

US Rates Watch

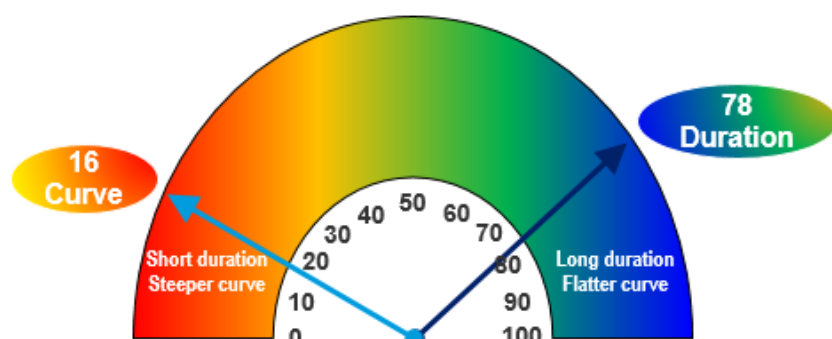
Bias remains higher but dip buying is a speed bump

Not so fast...

The bias in rates remains higher, particularly in the belly of the curve as out-of-the-money longs hang on. Despite this week's relatively strong data, the selloff in rates was more muted, consistent with some dip buying evidenced in flows. US fixed income fund inflows were strong and MoF data showed historic buying from Japanese investors. These were likely banks taking a tactical view given the recent selloff. Indicators suggest momentum is bottoming which may limit how much more CTAs will add to shorts and accelerate selloffs.

Exhibit 1: Curve-o-meter

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



Source: BofA Global Research, Note: dials show 5p 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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Bias for belly sell off ahead of Fed

Our futures positioning proxy (for construction details see: [Gauging positioning in Treasury Futures](#)) reflects a bias for rates to selloff across the curve, most notably in FV (Exhibit 12). The composition of open interest shows a significantly higher share of shorts that are ITM vs longs (Exhibit 11). On the week through Thursday, open interest increased—with shorts created in the front-end (FV and below), while further out the curve new positions were more balanced between longs and shorts.

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

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UST= Treasury security

CTA= Commodity trading advisor

OTM= out of the money

ITM=in the money

ED= Eurodollars

TIC=Treasury International Capital

QT= quantitative tightening

MoF= ministry of finance

COB = close of business

SFR = SOFR futures contract

TU = Treasury 2Y futures contract

FV = Treasury 5Y contract

TY = Treasury 10Y contract

UXY = Treasury ultra 10Y contract

US = Treasury 20Y contract

WN = Treasury 30Y contract

TGA= Treasury General Account

TR FI funds = Total return fixed income funds

PPTS = percentage points

JGB = Japanese government bonds

FoF = flow of funds

Modest covering in AM/ LF positions continues

Asset manager (AM) longs moderated slightly for the second consecutive week to the greatest extent in FV, UXY, and TY. Similarly, leveraged funds (LF) saw a reduction in shorts across those three contracts as well. Overall, asset manager longs and leveraged hedge funds shorts remain historically stretched (Exhibit 7).

CTA short may be bottoming

Our cross-over momentum signal and top-down model (see: [CTA impact on the rates market](#)) continue to suggest that CTAs are directionally short (Exhibit 13). Our cross over momentum signal though shows a bottoming, indicating that CTAs may not have much more of a short position to add going forward. Consistent with this our top-down model shows the smallest move in the 10y beta since early July. Non-reportable CFTC positioning contradicts the extent of short positioning implied from our models but shows an add to duration on the week (Exhibit 16), perhaps signaling a pullback in overall short positioning from CTAs.

Surprising foreign bid

Weekly data shows foreign buying from Japanese private investors and official accounts. MoF data evidenced \$25bn in foreign bond buying the week of Sept 8th (Exhibit 27), the largest inflow from Japanese investors since the banking risk events in mid-March.

Buying was likely dominated by banks that may not be FX hedging exposures and instead taking a more directional view on rates markets. Japanese banks were similarly dominating inflows observed in March alongside similarly unattractive FX hedging costs (Exhibit 31 and Exhibit 22). The weekly data also should not be read as a direct inflow into USTs as it reflects any foreign bond buying from the perspective of Japanese investors (i.e. not limited to the US and may include assets besides USTs).

Foreign custodial holdings increased \$4bn the week ending Sept 13, the first inflow since early August (Exhibit 28). This uptick coincided with a \$4bn decline in foreign reverse repo at the Fed, indicating that on net foreign official USD assets were roughly flat on the week. An increase in foreign UST holdings alongside lower RRP usage is a trend that we have observed for most of this year (Exhibit 32) as official institutions are showing a preference for owning securities vs earning repo.

Inflows remain firm

Overall US fixed income funds saw higher than recent average inflows, totaling \$5.2bn (Exhibit 33). Inflows were concentrated in mixed allocation, short-term Gov and credit funds. After a brief pause last week, inflation funds continued to see outflows this week. However, dealer inventories of TIPS at the tenor most impacted by flows has continued to moderate (Exhibit 43). Overall sovereign inflows remain on track with last year's record pace of inflows (Exhibit 34).

On an AUM-weighted basis, fixed income funds outperformed alongside continued selloff in UST the week ending Sept 14th (Exhibit 38). The largest outperformance continues to stem from two income funds (PIMCO and BlackRock) which have a relatively large AUM and likely maintain significant duration underweight positions. Correlation between relative benchmark performance and the 10y rate remains lower vs levels to start Q3, suggesting that duration positioning vs benchmark may be having a less significant impact on relative performance (Exhibit 42).

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, Sep 18	NAHB Housing Market Index	48	50	<i>Fed Blackout Period</i>	13w bills	69	0		
	Net Long-term TIC Flows	—	—		26w bills	62	0		
Tu, Sep 19	Housing Starts	1400k	1440k	<i>Fed Blackout Period</i>				Bills	21
	Building Permits	1440k	1448k						
W, Sep 20	MBA Mortgage Applications	—	—	14:00 FOMC rate decision	42d CMB	60	0		
	FOMC Rate Decision (mid-point)	5.375%	5.375%	14:30 Fed chair press conference	20y (r)	13	1		
Th, Sep 21	Initial Jobless Claims	224k	—		4w bills	-	0	Bills	23
	Philadelphia Fed Business Outlook	-2.0	-0.4		8w bills	-			
	Current Account Balance	—	-\$219.8bn		10y TIPS (r)	15			
	Leading Indicators	—	-0.4%						
F, Sep 22	Existing Home Sales	4.05M	4.10M	8: 50 Cook (voter) speaks at NBER AI conference					
	S&P Global US manufacturing PMI	48.5	47.9	13:00 Daly discuss monetary policy, economy					
	S&P Global US services PMI	52.5	—						

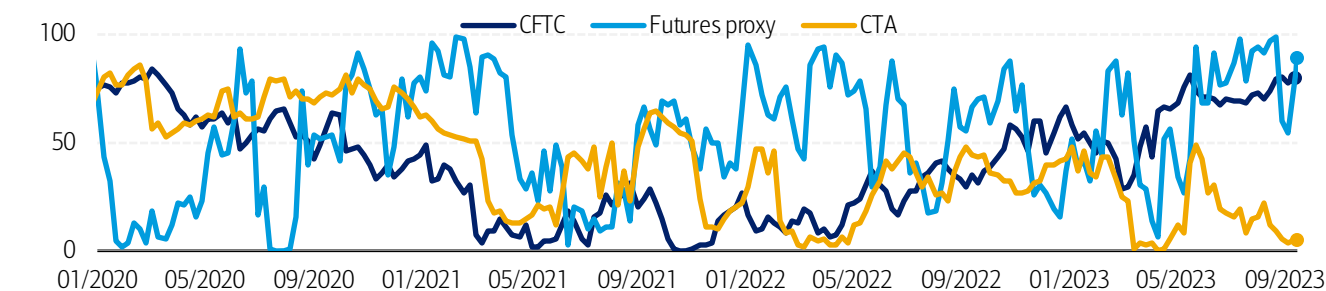
Source: BofA Global Research, Bloomberg, US Treasury

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Positioning indicators

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

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

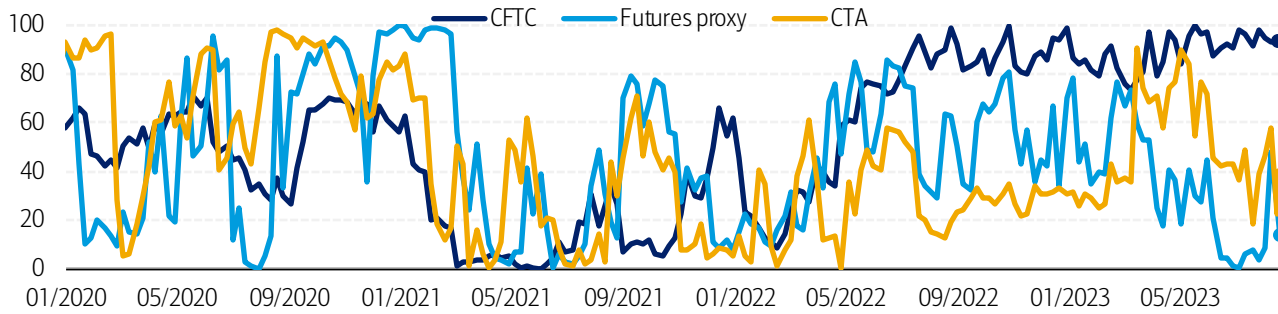


Source: BofA Global Research

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

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

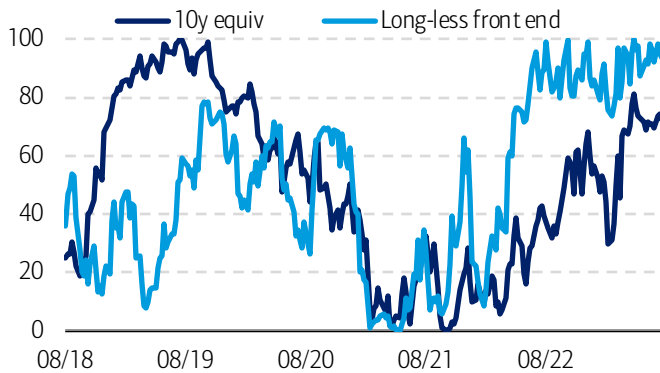


Source: BofA Global Research

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

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

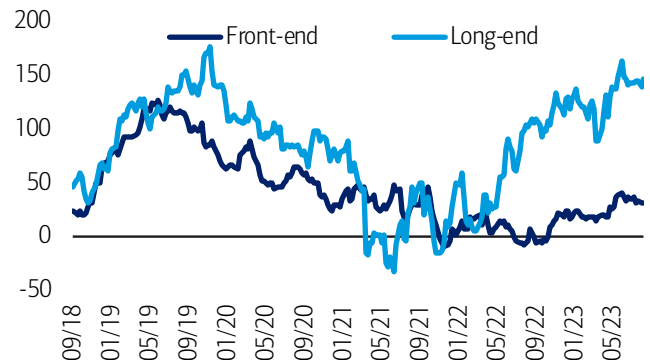


Source: BofA Global Research, Bloomberg

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

Longs are more concentrated in the back-end

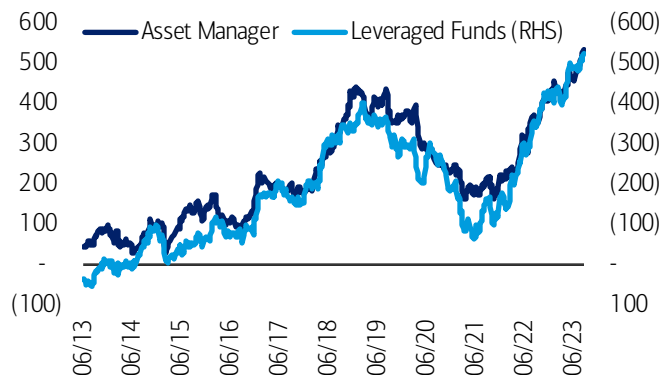


Source: BofA Global Research, Bloomberg

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

Asset manager longs correspond with leveraged fund shorts

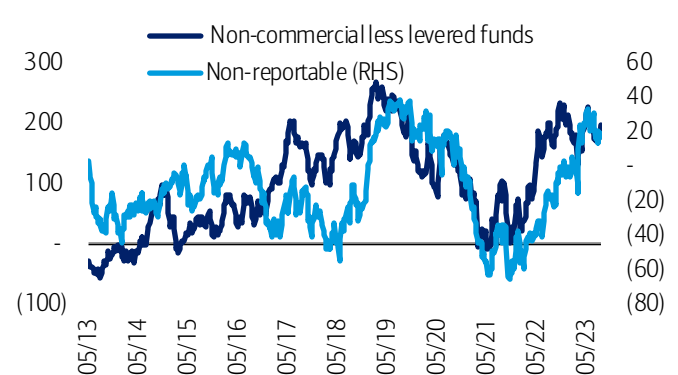


Source: BofA Global Research, Bloomberg

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

Directional positions trend together



Source: BofA Global Research, Bloomberg

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

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

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

Source: BofA Global Research, Bloomberg, average performance calculated over last 5y
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Exhibit 10: 10y rate change for given percentile of leveraged fund positioning (higher percentile = longer)

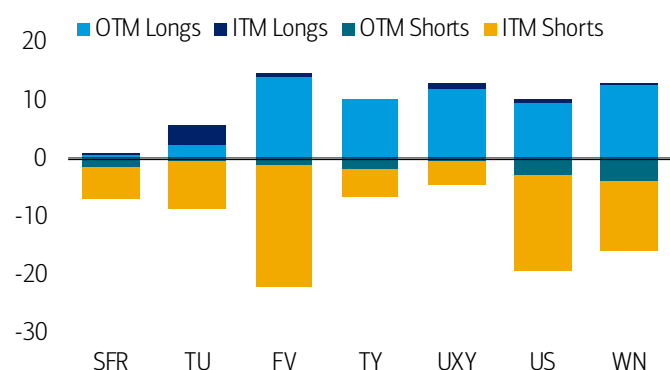
Positioning is contrarian signal: shorter positioning is usually followed by stronger 10y performance

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

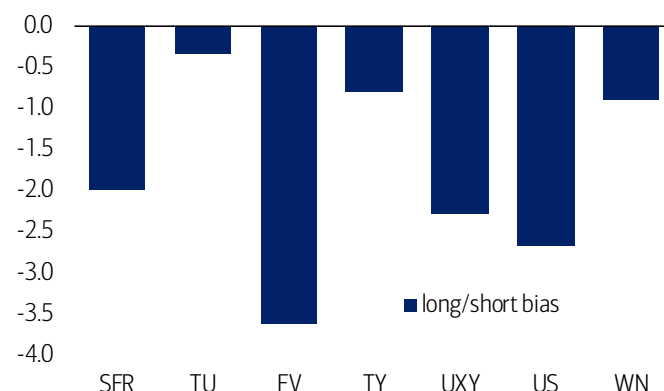
Shorts are largely ITM while longs are OTM



Source: BofA Global Research, Bloomberg
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Exhibit 12: Analysis of proxies for futures positioning

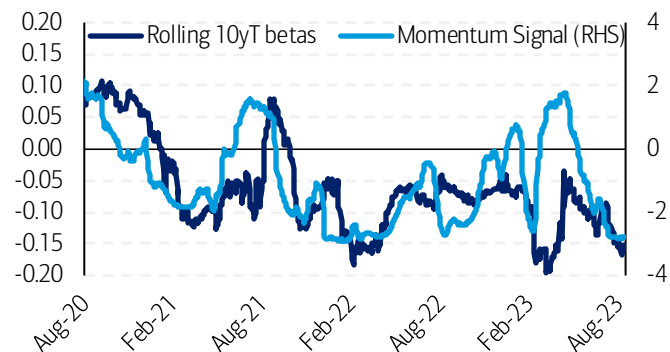
Bias for rates to sell off across the curve, particularly in FV



Source: BofA Global Research, Bloomberg. Note: reflects average positioning of futures stack over last 5 days
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Exhibit 13: CTA positioning in 10yT

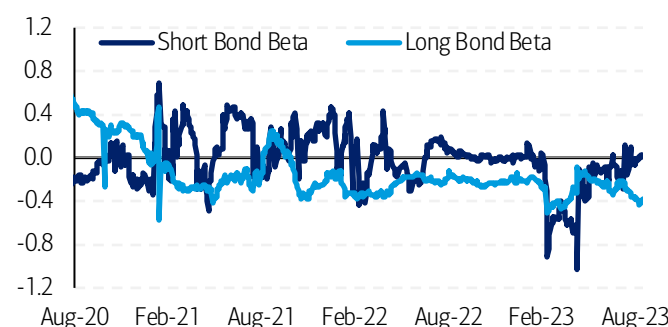
CTA top down model and momentum suggests short positioning



Source: BofA Global Research
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Exhibit 14: CTA positioning in longer duration and shorter duration bonds

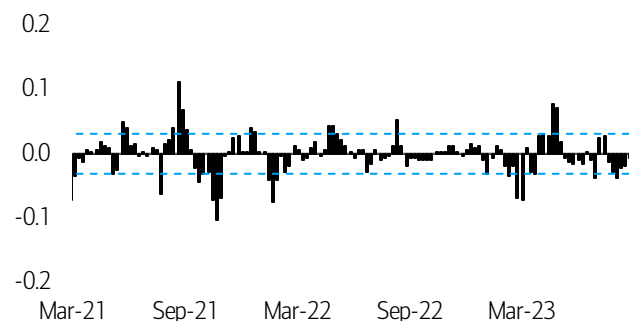
Top-down model suggests CTAs are positioned for a steeper curve and are short the back-end



Source: BofA Global Research
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Exhibit 15: Changes in CTA 10yT beta

10y beta continued to decline, albeit modestly on the week

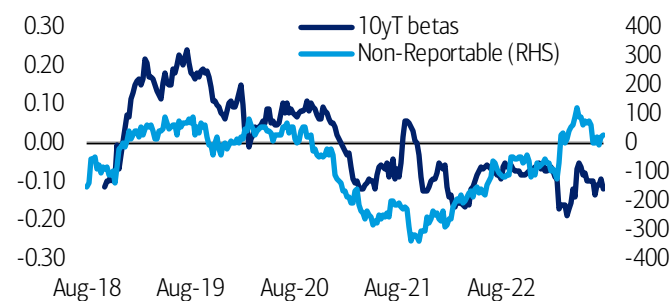


Source: BofA Global Research

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

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



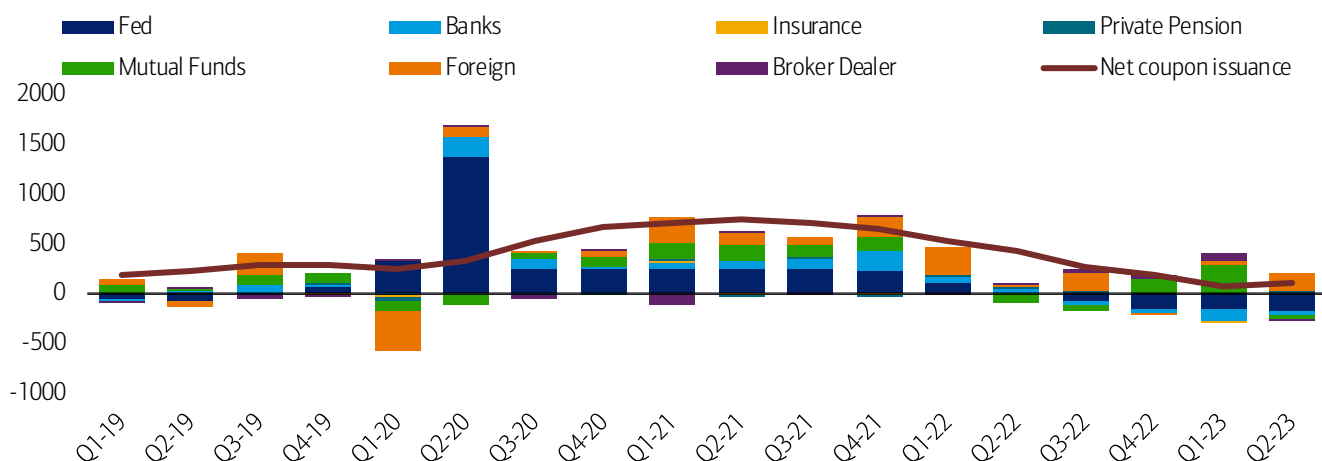
Source: BofA Global Research, Bloomberg

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Flow of funds

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

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

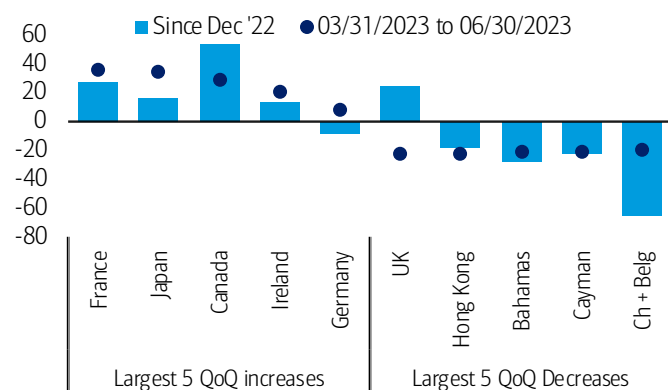


Source: BofA Global Research, Bloomberg. Note: change in levels adjusted for change in rates over the quarter

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Exhibit 18: Largest QoQ changes in foreign TSY holdings (\$bn)

France, Japan, and Canada made up bulk of foreign buying in Q2

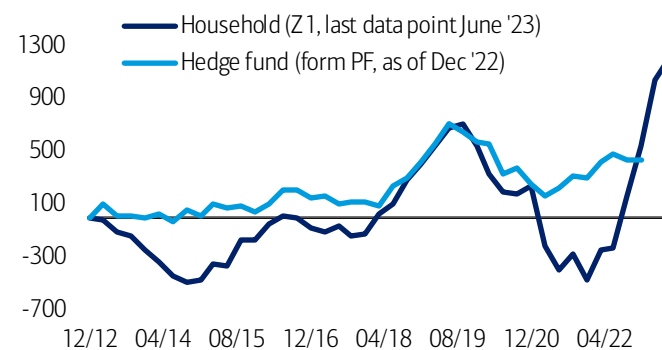


Source: BofA Global Research, TIC. Note: adjusted for level of rates

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Exhibit 19: Change in UST holdings (\$bn)

Hedge funds likely increased UST holdings in last year based on Flow of Funds data



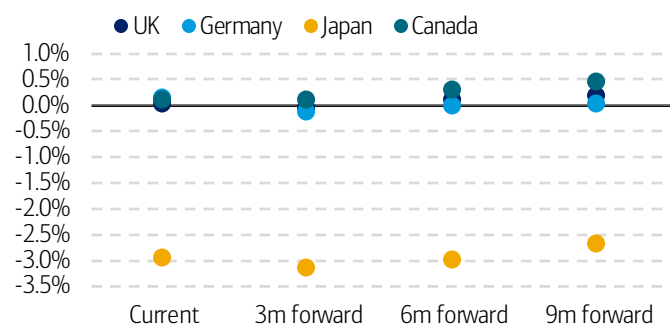
Source: BofA Global Research, Federal Reserve

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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

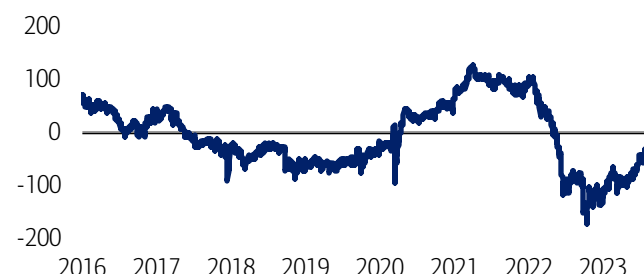


Source: BofA Global Research, Bloomberg

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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

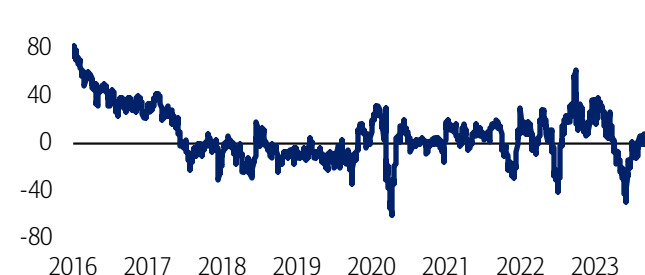


Source: BofA Global Research, Bloomberg

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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

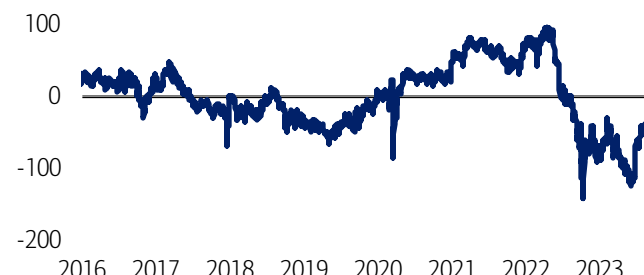


Source: BofA Global Research, Bloomberg

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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

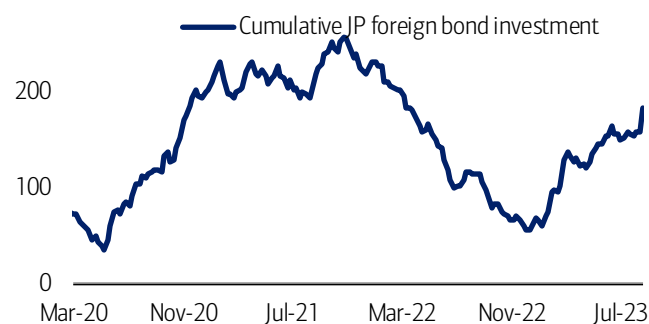
	9/14/2023		As of 1 wk ago		As of 1 mo ago		As of 1 yr ago	
	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB	Pickup to 10y JGB	Pickup to 20Y JGB
10y UST	-2.26%	-2.99%	-2.24%	-2.98%	-2.25%	-2.97%	-0.64%	-1.24%
10y GER	-2.35%	-3.08%	-2.14%	-2.89%	-2.12%	-2.84%	0.32%	-0.28%
10y FRA	-1.82%	-2.55%	-1.62%	-2.36%	-1.58%	-2.30%	0.88%	0.28%
10y BEL	-1.72%	-2.45%	-1.51%	-2.26%	-1.46%	-2.19%	0.92%	0.32%
10y ITA	-0.62%	-1.35%	-0.42%	-1.17%	-0.43%	-1.15%	2.60%	2.00%
10y SPA	-1.31%	-2.04%	-1.12%	-1.86%	-1.07%	-1.80%	1.46%	0.86%
10y UK	-2.23%	-2.96%	-2.03%	-2.78%	-1.81%	-2.54%	-0.09%	-0.69%
10y CAN	-2.31%	-3.03%	-2.28%	-3.02%	-2.31%	-3.03%	-0.86%	-1.47%

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 notably on the week

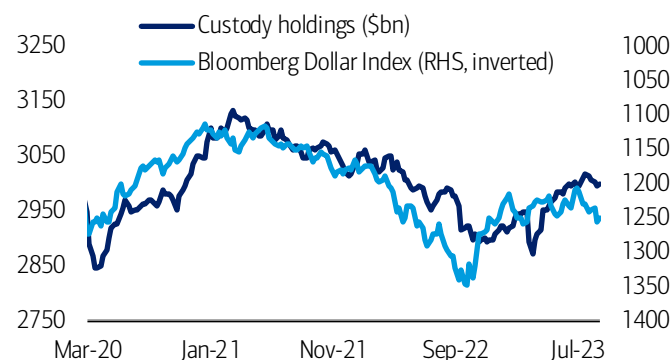


Source: BofA Global Research, Bloomberg

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

Custody holdings increased modestly on the week

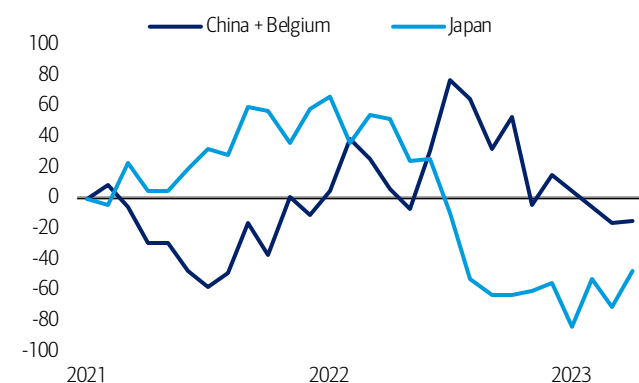


Source: BofA Global Research, NY Fed

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

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

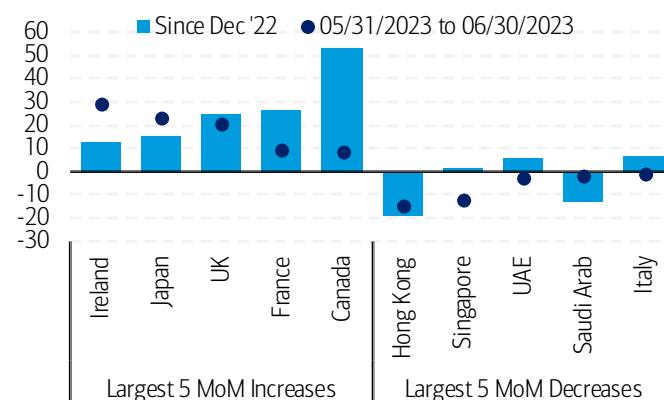


Source: BofA Global Research, Bloomberg, TIC, note: references the valuation-adjusted flow

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

Ireland was largest buyer, Hong Kong largest seller in June

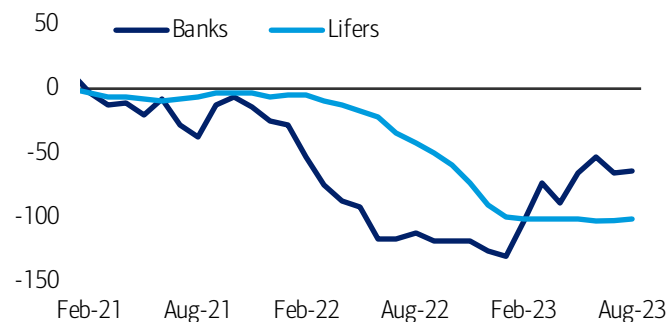


Source: BofA Global Research, TIC, Note: adjusted for level of rates

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Exhibit 31: Cumulative change in Japanese investor foreign bond holdings (\$bn)

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

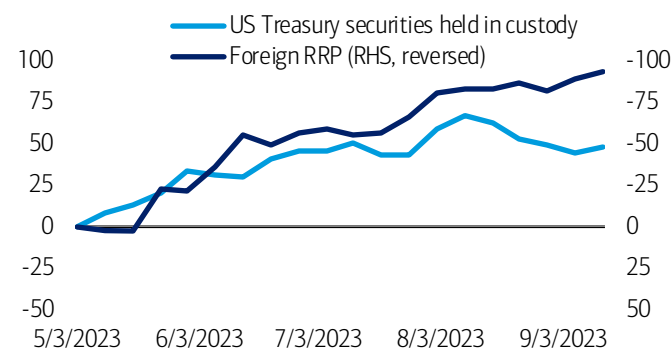


Source: BofA Global Research, Bloomberg, Note: JPY flow converted to USD using end of month FX level, last data point is June '23

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

Increase in custody holdings has been offset by decline in foreign RRP



Source: BofA Global Research, Federal Reserve, Bloomberg

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Fund flows and returns

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

US FI funds saw notable inflows above the pace observed in recent weeks

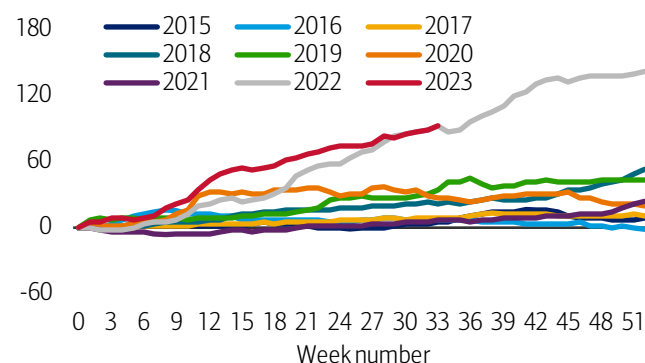
	9/13/2023	Rolling 4w average	Rolling 8w average	Rolling 12w average	Rolling 52w average
Gov: short	1,309	1,646	1,363	1,069	1,299
Gov: intermediate	99	387	193	236	323
Gov: long	732	710	1,119	1,148	1,128
Corp: IG	799	(335)	0	105	285
Corp:HY	892	322	(76)	139	(58)
Corp: all quality	86	51	43	62	22
MBS	422	88	268	294	173
Inflation	(366)	(378)	(209)	(239)	(519)
Muni	(33)	(88)	(8)	88	(300)
Mixed allocation	1,314	1,317	1,800	2,016	1,084
All USFI	5,237	4,008	4,454	4,819	2,911

Source: BofA Global Research, EPFR

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

Flows YTD are on track with highs of last year

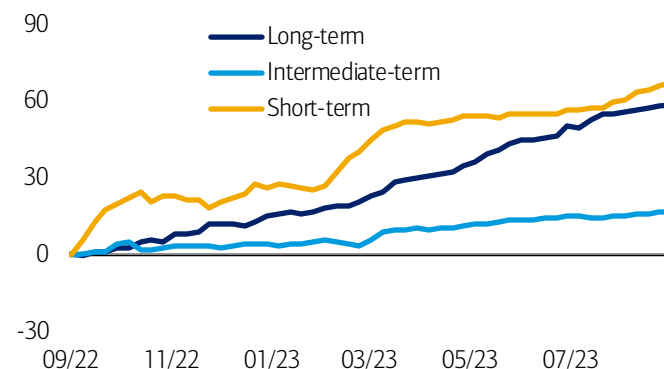


Source: BofA Global Research, EPFR

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

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

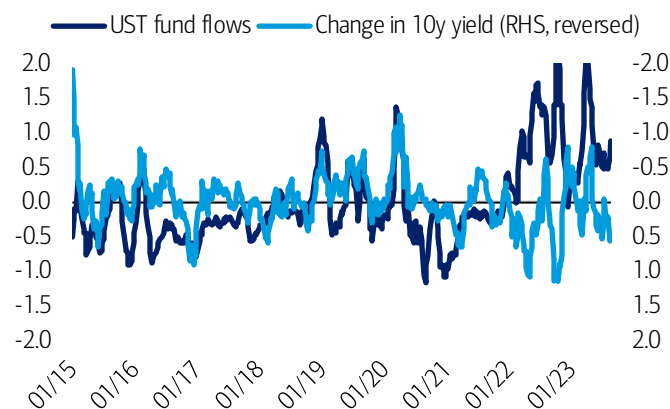


Source: BofA Global Research, EPFR

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

Fund flows recently have been historically strong despite rate selloff

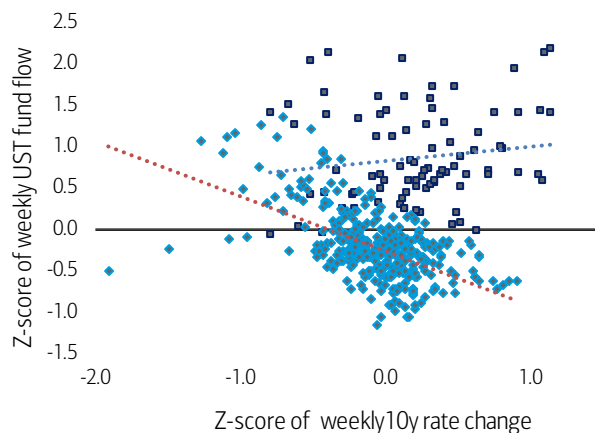


Source: BofA Global Research, EPFR

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Exhibit 37: Fund flows and rate change

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



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

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Exhibit 38: Total return FI fund performance vs benchmark

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

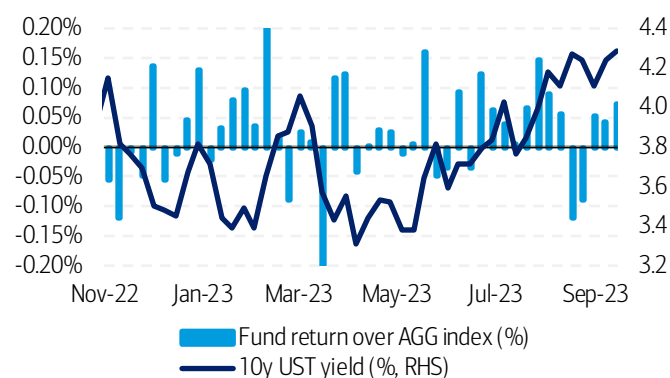
	AUM (\$Bn)	9/14/2023	Vs. Agg	Last 4w	Vs. Agg
Vanguard Total Bond Market II Index Fund	255	-0.05%	-0.02%	0.58%	-0.01%
Vanguard Total Bond Market Index Fund	202	-0.05%	-0.02%	0.57%	-0.02%
PIMCO Income fund	128	0.31%	0.33%	1.07%	0.48%
The Bond Fund of America	76	-0.02%	0.01%	0.57%	-0.02%
MetWest Total Return Bond Fund	61	0.08%	0.10%	0.67%	0.09%
PIMCO Total Return Fund	54	0.20%	0.22%	0.91%	0.32%
Dodge & Cox Income Fund	58	0.16%	0.18%	0.82%	0.24%
PGIM Total Return Bond Fund	42	0.01%	0.03%	0.70%	0.11%
BlackRock Strategic Income Opportunities Fund	35	0.31%	0.33%	0.81%	0.22%
Baird Aggregate Bond Fund	40	0.00%	0.02%	0.61%	0.02%
JPMorgan Core Bond Fund	40	0.00%	0.02%	0.49%	-0.10%
DoubleLine Total Return Bond Fund	33	0.00%	0.02%	0.62%	0.03%
Fidelity Series Investment Grade Bond Fund	35	-0.02%	0.00%	0.55%	-0.03%
Fidelity Total Bond Fund	32	0.08%	0.10%	0.68%	0.10%
Western Asset Core Plus Bond Portfolio	23	0.20%	0.22%	0.69%	0.11%
Baird Core Plus Bond Fund	25	0.10%	0.12%	0.61%	0.02%
John Hancock Bond Fund	22	0.09%	0.11%	0.72%	0.13%
TIAA-CREF Bond Index Fund	22	0.06%	0.08%	0.56%	-0.03%
BlackRock Total Return Fund	18	-0.02%	0.00%	0.44%	-0.15%
JPMorgan Core Plus Bond Fund	17	0.00%	0.02%	0.47%	-0.11%
Bridge Builder Core Bond Fund	16	0.08%	0.10%	0.66%	0.07%
T Rowe Price New Income Fund	16	-0.05%	-0.03%	0.44%	-0.15%
Western Asset Core Bond Fund	15	0.07%	0.09%	0.60%	0.01%
CREF Bond Market Account	11	0.06%	0.08%	0.65%	0.06%
Fidelity Investment Grade Bond Fund	9	-0.07%	-0.05%	0.60%	0.01%
DoubleLine Core Fixed Income Fund	7	0.00%	0.02%	0.63%	0.04%
TCW Total Return Bond Fund	3	0.13%	0.15%	0.79%	0.20%
Janus Henderson Flexible Bond Fund	3	-0.02%	0.00%	0.57%	-0.02%
Weighted avg	1294	0.05%	0.07%	0.67%	0.08%
Agg		-0.02%		0.59%	
10y return		-0.42%		-0.12%	

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

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Exhibit 39: Total return funds, excess return vs. 10y rate

Weekly asset-weighted total returns for total return funds. Funds return in line with benchmark on the week

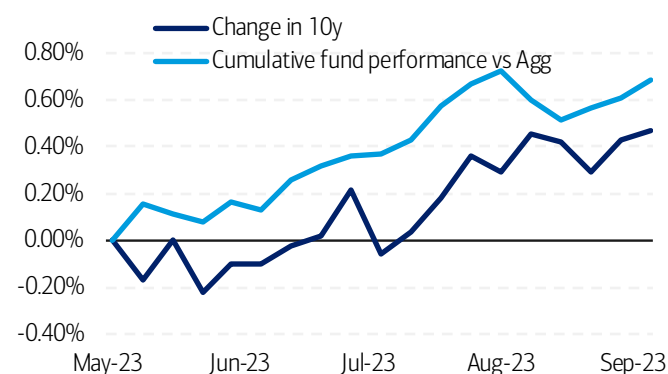


Source: BofA Global Research, Bloomberg. Note: Excess returns are fund total returns over Bloomberg Barclays Agg index

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

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

Funds moderated underweight UST position from Q1 to Q2

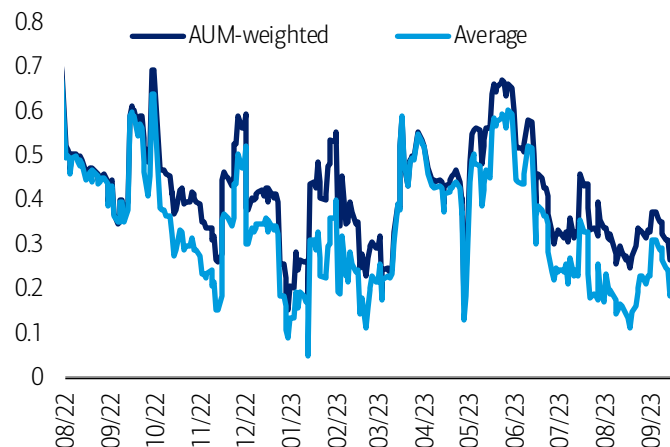
		AUM (\$bn)	Q1 '23 (%)	Q2 '23 (%)	Change (PPTS)
VTBIX	Vanguard Total Bond Market II Index Fund	255.2	2.4	2.1	-0.3
VBMFX	Vanguard Total Bond Market Index Fund	203.4	1.7	1.4	-0.3
PIMIX	PIMCO Income fund	126.7	-43.4	-34.1	9.3
ABNDX	The Bond Fund of America	75.8	-11.3	-14.0	-2.7
MWTIX	MetWest Total Return Bond Fund	61.3	-16.5	-18.7	-2.2
DODIX	Dodge & Cox Income Fund	57.5	-28.1	-32.7	-4.6
PTTRX	PIMCO Total Return Fund	54.6	-15.4	-18.6	-3.2
PDBAX	PGIM Total Return Bond Fund	42.0	-33.7	-34.2	-0.5
BAGIX	Baird Aggregate Bond Fund	40.1	-16.9	-17.7	-0.8
PGBOX	JPMorgan Core Bond Fund	40.1	-5.0	-2.2	2.8
BSIIX	BlackRock Strategic Income Opportunities Fund	35.4	-17.3	-23.4	-6.1
FSIGX	Fidelity Series Investment Grade Bond Fund	34.5	-7.5	-10.1	-2.6
DBLTX	DoubleLine Total Return Bond Fund	33.4	-32.7	-32.8	-0.1
FTBFX	Fidelity Total Bond Fund	31.7	-12.0	-12.5	-0.4
BCOIX	Baird Core Plus Bond Fund	24.8	-18.5	-18.4	0.1
WACPX	Western Asset Core Plus Bond Portfolio	23.8	-33.7	-38.0	-4.3
JHBIX	John Hancock Bond Fund	22.2	-22.8	-22.5	0.3
TBIIX	TIAA-CREF Bond Index Fund	21.5	0.8	0.3	-0.5
MAHQX	BlackRock Total Return Fund	18.0	-13.7	88.0	101.7
ONIAx	JPMorgan Core Plus Bond Fund	17.0	-5.1	-2.9	2.2
BBTBX	Bridge Builder Core Bond Fund	16.4	-22.1	-23.0	-0.9
PRCIX	T Rowe Price New Income Fund	15.5	-16.2	-11.8	4.4
WATFX	Western Asset Core Bond Fund	14.8	-30.7	-31.1	-0.4
QCBMIX	CREF Bond Market Account	10.5	-21.1	-22.6	-1.5
FBNDX	Fidelity Investment Grade Bond Fund	8.7	-5.7	-0.3	5.4
DBLFX	DoubleLine Core Fixed Income Fund	6.8	-16.9	-17.9	-1.0
JFLEX	Janus Henderson Flexible Bond Fund	2.9	-11.3	-17.9	-6.7
TGLMX	TCW Total Return Bond Fund	2.7	-38.5	-39.6	-1.1
AUM weighted		1297.3	-13.2	-11.9	1.4

Source: BofA Global Research, funds' publicly available reports

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Exhibit 42: Rolling 30-day correlation between excess return and change in 10y UST yield

A higher correlation between the two would suggest that when UST yields increase, excess return is higher (more short), recent decline may suggest moderation in short positioning

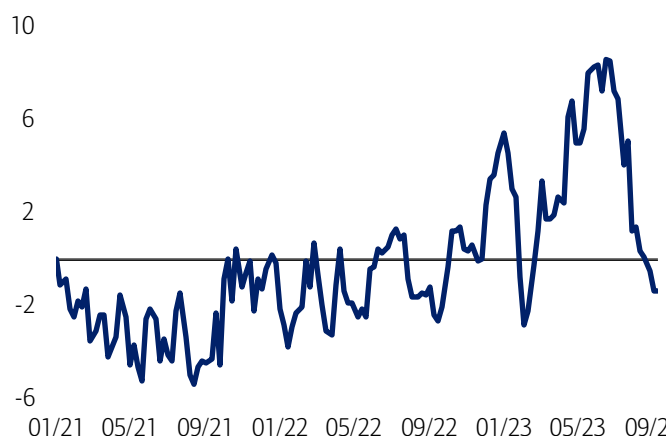


Source: BofA Global research, Bloomberg

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

Primary dealer holdings have declined meaningfully since end of June and now below levels observed in early 2021



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

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Bank balance sheets

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

Domestic bank balance increase driven by cash

		Current	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
All (\$bn, NSA)	Total Assets	22904	53	23	15	-2	0
	Cash	3387	61	18	17	3	0
	UST & Agency	1494	-17	-1	-2	-2	-4
	MBS	2573	-8	2	0	-1	-6
	Loans and Leases	12168	-3	11	10	6	10
	Other	3282	20	-7	-9	-6	-1
Large Domestic (\$bn, NSA)	Total Assets	13312	69	30	8	-6	-3
	Cash	1612	71	26	13	0	2
	UST & Agency	1096	-12	-1	-1	-1	-3
	MBS	1949	-7	4	2	0	-2
	Loans and Leases	6747	-2	4	3	1	3
	Other	1908	18	-2	-9	-6	-2
Small Domestic (\$bn, NSA)	Total Assets	6546	9	4	7	4	3
	Cash	471	18	3	2	1	0
	UST & Agency	287	-3	-1	-1	-1	-1
	MBS	599	0	-2	-1	-1	-4
	Loans and leases	4396	-3	4	6	5	7
	Other	793	-2	-1	0	0	0
All Domestic (\$bn, NSA)	Total Assets	19858	78	34	15	-1	0
	Cash	2083	89	30	15	2	2
	UST & Agency	1383	-15	-2	-1	-2	-4
	MBS	2548	-8	2	0	-1	-5
	Loans and leases	11142	-4	8	9	6	9
	Other	2701	15	-4	-8	-6	-2
Foreign (\$bn, NSA)	Total Assets	3046	-25	-12	0	0	0
	Cash	1304	-29	-12	1	1	-2
	UST & Agency	111	-2	1	-1	0	0
	MBS	25	0	0	0	0	0
	Loans and leases	1025	2	2	1	0	1
	Other	581	4	-3	-1	-1	1

Source: BofA Global Research, Federal Reserve, Bloomberg

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

Both deposits and other borrowing increased

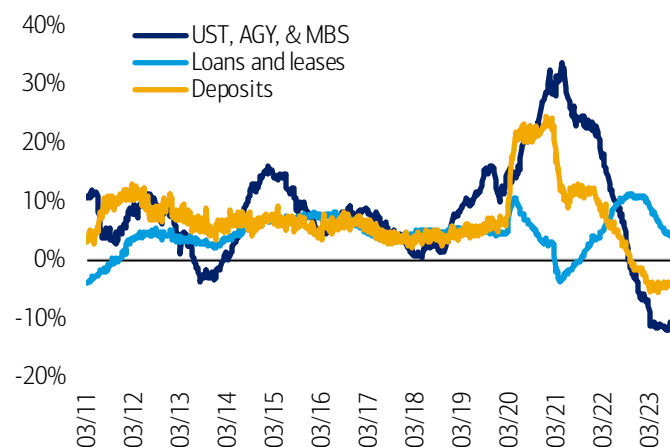
		Current	1w change	Rolling 4w avg wkly chg	Rolling 8w avg wkly chg	Rolling 12w avg wkly chg	Rolling 52w avg wkly chg
Deposits (\$bn, NSA)	All	17282	39	-11	-9	5	-15
	Domestic	16003	41	-11	-10	3	-13
	Large Domestic	10747	28	-11	-17	-3	-11
	Small Domestic	5256	13	0	7	7	-2
	Foreign	1279	-2	0	2	2	-1
Other borrowing (\$bn, NSA)	All	2275	13	14	-1	-13	12
	Domestic	1300	20	16	2	-9	10
	Large Domestic	851	22	17	6	-5	6
	Small Domestic	450	-2	-1	-4	-4	3
	Foreign	975	-7	-3	-3	-4	2

Source: BofA Global Research, Federal Reserve, Bloomberg

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

Securities growth usually only positive when deposit growth is positive

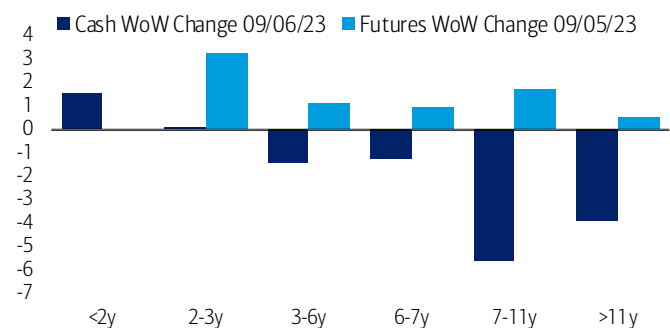


Source: BofA Global Research, Bloomberg, Federal Reserve

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

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

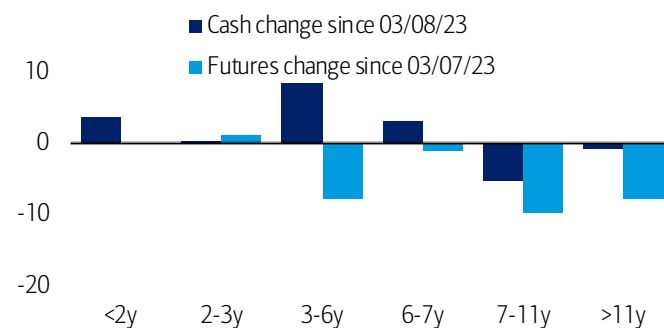


Source: BofA Global Research, NY Fed, CFTC

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Exhibit 48: Dealers change in positions since bank risk events

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



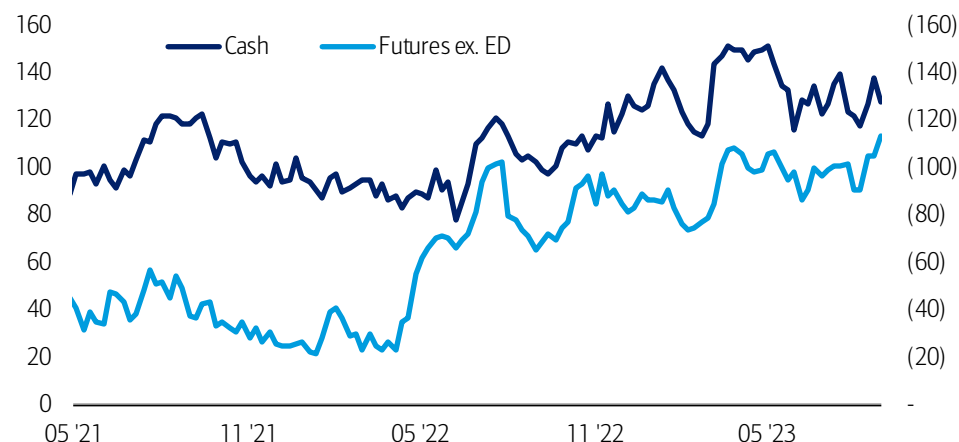
Source: BofA Global Research, NY Fed, CFTC

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Exhibit 49: Dealers total sector positions

10y equivalent, \$bn, short futures/ long cash has grown since April '22



Source: BofA Global Research, NY Fed, CFTC

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Auction statistics

Exhibit 50: Auction summary statistics

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

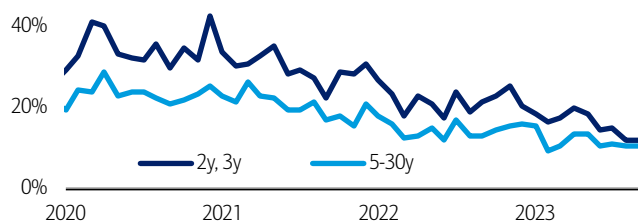
		Primary Dealer	Indirect Bidder	Direct Bidder	Investment Fund	Foreign	Depository Institution
2y	8/31/2023	13.3%	68.5%	18.2%	69.9%	12.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-0.1%	-1.2%	-0.1%
	1Y Z-score	-1.3	1.1	-0.7	1.3	-0.9	-0.5
3y	8/15/2023	10.8%	69.4%	19.8%	71.2%	16.6%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-3.0%	3.2%	0.0%
	1Y Z-score	-1.5	1.1	0.3	1.3	0.0	-0.4
5y	8/31/2023	12.2%	19.7%	68.1%	74.9%	10.0%	0.0%
	MoM Change	0.0%	0.0%	0.0%	4.0%	-3.5%	-0.1%
	1Y Z-score	-0.5	1.1	0.1	1.3	-1.2	-0.6
7y	8/31/2023	8.1%	75.3%	16.6%	80.7%	8.3%	0.0%
	MoM Change	0.0%	0.0%	0.0%	12.2%	-6.7%	0.0%
	1Y Z-score	-0.9	1.0	-0.7	1.5	-1.3	-0.5
10y	8/15/2023	12.4%	67.7%	19.9%	69.1%	17.5%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-7.9%	9.9%	0.0%
	1Y Z-score	-0.7	0.4	0.4	0.6	0.3	0.8
20y	8/31/2023	9.6%	68.8%	21.7%	75.5%	10.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-0.5%	-1.9%	0.0%
	1Y Z-score	-0.3	-0.6	1.5	0.7	-0.9	#DIV/0!
30y	8/15/2023	10.9%	69.0%	20.1%	69.6%	15.4%	0.0%
	MoM Change	0.0%	0.0%	0.0%	-8.1%	6.5%	0.0%
	1Y Z-score	-0.1	-0.2	0.6	-0.4	0.4	0.8

Source: BofA Global Research, Treasury

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Exhibit 51: Primary dealer – average auction allotment

Dealer participation has declined

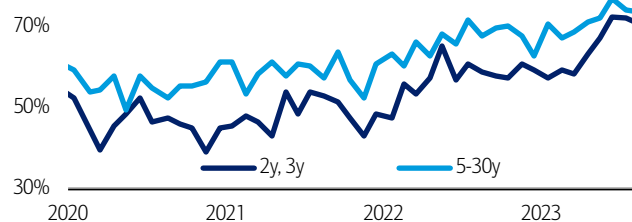


Source: BofA Global Research, Treasury

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Exhibit 52: Investment fund – average auction allotment

Fund participation still elevated

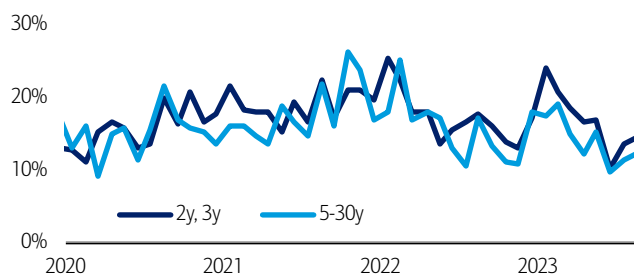


Source: BofA Global Research, Treasury

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Exhibit 53: Foreign investment – average auction allotment

Foreign participation still below average despite modest uptick in recent weeks

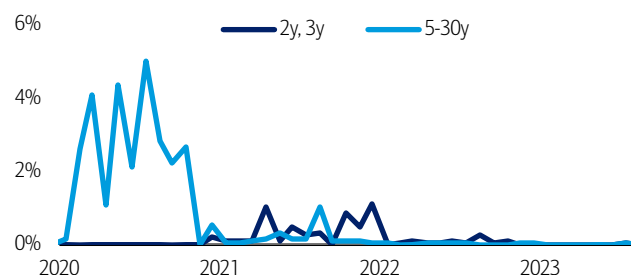


Source: BofA Global Research, Treasury

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Exhibit 54: Depository institutions – average auction allotment

Participation is minimal



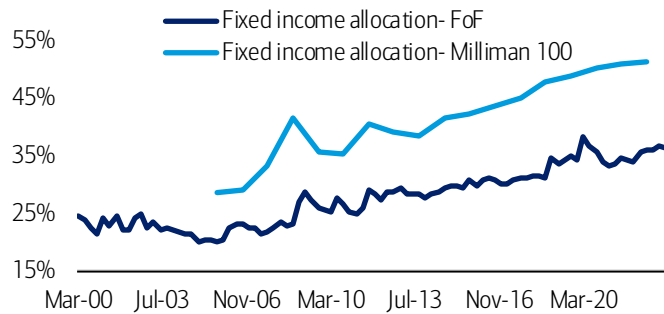
Source: BofA Global Research, Treasury

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Pensions

Exhibit 55: DB private pension fixed income allocation from Flow of Funds and smaller Milliman subset

Milliman funds have shown more de-risking than broader private DB pension funds according to FoF

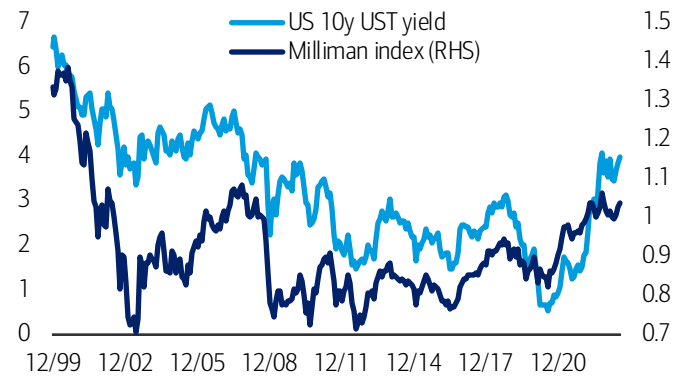


Source: BofA Global Research, Milliman, Federal Reserve

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

Funded status historically improves with an increase in interest rates

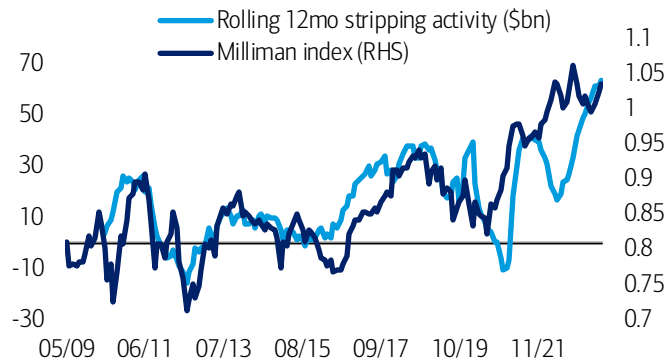


Source: BofA Global Research, Bloomberg

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

Higher pension funded status aligns with higher stripping activity

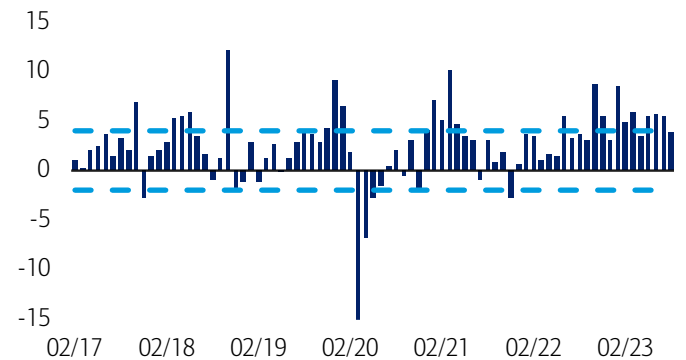


Source: BofA Global Research, Bloomberg

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

Stripping activity cooled modestly in August

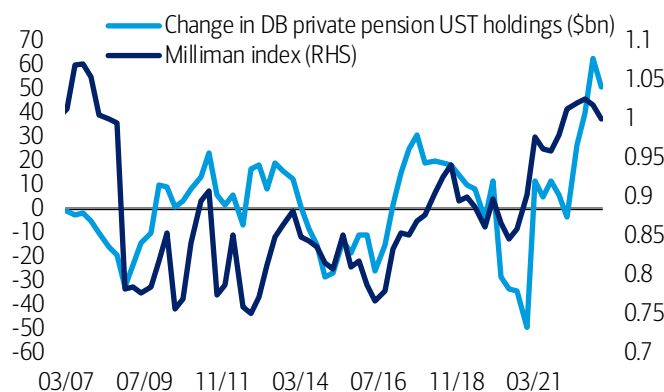


Source: BofA Global Research, Note: dashed line is 1stdev

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Exhibit 59: UST holdings of private DB pensions and funded status

When funded status is higher, pension funds buy more USTs



Source: BofA Global Research, Bloomberg, Federal Reserve

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