Flows & Liquidity

The retail impulse remains strong

- **The retail impulse remains strong with no signs of abating.**
- **The share of retail-driven equity trading volumes in the US rose to unprecedented levels in January even before the equity market correction of the last week of January.**
- **Has only $11bn of institutional flow into bitcoin since September-end caused a $700bn increase in its market cap?**
- **Similar to CME bitcoin futures three years ago, Ethereum futures have seen a rather slow start since launch.**

Global Markets Strategy
Global Quantitative & Derivatives Strategy

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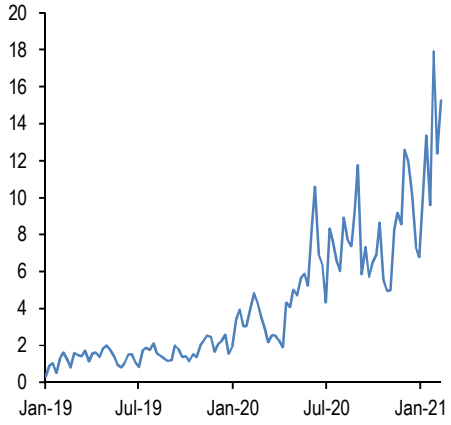
- We argued in recent weeks that monitoring the overall flow impulse by US retail investors is important going forward, as this flow impulse appears to have been the driving force of the risk market rally since November. Tracking the retail flow into equities on a high frequency basis is difficult as this retail impulse does not reverberate via equity funds, but rather via purchases of individual equities or call options on these. Effectively, over the past year, there has been a preference change with US retail investors shifting their equity buying away from equity funds towards individual equities or call options on individual equities.
- The most high frequency proxy of this US retail impulse is the one based on small traders equity option flows, i.e. option customers with less than 10 contracts. These data come from OCC, the world's largest equity derivatives clearing organization. They are weekly, with the week ending February 12th as the last available observation. Figure 1 depicts these small traders' option flows for exchange-traded individual equity options in the US. After rising to record highs in the last week of January, this call option buying metric appears to have stabilized at close to record high levels. In other words, we see no signs yet of any material slowing in this option flow metric.
- Other proxies of the US retail impulse are sending a similar message. Retail investors tend to favor large tech stocks as well as small caps and as a result their stock preference can be thought of as a barbell trade. From a performance perspective this barbell trade can be proxied by the performance of Russell 2000 and Nasdaq indices vs. that of the S&P500. This performance proxy is shown in Figure 2. The gap between the two lines in Figure 2 keeps widening with no signs of abating. If anything, the pace of widening grew further YTD.

Figure 1: Exchange-traded Call Option Buys at Open minus Sells at Open for Costumers with less than 10 contracts for options on individual equities
In mn contracts. Last obs is for the week ending 12th Feb 2021



Source: OCC, J.P. Morgan

Click here to visit ***Flows & Liquidity Library*** on J.P. Morgan Markets.

See page 21 for analyst certification and important disclosures.

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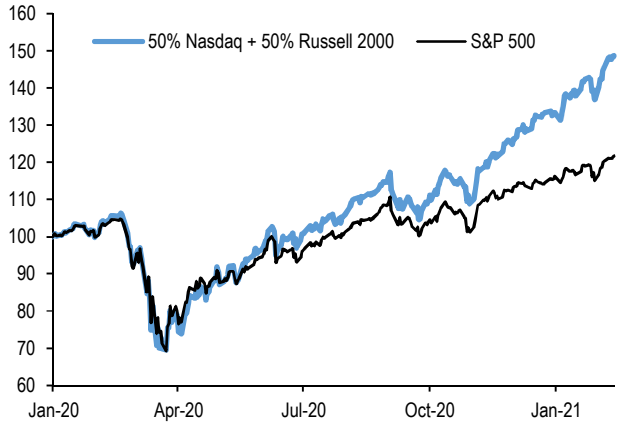
Figure 2: Performance of 50% Nasdaq + 50% Russell 2000 vs S&P500 index

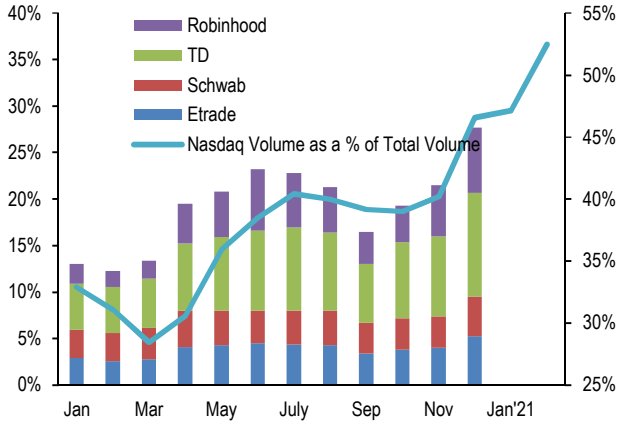


Source: Bloomberg Finance L.P., J.P. Morgan.

- A more comprehensive but more lagged proxy of retail investors' activity is based on off-exchange trading. In the US, the equity market structure is such that most of the flow stemming from US retail brokers is channelled to OTC i.e. off-exchange market venues. This retail activity is shown in Figure 3 and Figure 4, which confirm a reacceleration of the retail impulse since November after a sharp slowing during Q3.

Figure 3: Source Flow by Retail Brokerage Firm as % of total US equity trading volume

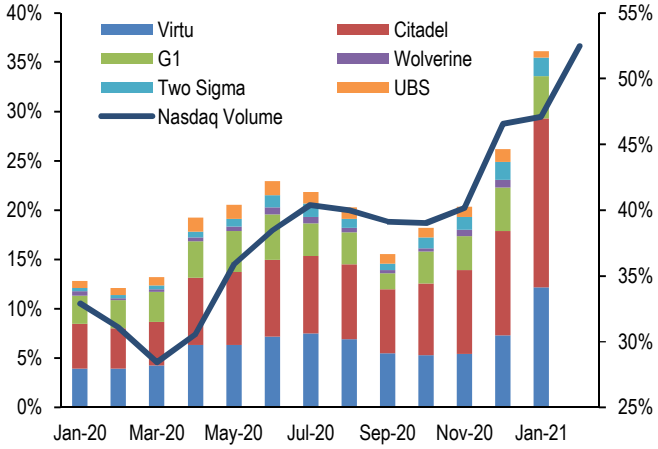
Nasdaq volume as a % of total volume in right axis



Source: Company filing - SEC 606 disclosure, J.P. Morgan.

Figure 4: Destination Retail Flow Routed to OTC Venues as % of total US equity trading volume

Nasdaq volume as a % of total volume in right axis



Source: Company filing - SEC 606 disclosure, J.P. Morgan.

- Retail brokers (Source in Figure 3) typically route their trades into the OTC market through third-party OTC market venues (Destination in Figure 4). There are six main OTC market venues used by retail brokers: Virtu Americas LLC, Citadel Execution Services, G1 execution services, Two Sigma Securities LLC, Wolverine Securities LLC and UBS Securities LLC. Transactions between retail brokers and third-party market OTC venues are disclosed every quarter under SEC Rule 606. Figure 3 shows the aggregate share of OTC transactions routed by different retail brokers (ETrade, Charles Schwab, TD Ameritrade & Robinhood) as a percentage of total (off- and on-exchange) US equity market volume. Robinhood had reported the biggest increase in its share during Q4 reversing the previous quarter's decrease. Figure 4 shows the aggregate share to OTC transaction routed to different market venues (destination flow) by retail brokers, again as a percentage of total US equity market volume. Citadel and Virtu had seen the biggest increase in their market share during Q4.
- We do not have yet SEC Rule 606 data for the current quarter. However, preliminary data by FINRA for destination flows for January show an even bigger increase in the share of retail trading during the first two weeks of January as depicted by the January 2021 column in Figure 4. And that sharp increase in the share of retail trading had taken place before the equity market correction of the last week of January.
- Another trading-volume-based but higher-frequency proxy of the retail impulse based on the share of Nasdaq volumes to total US equity trading volumes

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has been also rising steeply up until February as shown in Figure 4, again consistent with the thesis that retail investors have been the driving force of the YTD equity rally. The premise of this proxy is that retail investors have higher participation in Nasdaq trading due to their preference for tech stocks.

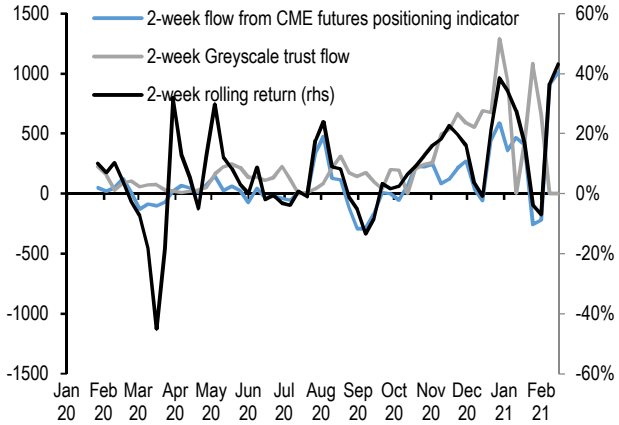
- In all, the liquidity force appears to be reverberating once again in an intense manner via retail investors, with no signs of abating yet. Given the anticipation of further fiscal support (e.g. additional US stimulus checks of $1400), this force is likely to be sustained into March.

Has only $11bn of institutional flow into bitcoin since September-end caused a $700bn increase in its market cap?

- Since the end of September the market cap of bitcoin has grown by $700bn, from $200bn on Sep 30th to $900bn currently. This $700bn increase means that bitcoin has already surpassed gold in risk capital terms, i.e. after adjusting for the much higher vol of bitcoin relative to gold. To see this, one could compare the volatilities of bitcoin and gold, or the volatilities of the biggest bitcoin and gold funds given many institutional investors are only allowed or prefer to invest in fund format. The 3m realized vol for bitcoin currently stands at 87% vs. 16% for gold. In other words, the ratio of the two vols suggests that bitcoin currently consumes 5.4x more risk capital than gold. This ratio rises further if one looks at the biggest bitcoin and gold funds. The 3m realized vol for the Grayscale Bitcoin Trust stands at 113% vs. 16% for GLD, the largest gold ETF by AUM, i.e., the ratio of the two vols suggests that the Grayscale Bitcoin Trust currently consumes 7.1x more risk capital than GLD. Taking the average of the 5.4x and 7.1x ratios, suggests that bitcoin and its biggest fund on average consume 6.2x more risk capital than gold and its biggest fund, double the 3x ratio needed to equalize the market cap of bitcoin ($900bn) to that of gold for investment purposes ($2.7tr). In other words, bitcoin, at current market prices, has already more than doubled relative to gold in risk capital terms. In our opinion, unless bitcoin volatility subsides quickly from here, its current price of $48k looks unsustainable.
- What has been remarkable over the past five months is that the $700bn increase in the market cap of bitcoin has taken place with relatively little institutional flows. For example, proxying these institutional flows via the cumulative flows into the Grayscale Bitcoin Trust or other publicly listed bitcoin funds as well as the cumulative flows into CME bitcoin futures and announcements by institutions such as Tesla, Mass Mutual, Guggenheim and others, we get an aggregate flow of around $11bn since the end of September which accounts for just above 1.5% of the increase in the bitcoin market cap over the same period. How is it possible that such a limited flow would result in the magnitude of the increase in bitcoin market cap? One possibility is that, given the increase in interest from real money investors, and speculative investors seeking to front-run it, this limited flow is hitting a relatively inelastic supply of a predetermined increase in new bitcoins mined and having to offer a premium to get existing holders to part with their bitcoin holdings. A second possibility is that retail inflows have significantly magnified the institutional flow. As mentioned in the first section above the US retail impulse has been particularly strong since January and there is little doubt that this retail impulse has been a driving force not only for equities, but also for bitcoin.
- Figure 5 shows 2-week rolling flows into the Greyscale trust as a proxy for real money interest and 2-week rolling changes in our futures positioning indicator as a proxy for speculative institutional investor interest compared to 2-week rolling returns in bitcoin prices. It suggests that, after announcements from end-September onwards, real money inflows during Oct/Nov/Dec contributed to the rally in bitcoin prices at the time, while the movements since January this year appear to have been more influenced by speculative flows. This also suggest that some pickup in real money flows would likely be needed to sustain current prices in the absence of a re-acceleration of the retail flow.

Figure 5: Proxy for real money interest and speculative institutional investor interest vs. bitcoin returns

Flows is in $mn.



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

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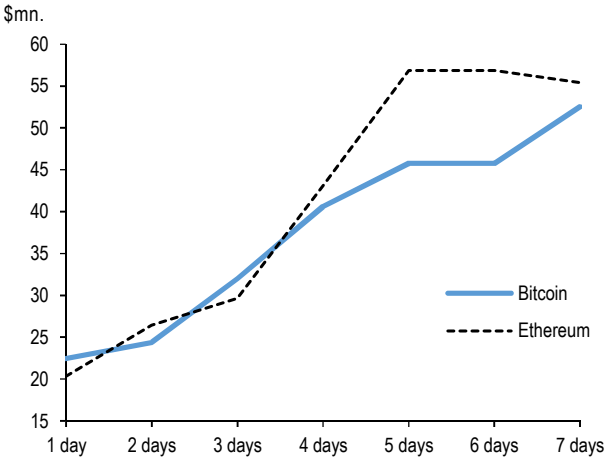
- Finally, as we noted recently, the new futures contracts on Ethereum have started trading on the CME. How does the initial experience compare to when Bitcoin futures were listed in December 2017? Figure 6 shows the cumulative open interest in dollar terms in the initial days after the contracts were launched. Thus far, similar to when Bitcoin futures were listed, the initial interest appears to have grown rather cautiously, but in our opinion it will likely not take as long for Ethereum futures to begin gaining traction as it initially took for Bitcoin futures, as investor interest in cryptocurrencies has had a few years to mature.

Figure 6: Open interest in CME Ethereum and Bitcoin futures contracts after initial days of launch



Source: CME, J.P. Morgan.

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Table A1: Weekly flow monitor

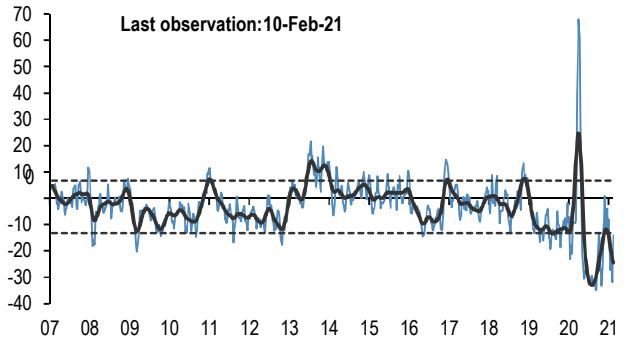
$bn, Includes Global Mutual Fund flows from EPFR and globally domiciled ETF flows from Bloomberg Finance L.P.. US Equities includes US Domiciled MFs from ICI and ETF flows from Bloomberg Finance L.P.

MF & ETF Flows	10-Feb	4 wk avg	13 wk avg	2021 avg
All Equity	58.09	28.2	22.7	25.1
All Bond	13.14	16.9	12.7	16.0
US Equity	33.19	-4.4	-7.7	-9.5
Intl. Equity	24.90	26.8	24.0	27.63
Taxable Bonds	1.27	14.8	14.0	15.8
Municipal Bonds	0.00	2.7	2.7	3.0

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

Chart A1: Fund flow indicator

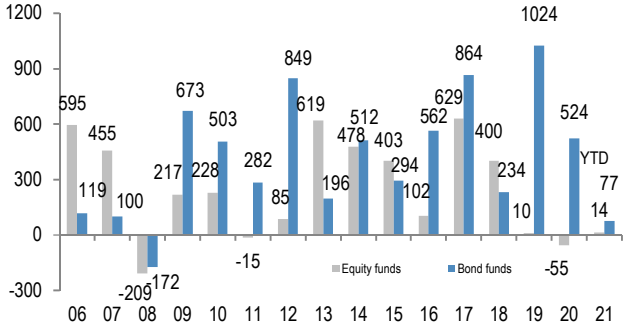
Difference between flows into Equity and Bond funds: $bn per week. Flow includes US domiciled Mutual Fund and globally domiciled ETF flows. We exclude China On-shore funds from our analysis. The thin blue line shows the 4-week average of difference between Equity and Bond fund flows. Dotted lines depict ±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: Bloomberg Finance L.P., ICI, 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 MF and ETFs. Flows are from ICI (worldwide data up to Q2'20). Data since then are a combination of monthly and weekly data from ICI, EPFR and ETF flows from Bloomberg Finance L.P.



Source: ICI, EPFR, EFAMA, 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	12-Feb	4 wk avg	13 wk avg	y/y chng
Global IPOs	12.6	17.9	12.7	359%
Secondary Offerings	12.3	14.3	14.3	63%
Corporate announcements				
M&A - Global	106.2	96.5	96.8	69%
- US Target	44.2	46.0	46.2	129%
- Non-US Target	62.0	50.6	50.7	34%
Net bond issuance	**Sep-20**	**3 mth avg**	**YTD avg**	**y/y chng**
USD	78	115	63	28%
Non-USD	25	9	33	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 are 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 Jan-21	MIN	MAX	Turnover ratio	Vol (tr)	y/y chng
Equities					
EM Equity*			1.4	$1.3	90%
DM Equity*			1.3	$7.4	40%
Govt Bonds					
UST cash			12.4	$13.0	-2%
UST futures			0.4	$6.4	-7%
JGBs*			22.5	¥1,934	13%
Bund futures			1.0	€4.8	5%
Credit					
US HG			0.7	$0.5	6%
US HY			1.0	$0.2	-10%
US Convertibles			2.1	$0.0	-5%
Commodities					
Gold			47.5	$1.2	-24%
Oil			68.9	$1.5	-42%
Copper			2.1	$0.4	52%

* 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.

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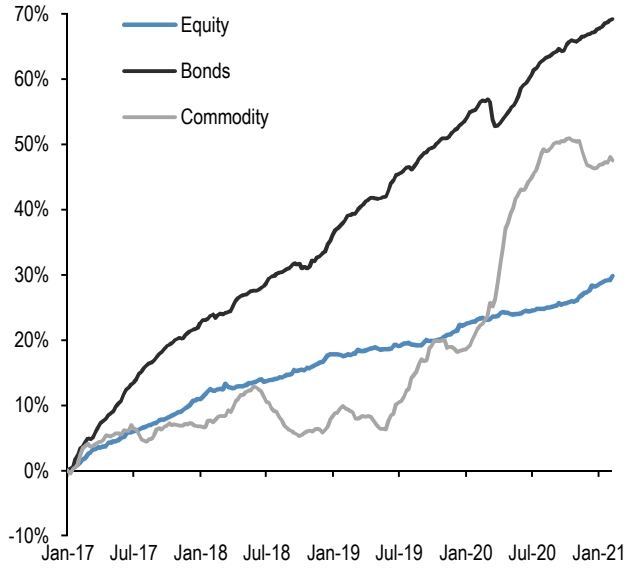
ETF Flow Monitor (as of Feb 10th)

Chart A3: Global Cross Asset ETF Flows

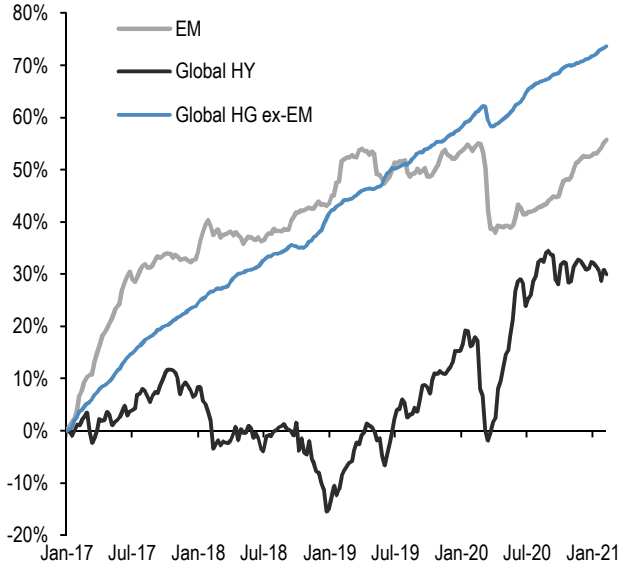
Cumulative flow into ETFs as a % of AUM



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

Chart A4: Bond ETF Flows

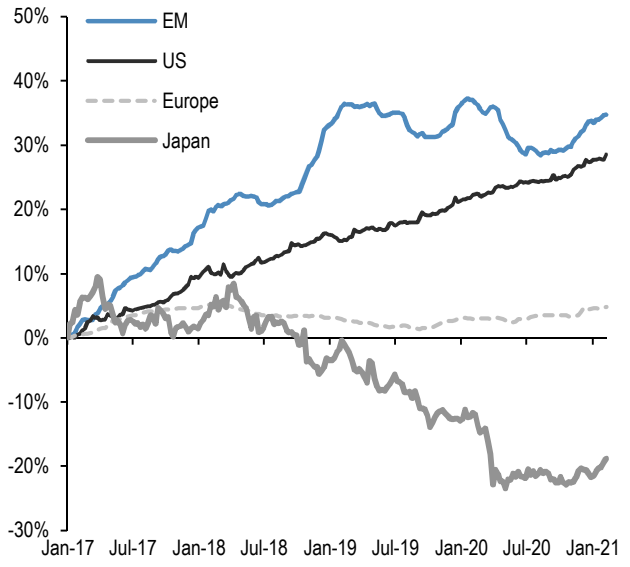
Cumulative flow into bond ETFs as a % of AUM



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

Chart A5: Global Equity ETF Flows

Cumulative flow into global equity ETFs as a % of AUM

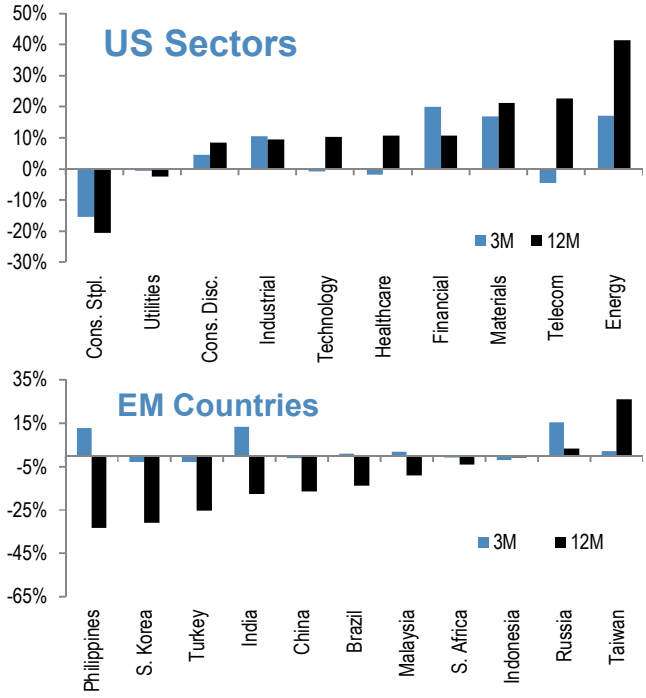


Source: J.P. Morgan. Bloomberg Finance L.P.

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.

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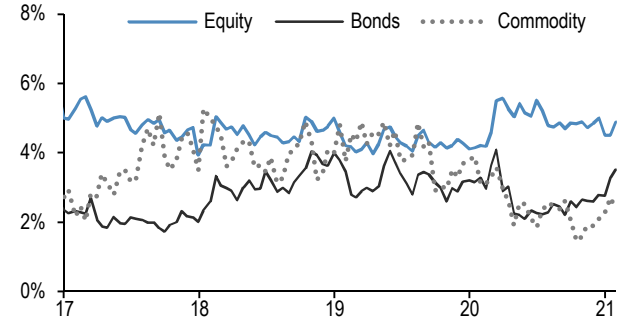
ETF Short Interest Monitor (as of Jan 29)

Chart A7: Cross Asset ETF Short Interest

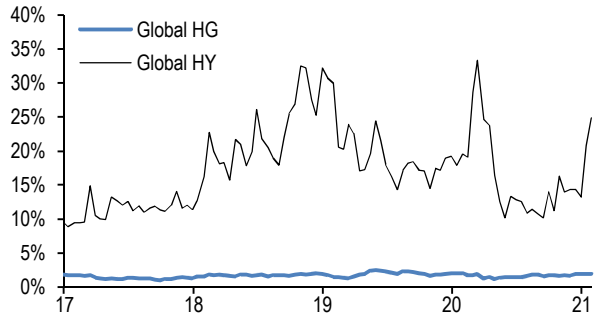
Short interest as a % of outstanding shares. Short interest is for US Domiciled ETFs and is available bi-monthly from Bloomberg Finance L.P. Short interest is weighted by AUM



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

Chart A8: Bond ETF Short Interest

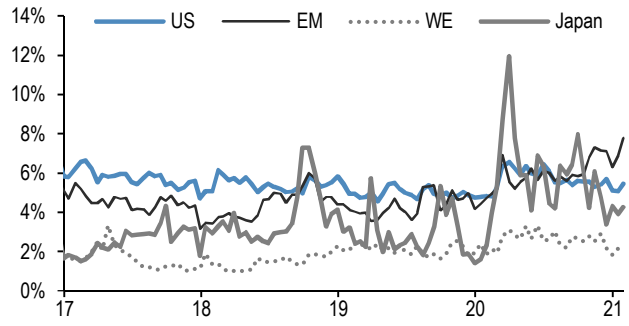
Short interest as a % of outstanding shares. Short interest is for US Domiciled ETFs and is available bi-monthly from Bloomberg Finance L.P. Short interest is weighted by AUM



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

Chart A9: Equity ETF Short Interest

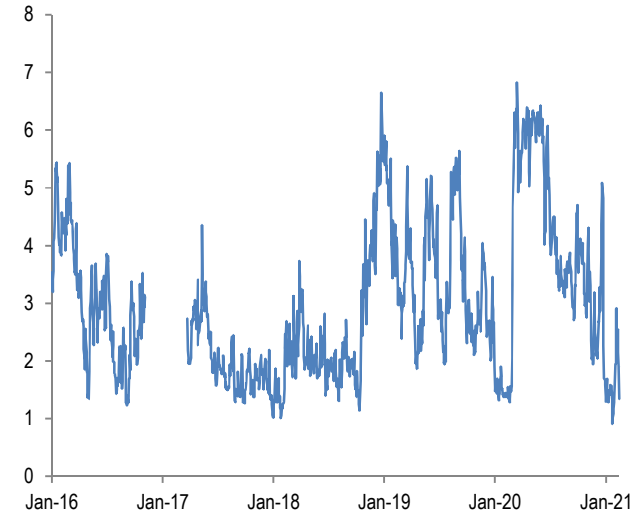
Short interest as a % of outstanding shares. Short interest is for US Domiciled ETFs and is available bi-monthly from Bloomberg Finance L.P. Short interest is weighted by AUM



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

Chart A10a: Quantity-On-Loan on the SPY US ETF

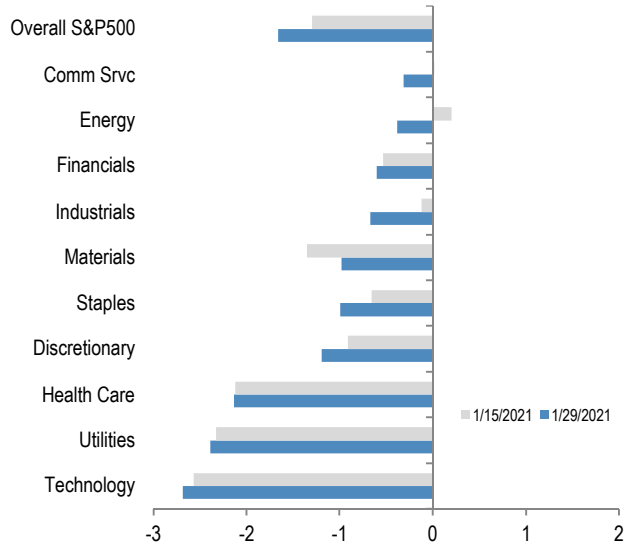
On loan quantity as a % share of share outstanding. Last obs is for 12th Feb 2021.



Source: Datalend, J.P. Morgan

Chart A10b: S&P500 sector short interest

Short interest as a % of shares outstanding based on z-scores. A strategy which overweight's 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.

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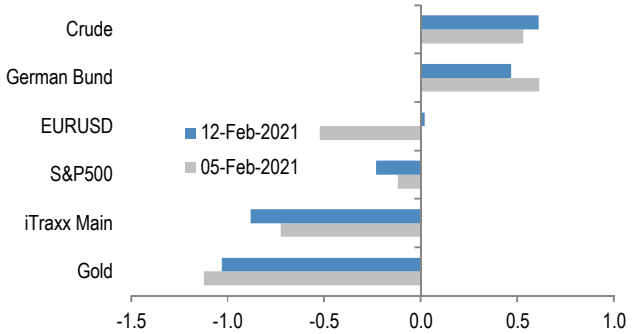
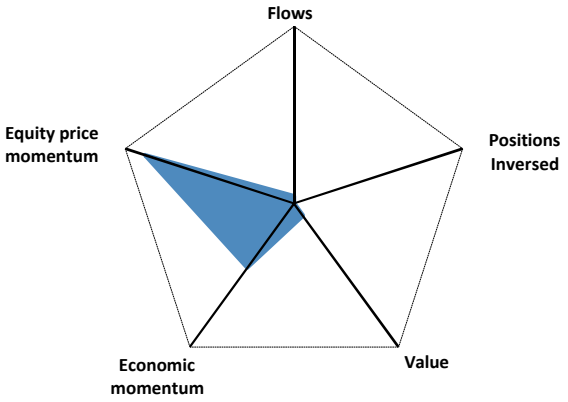
Chart A11: Option skew monitors

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

Chart A12: Market health map



Trading signal for S&P500 and 10Y UST using Artificial Intelligence

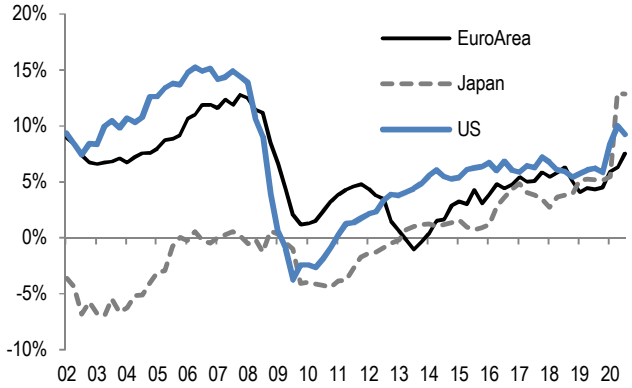
	1 Month	2 Month	3 Month	6 Month
S&P 500 Index	Down	Down	Up	Up
10Y UST Yield	Up	Up	Up	Up

Explanation of Market health map: Each of the five axes corresponds to a key indicator for markets. The position of the blue line on each axis shows how far the current observation is from the extremes at either end of the scale. The dotted line shows the same but at the beginning of 2012 for comparison. For example, a reading at the centre for value would mean that risky assets are the most expensive they have ever been while a reading at the other end of the axis would mean they are the cheapest they have ever been. Overall, the larger the blue area within the pentagon, the better for the risky markets. All variables are expressed as the percentile of the distribution that the observation falls into. I.e. a reading in the middle of the axis means that the observation falls exactly at the median of all historical observations. **Value:** The slope of the risk-return tradeoff line calculated across USTs, US HG and HY corporate bonds and US equities (see GMOS p. 6, Loeys et al, Jul 6 2011 for more details). **Positions:** Difference between net spec positions on US equities and intermediate sector UST. See Chart A18. **Flow momentum:** The difference between flows into equity funds (incl. ETFs) and flows into bond funds. Chart A1. We then smooth this using a Hodrick-Prescott filter with a lambda parameter of 100. We then take the weekly change in this smoothed series as shown in Chart A1. **Economic momentum:** The 2-month change in the global manufacturing PMI. (See *REVISITING: Using the Global PMI as trading signal*, Nikolaos Panigirtzoglou, Jan 2012). **Equity price momentum:** The 6-month change in the S&P500 equity index.

Credit growth

Chart A13: Credit creation in the US, Japan and Euro area

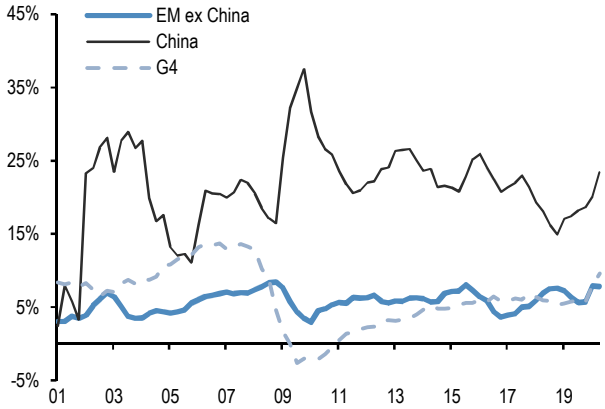
Rolling sum of 4 quarter credit creation as % of GDP. Credit creation includes both bank loans as well as net debt issuance by non-financial corporations and households. Last obs. is for Q2'20.



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

Chart A14: 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 Q2'20.



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

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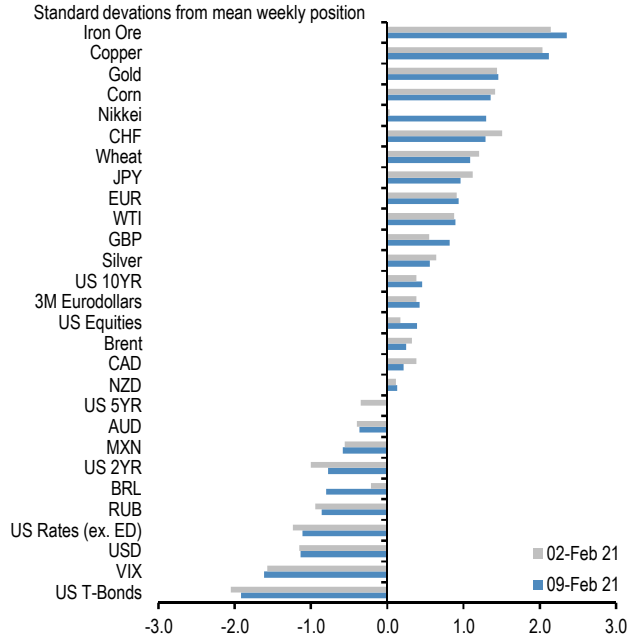
Spec position monitors

Chart A15: Weekly Spec Position Monitor

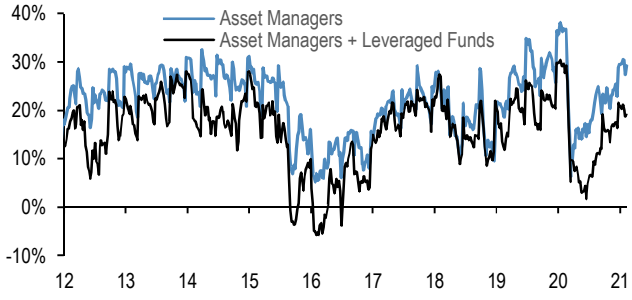
Net spec positions are proxied by the number of long contracts minus the number of short contracts using the speculative category of the Commitments of Traders reports (as reported by CFTC). To proxy for speculative investors for equity futures positions we use Asset managers (see Chart A16), whereas 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. The sample starts in Jun 2006 for all futures contracts apart from Brent which starts in Jan-2011.



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

Chart A16: 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.

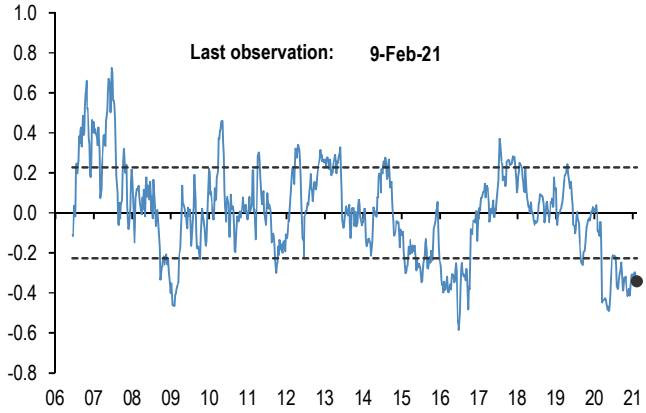


Source: CFTC, Bloomberg Finance L.P. and J.P. Morgan

Chart A17: 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.

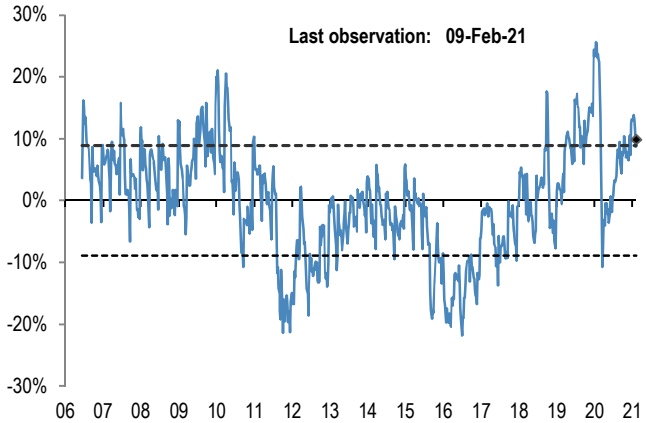


Source: CFTC, J.P. Morgan

Chart A18: 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 A16) 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

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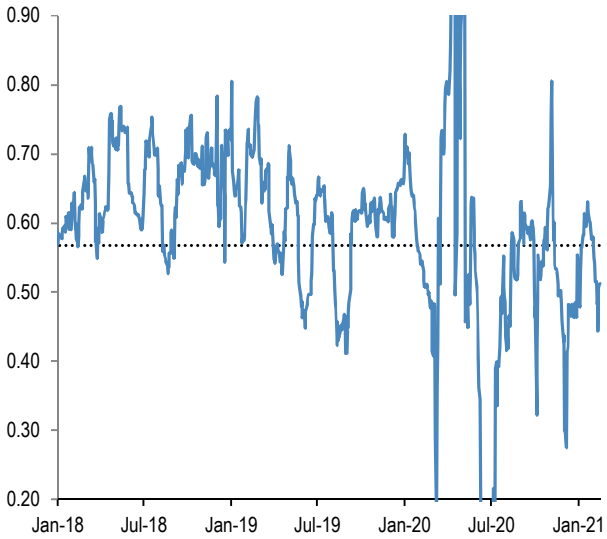
Mutual fund and hedge fund betas

Chart A19: 21-day rolling beta of 20 biggest active US bond mutual fund managers with respect to the US Agg bond index

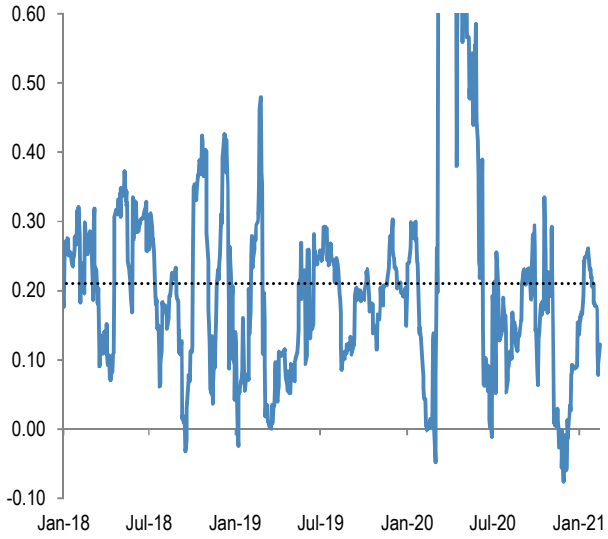
The dotted line shows the average beta since 2013.



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

Chart A20: 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 A21: Performance of various type of investors

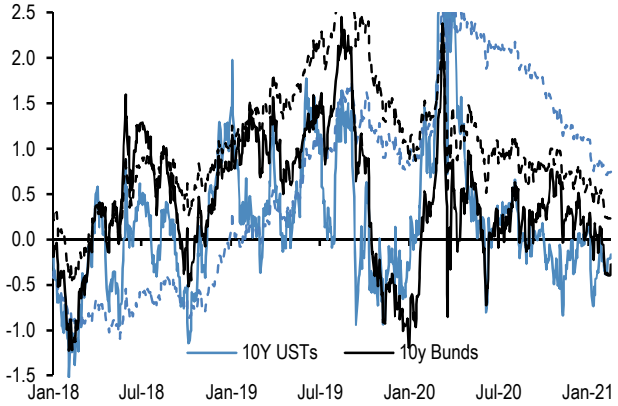
The table depicts the performance of various types of investors in % as of 12th Feb 2021.

Date	2016	2017	2018	2019	2020	2021
Investors						
Equity L/S	2.2%	11.8%	-5.9%	12.8%	8.7%	3.0%
Macro ex-CTAs	2.8%	5.6%	9.8%	2.9%	7.8%	2.6%
CTAs	-6.1%	2.2%	-8.1%	9.2%	6.3%	3.7%
Risk Parity Funds	10.0%	13.5%	-6.5%	18.4%	3.5%	2.1%
US Balanced MFs	8.4%	14.0%	-4.9%	20.1%	13.2%	3.7%
Benchmark						
MSCI AC World	7.9%	24.0%	-9.4%	26.6%	16.3%	5.7%
Barclays Global Agg	3.9%	3.0%	1.8%	8.2%	5.6%	-1.0%
60 US Equity : 40 US Bonds	8.8%	14.3%	-1.9%	22.2%	13.3%	2.6%
S&P Riskparity Vol 10	12.8%	10.4%	-4.3%	22.8%	11.5%	3.5%

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

Chart A22: Momentum signals for 10Y UST and 10Y Bunds

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.

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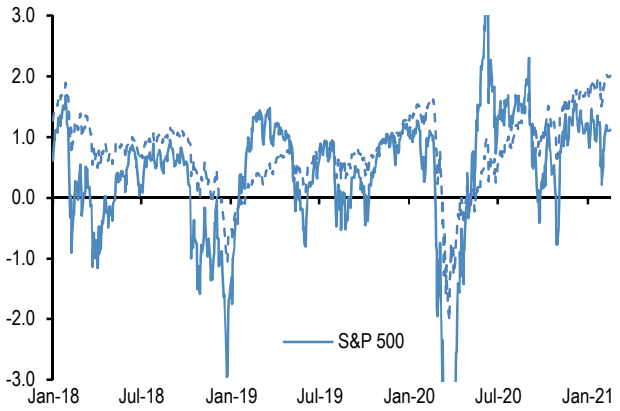
Chart A23: Momentum signals for S&P 500

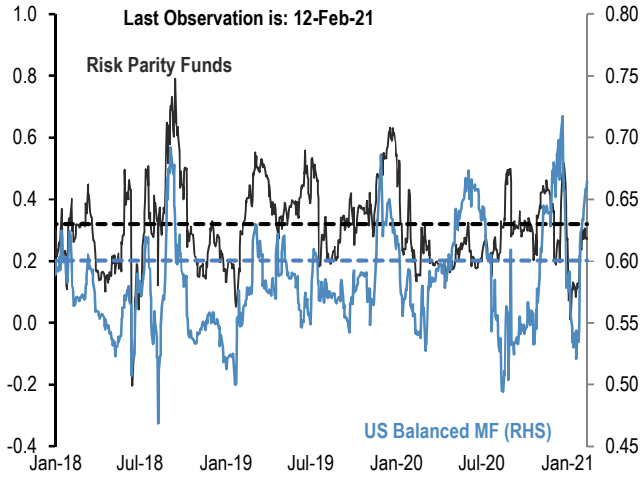
z-score of the momentum signal in our Trend Following Strategy framework shown in Tables A5 and A6 in the Appendix. Solid lines are for the shorter term and dotted lines for longer-term momentum.



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

Chart A24: Equity beta of US Balanced Mutual funds and Risk Parity funds

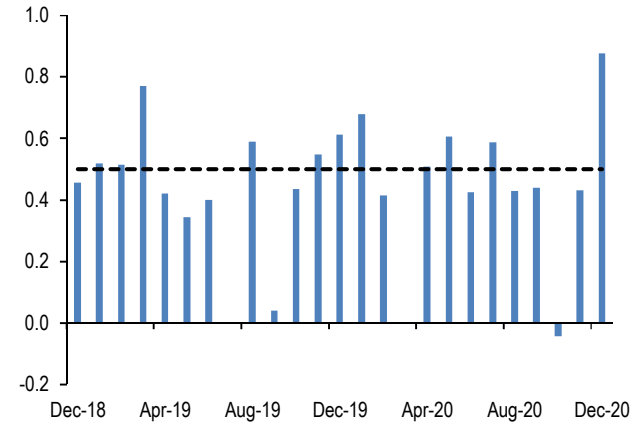
Rolling 21-day equity beta based on a bivariate regression of the daily returns of our Balanced Mutual fund and Risk Parity fund return indices to the daily returns of the S&P 500 and Barcap US Agg indices. Given that these funds invest in both equities and bonds we believe that the bivariate regression 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 A25: Equity beta of monthly reporting Equity Long/Short hedge funds

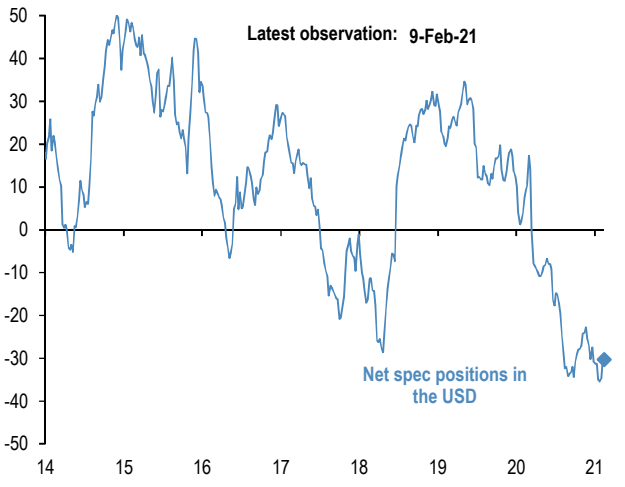
Proxied by the ratio of the monthly performance of HFRI Asset-Weighted Equity Hedge fund index divided by the monthly performance of MSCI AC World index



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

Chart A26: 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

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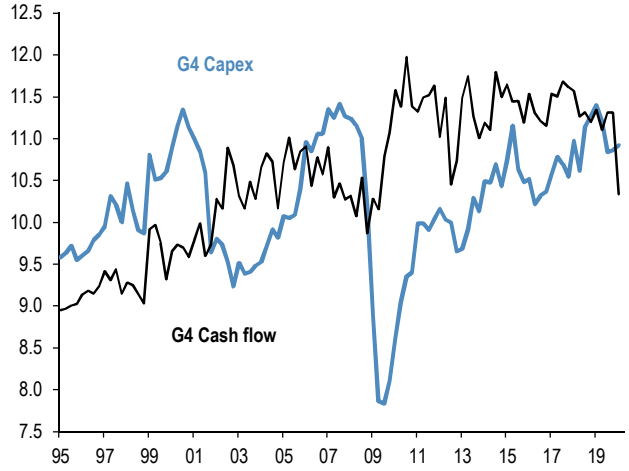
Corporate activity

Chart A27: G4 non-financial corporate capex and cash flow as % of GDP

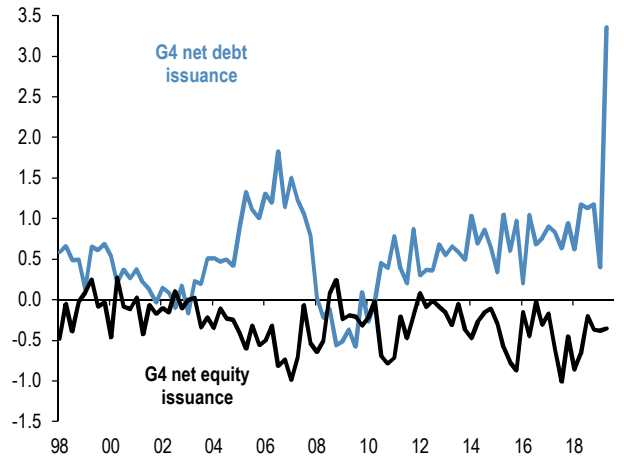
% of GDP, G4 includes the US, the UK, the Euro area and Japan. Last observation as of Q1 2020.



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

Chart A28: G4 non-financial corporate sector net debt and equity issuance

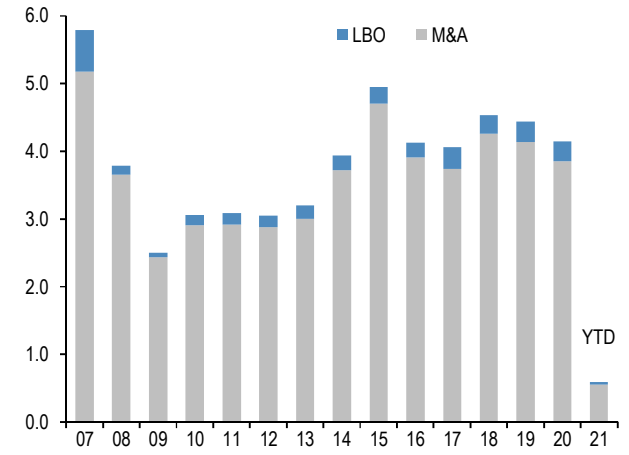
$tr per quarter, G4 includes the US, the UK, the Euro area and Japan. Last observation as of Q1 2020.



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

Chart A29: Global M&A and LBO

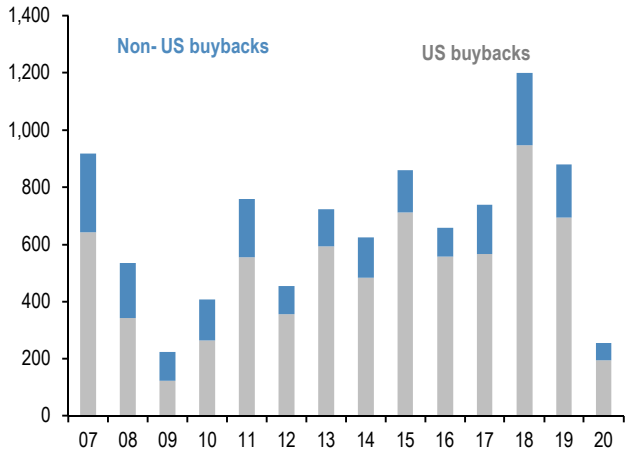
$tr. YTD 2020 as of Feb 10. M&A and LBOs are announced.



Source: Dealogic, J.P. Morgan.

Chart A30: US and non-US share buyback

$bn, 2020 are as of May'20. Buybacks are announced.



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

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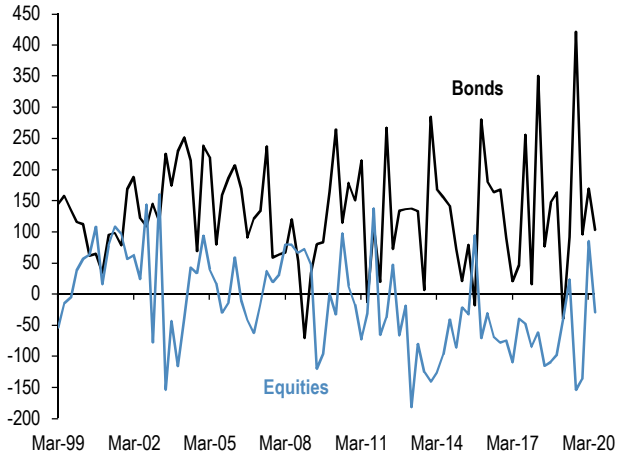
Pension fund and insurance company flows

Chart A31: G4 pension funds and insurance companies equity and bond flows

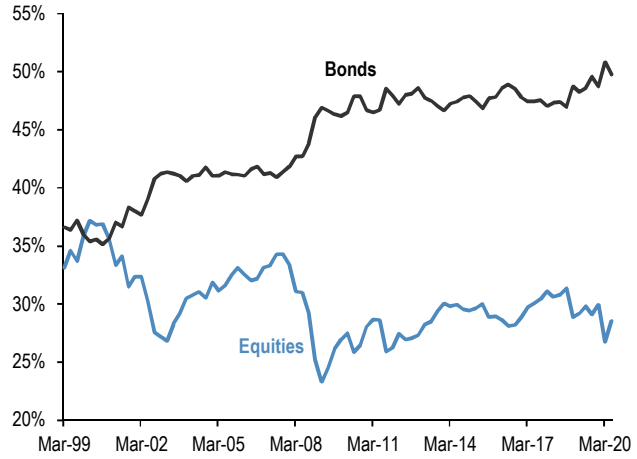
Equity and bond buying in $bn per quarter. G4 includes the US, the UK, Euro area and Japan. Last observation is Q2 2020



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

Chart A32: G4 pension funds and insurance companies equity and bond levels

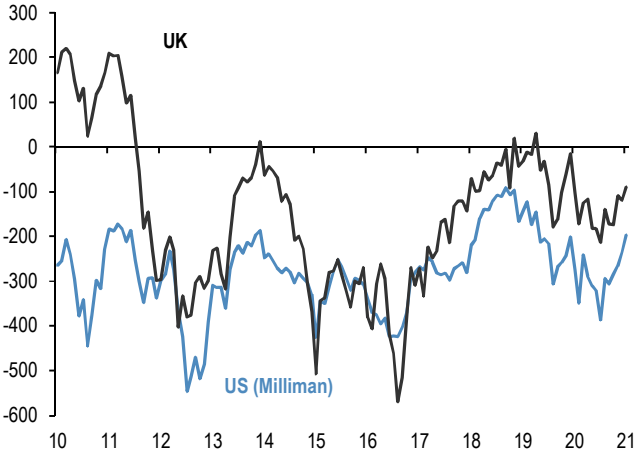
Equity and bond as % of total assets per quarter. G4 includes the US, the UK, Euro area and Japan. Last observation is Q2 2020.



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

Chart A33: Pension fund deficits

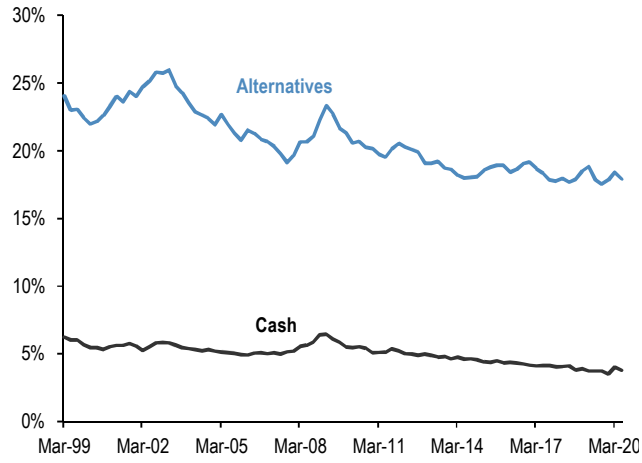
US$bn. For US, funded status of the 100 largest corporate defined benefit pension plans, from Milliman. For UK, funded status of the defined benefit schemes eligible for entry to the Pension Protection Fund, converted to US$ at today's exchange rates. Last obs. is Jan'20.



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

Chart A34: 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 Q2 2020.



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

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Funding market monitor

Table A4: Bank deposits and ECB reliance

Deposits are non-seasonally adjusted Euro area non-bank, non-government deposits as of December 2020. We take total deposits (item 2.2.3. in MFI balance sheets minus "deposits from other financial institutions", which includes deposits from securitized vehicles and financial holding corporations among others. We also subtract repos (item 2.2.3.4) from the total figures to give a cleaner picture of deposits outside interbank borrowing. ECB borrowing and Target 2 balances are latest available. ECB borrowing is gross borrowing from regular MROs and LTROs. The Chart shows the evolution of Target 2 balance for Spain and Italy along with government bond spreads. The shaded area denotes the period between May 2011 and Aug 2012 when convertibility risk premia were elevated due to Greece exit fears.

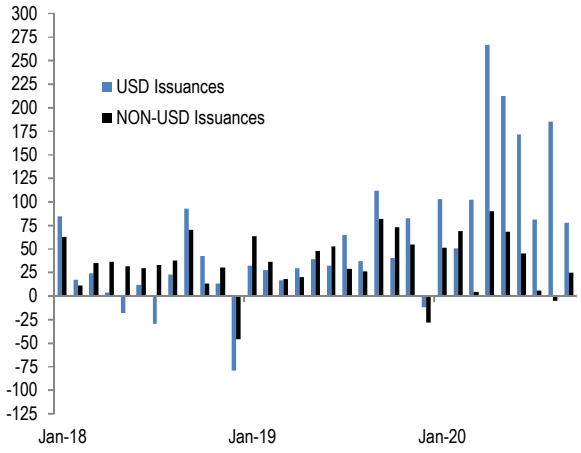
€bn	Target 2 bal.	Target 6m chng	ECB borrowing	Depo 3m chng	Depo 12m chng
Austria	-32	1	69	3.7%	8.4%
Belgium	-30	21	81	1.8%	7.3%
Cyprus	8	1	2	1.2%	0.5%
Finland	79	9	22	-0.8%	14.0%
France	58	10	195	1.3%	14.2%
Germany	1136	141	341	1.2%	4.9%
Greece	-80	-14	41	6.0%	12.1%
Ireland	23	-29	7	4.1%	15.5%
Italy	-482	40	374	3.4%	11.4%
Luxembourg	259	25	16	0.0%	6.9%
Netherlands	38	-31	0	-0.6%	8.4%
Portugal	-80	3	32	1.8%	8.8%
Spain	-500	-38	261	2.0%	9.4%

Source: Bloomberg Finance L.P., ECB, National Central Banks, J.P. Morgan

Source: Bloomberg Finance L.P., National Central Banks, J.P. Morgan

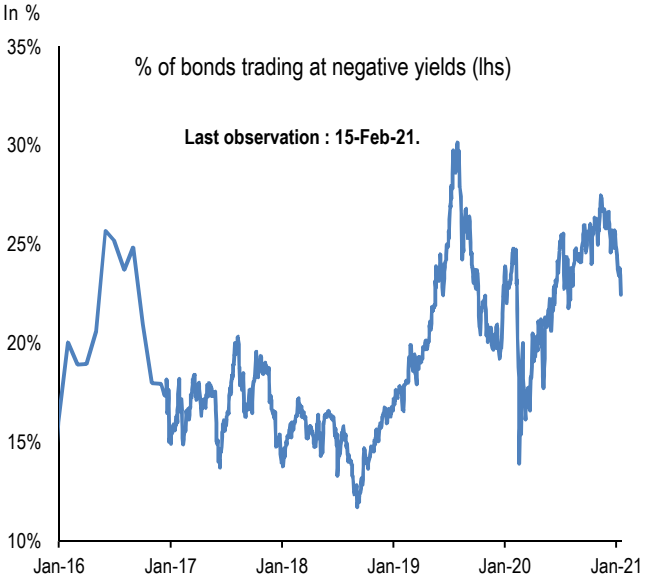
Chart A35: USD and Non-USD net bond issuances

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 Sep 2020.



Source: Dealogic, J.P. Morgan

Chart A36: Market value of negative yield bonds as a % of total outstanding in Bloomberg Barclays Global Agg Index



Source: J.P. Morgan

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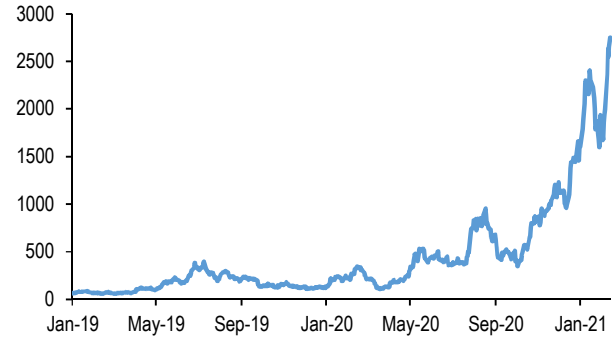
Bitcoin monitor

Chart A37: Open interest in CME Bitcoin futures contracts

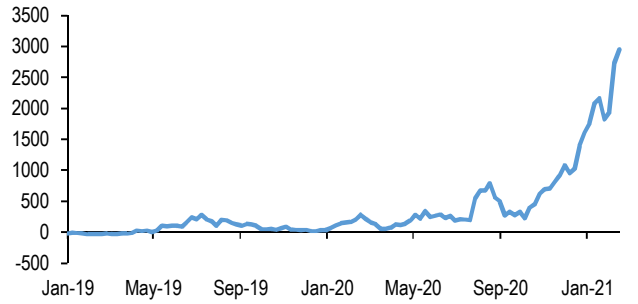
$mn. Last obs. for 12th Feb 2021.



Source: CME, J.P. Morgan.

Chart A38: Our Bitcoin position proxy based on open interest in CME Bitcoin futures contracts

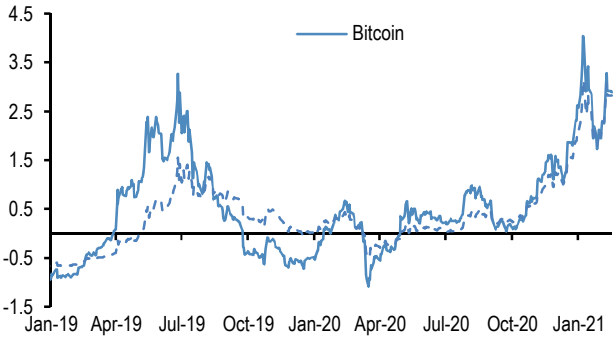
$mn. Last obs. for 12th Feb 2021.



Source: J.P. Morgan

Chart A39: Momentum signals for Bitcoin

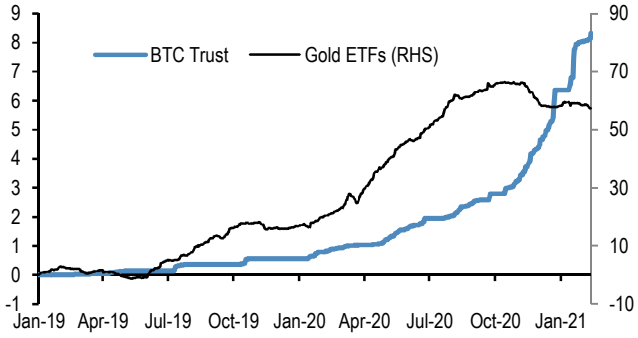
z-score of the momentum signal in our Trend Following Strategy framework shown in Tables A5 and A6 in the Appendix. Solid lines are for the shorter term and dotted lines for longer-term momentum.



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

Chart A40: Cumulative Flows in Bitcoin Trust and Gold ETF holdings

Both the y-axis in $bn



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

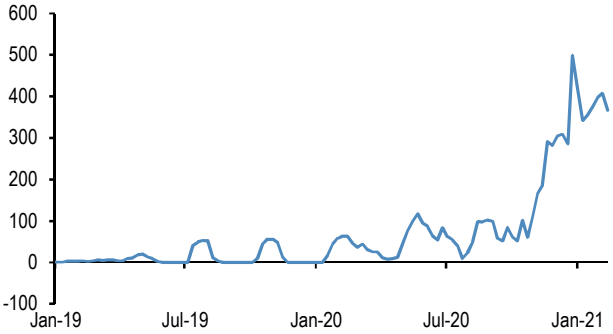
Chart A41: Ratio of Bitcoin market price to intrinsic value

Intrinsic value estimated using the cost of production approach following Hayes (2018).

Source: Bitinfocharts.com, J.P. Morgan

Chart A42: Grayscale Bitcoin Trust flow

$mm, 4-week rolling average flows



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

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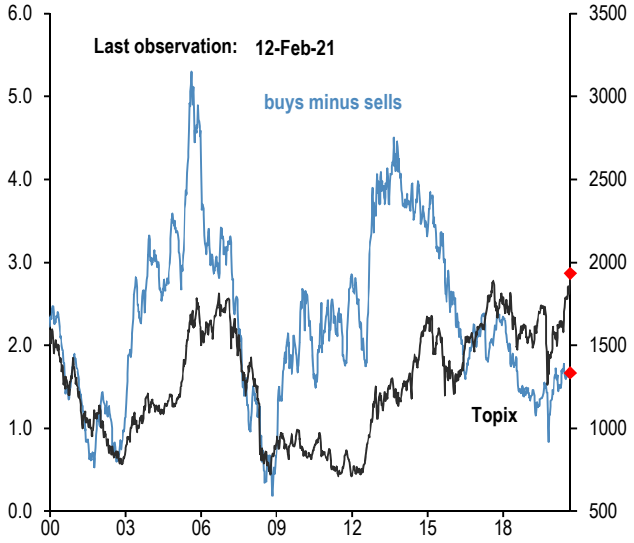
Japanese flows and positions

Chart A43: Tokyo Stock Exchange margin trading: total buys minus total sells

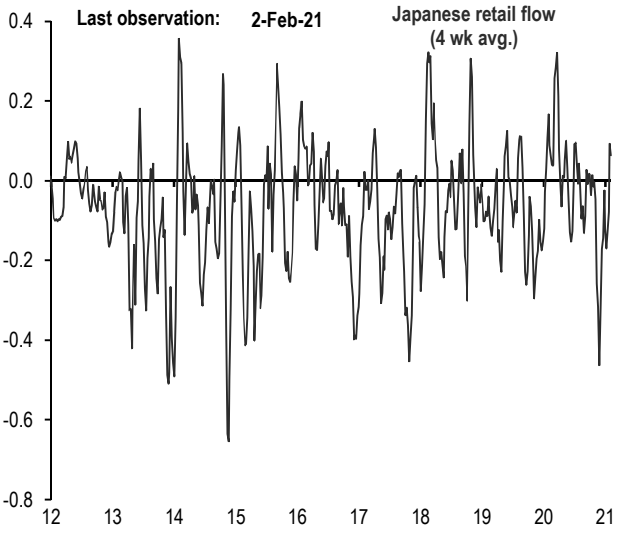
In bn of shares. Topix on right axis.



Source: Tokyo Stock Exchange, J.P. Morgan.

Chart A44: Domestic retail flows

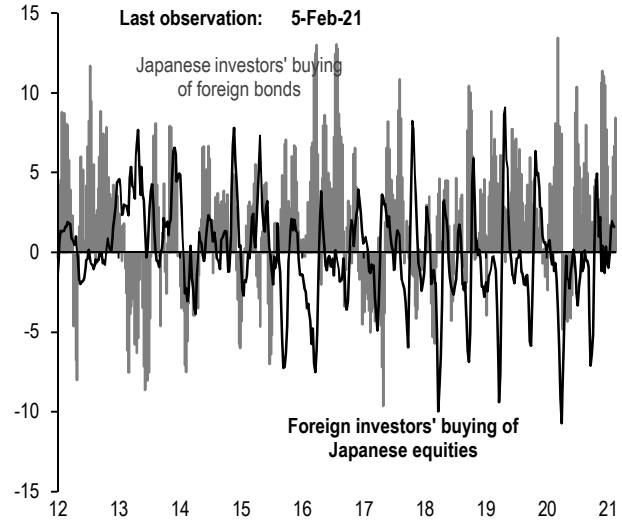
In JPY tr. Retail flows are from Tokyo stock exchange.



Source: TSE, J.P. Morgan calculations.

Chart A45: Japanese equity buying by foreign investors. Japanese investors' buying of foreign bonds

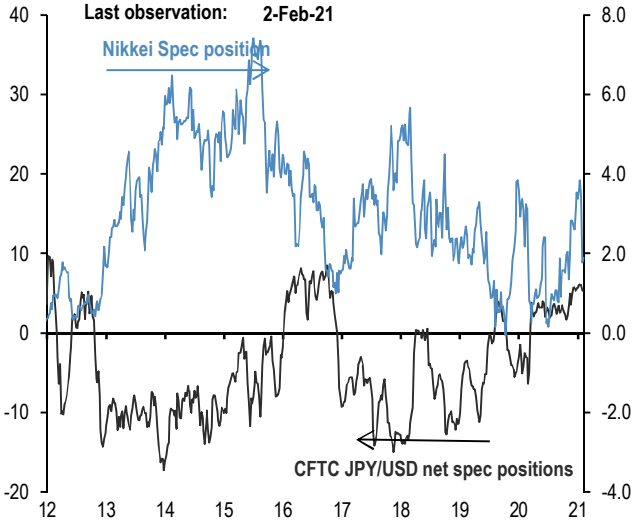
$bn, 4 week moving average.



Source: Japan MoF, J.P. Morgan.

Chart A46: 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.



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

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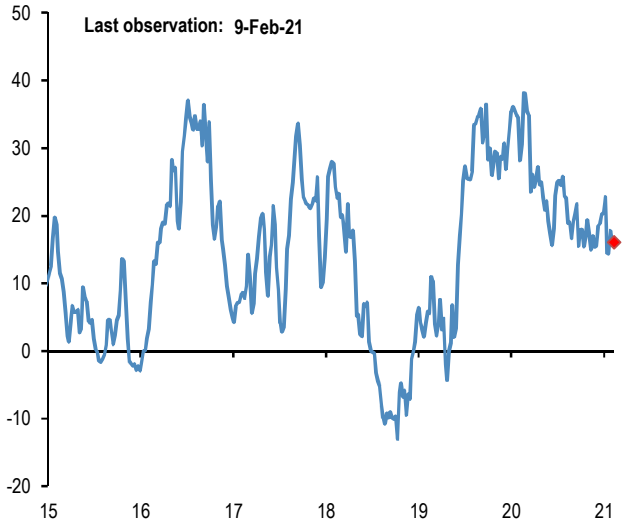
Commodity flows and positions

Chart A47: Gold spec positions

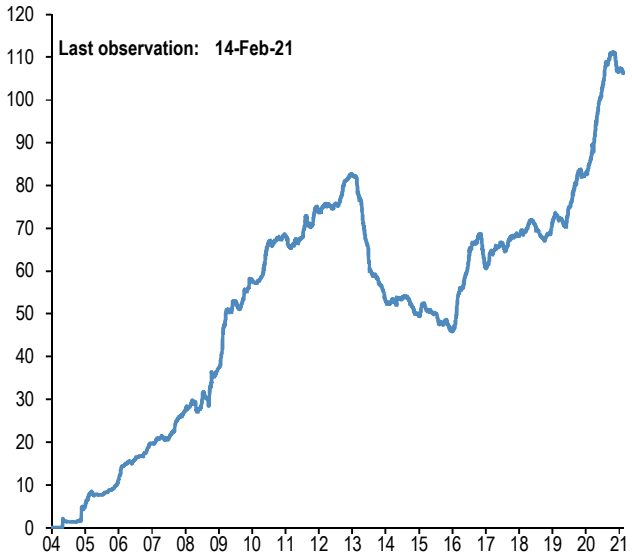
$bn. CFTC net long minus short position in futures for the Managed Money category.



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

Chart A48: Gold ETFs

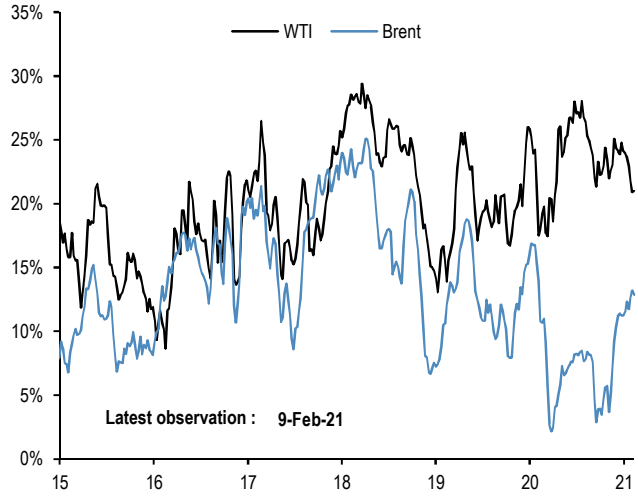
Mn troy oz. Physical gold held by all gold ETFs globally.



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

Chart A49: Oil spec positions

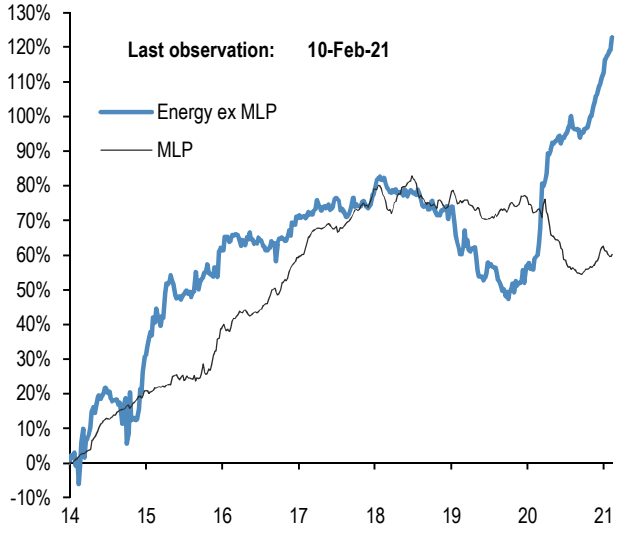
Net spec positions divided by open interest. CFTC futures positions for WTI and Brent are net long minus short for the Managed Money category.



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

Chart A50: 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

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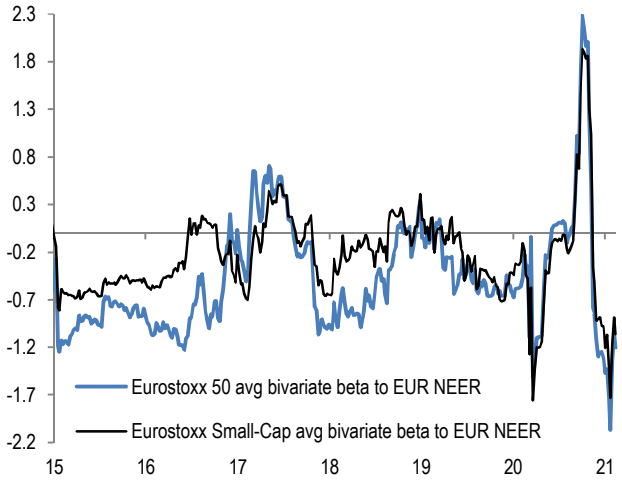
Corporate FX hedging proxies

Chart A51: Average beta of Eurostoxx 50 companies and Eurostoxx Small-Cap to trade weighted EUR

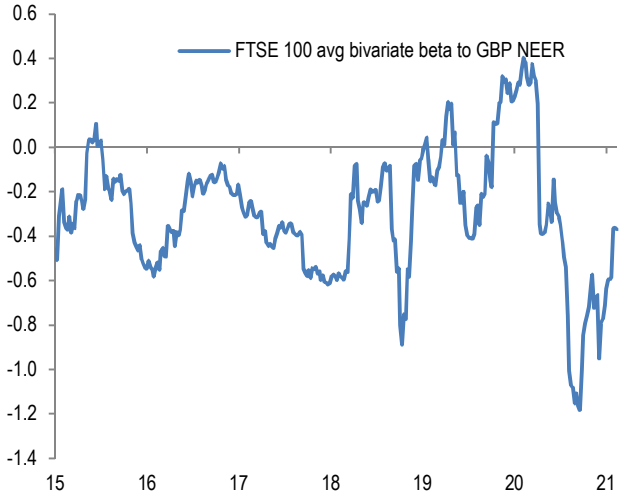
Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of individual stocks in the Eurostoxx 50 index to the weekly returns of the MSCI AC World and JPM EUR Nominal broad effective exchange rate (NEER).



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

Chart A52: Average beta of FTSE 100 companies to trade weighted GBP

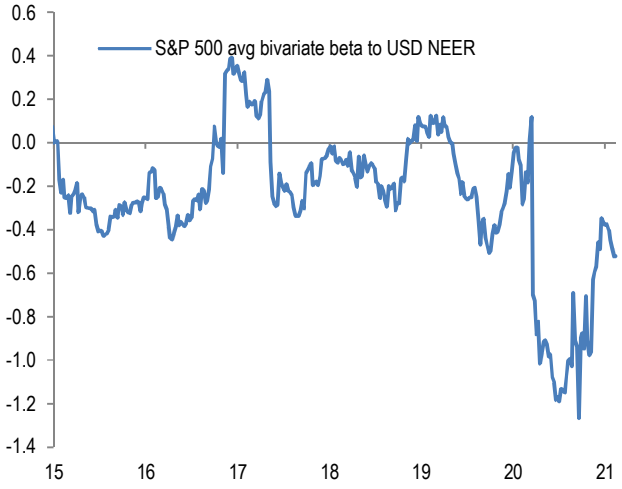
Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of individual stocks in the FTSE 100 index to the weekly returns of the MSCI AC World and JPM GBP Nominal broad effective exchange rate (NEER).



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

Chart A53: Average beta of S&P500 companies to trade weighted US dollar

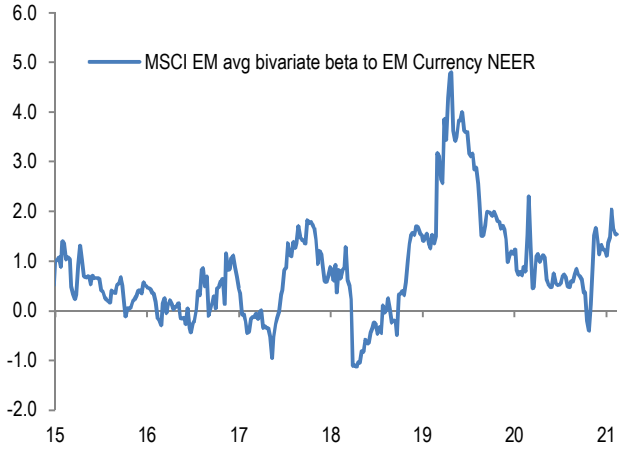
Rolling 26 weeks average betas based on a bivariate regression of the weekly returns of stocks in the S&P500 index to the weekly returns of the MSCI AC World and JPM USD Nominal broad effective exchange rate (NEER).



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

Chart A54: 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.

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CTAs - Trend following investors' momentum indicators

Table A5: 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	22.3	0.46	1	26	1.3	8.4%
	long	504				-1	35	-0.9	-26.8%
Brent	short	105	7.0	21.7	0.32	0	6	2.0	27.3%
	long	504				1	2	0.1	4.1%
Unleaded gas	short	105	5.2	23.9	0.22	0	25	2.0	27.8%
	long	462				1	25	0.7	16.6%
Heat Oil	short	63	6.1	21.3	0.29	0	6	1.8	17.3%
	long	483				0	2	0.0	0.0%
Gasoil	short	63	11.2	19.8	0.57	0	3	1.7	16.9%
	long	504				-1	71	-0.3	-8.6%
Nat gas	short	147	18.6	35.0	0.53	-1	71	-0.2	-4.4%
	long	294				-1	144	-0.4	-12.1%
Gold	short	21	3.8	10.7	0.36	0	0	0.0	-0.1%
	long	504				1	25	0.8	10.2%
Silver	short	10	6.5	19.1	0.34	1	3	0.2	0.6%
	long	462				0	3	1.6	35.1%
Palladium	short	42	15.3	20.5	0.74	0	0	0.0	-0.1%
	long	273				1	5	0.3	6.1%
Platinum	short	105	8.9	17.4	0.51	0	3	2.9	26.1%
	long	273				0	3	2.4	35.3%
Aluminium	short	21	5.2	13.5	0.38	1	3	1.2	3.8%
	long	378				1	89	1.0	14.0%
Copper	short	147	10.5	17.8	0.59	1	23	1.3	16.4%
	long	399				1	161	1.4	32.7%
Lead	short	126	5.7	20.3	0.28	1	65	0.6	6.9%
	long	357				1	21	0.4	8.1%
Nickel	short	42	13.6	22.7	0.60	1	88	0.7	5.7%
	long	336				1	93	1.1	29.1%
Zinc	short	126	10.3	19.8	0.52	1	3	0.3	3.3%
	long	399				1	89	0.6	14.8%
Wheat	short	168	2.6	22.6	0.11	1	16	0.7	8.7%
	long	294				1	105	0.7	10.7%
Kansas wheat	short	147	8.5	20.3	0.42	1	1	1.2	13.9%
	long	504				1	92	1.0	20.9%
Corn	short	63	7.9	16.4	0.48	0	12	1.6	12.5%
	long	399				0	11	1.8	31.0%
Soybeans	short	42	6.9	14.8	0.46	1	14	0.3	1.8%
	long	231				0	66	2.4	31.6%
Cotton	short	168	5.0	18.2	0.28	1	0	1.4	19.7%
	long	483				1	87	1.0	24.5%
Sugar	short	63	8.4	22.3	0.38	1	35	0.8	8.1%
	long	252				1	96	1.2	23.4%
Coffee	short	63	5.0	23.0	0.22	-1	0	-0.2	-1.5%
	long	315				1	44	0.1	1.2%
Cocoa*		10	4.4	28.5	0.15	1	3	1.1	3.6%

* 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 A6: 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	63	6.8	11.9	0.57	1	45	1.1	5.0%
	long	357				0	56	2.0	21.9%
Nasdaq 100	short	84	7.8	14.6	0.53	1	70	1.2	9.5%
	long	462				0	70	2.2	43.7%
Nikkei	short	63	6.0	13.9	0.43	1	13	1.4	8.2%
	long	420				0	7	2.0	30.7%
FTSE 100	short	147	4.1	12.4	0.33	1	14	0.9	5.3%
	long	462				0	6	0.0	0.1%
Eurostoxx 50	short	21	3.1	13.3	0.24	1	5	0.4	1.4%
	long	357				1	67	0.7	9.5%
MSCI EM	short	42	14.4	11.4	1.26	1	11	1.3	6.9%
	long	357				0	27	2.0	33.1%
2Y USTs	short	252	0.8	0.9	0.86	1	192	0.1	0.1%
	long	483				1	231	0.6	1.1%
5Y USTs	short	252	1.8	2.8	0.65	0	5	0.0	0.0%
	long	378				1	123	0.6	1.6%
10Y USTs	short	42	2.1	3.5	0.61	-1	9	-0.2	-0.3%
	long	504				1	81	0.7	3.1%
2Y Schatz	short	252	0.3	0.8	0.40	-1	8	-0.2	-0.1%
	long	441				-1	41	-0.2	-0.2%
5y Bobl	short	84	1.6	1.8	0.92	-1	7	-0.2	-0.2%
	long	483				1	233	0.1	0.2%
10y Bund	short	105	2.6	3.2	0.81	-1	8	-0.4	-0.8%
	long	462				1	237	0.2	0.8%
10Y JGB	short	168	1.0	2.2	0.44	-1	8	-0.3	-0.3%
	long	273				-1	34	-0.3	-0.4%
10Y Gilts	short	105	1.4	3.8	0.36	-1	9	-0.8	-1.7%
	long	504				1	131	0.2	0.8%
Euro	short	42	3.1	6.4	0.49	-1	10	-0.1	-0.3%
	long	273				1	167	0.8	4.9%
Yen	short	21	1.8	6.2	0.29	-1	10	-0.2	-0.3%
	long	399				1	143	0.2	1.5%
Sterling	short	168	2.4	7.3	0.32	1	146	1.2	5.3%
	long	294				1	97	1.2	7.0%
AUD	short	42	5.0	7.7	0.65	1	2	0.3	0.8%
	long	378				1	160	1.2	11.0%
CAD	short	252	0.9	6.4	0.14	1	136	1.1	5.2%
	long	504				1	72	0.7	4.7%

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

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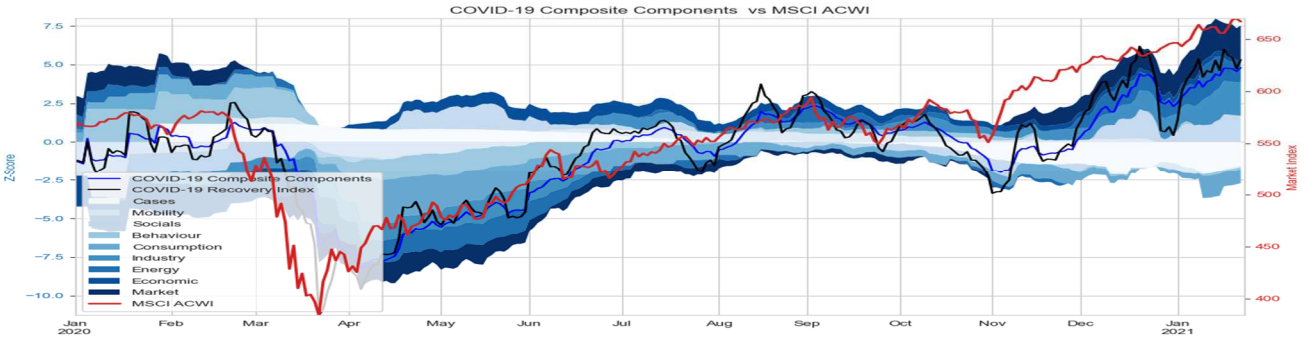
Gauging the Economic Normalization

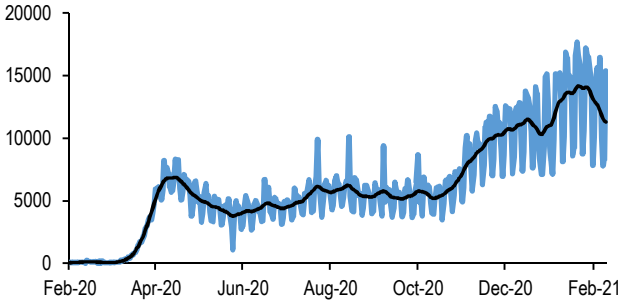
Chart A55: COVID-19 Composite showing the individual components' contributions YTD 2020



Source: J.P. Morgan.

Chart A56: Daily change in number of COVID-19 Deaths smoothed by HP filter

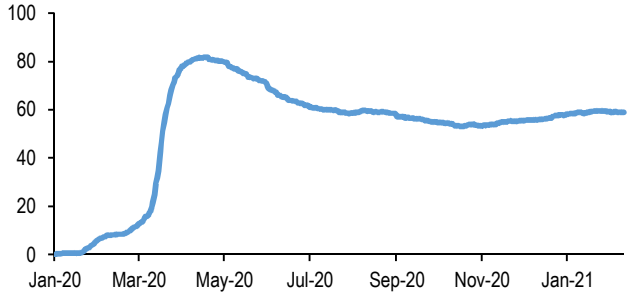
Number of deaths per day. HP filter uses lambda of 50. Last obs. is 09 Feb 2021.



Source: Worldometer, J.P. Morgan.

Chart A57: Average score of lockdown stringency Index across 147 countries as compiled by Oxford University

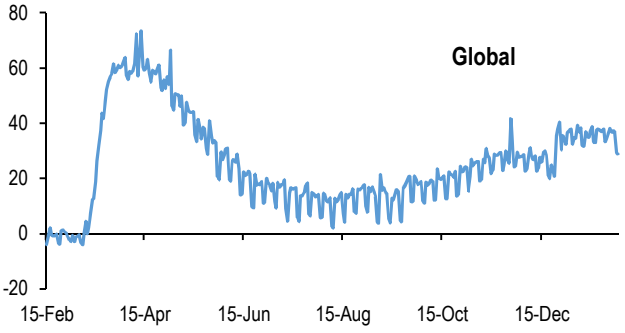
Last obs. is 10 Feb 2021



Source: Oxford University Research, J.P. Morgan

Chart A58: Google mobility data – Visits and length of stays at Residential areas minus Other areas

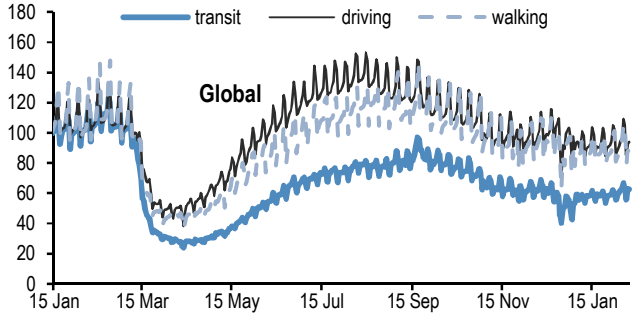
Other areas include Workplace, Transit station, Parks, Grocery & Pharmacy and Retail & Recreational places. Data is aggregated for 125 countries and are weighted based on their GDP. Baseline is defined as median volume between 3rd Jan – 6th Feb. Last obs. is 31 Jan 2021.



Source: Google mobility data, J.P. Morgan

Chart A59: Apple mobility data – Volume of requests for directions for transit, driving and walking activity as compared to baseline

Data are aggregated for 63 countries and weighted based on their GDP. Baseline is defined as volume on 13th Jan 2020. Last obs. is 09 Feb 2021.



Source: Apple mobility data, J.P. Morgan

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