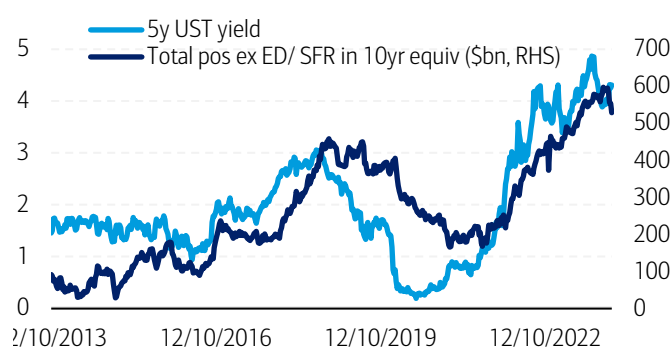


Source: BofA Global Research, EPFR. Note: sovereign fund flows is midpoint of 12mo average

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**Exhibit 43: Asset manager futures positioning and UST yield**

Asset manager futures positioning trends with yield levels



Source: BofA Global Research, Bloomberg

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**Exhibit 44: Total return FI fund performance vs benchmark**

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

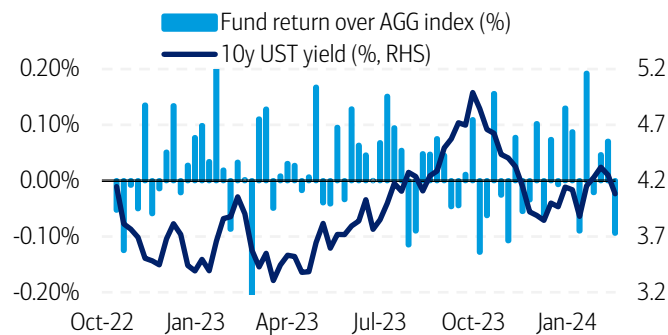
	AUM (\$Bn)	3/7/2024	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	275	1.03%	-0.12%	0.70%	-0.13%
Vanguard Total Bond Market Index Fund	211	1.01%	-0.14%	0.68%	-0.14%
PIMCO Income fund	143	0.88%	-0.27%	0.97%	0.15%
The Bond Fund of America	82	1.15%	0.00%	0.77%	-0.06%
MetWest Total Return Bond Fund	53	1.17%	0.02%	0.85%	0.02%
PIMCO Total Return Fund	53	1.14%	-0.01%	1.03%	0.20%
Dodge & Cox Income Fund	73	1.12%	-0.02%	0.96%	0.13%
PGIM Total Return Bond Fund	44	1.09%	-0.06%	1.01%	0.19%
BlackRock Strategic Income Opportunities Fund	37	0.73%	-0.42%	0.77%	-0.06%
Baird Aggregate Bond Fund	45	1.03%	-0.11%	0.81%	-0.02%
JPMorgan Core Bond Fund	45	1.09%	-0.06%	0.87%	0.05%
DoubleLine Total Return Bond Fund	31	1.15%	0.00%	1.09%	0.26%
Fidelity Series Investment Grade Bond Fund	35	1.19%	0.04%	0.93%	0.10%
Fidelity Total Bond Fund	35	1.04%	-0.11%	0.86%	0.03%
Western Asset Core Plus Bond Portfolio	22	1.49%	0.34%	1.22%	0.39%
Baird Core Plus Bond Fund	29	1.10%	-0.05%	0.91%	0.08%
John Hancock Bond Fund	24	1.21%	0.06%	0.95%	0.12%
TIAA-CREF Bond Index Fund	23	1.12%	-0.03%	0.78%	-0.04%
BlackRock Total Return Fund	19	1.00%	-0.15%	0.76%	-0.07%
JPMorgan Core Plus Bond Fund	20	1.12%	-0.02%	0.79%	-0.04%
Bridge Builder Core Bond Fund	18	1.11%	-0.04%	0.89%	0.06%
T Rowe Price New Income Fund	17	0.97%	-0.18%	0.71%	-0.12%
Western Asset Core Bond Fund	14	1.22%	0.07%	0.88%	0.05%
CREF Bond Market Account	11	1.08%	-0.07%	0.89%	0.06%
Fidelity Investment Grade Bond Fund	9	1.06%	-0.09%	0.86%	0.03%
DoubleLine Core Fixed Income Fund	7	1.09%	-0.06%	0.76%	-0.07%
TCW Total Return Bond Fund	2	1.53%	0.38%	1.40%	0.57%
Janus Henderson Flexible Bond Fund	3	1.17%	0.02%	0.81%	-0.02%
Weighted avg	1377	1.05%	-0.09%	0.83%	0.00%
Agg		1.15%		0.83%	
10y return		1.68%		0.71%	

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

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**Exhibit 45: Total return funds, excess return vs. 10y rate**

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

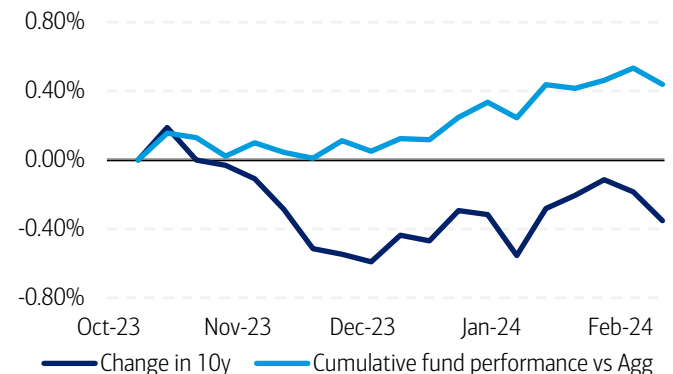


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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**Exhibit 46: 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 47: Total return funds' published UST allocations vs benchmark from Q3 and Q4 '23**

While on an AUM-weighted basis positioning was largely unchanged, more funds added to UST allocation by 1PPT than reduced UST allocation by 1PPT

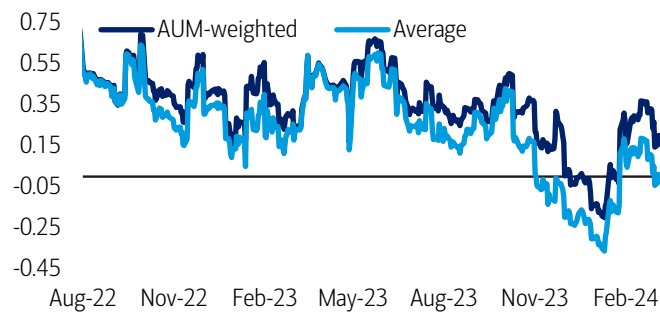
		Q3 '23 (%)	Q4 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	2.2	2.3	0.0
VBMFX	Vanguard Total Bond Market Index Fund	1.3	1.0	-0.3
PIMIX	PIMCO Income fund	-34.8	-35.0	-0.2
ABNDX	The Bond Fund of America	-22.4	-23.6	-1.1
DODIX	Dodge & Cox Income Fund	-29.8	-29.1	0.7
PTTRX	PIMCO Total Return Fund	-23.9	-25.6	-1.8
MWTIX	MetWest Total Return Bond Fund	-17.4	-14.6	2.8
PGBOX	JPMorgan Core Bond Fund	-3.9	-5.3	-1.4
BAGIX	Baird Aggregate Bond Fund	-18.8	-18.3	0.5
PDBAX	PGIM Total Return Bond Fund	-34.9	-35.4	-0.5
BSIIX	BlackRock Strategic Income Opportunities Fund	-24.0	-30.2	-6.2
FSIGX	Fidelity Series Investment Grade Bond Fund	-6.4	-4.1	2.3
FTBFX	Fidelity Total Bond Fund	-11.6	-9.8	1.7
DBLTX	DoubleLine Total Return Bond Fund	-34.6	-35.1	-0.5
BCOIX	Baird Core Plus Bond Fund	-19.1	-15.2	3.9
JHBIX	John Hancock Bond Fund	-21.6	-19.6	2.0
TBIIX	TIAA-CREF Bond Index Fund	0.0	-0.1	-0.1
WACPX	Western Asset Core Plus Bond Portfolio	-38.6	-36.0	2.6
ONIAx	JPMorgan Core Plus Bond Fund	-3.1	-11.4	-8.3
MAHQX	BlackRock Total Return Fund	-1.9	-7.2	-5.3
BBTBX	Bridge Builder Core Bond Fund	-24.6	-22.1	2.5
PRCIX	T Rowe Price New Income Fund	-8.6	-6.8	1.8
WATFX	Western Asset Core Bond Fund	-32.1	-28.6	3.5
QCBMIX	CREF Bond Market Account	-23.0	-21.2	1.9
FBNDX	Fidelity Investment Grade Bond Fund	3.5	-4.4	-7.9
DBLFX	DoubleLine Core Fixed Income Fund	-18.5	-18.6	-0.1
JFLEX	Janus Henderson Flexible Bond Fund	-26.0	-28.1	-2.1
TGLMX	TCW Total Return Bond Fund	-39.9	-39.7	0.2
<b>AUM weighted</b>		-13.7	-13.9	-0.2

Source: BofA Global Research, funds' publicly available reports

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**Exhibit 48: 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

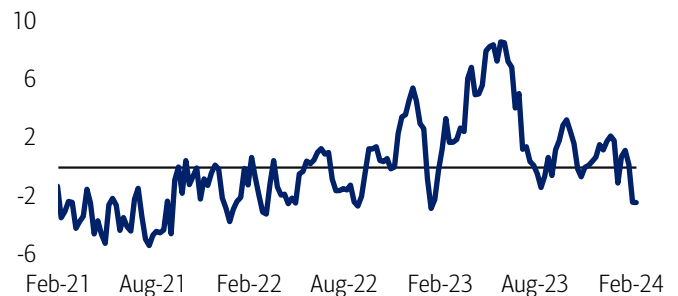


Source: BofA Global research, Bloomberg

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**Exhibit 49: Primary dealer 2-6y holdings of TIPS (\$bn, cumulative chg)**

Primary dealer holdings have declined

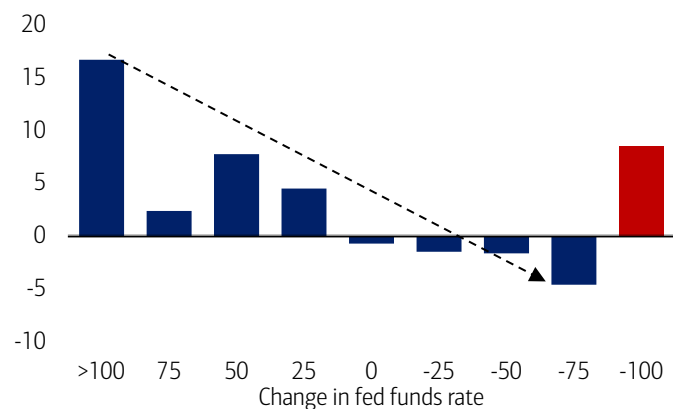


Source: BofA Global research, Note: cumulative change since 2021 reflects adjustment for change in market value

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### Exhibit 50: Rolling 3mo change in US duration exposure from FXRS Survey vs rolling 3mo change in Fed funds rate

Duration allocation is stable/ lower as Fed cuts

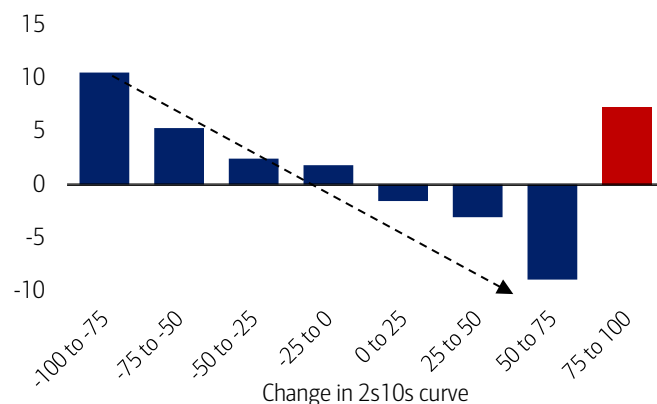


Source: BofA Global Research, Bloomberg

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### Exhibit 51: Rolling 3mo change in US duration exposure from FXRS Survey vs rolling 3mo change in 2y10y curve

As curve steepens duration allocation is reduced

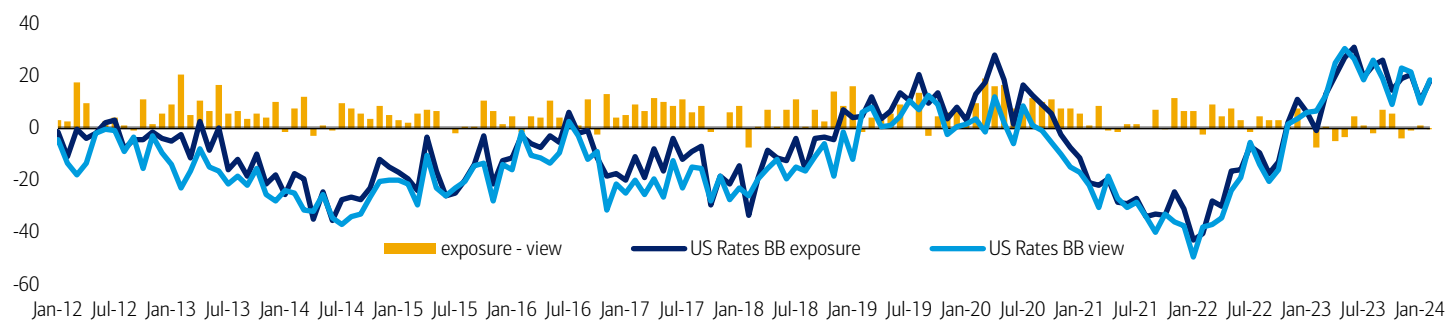


Source: BofA Global Research, Bloomberg

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### Exhibit 52: Duration exposure and view: USD

Duration longs up, in line with sentiment



Source: BofA Global Research FX and Rates Sentiment Survey

BB is the Bull-Bear Index for exposure and view. It weights responses to create an index ranging from -100 to +100, zero representing neutral. See appendix for formulas.

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# Bank balance sheets

## Exhibit 53: Changes to bank balance sheet assets (\$bn)

US banks saw an increase in assets led by cash, UST holdings, and loans

		Current (02/28/2024)	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	23330	41	31	9	11	8
	Cash	3577	22	25	9	3	9
	UST & Agency	1579	21	2	0	5	-1
	MBS	2545	5	1	3	1	-3
	Loans and Leases	12317	28	0	-1	1	5
	Other	3312	-35	3	-2	0	-2
Large Domestic (\$bn, NSA)	Total Assets	13418	25	-11	-18	-7	3
	Cash	1657	22	-10	-13	-10	6
	UST & Agency	1175	22	7	0	5	0
	MBS	1932	4	0	3	0	0
	Loans and Leases	6746	13	-1	-2	-3	1
	Other	1908	-36	-7	-6	0	-3
Small Domestic (\$bn, NSA)	Total Assets	6619	24	1	0	4	1
	Cash	485	13	2	-1	3	2
	UST & Agency	292	-1	-1	0	0	0
	MBS	582	0	0	0	1	-3
	Loans and leases	4477	10	1	1	2	3
	Other	784	1	-1	0	-1	-1
All Domestic (\$bn, NSA)	Total Assets	20037	49	-10	-19	-3	4
	Cash	2141	35	-7	-14	-7	8
	UST & Agency	1468	22	6	0	5	-1
	MBS	2514	4	0	3	1	-3
	Loans and leases	11222	23	-1	-1	-1	4
	Other	2691	-35	-8	-6	-1	-3
Foreign (\$bn, NSA)	Total Assets	3292	-8	41	28	14	4
	Cash	1435	-14	33	24	11	2
	UST & Agency	111	-1	-4	0	0	0
	MBS	31	1	1	0	0	0
	Loans and leases	1095	5	0	0	2	1
	Other	621	0	11	4	2	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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## Exhibit 54: Select bank balance sheet liabilities (\$bn, NSA)

Deposits increased and other borrowing declined

		Current (02/28/2024)	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	17492	86	2	-11	3	-4
	Domestic	16134	61	-7	-21	-3	-4
	Large Domestic	10798	35	-10	-20	-5	-3
	Small Domestic	5336	26	4	-1	2	-1
	Foreign	1357	25	9	10	6	0
Other borrowing (\$bn, NSA)	All	2383	-56	8	4	5	7
	Domestic	1373	-11	-5	4	3	6
	Large Domestic	962	-5	0	5	3	6
	Small Domestic	411	-6	-5	-1	0	0
	Foreign	1010	-45	13	0	3	1

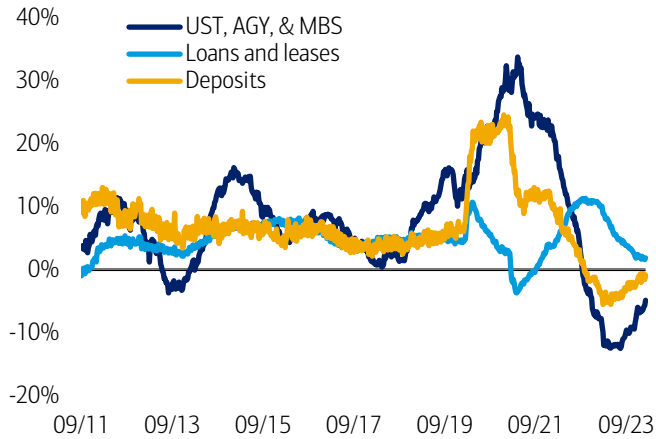
Source: BofA Global Research, Federal Reserve, Bloomberg

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**Exhibit 55: YoY change in securities, loans, and deposits**

Securities growth usually only positive when deposit growth is positive

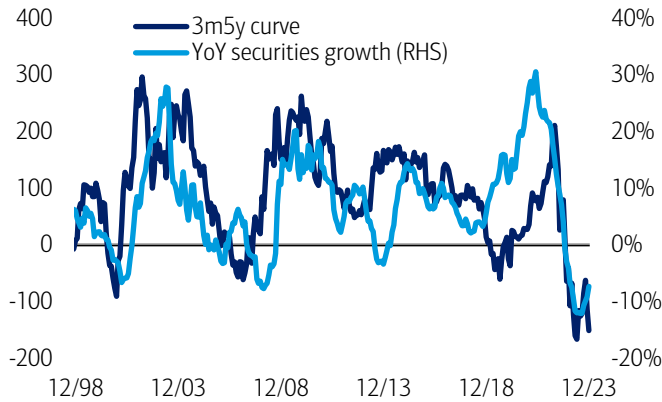


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 57: Front-end curve and YoY bank securities portfolio change**

Securities portfolio growth picks up historically with steeper front-end curve

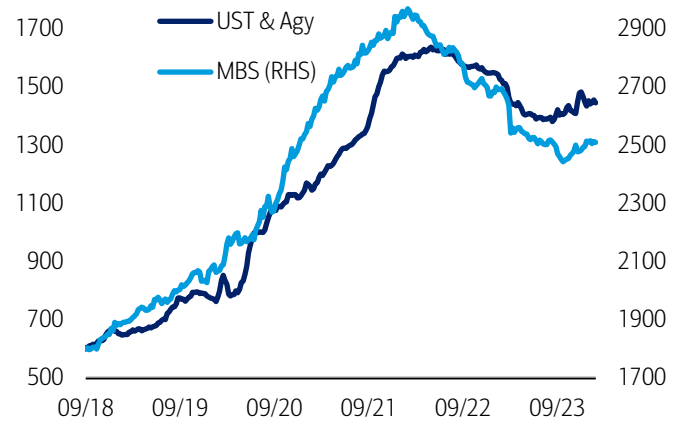


Source: BofA Global Research, Bloomberg

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**Exhibit 56: Domestic bank holdings of UST& Agy, MBS**

Holdings have stabilized after declining since start of '22

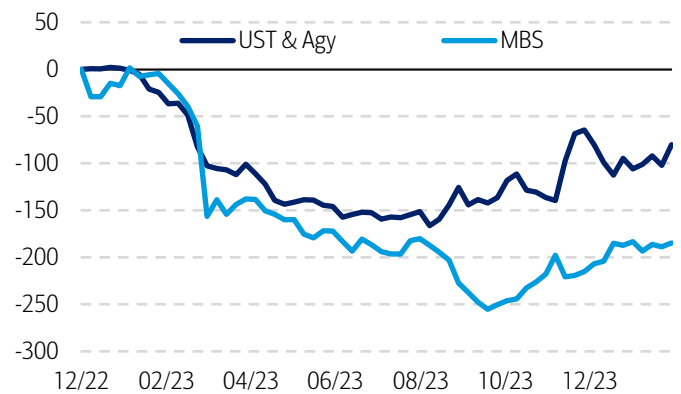


Source: BofA Global Research, Bloomberg, Federal Reserve

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**Exhibit 58: Cumulative change in domestic bank holdings of UST& Agy, MBS**

Securities holdings are slowly increasing



Source: BofA Global Research, Bloomberg, Federal Reserve

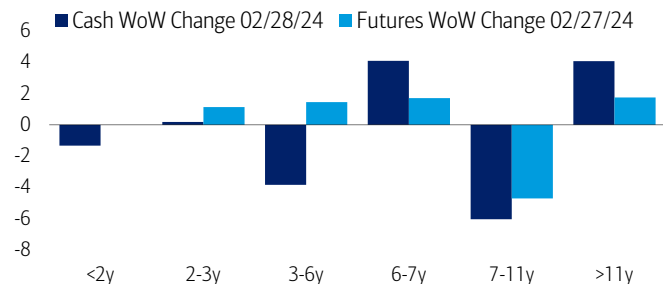
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# Primary dealer balance sheet

## Exhibit 59: Dealers WoW change in positions

10y equivalent, \$bn, futures & cash positions lower in 7-11y

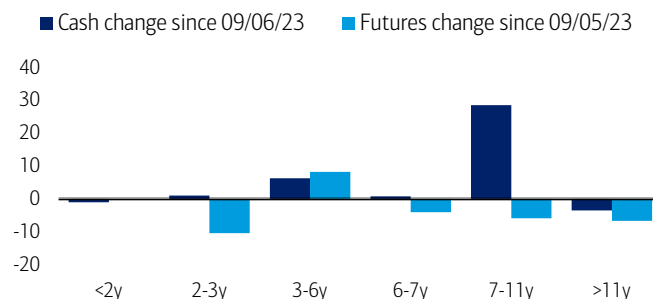


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 60: Dealers change in positions over last 6mo

10y equivalent, \$bn, cash positions higher in 7-11y buckets

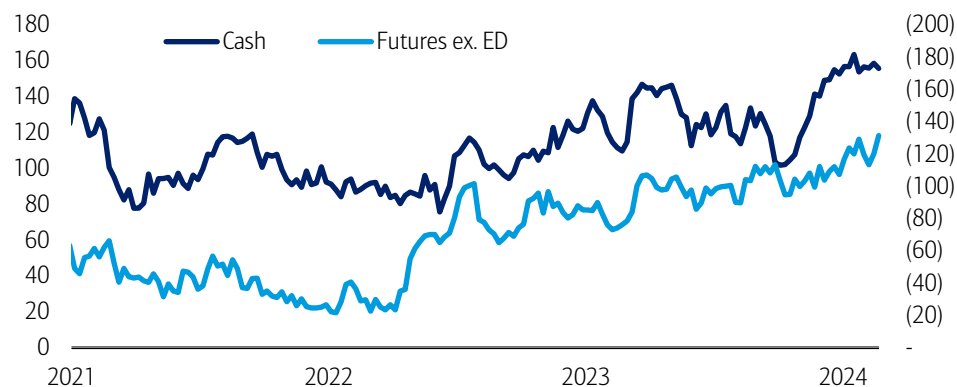


Source: BofA Global Research, NY Fed, CFTC

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## Exhibit 61: Dealers total sector positions

10y equivalent, \$bn, growth in cash holdings has outpaced futures



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

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# Auction statistics

## Exhibit 62: Auction summary statistics

Z-score calculated on levels, foreign participation picking up modestly

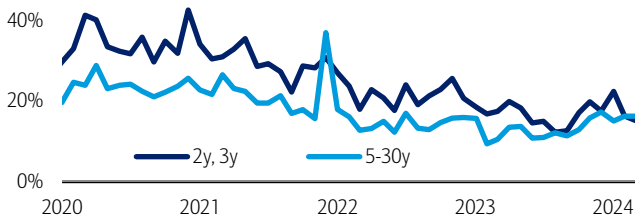
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	2/29/2024	14.7%	65.2%	20.1%	66.4%	15.5%	0.0%
	MoM Change	-0.1%	-0.1%	0.2%	-1.8%	0.9%	0.0%
	1Y Z-score	-0.6	0.5	-0.2	0.0	0.3	-0.2
3y	2/15/2024	15.7%	66.0%	18.3%	66.6%	15.3%	0.0%
	MoM Change	-2.1%	0.7%	1.5%	-1.7%	3.0%	0.0%
	1Y Z-score	-0.3	0.4	-0.5	0.2	0.0	-0.7
5y	2/29/2024	16.8%	19.7%	63.5%	68.9%	12.0%	0.0%
	MoM Change	-3.6%	1.0%	2.6%	0.3%	3.2%	0.0%
	1Y Z-score	0.8	0.8	-1.0	-1.0	0.0	-0.5
7y	2/29/2024	15.6%	69.6%	14.8%	68.5%	13.3%	0.0%
	MoM Change	1.7%	0.5%	-2.2%	-1.3%	-0.5%	0.0%
	1Y Z-score	0.6	0.3	-1.3	-0.6	0.7	-0.5
10y	2/15/2024	13.0%	71.0%	16.1%	60.5%	23.4%	0.0%
	MoM Change	-2.1%	4.9%	-2.6%	-7.1%	10.4%	0.0%
	1Y Z-score	-0.3	0.8	-1.3	-0.8	0.8	-0.5
20y	2/29/2024	21.2%	59.1%	19.7%	62.5%	12.8%	0.0%
	MoM Change	3.9%	-3.1%	-0.8%	-6.6%	2.0%	0.0%
	1Y Z-score	2.4	-2.0	0.1	-2.4	-0.3	#DIV/0!
30y	2/15/2024	14.8%	70.7%	14.5%	65.2%	17.2%	0.0%
	MoM Change	0.3%	2.9%	-3.2%	-10.9%	10.5%	0.0%
	1Y Z-score	0.2	0.8	-2.0	-0.8	1.1	-0.7

Source: BofA Global Research, Treasury

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## Exhibit 63: Primary dealer – average auction allotment

Dealer participation declined

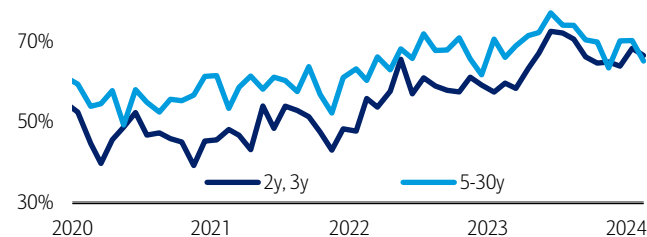


Source: BofA Global Research, Treasury

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## Exhibit 64: Investment fund – average auction allotment

Fund participation still elevated

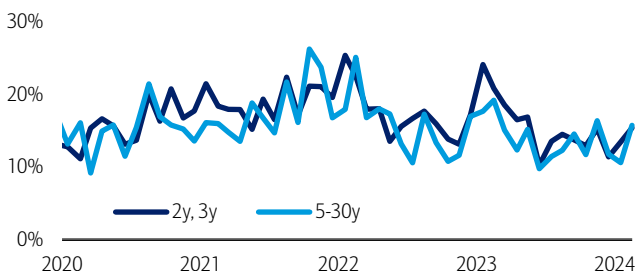


Source: BofA Global Research, Treasury

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## Exhibit 65: Foreign investment – average auction allotment

Foreign participation still below average but picked up recently

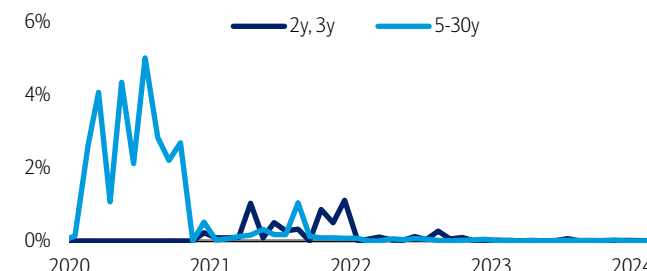


Source: BofA Global Research, Treasury

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## Exhibit 66: Depository institutions – average auction allotment

Participation is minimal



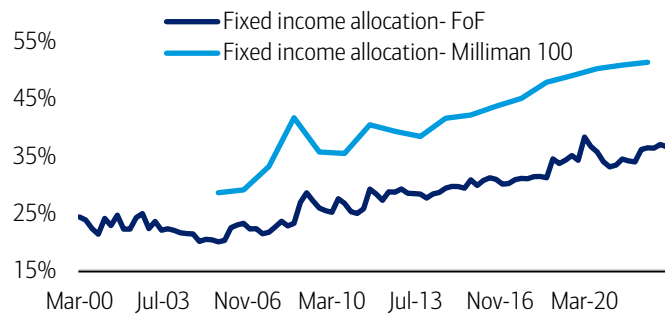
Source: BofA Global Research, Treasury

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# Pensions

## Exhibit 67: 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

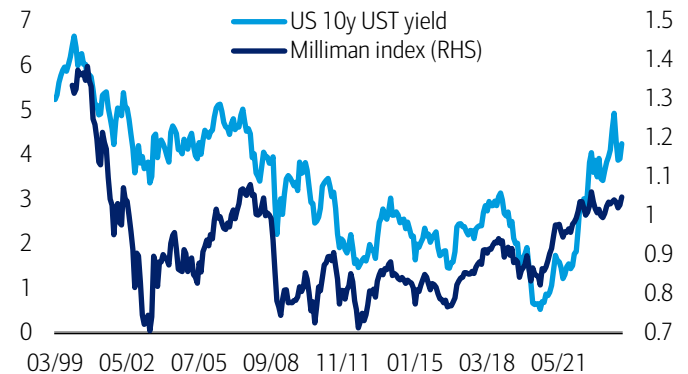


Source: BofA Global Research, Milliman, Federal Reserve

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## Exhibit 68: 10y UST yield and Milliman pension funded index

Funded status historically improves with an increase in interest rates

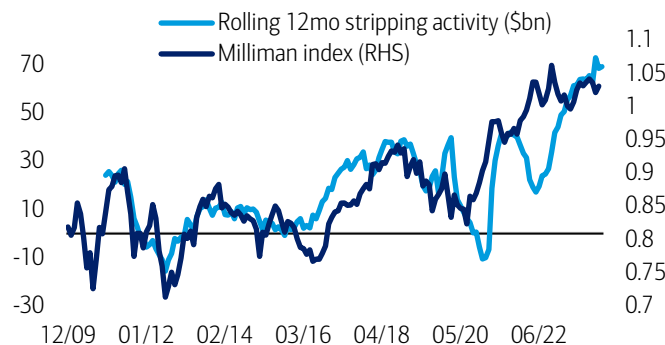


Source: BofA Global Research, Bloomberg

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## Exhibit 69: Milliman index and 12mo increase in USTs held in stripped form

Higher pension funded status aligns with higher stripping activity

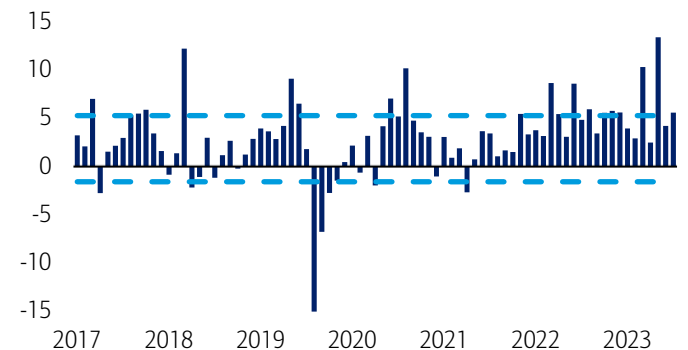


Source: BofA Global Research, Bloomberg

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## Exhibit 70: Change in USTs held in stripped form (\$bn)

USTs held in stripped form was elevated in February

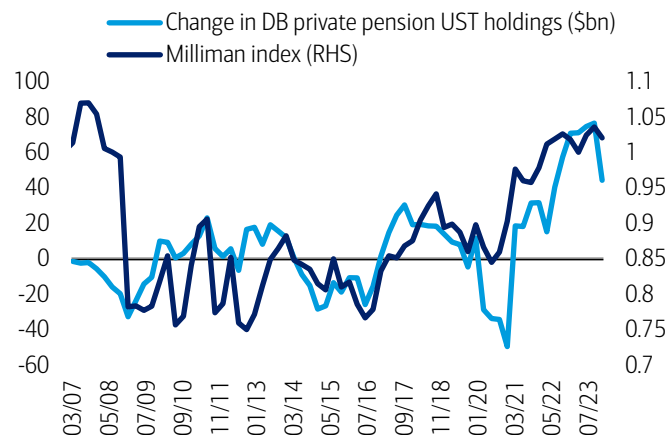


Source: BofA Global Research, Note: dashed line is 1stdev

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## Exhibit 71: Private pension UST flows and Milliman Index

UST demand tends to be more supported by higher funded status but on net declined in Q4 based on Flow of Funds



Source: BofA Global Research, Bloomberg, Federal Reserve

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