

## Flows & Liquidity

Is there a consensus theme?

2023 Institutional Investor  
II Developed Europe and Emerging EMEA Equity Research Survey

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- The “long duration” theme gained traction in recent months in particular post SVB.
- This “long duration” trade looks more crowded in equities (tech OW), commodities (Gold OW) and currencies (Short USD), but less crowded in credit (OW HG vs. HY) and far from crowded in rates.
- One reason the “long duration” trade is far from crowded in rates is that with yield curves being inverted, being long duration is a negative carry trade.
- US bank deposits declined by \$145bn in the week to Apr 19th amid tax payments. Inflows into US Money Market Funds remain elevated.
- On-chain bitcoin network activity rises sharply due to Ordinals.

- One of the questions that arises often in our client conversations is about whether there is a consensus among investors. While in periods of high macro and policy uncertainty, like the current one, there is typically little agreement among investors, we do sense that a “long duration” consensus theme has emerged post the SVB crisis. The argument being that if a US recession is inevitable at some point later this year and the uncertainty mostly relates to how mild or deep this recession is likely to be, then the “long duration” trade looks relatively attractive, as it would have limited downside in a mild recession scenario and plenty of upside in a deeper recession. This long duration bias is certainly evident in sentiment indicators, such as the client survey in our sister publication [JPM View](#) (Apr 26th), which suggested around three quarters of respondents were more likely to increase duration and only a quarter more likely to decrease duration. How is this “long duration” consensus theme expressed across asset classes and how crowded it is?
- In equities the “long duration” theme is expressed via overweighting longer duration growth stocks such as tech. Indeed, the share of tech in global equities has risen sharply this year, approaching the 2021 highs, implying that the world as a whole has become more overweight tech (Figure 1). In addition, by looking at the short interest across US equity sectors, tech has the lowest short interest pointing to an increase in the net exposure by long/short equity investors (Figure 2). The “long duration” theme gained traction in recent months, in particular post SVB.

### Global Markets Strategy Global Quantitative & Derivatives Strategy

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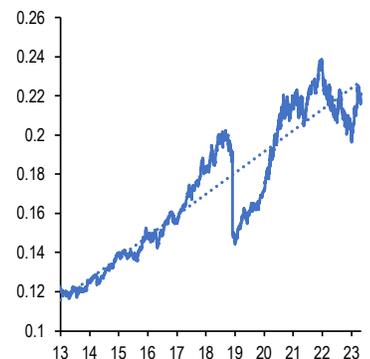
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**Figure 1: MSCI AC World IT sector market value vs. MSCI AC World index market value**

Ratio of Market Values.

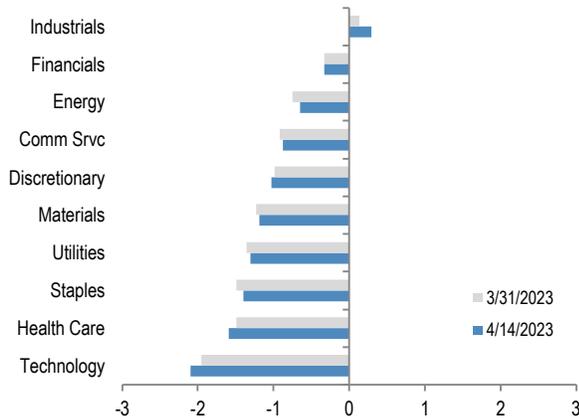


Source: Bloomberg Finance L.P., J.P. Morgan.

See page 21 for analyst certification and important disclosures, including non-US analyst disclosures.

**Figure 2: S&P500 short interest by sector**

Short interest as a % of shares outstanding, x axis shows z-scores.

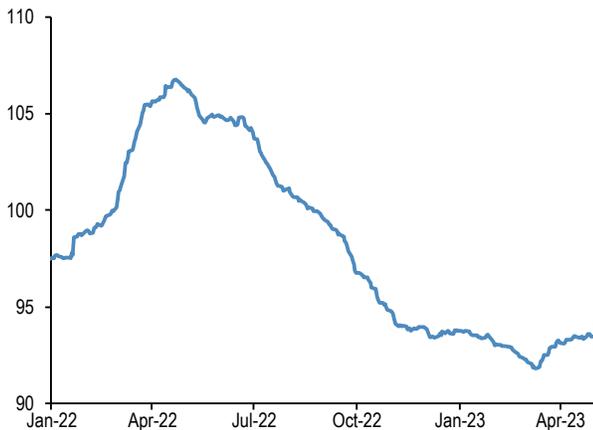


Source: NYSE, J.P. Morgan.

- Within commodities the “long duration” theme is expressed via overweighting gold. While retail investors’ impulse via physical gold ETFs has been muted this year (Figure 3), institutional investors increased sharply their exposure to gold futures in particular after the SVB crisis (Figure 4). In other words, the US banking crisis has increased the demand for gold as a proxy for lower real rates as well as a hedge against a “catastrophic scenario”. And while institutional investors flocked into gold, it appears that retail investors have increased exposure to bitcoin.

**Figure 3: Gold ETFs**

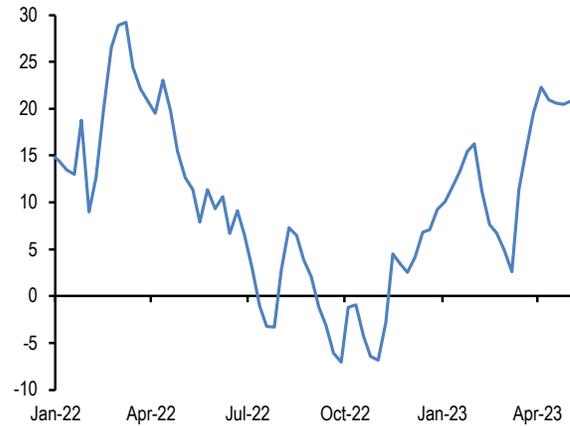
Mn troy oz. Physical gold held by all gold ETFs globally.



Source: Bloomberg Finance L.P., J.P. Morgan.

**Figure 4: Gold spec positions**

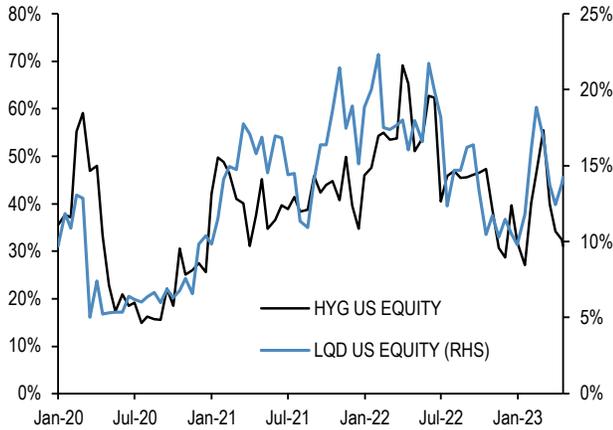
\$bn. CFTC net long minus short position in futures for the Managed Money category.



Source: CFTC, Bloomberg Finance L.P., J.P. Morgan.

- Within credit, an expression of the “long duration” theme is via overweighting high grade vs. high yield corporate bonds. This is because HG corporate bonds have typically higher duration of around 7-8 years, around double that of HY corporate bonds. Indeed, by looking at the short interest of the biggest credit ETFs in Figure 5, i.e. LQD for HG and HYG for HY corporate bonds, one can detect a higher short base in the former (LQD), perhaps pointing to more elevated credit overweights in HG relative to HY credit. This is because these credit ETFs are mostly used by credit investors to hedge underlying corporate bond portfolios, so a high short interest tends to be indicative of credit overweighs and increased demand for credit hedges by investors. And vice versa, a low short interest in the biggest credit ETFs could be indicative of credit underweighs and thus reduced demand for credit hedges by investors. That said, given how modest and volatile is the difference between the two short interest metrics in Figure 5, any evidence of an implied credit overweight in HG vs HY is rather tentative.

**Figure 5: Short Interest on LQD and HYG ETFs as % of outstanding shares**



Source: Bloomberg Finance L.P., J.P. Morgan.

- In rates, the “long duration” trade looks less crowded. As we highlighted in our last publication ([Flows & Liquidity](#) April 27th) our position proxies suggest that bond investors are neutral to modestly short duration overall. One reason the “long duration” trade is far from crowded in rates is that, with yield curves being highly inverted, being long duration has been a negative carry trade for some time (Figure 6). Few investors have been willing to pay this negative carry for a sustained period of time, thus their tendency has been to retain a short duration bias especially at the very front end. Another motivation for the tendency for the latter is that inflation persistence has meant elevated uncertainty about whether the Fed might have to push rates materially higher.

**Figure 6: Carry and slide in 2yr and 10yt USTs**

In bp per quarter

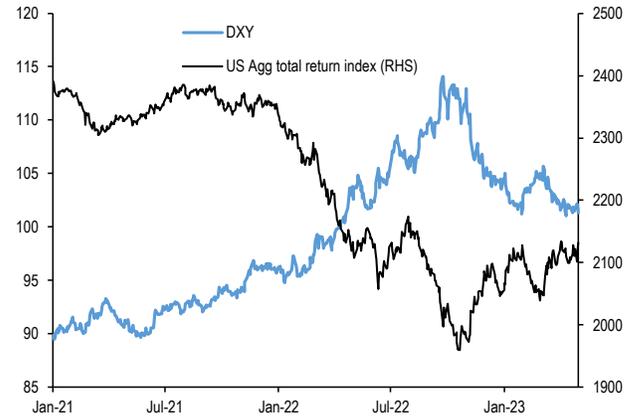


Source: Bloomberg Finance L.P., J.P. Morgan.

- In currencies, given the strong negative correlation between the performance of US bonds and DXY, an expression of the duration trade is a short position in

the dollar. Indeed, Figure 7 suggests that a positive duration impulse that would lift the US Agg bond index, would at the same time be negative for the dollar and vice versa. The spec positions in Figure 8 suggest that investors shifted to a short stance on the US dollar this year.

**Figure 7: DXY vs US Agg Bond index**



Source: Bloomberg Finance L.P., J.P. Morgan.

**Figure 8: Net spec position on USD**

The net spec position in the USD as reported by the CFTC. Spec is the non-commercial category from the CFTC.



Source: CFTC, Bloomberg Finance L.P., J.P. Morgan.

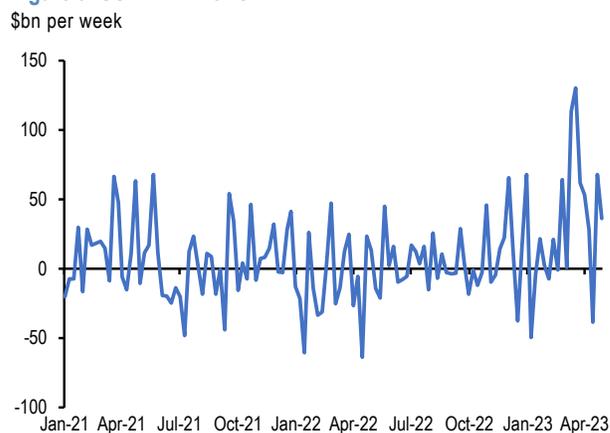
- In all, the “long duration” trade gained traction in recent months, in particular post SVB. This “long duration” trade looks more crowded in equities (tech OW), commodities (Gold OW) and currencies (Short USD), but less crowded in credit (OW HG vs. HY) and far from crowded in rates. One reason the “long duration” trade is far from crowded in rates is that, with yield curves being inverted, being long duration is a negative carry trade.

## US bank deposits declined by \$145bn in the week to Apr 19th amid tax payments

- As we noted last over the past few weeks, US Money Market Funds (MMFs) AUM saw around a \$39bn decline around the tax payment date on Apr 18th, which was more than unwound in the week after as AUM increased by around \$68bn in the week to Apr 26th. Since then, we have seen a further \$36bn of inflows into US MMFs in the four days to May 2nd, or a weekly pace of around \$45bn, pointing to continued shifts of deposits from banks to MMFs, given superior MMFs yields and concerns over First Republic. Last week, had also seen some further take-up of borrowing from the Fed's BTFP and discount window facilities of around \$10bn.
- What about bank deposits around the tax payment date? The latest H.8 release suggests that US bank deposits fell by around \$145bn in the week to April 19th on a non-seasonally adjusted basis as tax payments were made, suggesting the bulk of the \$179bn of the TGA increase in the week to April 19th came from bank deposits, rather than deposits at MMFs. Of the \$145bn decline in US bank deposits, around \$30bn came from small banks, while large banks, which includes larger regional banks, saw a decline of more than \$120bn. Given the continued increase in MMF AUM since then, it appears likely that depositors will continue to move cash to MMFs given even more attractive yields following this week's Fed rate hike.
- As we have noted previously, the TGA balance is set to resume its decline as the debt ceiling negotiations are ongoing and as we approach the x-date. Moreover, while our colleagues in US rates and economic research had estimated that the x-date would be reached in late July or early August, a recent letter to Congress from Treasury Secretary Yellen as well as a statement from the independent and nonpartisan CBO suggested that the x-date could take place as early as June (for further detail, see US Treasury Market Daily, May 1st).
- In turn, pressure for an earlier resolution to the debt ceiling could bring forward the point at which the Treasury could start to rebuild the TGA balance to its steady state of around \$700bn in subsequent months. This, in turn, looks set to drain reserves from the banking system and, to the extent the debt issued by the Treasury to fund the increase of the TGA balance is absorbed by the non-bank private sector, reduce deposits inducing further shrinkage of the US banking system. This is in addition to the steady

drainage of reserves that takes place as the Fed continues QT. That said, if some of the shorter-dated issuance is absorbed by MMFs, there could be some offsetting decrease in ON RRP facility usage, which could reduce the extent to which the rebuilding of the TGA drains reserves or bank deposits.

Figure 9: US MMF inflows

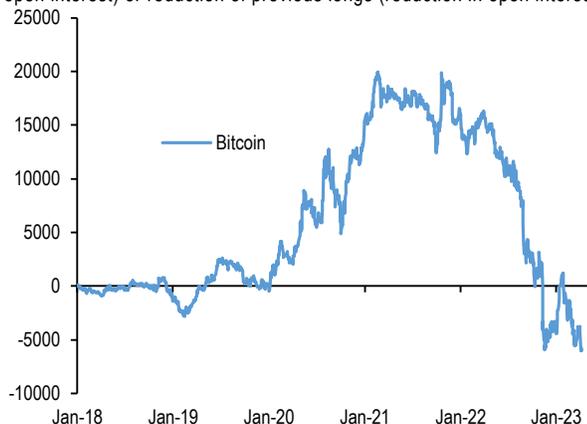


## On-chain bitcoin network activity rises sharply due to Ordinals

- The US regulatory crackdown is inducing US crypto firms to seek opportunities overseas. The US-based arm of Binance has called off its deal with Voyager, while Coinbase launched Coinbase International Exchange, a crypto derivatives exchange outside the US, as a proactive measure in response to rising US regulatory pressures. Not only has the recent US regulatory crackdown increased pressure on crypto firms, but, more importantly, there has been little improvement on regulatory clarity on key issues such as the ethereum's status as a security ultimately impacting Ethereum's demand and liquidity.
- The US regulatory crackdown has also deterred institutional investors from engaging with crypto. As a result, institutional investors preferred to buy gold rather than bitcoin as a hedge to a potential "catastrophic scenario" post SVB. Indeed, on our assessment, this year's bitcoin rally appears to have been more driven by retail rather than institutional investors. This lack of institutional impulse is shown in Figure 10, which depicts our bitcoin futures position proxy based on CME futures. This institutional position proxy on bitcoin is down YTD.

**Figure 10: Our bitcoin futures position proxy based on CME futures**

In number of contracts. The rationale behind this position proxy is that when there is a price increase, the net long position of spec investors' increases also with the magnitude of the increase determined by the absolute change in the open interest. It does not matter whether the open interest rises or falls, as the net long position can increase either via fresh longs (increase in open interest) or a reduction of previous shorts (reduction in open interest). And vice versa. When there is a price decrease, the net long position of spec investors' decreases also, with the magnitude of the decrease determined by the absolute change in the open interest. It does not matter whether the open interest rises or falls, as the net long position can decrease either via fresh shorts (increase in open interest) or reduction of previous longs (reduction in open interest).



Source: Bloomberg Finance L.P., J.P. Morgan.

- As mentioned in our previous publication, another catalyst for this year's bitcoin rally has been Bitcoin Ordinals. The Ordinals project is a layer 1 protocol that enables NFTs directly on the bitcoin network. Bitcoin Ordinals demonstrates that bitcoin is capable of more than just serving as a store of value and showcases the network's ability to have NFT architecture. In a way, Bitcoin Ordinals add more diversity and utility to the bitcoin network, which could elevate the bitcoin network utility to that of other blockchains, such as ethereum. In addition, Ordinals, by boosting network activity, increase the revenue earned by bitcoin miners beyond that earned from block issuance reward, which in turn helps to secure the network. Figure 11 and Figure 12 depict on-chain transaction counts, indicating a sharp rise in on-chain activity in the bitcoin vs. the ethereum network.

**Figure 11: On-chain number of transaction on Bitcoin network**  
 In mn, 7DMA



Source: Glassnode., J.P. Morgan.

**Figure 12: On-chain number of transaction on Ethereum network**  
 In mn, 7DMA



Source: Glassnode., J.P. Morgan.

- In another boost to bitcoin, Block announced last week that it has bought a large number of ASIC bitcoin mining chips from Intel. Intel had previously indicated that it will end its bitcoin mining hardware business by early 2024. By entering the mining hardware business, Block intends to make bitcoin mining easier, cheaper, more distributed and more accessible. This development could democratize access to bitcoin mining and could reduce over time bitcoin mining concentration and energy efficiency.

### Table A1: Weekly flow monitor

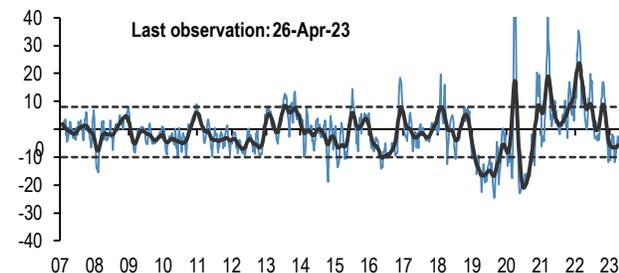
\$bn per week. The first two rows include Mutual Fund and ETF flows globally, i.e. flows for funds domiciled both inside and outside the US (source: EPFR). The last four rows only include funds domiciled in the US. International Equity funds are equity funds domiciled in the US that invest outside the US (source: ICI and Bloomberg Finance L.P.)

MF & ETF Flows	26-Apr	4 wk avg	13 wk avg	2023 avg
All Equity	0.02	0.1	-0.6	0.9
All Bond	7.36	7.1	5.3	6.7
US Equity	2.26	1.8	-0.1	-2.0
Intl. Equity	0.00	0.0	2.2	4.74
Taxable Bonds	1.84	5.6	3.6	3.9
Municipal Bonds	0.79	0.2	-0.1	-0.2

Source: EPFR, Bloomberg Finance L.P., ICI, J.P. Morgan.

### Chart A1: Fund flow indicator

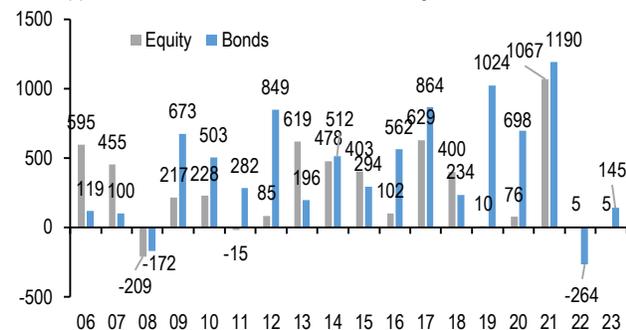
**Difference between flows into Equity and Bond funds:** \$bn per week. Difference between flows into Equity vs. Bond funds in \$bn per week. Flows include Mutual Fund and ETF flows globally, i.e. funds domiciled both inside and outside the US (source: EPFR) The thin blue line shows the 4-week average of difference between Equity and Bond fund flows. Dotted lines depict  $\pm 1$  StDev of the blue line. The thick black line shows a smoothed version of the same series. The smoothing is done using a Hodrick-Prescott filter with a Lambda parameter of 100.



Source: EPFR, J.P. Morgan.

### Chart A2: Global equity & bond fund flows

\$bn per year of Net Sales, i.e. includes net new sales + reinvested dividends for Mutual Funds and ETFs globally, i.e. for funds domiciled both inside and outside the US. Flows come from ICI (worldwide data up to Q4'22). Data since then are a combination of monthly and weekly data from Lipper, EPFR and ETF flows from Bloomberg Finance L.P.



Source: ICI, Lipper, EPFR, Bloomberg Finance L.P. J.P. Morgan.

### Table A2: Equity and Bond issuance

\$bn, Equity supply and corporate announcements are based on announced deals, not completed. M&A is announced deal value and Buybacks are announced transactions. Y/Y change is change in YTD announcements over the same period last year. More details on net bond issuances in Chart A40.

Equity Supply	28-Apr	4 wk avg	13 wk avg	y/y chng
Global IPOs	2.0	2.6	2.5	-56%
Secondary Offerings	1.4	4.0	6.4	-7%
<b>Corporate announcements</b>				
M&A - Global	48.3	60.3	55.2	-48%
- US Target	11.8	23.8	24.4	-47%
- Non-US Target	36.5	36.5	30.8	-50%
<b>Net bond issuance</b>				
USD	-87	-60	62	-11%
Non-USD	-12	3	32	-4%

Source: Bloomberg Finance L.P., Dealogic, Thomson Reuters, J.P. Morgan.

### Table A3: Trading turnover monitor

Volumes are monthly and Turnover ratio is annualized (monthly trading volume annualised divided by the amount outstanding). UST Cash is primary dealer transactions in all US government securities. UST futures are from Bloomberg Finance L.P. JGBs are OTC volumes in all Japanese government securities. Bunds, Gold, Oil and Copper are futures. Gold includes Gold ETFs. Min-Max chart is based on Turnover ratio. For Bunds and Commodities, futures trading volumes are used while the outstanding amount is proxied by open interest. The diamond reflects the latest turnover observation. The thin blue line marks the distance between the min and max for the complete time series since Jan-2005 onwards. Y/Y change is change in YTD notional volumes over the same period last year.

As of Dec-22	MIN	MAX	Turnover ratio	Vol (tr)	y/y chng
<b>Equities</b>					
EM Equity*			0.7	\$0.7	-38%
DM Equity*			1.2	\$6.8	-1%
<b>Govt Bonds</b>					
UST cash			8.4	\$10.1	-2%
UST futures			0.5	\$8.4	-2%
JGBs*			35.5	¥3,294	59%
Bund futures			0.3	€1.3	-12%
<b>Credit</b>					
US HG			0.7	\$0.4	10%
US HY			0.6	\$0.1	-13%
US Convertibles			2.2	\$0.0	26%
<b>Commodities</b>					
Gold			25.6	\$0.6	-7%
Oil			74.3	\$1.7	-3%
Copper			3.2	\$0.3	-23%
<b>Digital Assets</b>					
CME Bitcoin			89.7	\$0.010	-38%
CME Ethereum			119.2	\$0.004	42%

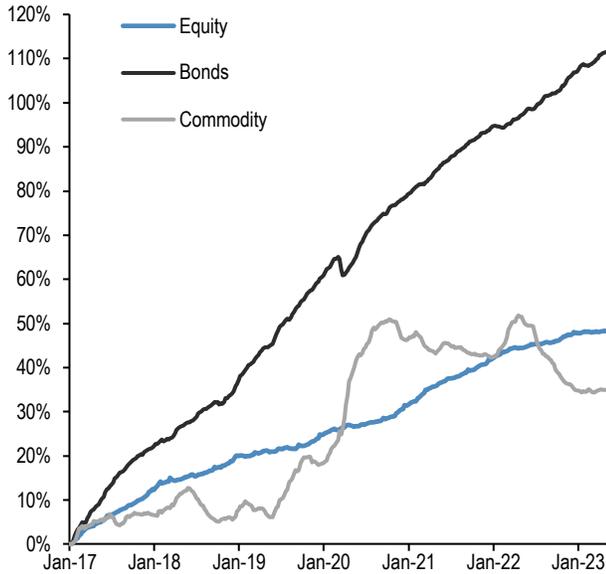
\* Data with one month lag

Source: Bloomberg Finance L.P., Federal Reserve, Trace, Japan Securities Dealer Association, WFE, J.P. Morgan. \* Data with one month lag.

## ETF Flow Monitor (as of May 02<sup>nd</sup>)

### Chart A3: Global Cross-Asset ETF Flows

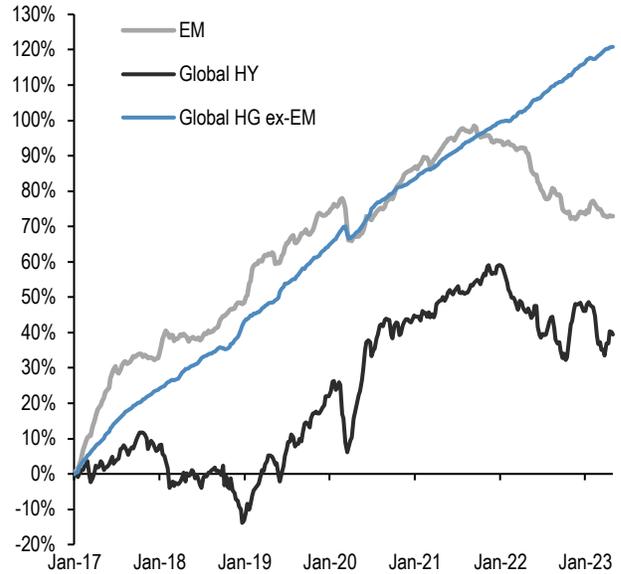
Cumulative flow into ETFs as a % of AUM



Source: J.P. Morgan. Bloomberg Finance L.P.

### Chart A4: Bond ETF Flows

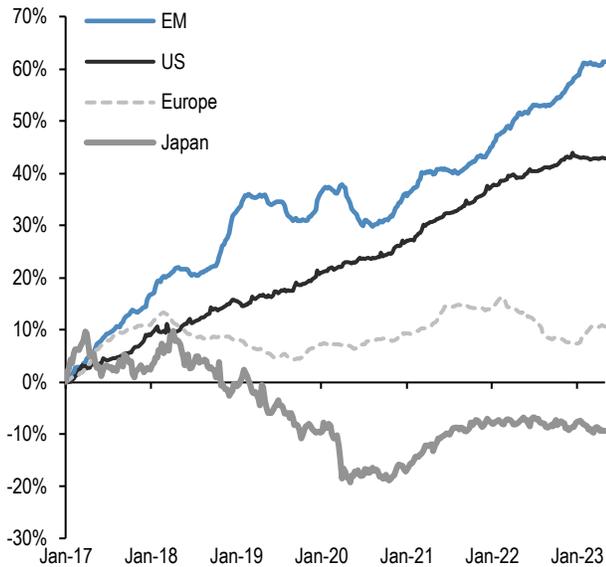
Cumulative flow into bond ETFs as a % of AUM



Source: J.P. Morgan. Bloomberg Finance L.P.

### Chart A5: Global Equity ETF Flows

Cumulative flow into global equity ETFs as a % of AUM

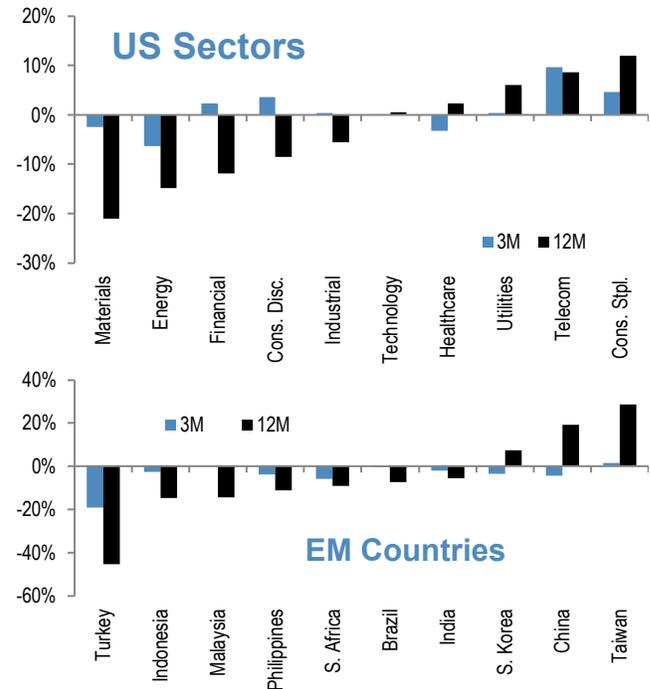


Source: J.P. Morgan. Bloomberg Finance L.P.

Note: We include ETFs with AUM > \$200mn in all the flow monitor charts. Chart A5 exclude China On-shore (A-share) ETFs from EM and in Japan we subtract the BoJ buying of ETFs.

### Chart A6: Equity Sectoral and Regional ETF Flows

Rolling 3-month and 12-month change in cumulative flows as a % of AUM. Both sorted by 12-month change

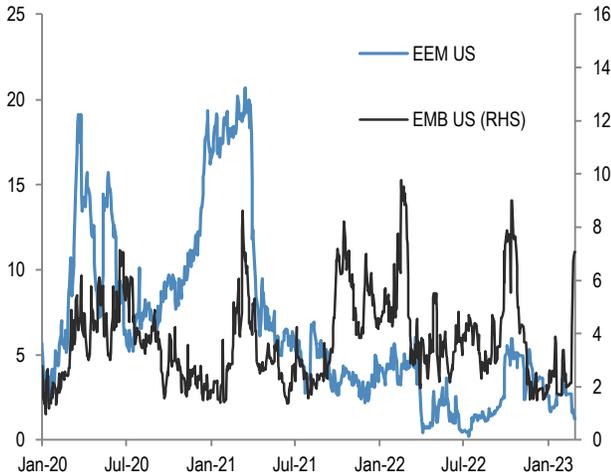


Source: J.P. Morgan. Bloomberg Finance L.P.

## Short Interest Monitor

### Chart A7: Quantity-On-Loan on the EEM and EMB US ETF

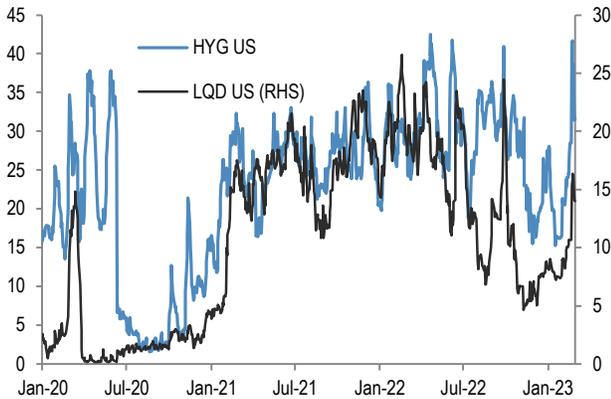
On loan quantity as a % share of share outstanding



Source: Datalend, J.P. Morgan

### Chart A8: Quantity-On-Loan on the LQD and HYG US ETF

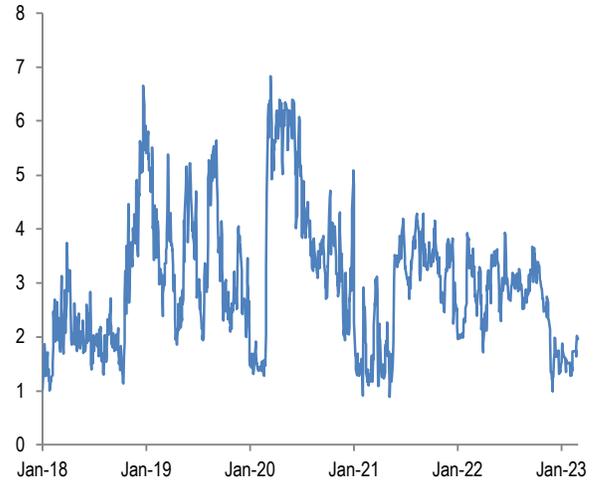
On loan quantity as a % share of share outstanding



Source: Datalend, J.P. Morgan

### Chart A9: Quantity-On-Loan on the SPY US ETF

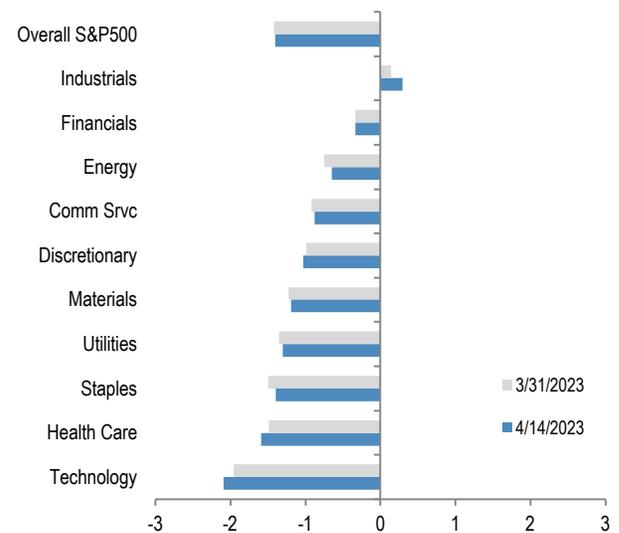
On loan quantity as a % share of share outstanding.



Source: Datalend, J.P. Morgan

### Chart A10: S&P500 sector short interest

Short interest as a % of shares outstanding based on z-scores. A strategy which overweights the S&P500 sectors with the highest short interest z-score (as % of shares o/s) vs. those with the lowest, produced an information ratio of 0.7 with a success rate of 56% (see F&L, Jun 28, 2013 for more details)



Source: NYSE, J.P. Morgan

### Chart A11a: Cross-Asset Volatility Monitor 3m ATM Implied Volatility (1y history) as of 23<sup>rd</sup> Mar-2023

This table shows the richness/cheapness of current 3-month implied volatility levels (red dot) against their 1 year historical range (thin blue bar) and the ratio to current realised volatility. Assets with implied volatility outside their 25th/75th percentile range (thick blue bar) are highlighted. The implied to realised volatility ratio uses 3-month implied volatilities and 1-month (around 21 trading days) realised volatilities for each asset.

Asset	Current	Low	Low date	High	High date	Upside	Downside	Implied/realized volatility
S&P 500	21%	17%	2-Feb-23	28%	13-Jun-22	8%	4%	1.1x
EuroSTOXX	19%	14%	2-Feb-23	30%	9-May-22	11%	5%	0.8x
Nikkei 225	17%	15%	16-Feb-23	25%	12-May-22	7%	2%	1.0x
Hang Seng	24%	21%	2-Feb-23	34%	24-Oct-22	10%	4%	0.8x
MSCI EM	19%	15%	13-Apr-22	39%	10-Mar-23	20%	4%	1.1x
Gold	18%	13%	9-Mar-23	21%	24-Mar-22	4%	4%	0.8x
Oil (brent)	43%	34%	28-Feb-23	71%	25-Mar-22	29%	9%	1.2x
Copper	26%	23%	7-Mar-23	35%	15-Jul-22	10%	2%	0.9x
BB commodity index	20%	18%	2-Mar-23	30%	26-Jul-22	11%	2%	1.5x
EUR/USD	8%	7%	30-Mar-22	13%	28-Sep-22	4%	1%	0.8x
USD/NOK	14%	12%	30-Mar-22	18%	12-Oct-22	4%	2%	1.0x
USD/JPY	13%	8%	25-Mar-22	14%	16-Jan-23	2%	4%	1.2x
GBP/USD	10%	7%	20-Apr-22	19%	28-Sep-22	9%	2%	0.8x
USD/CHF	9%	7%	25-Mar-22	11%	28-Sep-22	3%	2%	0.8x
10y US swaps	131	100	27-May-22	156	21-Oct-22	25	31	0.7x
10y Eur swaps	122	79	24-Mar-22	170	29-Sep-22	48	43	1.1x
CDX IG	59%	45%	2-Feb-23	71%	9-May-22	13%	14%	1.9x
CDX HY	61%	43%	2-Feb-23	66%	26-Sep-22	5%	18%	2.2x
iTraxx	63%	49%	3-Feb-23	75%	17-Mar-23	12%	14%	0.7x
iTraxx X/O	56%	45%	3-Feb-23	71%	10-May-22	14%	11%	0.8x

Source: J.P. Morgan.

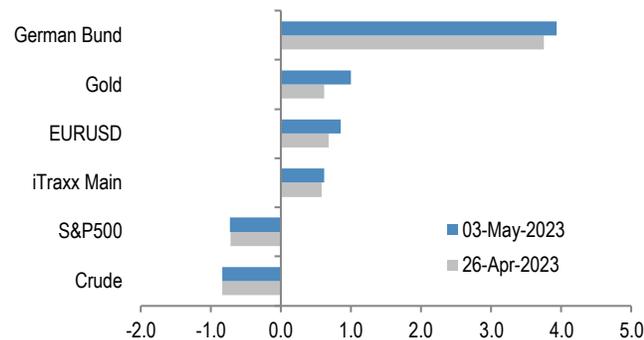
Note: Swaps volatility is 3m 10y payer ATM implied annualized BP vol and credit volatility is 3m 5y on-the-run ATM spread volatility. MSCI EM, Gold, Oil, Copper, BB Commodity Index and Treasury futures are 3m implied vol from Bloomberg.

#### Definitions:

Current:	Latest available closing level (23-Mar-23)
Low:	Lowest closing level in the last 1y
Low date:	Date the lowest closing level was reached (or the first time it was reached in the case of several identical low closing levels)
High:	Highest closing level in the last 1y
High date:	Date the highest closing level was reached (or the first time it was reached in the case of several identical high closing levels)
Graph:	Shows the current level and the 25th/75th percentile relative to the 1y high/low
Upside:	Implied return/volatility percentage points from current level up to the High (note: return is calculated as simple difference for spread products)
Upside (σ):	Upside in terms of standard deviations (Upside / Current 1y realized volatility)
Downside:	Implied return/volatility percentage points from current level down to the Low (note: return calculated as simple difference for spread products)
Downside (σ):	Downside in terms of standard deviations (Downside / Current 1y realized volatility)
Implied/realized volatility:	Current 3m implied volatility / current realized 3m volatility

### Chart A11b: Option skew monitors

Skew is the difference between the implied volatility of out-of-the-money (OTM) call options and put options. A positive skew implies more demand for calls than puts and a negative skew, higher demand for puts than calls. It can therefore be seen as an indicator of risk perception in that a highly negative skew in equities is indicative of a bearish view. The chart shows z-score of the skew, i.e. the skew minus a rolling 2-year avg skew divided by a rolling two-year standard deviation of the skew. A negative skew on iTraxx Main means investors favour buying protection, i.e. a short risk position. A positive skew for the Bund reflects a long duration view, also a short risk position.

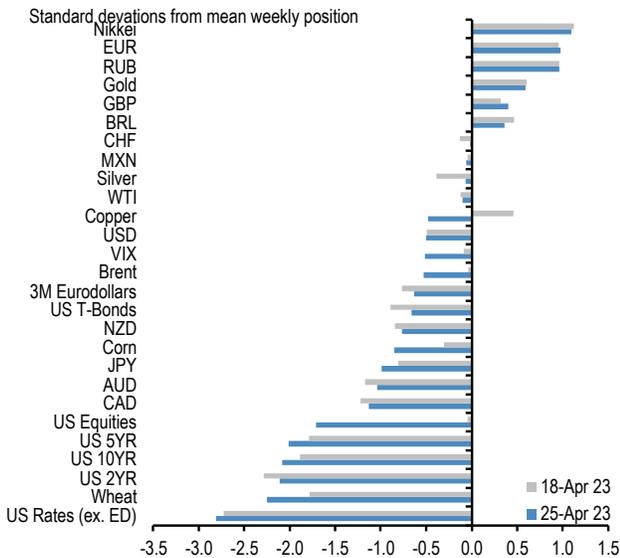


Source: J.P. Morgan

## Spec position monitors

### Chart A12: Weekly Spec Position Monitor

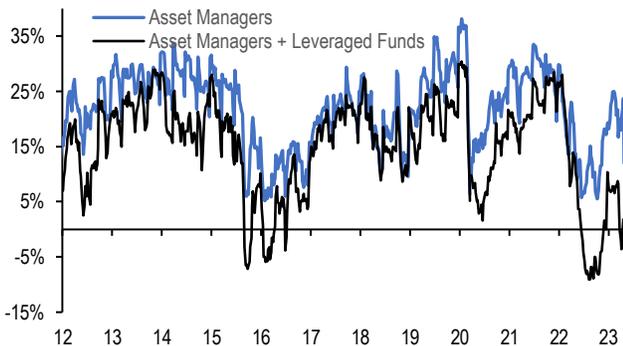
Net spec positions are proxied by the number of long contracts minus the number of short contracts using the speculative category of the Commitments of Traders reports (as reported by CFTC). To proxy for speculative investors for equity futures positions, we use Asset managers (see Chart A13), whereas, for other assets, we use the legacy Non-Commercial category. This net position is then converted to a dollar amount by multiplying by the contract size and then the corresponding futures price. We then scale the net positions by open interest. The chart shows the z-score of these net positions. US Rates is a duration-weighted composite of the individual UST futures contracts excluding the Eurodollar contract.



Source: Bloomberg Finance L.P., CFTC, J.P. Morgan

### Chart A13: Positions in US equity futures by Asset managers and Leveraged funds

CFTC positions in US equity futures by Leveraged funds and Asset managers (as a % of open interest). It is an aggregate of the S&P500, Dow Jones, NASDAQ and their Mini futures contracts.

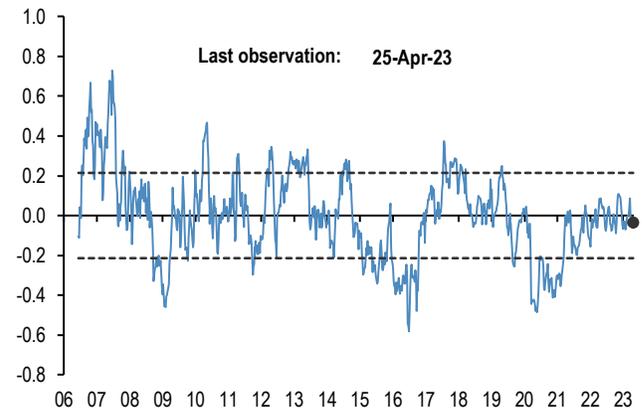


Source: CFTC, Bloomberg Finance L.P. and J.P. Morgan

### Chart A14: Spec position indicator on Risky vs. Safe currencies

#### Difference between net spec positions on risky & safe currencies

Net spec position is calculated in USD across 5 "risky" and 3 "safe" currencies (safe currencies also include Gold). These positions are then scaled by open interest and we take an average of "risky" and "safe" assets to create two series. The chart is then simply the difference between the "risky" and "safe" series. The final series shown in the chart below is demeaned using data since 2006. The risky currencies are: AUD, NZD, CAD, RUB, MXN and BRL. The safe currencies are: JPY, CHF and Gold.

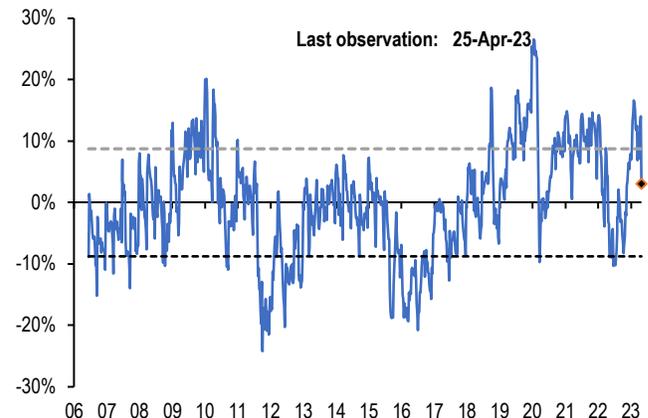


Source: CFTC, J.P. Morgan

### Chart A15: Spec position indicator on US equity futures vs. intermediate sector UST futures

#### Difference between net spec positions on US equity futures vs. intermediate sector UST futures

This indicator is derived by the difference between total CFTC positions in US equity futures by Asset managers (Chart A13) scaled by open interest minus the non-commercial category spec position on intermediate sector UST futures (i.e. all UST futures duration weighted ex ED and ex 2Y UST futures) also scaled by open interest.

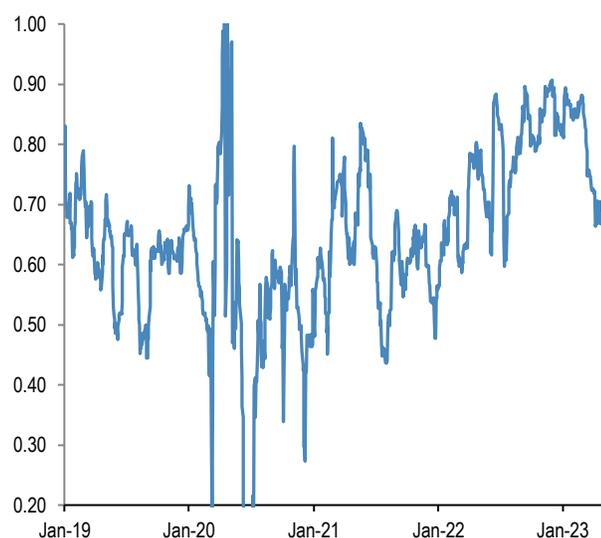


Source: CFTC, Bloomberg Finance L.P. and J.P. Morgan

## Mutual fund and hedge fund betas

**Chart A16: 21-day rolling beta of 20 biggest active US bond mutual fund managers with respect to the US Agg bond index**

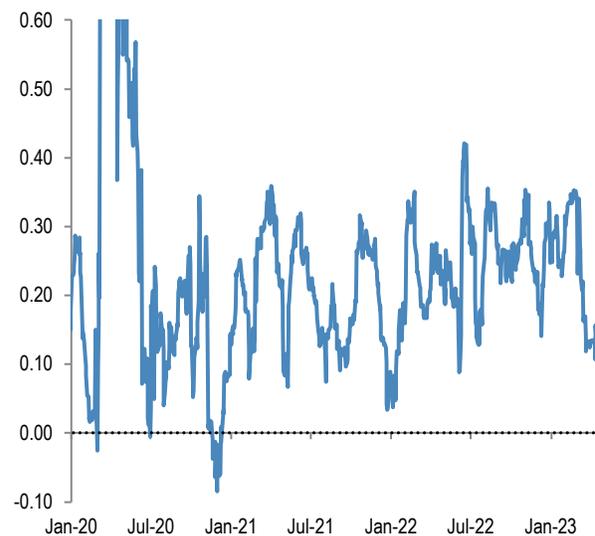
The dotted line shows the average beta since 2013.



Source: Bloomberg Finance L.P., J.P. Morgan.

**Chart A17: 21-day rolling beta of 20 biggest active Euro bond mutual fund managers with respect to the Euro Agg bond index**

The dotted line shows the average beta since 2013.



Source: Bloomberg Finance L.P., J.P. Morgan.

**Chart A18: Performance of various type of investors**

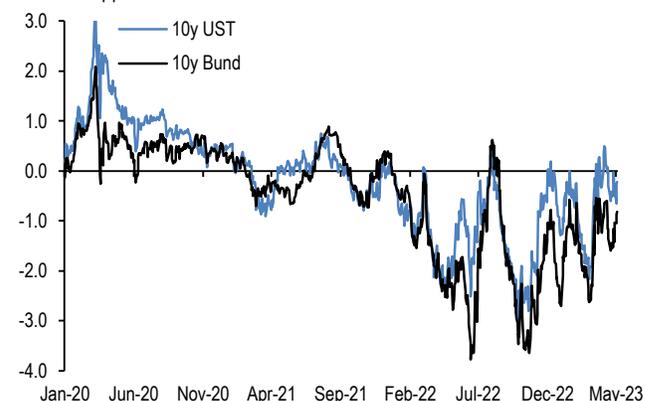
The table depicts the performance of various types of investors in % as of 01<sup>st</sup> May 2023.

Date	2017	2018	2019	2020	2021	2022	2023
<b>Investors</b>							
Equity US	11.8%	-5.9%	12.8%	8.7%	6.6%	-8.7%	3.1%
Macro ex-CTAs	5.6%	9.8%	2.9%	7.8%	7.2%	6.2%	0.3%
CTAs	2.2%	-8.1%	9.2%	6.3%	10.9%	27.3%	-4.8%
Risk Parity Funds	13.5%	-6.5%	18.4%	3.5%	4.7%	-18.6%	4.1%
US Balanced MFs	14.0%	-4.9%	20.1%	13.2%	14.4%	-13.0%	4.5%
<b>Benchmark</b>							
MSCI AC World	24.0%	-9.4%	26.6%	16.3%	16.4%	-18.4%	7.7%
Barclays Global Agg	3.0%	1.8%	8.2%	5.6%	-2.5%	-11.2%	3.5%
60 US Equity : 40 US Bonds	14.3%	-1.9%	22.2%	13.3%	14.8%	-15.4%	6.1%
S&P Riskparity Vol 10	10.4%	-4.3%	22.8%	11.5%	12.8%	-16.2%	7.7%

Source: Bloomberg Finance L.P., HFR, SG CTA Index, J.P. Morgan.

**Chart A19: Momentum signals for 10Y UST and 10Y Bunds**

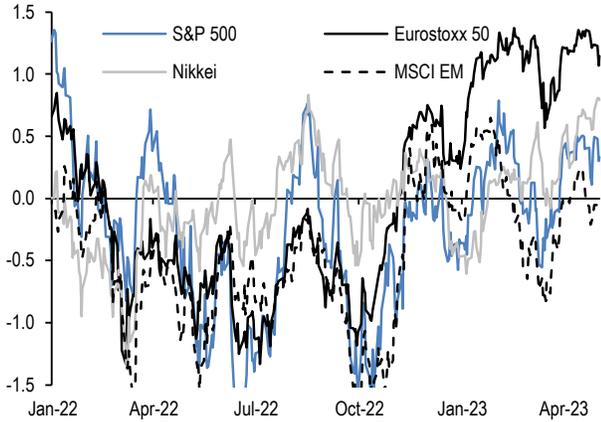
Average of the z scores of our short and long lookback period Momentum Signals in our Trend Following Strategy framework shown in Tables A5 and A6 in the Appendix.



Source: Bloomberg Finance L.P., J.P. Morgan.

### Chart A20: Momentum signals for S&P500, Eurostoxx50, Nikkei and MSCI EM

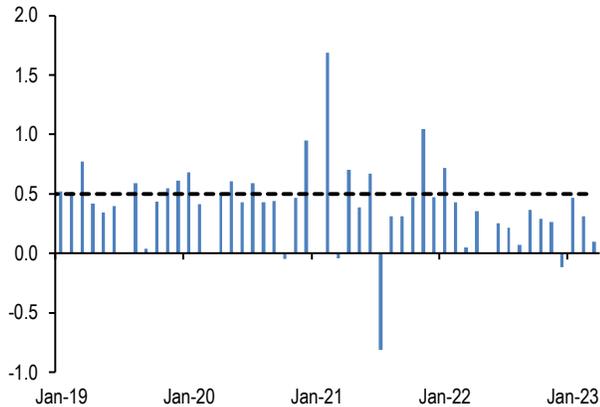
Average of the z scores of our short and long lookback period Momentum Signals in our Trend Following Strategy framework shown in Tables A5 and A6 in the Appendix.



Source: Bloomberg Finance L.P., J.P. Morgan.

### Chart A22: Equity beta of monthly reporting Equity Long/Short hedge funds

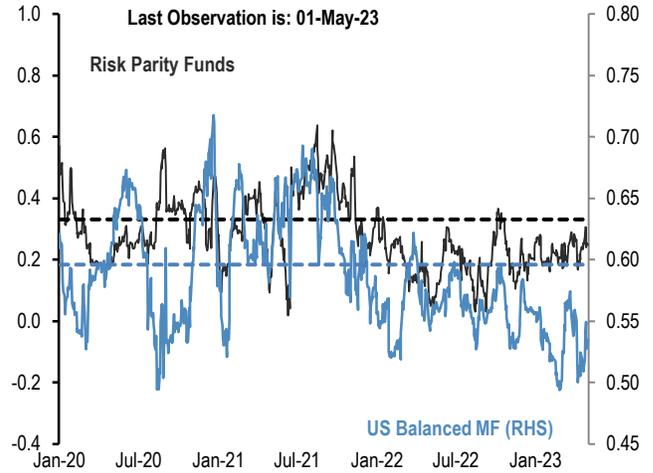
Proxied by the ratio of the monthly performance of HFRI Asset-Weighted Equity Hedge fund index divided by the monthly performance of MSCI AC World index



Source: Bloomberg Finance L.P., HFR, J.P. Morgan

### Chart A21: Equity beta of US Balanced Mutual funds and Risk Parity funds

Rolling 21-day equity beta based on a bivariate regression of the daily returns of our Balanced Mutual fund and Risk Parity fund return indices to the daily returns of the S&P 500 and Barcap US Agg indices. Given that these funds invest in both equities and bonds we believe that the bivariate regression will be more suitable for these funds. Our risk parity index consists of 25 daily reporting Risk Parity funds. Our Balanced Mutual fund index includes the top 20 US-based active funds by assets and that have existed since 2006. Our Balanced Mutual fund index has a total AUM of \$700bn, which is around half of the total AUM of \$1.5tr of US based Balanced funds which we believe to be a good proxy of the overall industry. It excludes tracker funds and funds with a low tracking error. Dotted lines are average since 2015.



Source: Bloomberg Finance L.P., J.P. Morgan.

### Chart A23: USD exposure of currency hedge funds

The net spec position in the USD as reported by the CFTC. Spec is the non-commercial category from the CFTC.

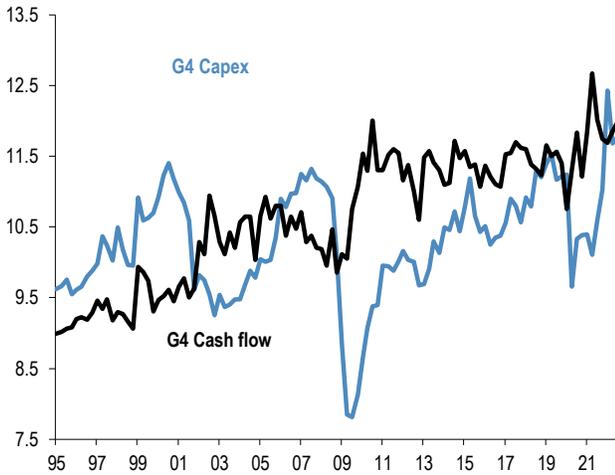


Source: CFTC, Barclay, Datastream, Bloomberg Finance L.P., J.P. Morgan.

## Corporate activity

**Chart A24: G4 non-financial corporate capex and cash flow as % of GDP**

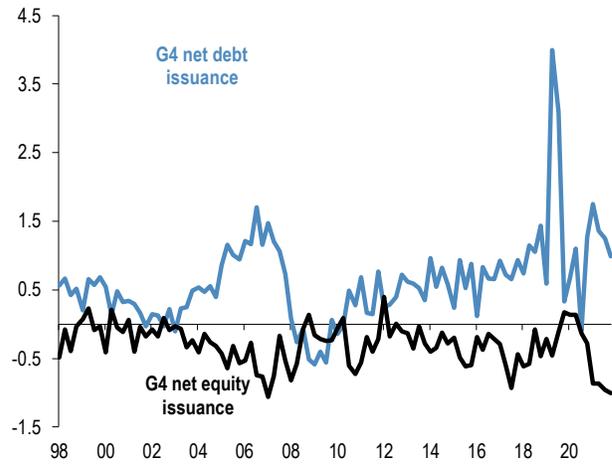
% of GDP, G4 includes the US, the UK, the Euro area and Japan. Last observation as of Q3 2022.



Source: ECB, BOJ, BOE, Federal Reserve flow of funds.

**Chart A25: G4 non-financial corporate sector net debt and equity issuance**

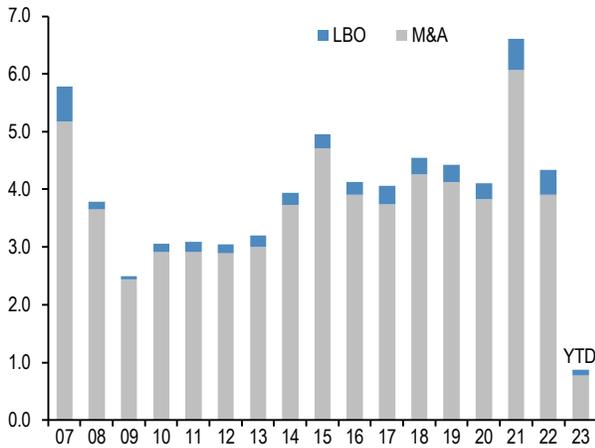
\$tr per quarter, G4 includes the US, the UK, the Euro area and Japan. Last observation as of Q3 2022.



Source: ECB, BOJ, BOE, Federal Reserve flow of funds.

**Chart A26: Global M&A and LBO**

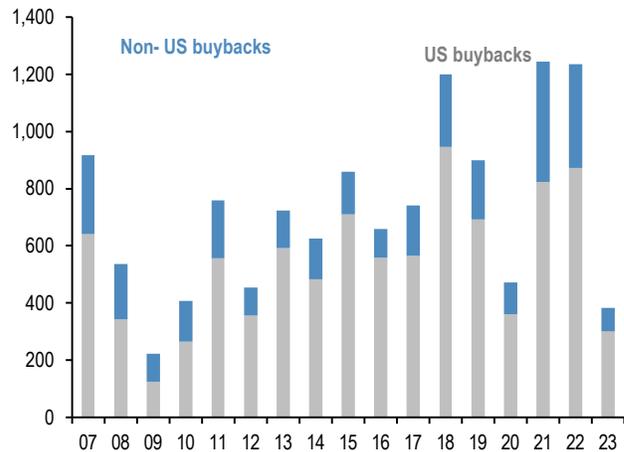
\$tr. YTD 2023 as of 19<sup>th</sup> Apr 23. M&A and LBOs are announced.



Source: Dealogic, J.P. Morgan.

**Chart A27: US and non-US share buyback**

\$bn, 2023 are as of Mar'23. Buybacks are announced.

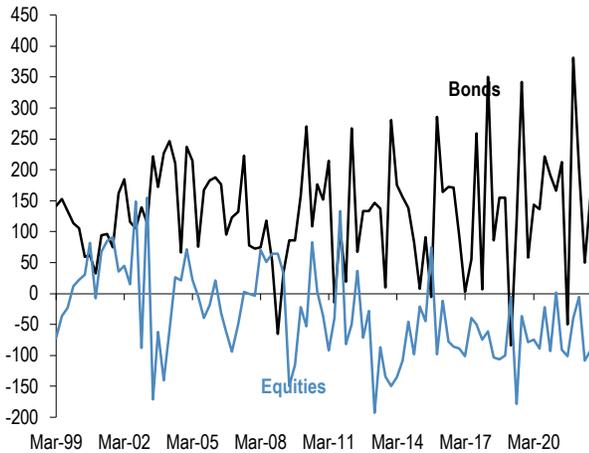


Source: Bloomberg Finance L.P., Thomson Reuters, J.P. Morgan

## Pension fund and insurance company flows

**Chart A28: G4 pension funds and insurance companies equity and bond flows**

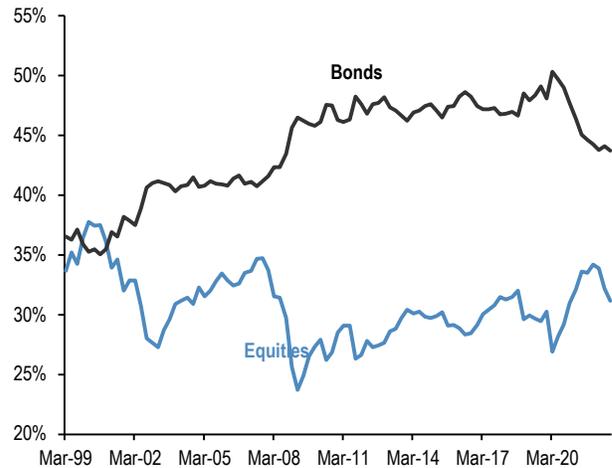
Equity and bond buying in \$bn per quarter. G4 includes the US, the UK, Euro area and Japan. Last observation is Q3 2022



Source: ECB, BOJ, BOE, Federal Reserve flow of funds.

**Chart A29: G4 pension funds and insurance companies equity and bond levels**

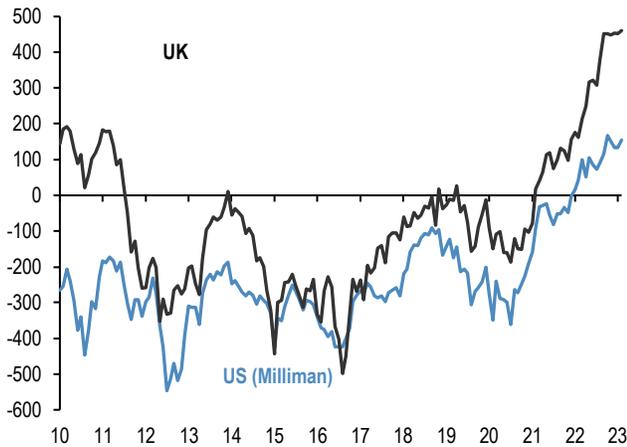
Equity and bond as % of total assets per quarter. G4 includes the US, the UK, Euro area and Japan. Last observation is Q3 2022.



Source: ECB, BOJ, BOE, Federal Reserve flow of funds

**Chart A30: Pension fund deficits**

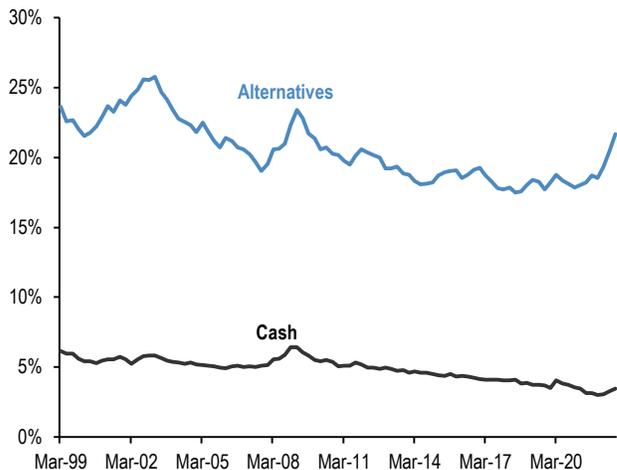
US\$bn. For US, funded status of the 100 largest corporate defined benefit pension plans, from Milliman. For UK, funded status of the defined benefit schemes eligible for entry to the Pension Protection Fund, converted to US\$ at today's exchange rates. Last obs. is Feb'23.



Source: Milliman, UK Pension Protection Fund, J.P. Morgan

**Chart A31: G4 pension funds and insurance companies cash and alternatives levels**

Cash and alternative investments as % of total assets per quarter. G4 includes the US, the UK, Euro area and Japan. Last observation is Q3 2022.

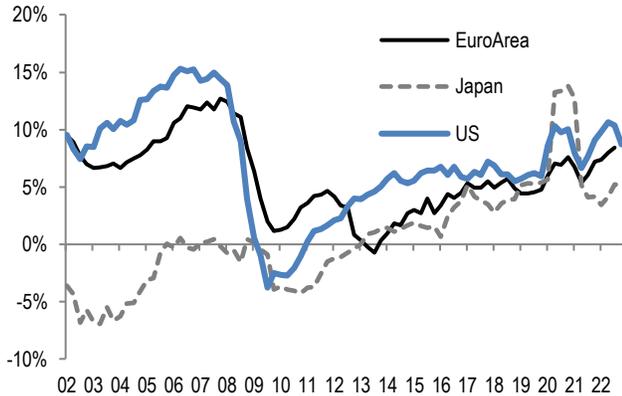


Source: ECB, BOJ, BOE, Federal Reserve flow of funds

## Credit Creation

### Chart A32: Credit creation in the US, Japan and Euro area

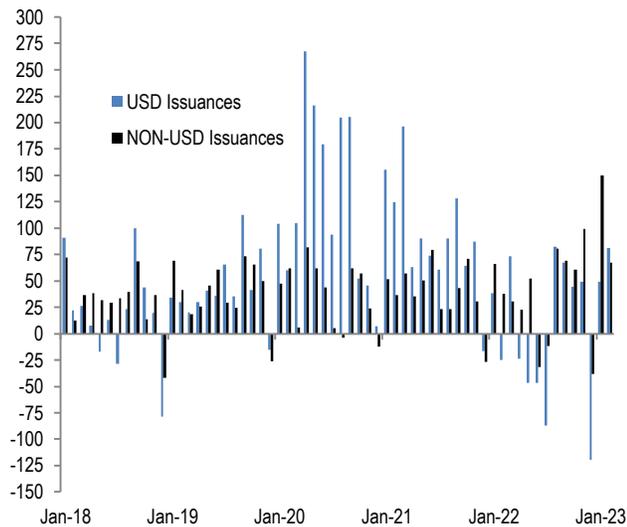
Rolling sum of 4 quarter credit creation as % of GDP. Credit creation includes both bank loans as well as net debt issuance by non-financial corporations and households. Last obs. is for Q4'22 for US & Japan and Q3'22 for Euroarea.



Source: Fed, ECB, BoJ, Bloomberg Finance L.P. and J.P. Morgan calculations.

### Chart A34: USD and Non-USD net bond issuances

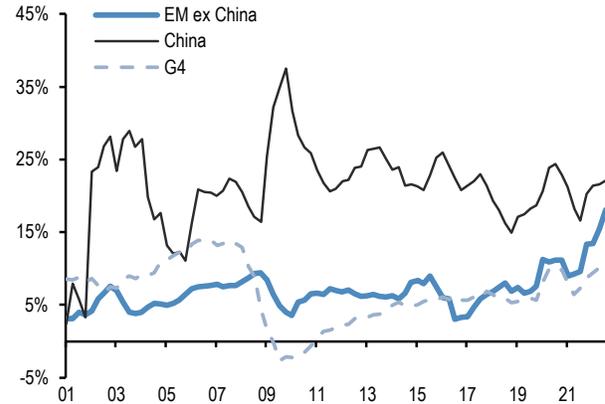
Gross issuance minus redemptions in \$bn per month. Non-USD issuance includes bonds issued in EUR, GBP and JPY. Non-USD bond issuance is converted to USD at today's exchange rate through the full historical period. In this way net bond issuance fluctuations are unaffected by currency changes. Our bond issuance figures include only Non-Government bonds issued globally, excluding short-term debt (maturity less than 1-year) and self-funded issuance (where the issuing bank is the only book runner). Last observation is Feb 2023.



Source: Dealogic, J.P. Morgan

### Chart A33: Credit creation in EM

Rolling sum of 4 quarter credit creation as % of GDP. Credit creation includes both bank loans as well as net debt issuance by non-financial corporations and households. Last obs. is for Q3'22.



Source: G4 Central banks FoF, BIS, ICI, Barcap, Bloomberg Finance L.P., IMF and J.P. Morgan calculation

### Chart A35: Market value of negative yield bonds as a % of total outstanding in Bloomberg Barclays Global Agg Index

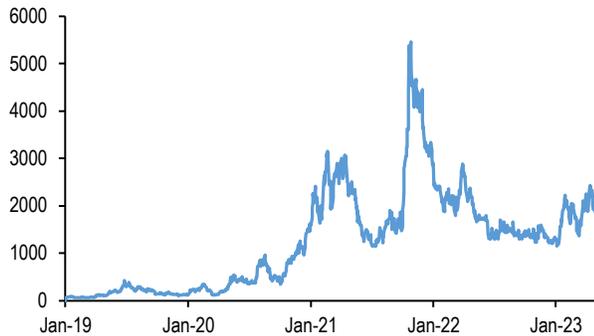


Source: J.P. Morgan

## Bitcoin monitor

**Chart A36: Open interest in CME Bitcoin futures contracts**

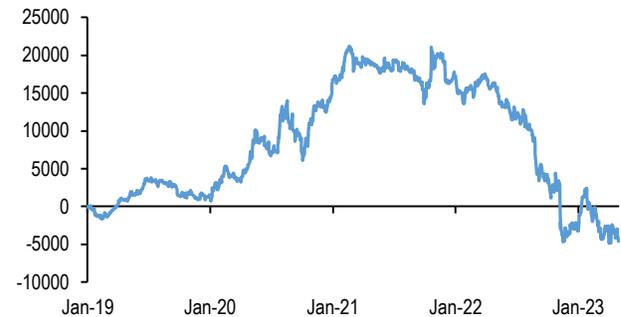
\$mn. Last obs. for 02 May 2023.



Source: CME, J.P. Morgan.

**Chart A37: Our Bitcoin position proxy based on open interest in CME Bitcoin futures contracts**

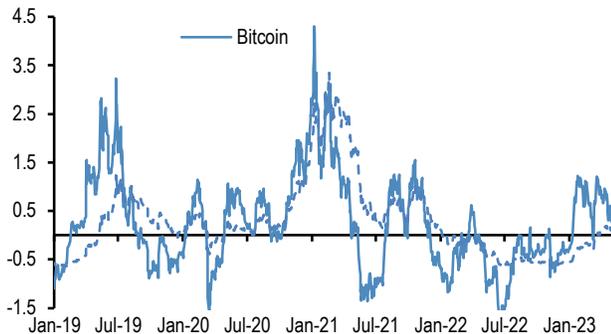
In number of contracts. Last obs. for 02 May 2023.



Source: J.P. Morgan

**Chart A38: Momentum signals for Bitcoin**

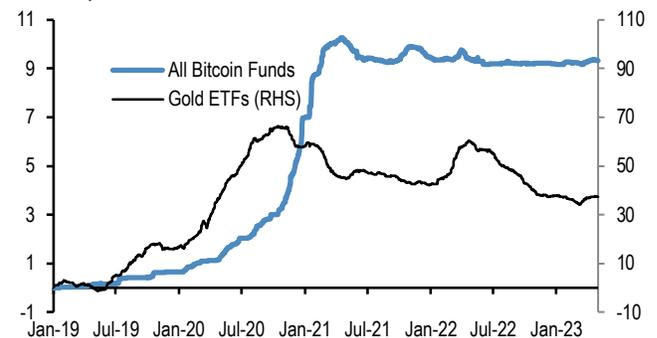
z-score of the momentum signal in our Trend Following Strategy framework shown in Tables A5 and A6 in the Appendix. Solid lines are for the shorter term and dotted lines for longer-term momentum.



Source: Bloomberg Finance L.P., J.P. Morgan.

**Chart A39: Cumulative Flows in all Bitcoin funds and Gold ETF holdings**

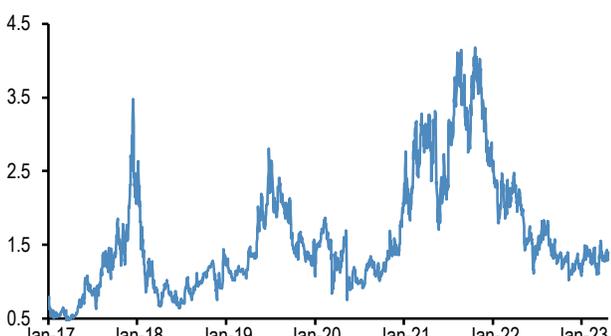
Both the y-axis in \$bn



Source: Bloomberg Finance L.P., J.P. Morgan.

**Chart A40: Ratio of Bitcoin market price to production cost**

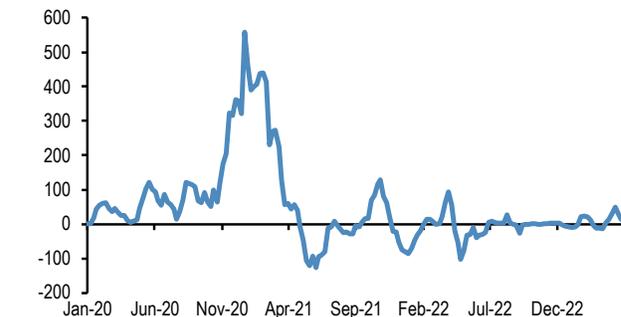
Based on the cost of production approach following Hayes (2018).



Source: J.P. Morgan

**Chart A41: Flow pace into publicly listed Bitcoin funds including Bitcoin ETFs**

\$mm per week, 4-week rolling average flow

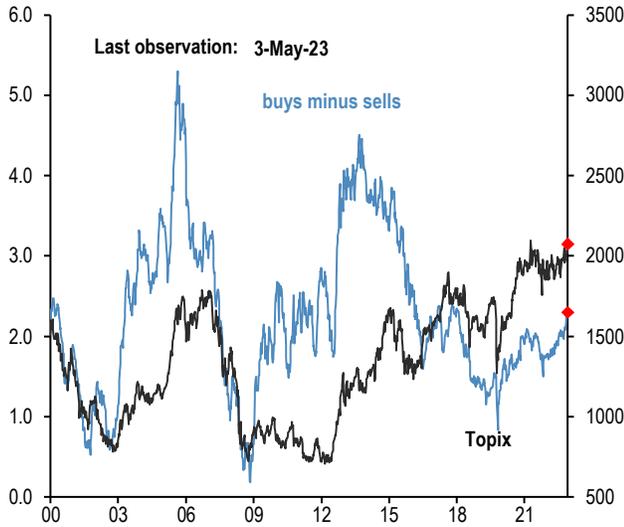


Source: Bloomberg Finance L.P., J.P. Morgan

## Japanese flows and positions

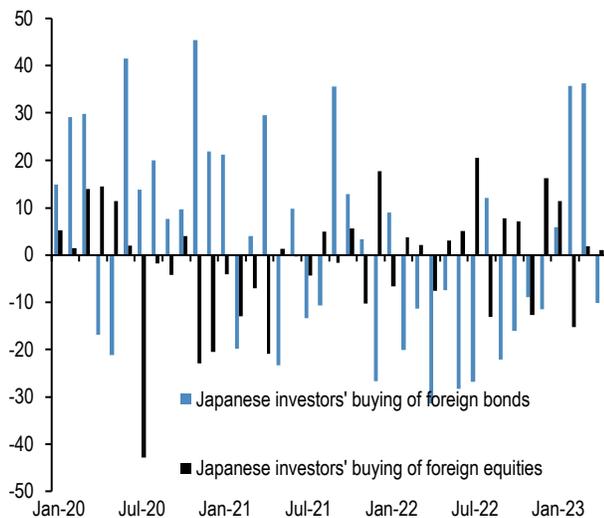
**Chart A42: Tokyo Stock Exchange margin trading: total buys minus total sells**

In bn of shares. Topix on right axis.



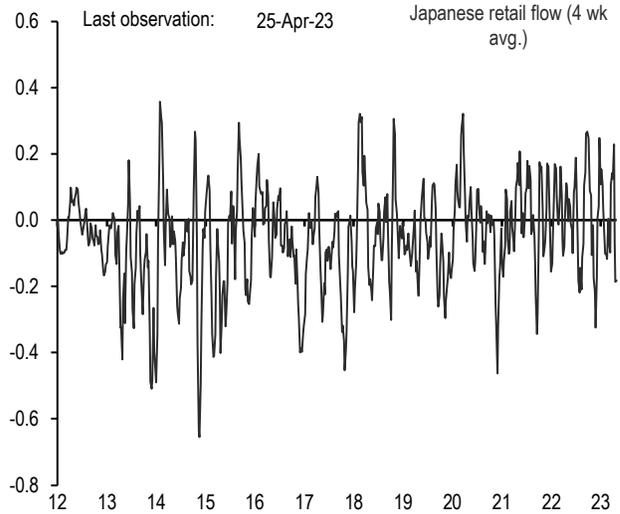
**Chart A44: Monthly net purchases of foreign bonds and foreign equities by Japanese residents**

\$bn, Last weekly obs. is for 21<sup>st</sup> Apr'23.



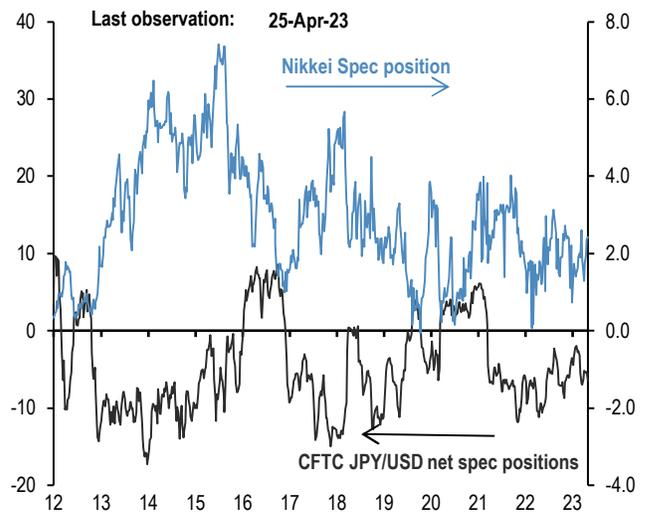
**Chart A43: Domestic retail flows**

In JPY tr. Retail flows are from Tokyo stock exchange.



**Chart A45: Overseas CFTC spec positions**

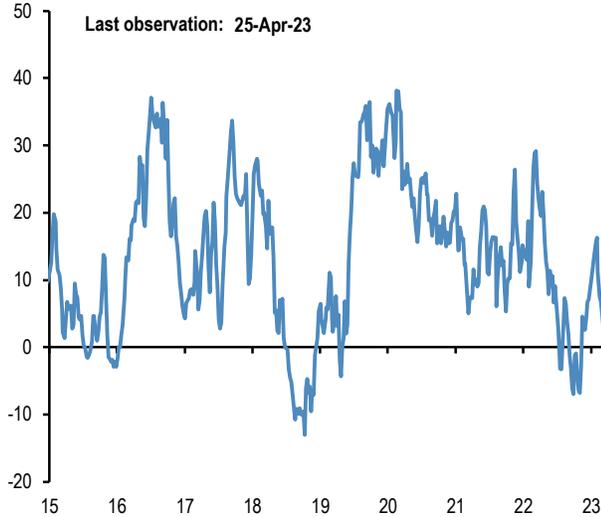
CFTC spec positions are in \$bn. For Nikkei we use CFTC positions in Nikkei futures (USD & JPY) by Leveraged funds and Asset managers.



## Commodity flows and positions

### Chart A46: Gold spec positions

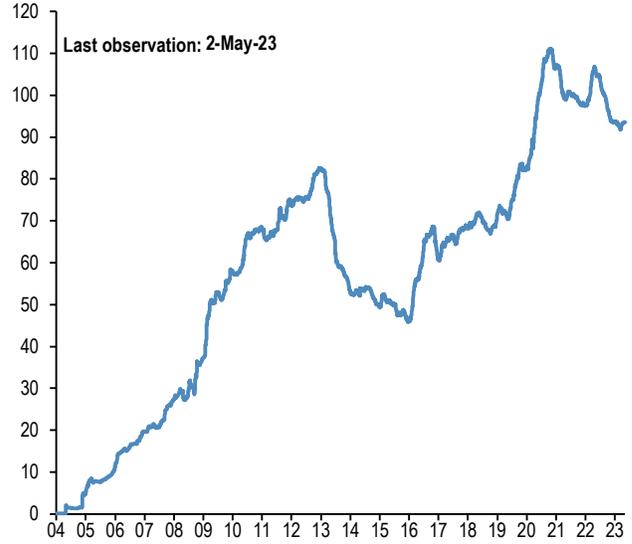
\$bn. CFTC net long minus short position in futures for the Managed Money category.



Source: CFTC, Bloomberg Finance L.P., J.P. Morgan.

### Chart A47: Gold ETFs

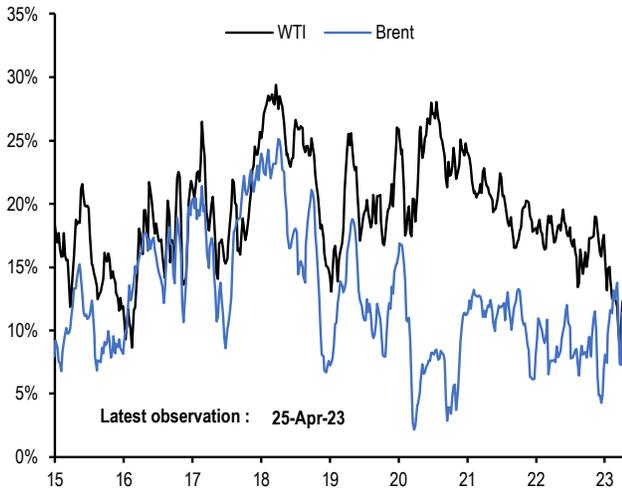
Mn troy oz. Physical gold held by all gold ETFs globally.



Source: Bloomberg Finance L.P., J.P. Morgan.

### Chart A48: Oil spec positions

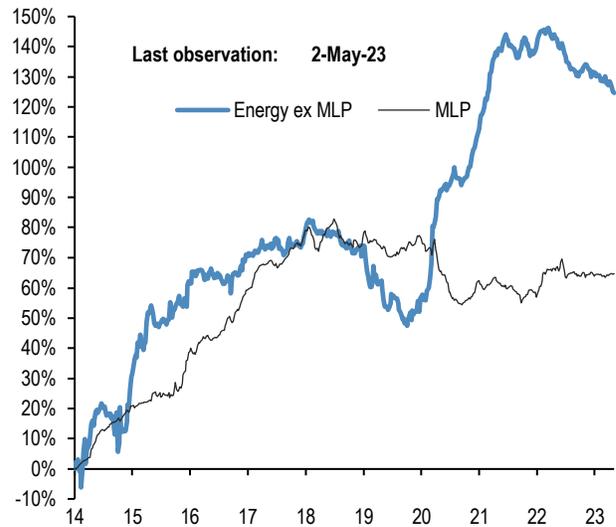
Net spec positions divided by open interest. CFTC futures positions for WTI and Brent are net long minus short for the Managed Money category.



Source: CFTC, Bloomberg Finance L.P., J.P. Morgan.

### Chart A49: Energy ETF flows

Cumulative energy ETFs flow as a % of AUM. MLP refers to the Alerian MLP ETF.

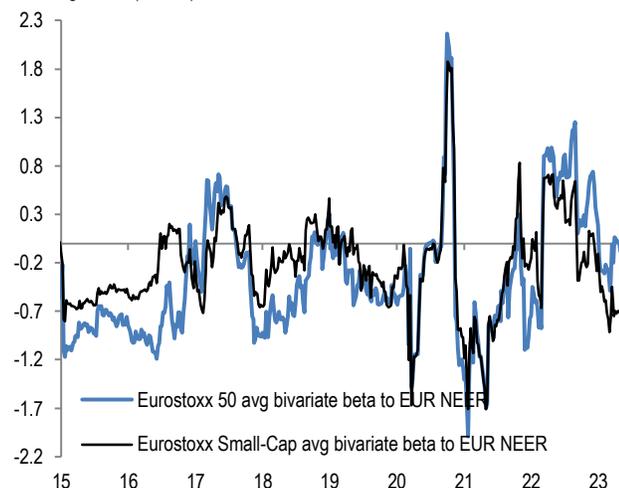


Source: CFTC, Bloomberg Finance L.P., J.P. Morgan

## Corporate FX hedging proxies

**Chart A50: Average beta of Eurostoxx 50 companies and Eurostoxx Small-Cap to trade weighted EUR**

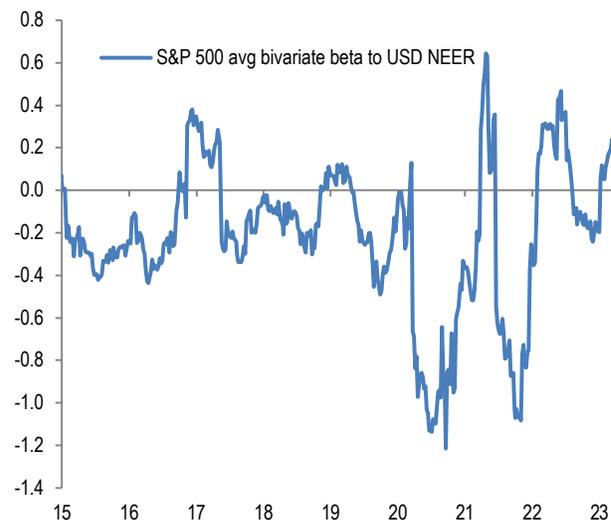
Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of individual stocks in the Eurostoxx 50 index to the weekly returns of the MSCI AC World and JPM EUR Nominal broad effective exchange rate (NEER).



Source: Bloomberg Finance L.P., J.P. Morgan

**Chart A52: Average beta of S&P500 companies to trade weighted US dollar**

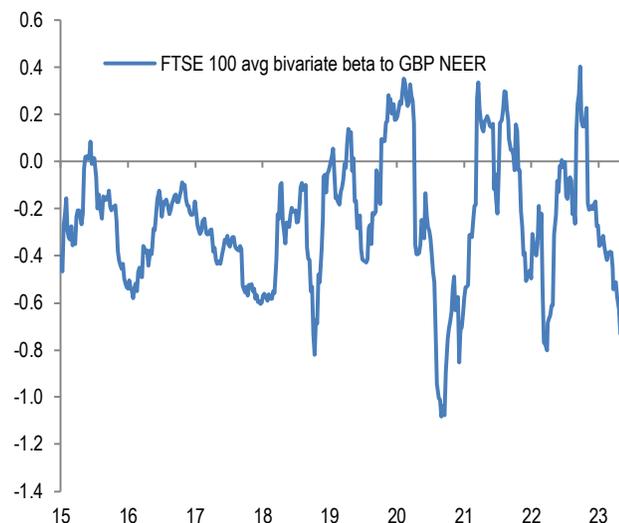
Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of stocks in the S&P500 index to the weekly returns of the MSCI AC World and JPM USD Nominal broad effective exchange rate (NEER).



Source: Bloomberg Finance L.P., J.P. Morgan

**Chart A51: Average beta of FTSE 100 companies to trade weighted GBP**

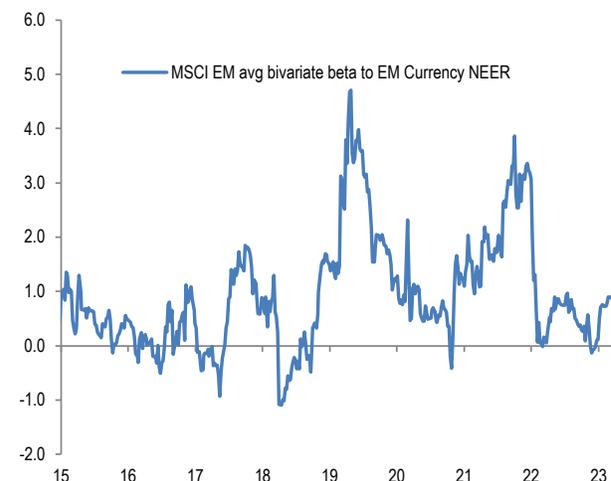
Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of individual stocks in the FTSE 100 index to the weekly returns of the MSCI AC World and JPM GBP Nominal broad effective exchange rate (NEER).



Source: Bloomberg Finance L.P., J.P. Morgan

**Chart A53: Average beta of MSCI EM companies to the trade weighted EM currency index**

Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of individual stocks in the MSCI EM index to the weekly returns of the MSCI AC World and JPM EM Nominal broad effective exchange rate (NEER).



Source: Bloomberg Finance L.P., J.P. Morgan

## CTAs – Trend following investors’ momentum indicators

**Table A4: Simple return momentum trading rules across various commodities**

Optimal lookback period of each momentum strategy combined with a mean reversion indicator that turns signal neutral when momentum z-score more than 1.5 standard deviations above or below mean, and a filter that turns neutral when the z-score is low (below 0.05 and above -0.05) to avoid excessive trading. Lookbacks, current signals and z-scores are shown for shorter-term and longer-term momentum separately, along with performance of a combined signal. Annualized return, volatility and information ratio of the signal; current signal; and z-score of the current return over the relevant lookback period; data from 1999 onward.

		Lookback (moving avg, days)	Annualized return (%)	Vol (%)	IR	Current signal	Time since last change (days)	Z-score	% Change of return index from its moving average
WTI	short	21	10.2	22.8	0.45	-1	5	-1.5	-9.2%
	long	462				-1	5	-0.3	-10.2%
Brent	short	84	7.9	21.6	0.36	-1	5	-0.6	-7.5%
	long	504				-1	0	-0.1	-3.9%
Unleaded gas	short	105	6.5	23.9	0.27	-1	0	-0.3	-4.8%
	long	483				1	126	0.2	5.5%
Heat Oil	short	63	7.4	21.9	0.34	-1	64	-1.2	-12.3%
	long	483				0	0	0.0	-1.3%
Gasoil	short	63	10.6	20.7	0.52	-1	41	-1.3	-13.2%
	long	378				-1	9	-0.5	-14.2%
Nat gas	short	105	18.8	35.5	0.53	0	95	-2.0	-36.6%
	long	315				0	74	-2.2	-66.3%
Gold	short	21	3.4	10.6	0.32	1	0	0.2	0.5%
	long	483				1	36	0.6	7.4%
Silver	short	10	5.9	18.9	0.31	1	0	0.3	1.0%
	long	462				1	25	0.5	10.2%
Palladium	short	42	14.1	22.0	0.64	-1	1	-0.3	-2.7%
	long	273				-1	142	-1.1	-25.2%
Platinum	short	105	7.0	18.1	0.39	1	14	0.6	5.7%
	long	273				1	36	0.8	11.6%
Aluminium	short	105	5.3	15.3	0.35	-1	49	-0.4	-3.4%
	long	357				-1	138	-0.9	-13.5%
Copper	short	147	8.9	17.6	0.51	0	5	0.0	-0.6%
	long	399				-1	7	-0.2	-4.3%
Lead	short	126	2.8	20.1	0.14	1	0	0.1	1.0%
	long	357				1	0	0.1	1.3%
Nickel	short	42	13.2	23.6	0.56	1	3	0.6	5.4%
	long	336				-1	48	-0.2	-6.4%
Zinc	short	126	10.8	20.0	0.54	-1	41	-1.2	-13.5%
	long	399				-1	62	-0.8	-20.3%
Wheat	short	168	3.4	23.4	0.15	0	4	-1.9	-23.3%
	long	294				0	9	-2.1	-32.7%
Kansas wheat	short	147	8.6	20.9	0.41	-1	9	-1.1	-12.9%
	long	483				-1	9	-0.7	-14.1%
Corn	short	63	7.9	16.8	0.47	-1	7	-0.8	-6.7%
	long	399				-1	7	-0.4	-7.1%
Soybeans	short	42	6.0	14.7	0.41	-1	7	-0.6	-3.1%
	long	231				-1	0	-0.1	-1.3%
Cotton	short	168	6.1	19.0	0.32	-1	128	-0.3	-4.2%
	long	483				-1	67	-0.5	-11.9%
Sugar	short	63	8.2	21.9	0.37	0	19	1.9	17.7%
	long	252				0	18	2.1	38.4%
Coffee	short	63	5.5	23.3	0.23	1	9	0.4	3.1%
	long	273				-1	3	-0.1	-2.6%
Cocoa*		10	0.7	27.9	0.02	-1	3	-0.6	-1.9%

\* For cocoa, uses only short-term momentum and a z-score threshold of 3 rather than 1.5 as for other contracts.

Source: Bloomberg Finance L.P., J.P. Morgan calculations

**Table A5: Simple return momentum trading rules across international equity indices, bond futures and FX**

Optimal lookback period of each momentum strategy combined with a mean reversion indicator that turns signal neutral when momentum z-score more than 1.5 standard deviations above or below mean, and a filter that turns neutral when the z-score is low (below 0.05 and above -0.05) to avoid excessive trading. Lookbacks, current signals and z-scores are shown for shorter-term and longer-term momentum separately, along with performance of a combined signal. Annualized return, volatility and information ratio of the signal; current signal; and z-score of the current return over the relevant lookback period; data from 1999 onward.

		Lookback (moving avg, days)	Annualized return (%)	Vol (%)	IR	Current signal	Time since last change (days)	Z-score	% Change of return index from its moving average
S&P 500	short	84	6.6	12.1	0.54	1	0	0.5	2.3%
	long	357				1	0	0.1	1.6%
Nasdaq 100	short	84	7.1	15.0	0.47	1	0	0.8	6.2%
	long	462				-1	0	-0.1	-1.2%
Nikkei	short	84	3.3	14.6	0.22	1	0	1.0	6.6%
	long	294				1	0	0.6	8.2%
FTSE 100	short	168	4.6	12.4	0.37	1	0	0.7	4.6%
	long	462				1	0	0.8	8.6%
Eurostoxx 50	short	168	4.7	15.9	0.30	1	0	1.0	9.6%
	long	315				1	0	1.1	13.5%
MSCI EM	short	42	13.5	11.5	1.17	0	0	0.0	-0.1%
	long	336				-1	0	-0.2	-2.6%
2Y USTs	short	252	1.0	1.1	0.93	-1	0	-0.4	-0.4%
	long	420				-1	0	-1.1	-2.0%
5Y USTs	short	252	1.9	3.0	0.66	0	0	0.0	0.0%
	long	420				-1	0	-0.9	-3.1%
10Y USTs	short	42	2.2	3.6	0.60	1	0	0.6	0.8%
	long	504				-1	0	-1.1	-5.6%
2Y Schatz	short	189	0.5	0.9	0.61	-1	0	-0.7	-0.5%
	long	504				0	0	-1.9	-2.3%
5y Bobl	short	84	1.4	2.0	0.72	1	0	0.4	0.5%
	long	483				0	0	-1.9	-5.5%
10y Bund	short	84	2.6	3.6	0.74	1	0	0.3	0.5%
	long	483				0	0	-2.0	-9.6%
10Y JGB	short	126	1.1	2.1	0.53	1	0	1.5	1.4%
	long	273				1	0	1.1	1.5%
10Y Gilts	short	105	1.6	4.3	0.38	-1	0	-0.6	-1.3%
	long	399				0	0	-1.9	-9.0%
Euro	short	42	3.4	6.3	0.54	1	0	0.4	0.9%
	long	273				1	0	0.4	2.5%
Yen	short	21	2.9	6.4	0.45	0	0	-1.6	-2.5%
	long	462				0	0	-1.5	-12.2%
Sterling	short	168	2.4	7.2	0.34	1	0	0.7	2.9%
	long	294				1	0	0.1	0.7%
AUD	short	42	4.3	7.7	0.56	-1	0	-0.2	-0.7%
	long	420				-1	0	-0.7	-6.7%
CAD	short	168	0.8	6.0	0.13	-1	0	-0.5	-2.0%
	long	504				-1	0	-1.0	-6.8%

Source: Bloomberg Finance L.P. and J.P. Morgan

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