

Prior Weeks [Weeklies](#)

(if you've saved this as PDF from the LinkedIn post, click on the links above to see the updated version, and make sure that the View is NOT in "Print Layout", otherwise it will look fragmented)

Note: you will never find anything "soft" here.... Nothing "fundamental" or macroeconomic, no Inflation, PMI's, GDP etc.... (with rare exception, like Oil fundamentals after the Saudi refinery was hit, or Trade War-related). No data so lagged and well baked into prices that to even glance at them is a fool's errand... this isn't 1988, yet some people seem to think these things can be traded on.... Unless you have inside info and can front-run it, it's useless.

*****DISCLAIMER*****

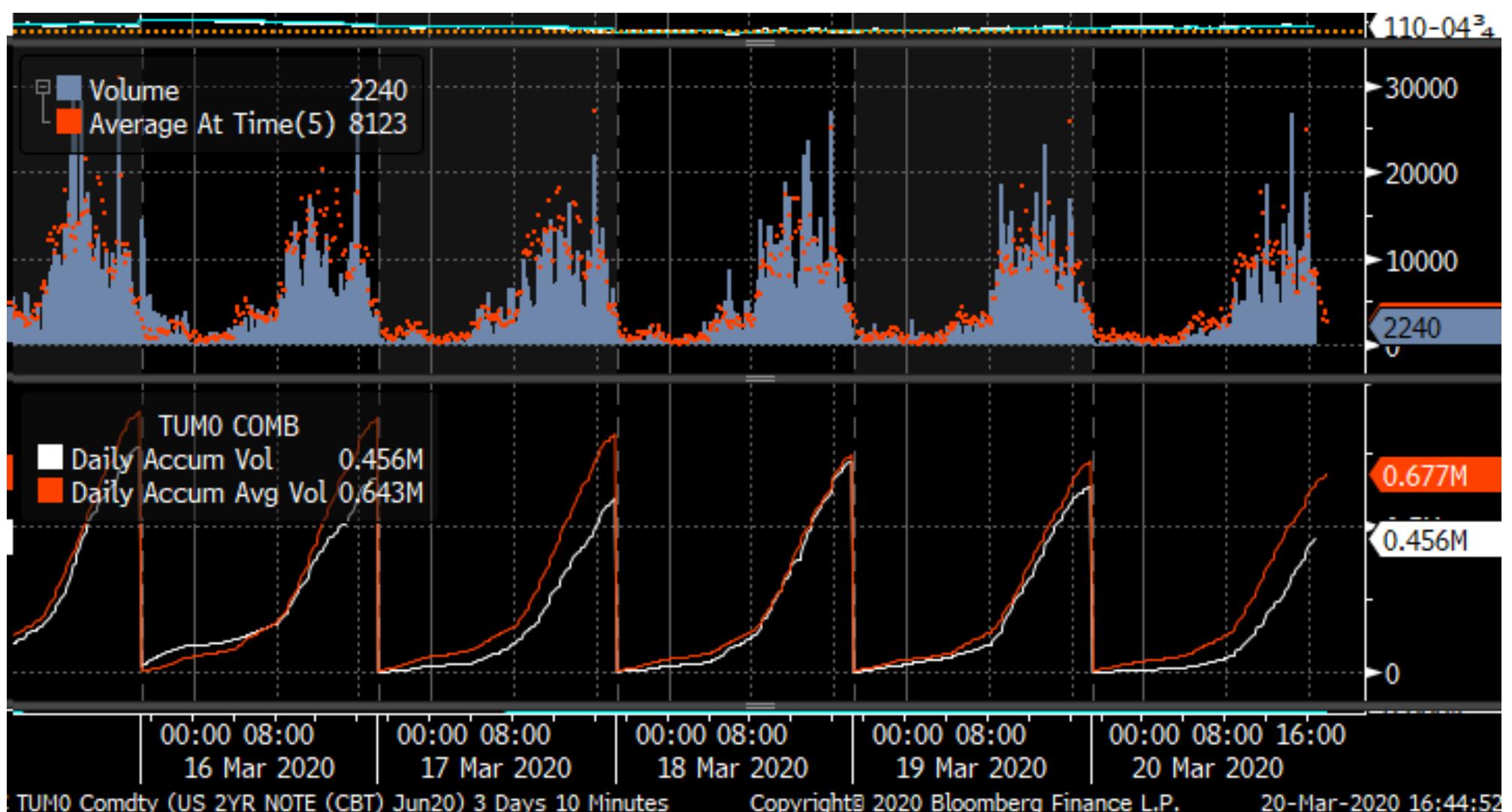
Remember, all Sell-Side Research contains at least 1 of the following 3 elements

- Trades that 40-Act Funds are running after serious traders/HFs stopped out
- Death Trap Trades that the bank's desk needs to take the other side
- An honest opinion of an analyst

Never forget, in life, even lies are intriguing and useful, they reveal where someone's interests are

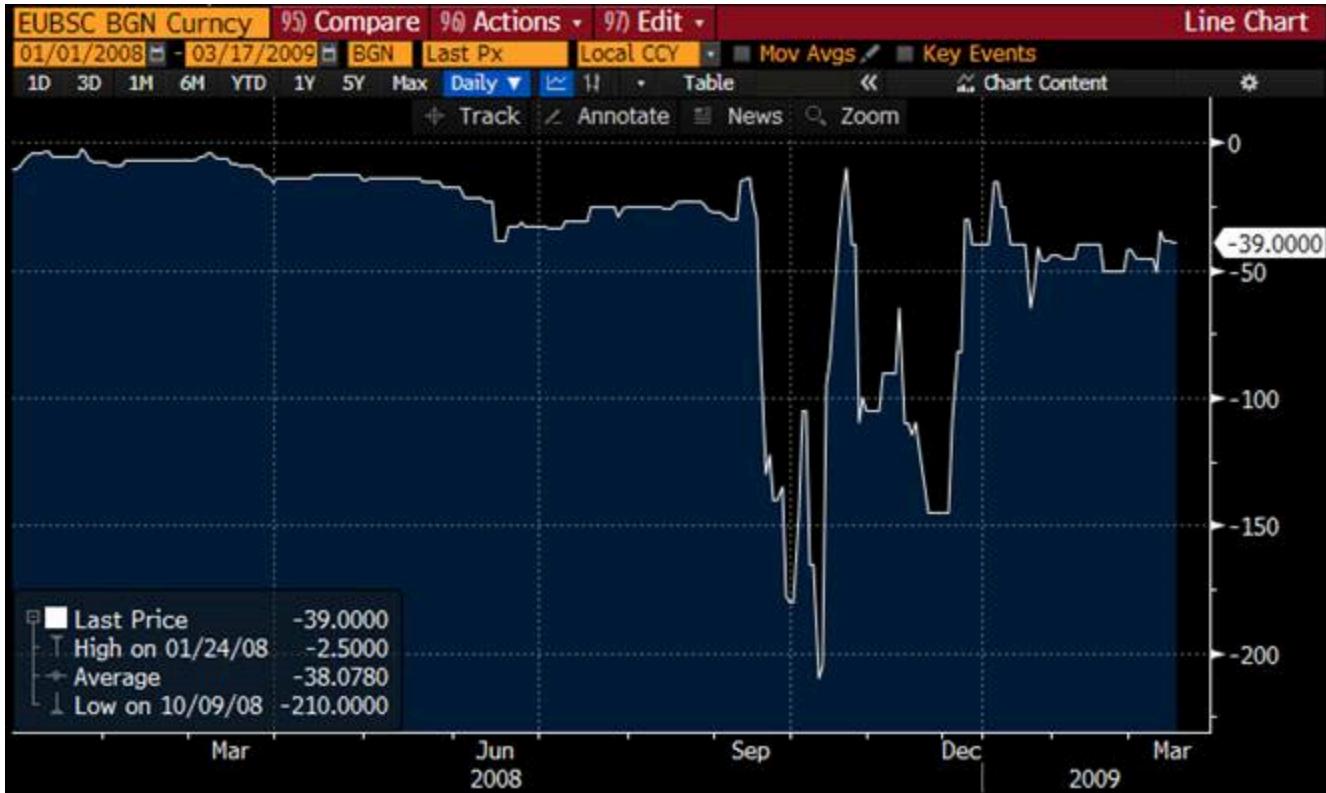
LAST WEEK

[3.8-3.14](#)



INCIPIUM

(YOU'LL NOTICE THAT DATES ARE OFTEN HIGHLIGHTED THIS WEEK, WHICH IS SIMPLY DUE TO THE NEED TO MAKE CLEAR WHEN CERTAIN LEVELS DISPLAYED ARE INDICATIVE OF, IN LIGHT OF RECENT MOVES)



New York
COB: Mar 19, 2020

J.P. Morgan Securities LLC
US Fixed Income Strategy

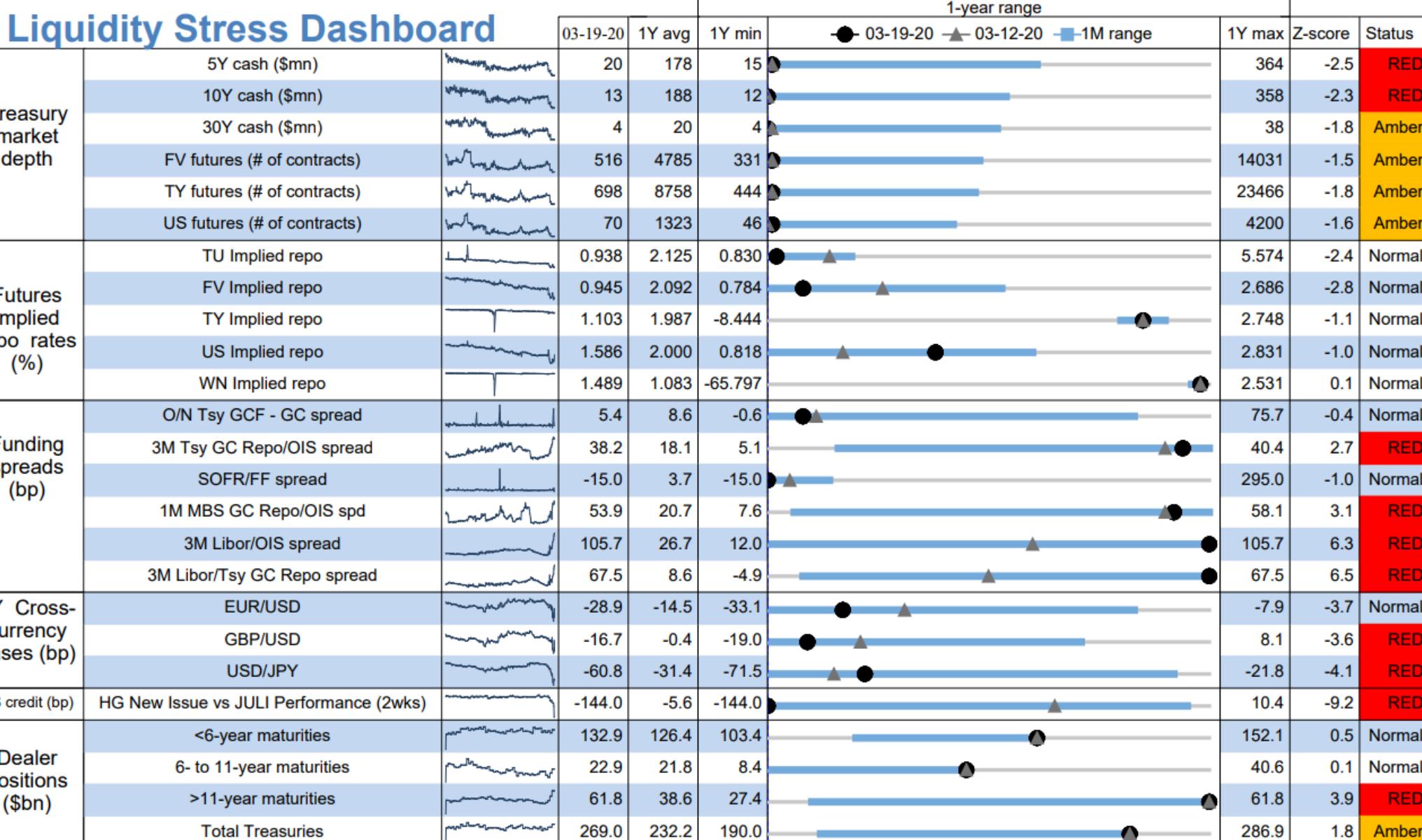
Alex Roever^{AC} (1-212) 834-3316
Phoebe A White (212) 834-3092

J.P.Morgan

US Fixed Income Strategy

jpmorganmarkets.com

Liquidity Stress Dashboard

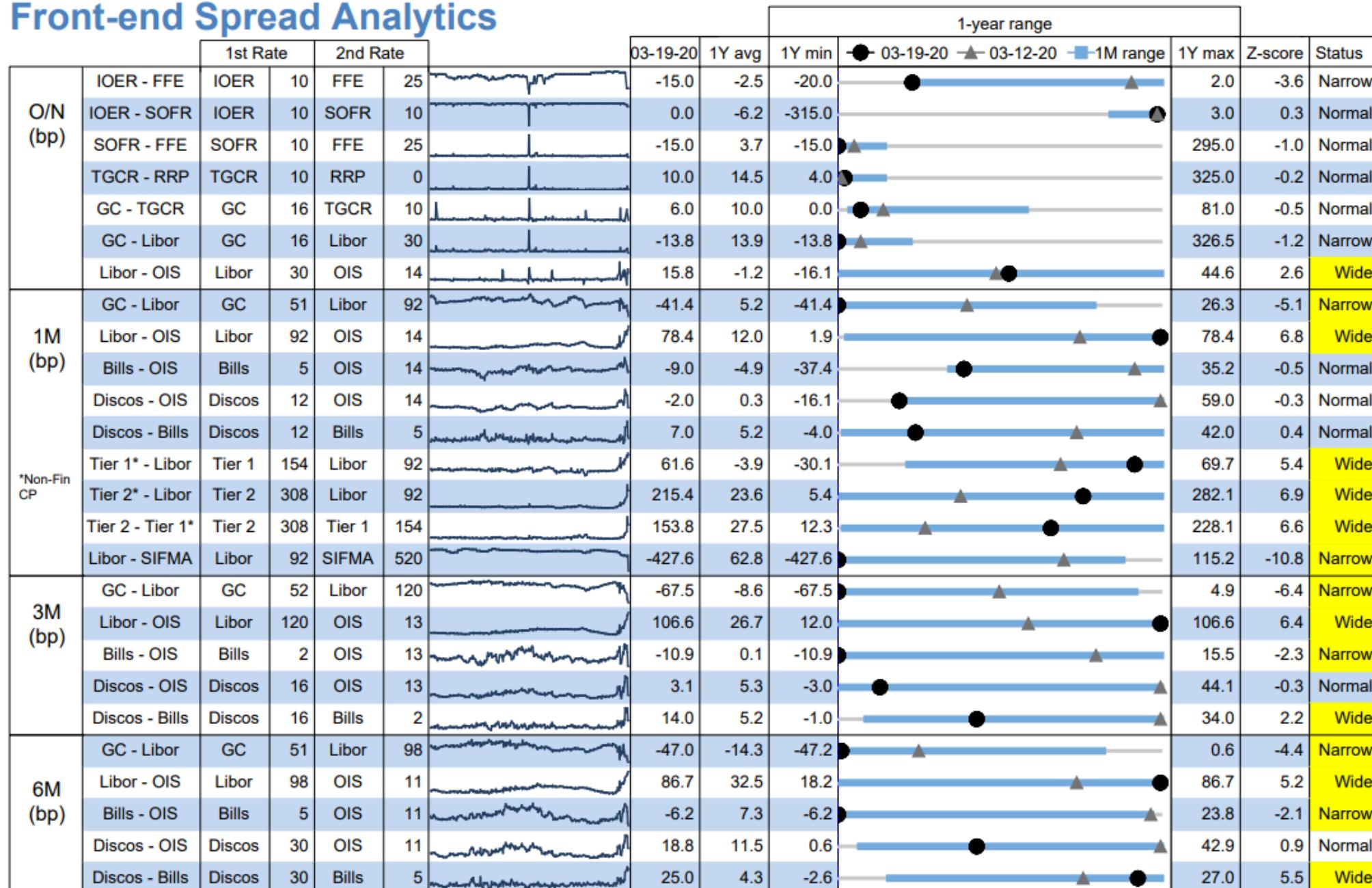


Notes:

- The dark blue line charts are 1-year time series. The bar chart depicts the range spanning from the 1-year minimum to the 1-year maximum. The blue bars indicate the 1-month range, and the black dot is the current value, while the grey triangle is the 1-week-ago value.
- Market depth: cash market depth is the average of the top 3 bids and offers on hot-run Treasuries, averaged between 8:30am and 10:30am daily. Futures market depth is measured similarly to cash, including both the front and back contract.
- Futures implied repo rates: The implied repo rate is the theoretical return you would earn if you bought the cash bond, sold futures short against it, and then delivered the cash bond into the futures.
- Funding spreads: Overnight interdealer Treasury GCF rate minus client GC rate, the difference between various repo rates and matched-tenor OIS rates, the difference between 3-month Libor and 3-month OIS or 3-month Treasury GC repo, the spread between the MBS

US Fixed Income Strategy

Front-end Spread Analytics

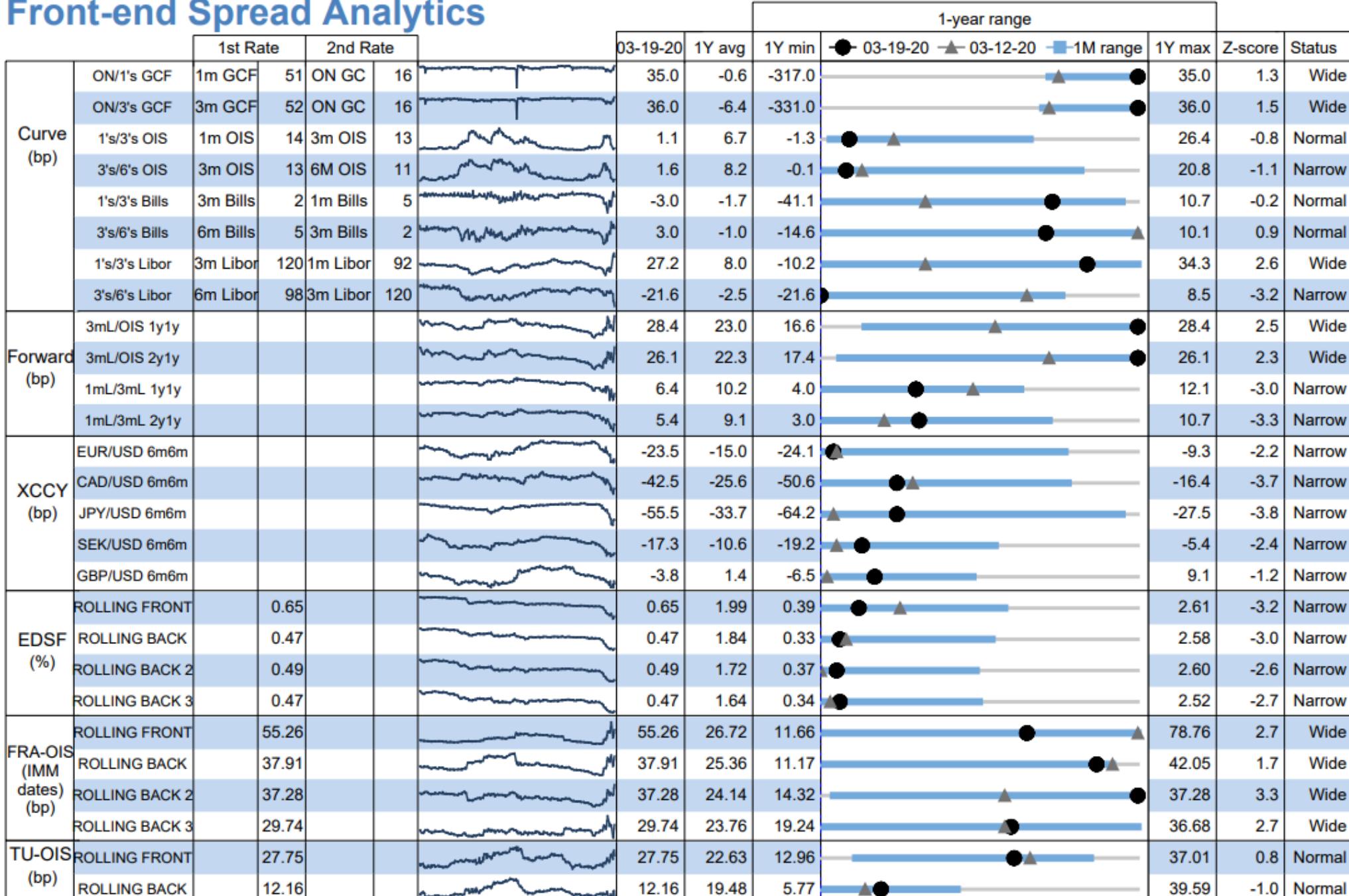


Notes: (1) The dark blue line charts are 1-year time series. The bar chart depicts the range spanning from the 1-year minimum to the 1-year maximum. The blue bars indicate the 1-month range, and the black dot is the current value, while the grey triangle is the 1-week-ago value. (2) Status: "Normal" means the current value within 1-standard deviation of the 1-year average (e.g., Z-score between -1 to +1). "Narrow" means the current value is greater than 1-standard deviation below the 1-year average (e.g., Z-score is less than -1). "Wide" means the current value is greater than 1-standard deviations above the 1-year average (e.g., Z-score is greater than +1). A yellow highlighted "Narrow" means the current value is greater than 2-standard deviations below the 1-year average (e.g., Z-score is less than -2). A yellow highlighted "Wide" means the current value is greater than 2-standard deviations above the 1-year average (e.g., Z-score is greater than +2). For IOER-FFE and Libor-OIS spreads, the status will only be highlighted in yellow if the Z-score is greater than +2. (3) Source for repo data: TRP GC - BNY ex RPP, Federal Reserve. (4) For an explanation of these spreads, please see page 3 or Introduction to Front-End Spread Analytics, 12/15/2015.

This document is being provided for the exclusive use of

US Fixed Income Strategy

Front-end Spread Analytics



Notes: (1) The dark blue line charts are 1-year time series. The bar chart depicts the range spanning from the 1-year minimum to the 1-year maximum. The blue bars indicate the 1-month range, and the black dot is the current value, while the grey triangle is the 1-week-ago value. (2) Status: "Normal" means the current value within 1-standard deviation of the 1-year average (e.g., Z-score between -1 to +1). "Narrow" means the current value is greater than 1-standard deviation below the 1-year average (e.g., Z-score is less than -1). "Wide" means the current value is greater than 1-standard deviations above the 1-year average (e.g., Z-score is greater than +1). A yellow highlighted "Narrow" means the current value is greater than 2-standard deviations below the 1-year average (e.g., Z-score is less than -2). A yellow highlighted "Wide" means the current value is greater than 2-standard deviations above the 1-year average (e.g., Z-score is greater than +2). For IOER-FF and Libor-OIS spreads, the status will only be highlighted in yellow if the Z-score is greater than +2. (3) Source for repo data: TRP GC – BNY ex RPP, - teral. Source for Bills, Discos, CDs, OIS, Libor, FFE: JPM. Source for Tier 1 and Tier 2 Non-Financial CP: Federal Reserve. (4) For an explanation of these spreads, please see page 3 or Introduction to Front-End Spread Analytics, 12/15/2015.

This document is being provided for the exclusive use of

New York
COB: Mar 19, 2020

J.P. Morgan Securities LLC
US Fixed Income Strategy

Alex Roever^{AC}
Teresa Ho
(1-212) 834-3316
(1-212) 834-5087

J.P.Morgan

US Fixed Income Strategy

Explanation of spreads

IOER-FFE: This spread measures the effectiveness of the Fed's policy tools and generally has a negative correlation with the level of excess reserves on the Fed's balance sheet. As reserves fall, the IOER-FFE basis tends to contract.

GCF-GC: This spread is a measure of dealer balance sheet availability as seen between where dealers lend to other dealers on an overnight basis in the GCF repo market and where dealers borrow from cash rich investors on an overnight basis in the GC repo market. The greater the spread, the less balance sheet availability (given the regulatory costs of providing it from both an asset and liability perspective).

GCF-Libor: This spread measures the relative price difference or the effectiveness of dealers funding their balance sheets on a collateralized basis (GCF repo) versus an unsecured basis (CP, CDs that are tied to Libor). A negative spread indicates that it's more cost effective to fund via repo, which makes sense given that the liability is collateralized. A positive spread indicates it's more cost effective to fund via short-term unsecured liabilities. Due to market segmentation (i.e., different participants in different markets), this spread is not a reflection where individual dealers fund on a collateralized versus uncollateralized basis.

Libor-OIS: We interpret this spread as a measure of the premium banks have to pay over Fed funds (as expressed via OIS) to borrow in the short-term unsecured markets. Generally, this is a credit spread indicator, measuring the current health of the banking system. It is also a liquidity spread indicator: the narrower the spread, the greater the amount of liquidity available. Conversely, the wider the spread, the lower the amount of liquidity available, indicating that banks have to pay a higher liquidity premium for funding.

Bills-OIS, Discos-OIS: This spread is a measure of the demand for high-quality liquid assets (HQLA). A large negative spread indicates there is significant demand for Treasury bills/Agency discount notes, typically in a flight-to-quality event. This spread is often a reflection of supply and demand dynamics.

Discos-Bills: This spread reflects the premium that Agencies would have to pay over Treasuries to borrow. Alternatively, it is a measure of how rich Treasury bills trade relative to Agency discount notes. A positive spread implies Agency discount notes are trading cheap to bills. A negative spread implies Agency discount notes are trading rich to bills.

Discos-Libor: This spread is a measure of how rich Agency discount notes trade relative to where the Libor panel banks get funded in the short-term unsecured markets. Alternatively, it's the premium that banks would have to pay over Agencies to borrow. A negative spread implies discos are trading rich to banks in the wholesale funding markets.

Tier 1 Non-Fin CP-Libor, Tier 2 Non-Fin CP-Libor: This spread is a measure of how rich or cheap non-financials trade relative to financials. A negative spread implies non-financials are trading rich to banks. Conversely, a positive spread implies non-financials are trading cheap to banks. The Non-Fin CP rates are from the Fed's H.15 report.

Tier 2 Non-Fin CP-Tier 1 Non-Fin CP: This spread is a measure of how cheap A-2/P-2 corporate CP issuers trade relative to A-1/P-1 corporate CP issuers. A positive spread implies A-2/P-2 corporates are trading cheap to A-1/P-1 corporates. The Non-Fin CP rates are from the Fed's H.15 report.

Libor-SIFMA: This spread is a measure of the potential yield pick-up between investing in a taxable instrument versus a tax-exempt instrument. A positive spread implies taxables trade cheaper than tax-exempts, on a non-tax adjusted basis.

ONs1s and ONs3s GCP, 1s3s and 3s6s Bills, 1s3s and 3s6s Libor: These are spreads based on the steepness of the GCF repo, Bills, and Libor curve respectively, and are generally indicative of term and liquidity premiums that counterparties would have to pay to fund further out the curve. The wider the spread, the steeper the curve, and the higher the term and liquidity premium they have to pay to borrow.

Antoine Gaveau, CFA
(44-20) 7134-2880
antoine.gaveau@jpmorgan.com

Exhibit 14: Yield pickup available via foreign bonds by country and investor currency, on a currency-hedged basis (3M rolling and maturity-matched hedges) and unhedged

Annualized yield pick-up* for euro-, yen-, US dollar- and sterling-based investors from foreign currency bonds vs. domestic bonds (German bonds for euro-based investors) of the same maturity, with no hedge, 3M rolling** and maturity-matched*** currency hedges; shaded regions for rolling and maturity-matched hedges show >1% yield pickup (darkest shading), between 0.5% and 1%, and between 0% and 0.5% (lightest shading); %

EUR-based	US		Japan		UK		Australia		Sweden		Other Euro area ^a							
	FX hedge:	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	France	Italy	Spain					
2Y	1.14	-1.05	-0.06	0.48	1.07	0.56	0.88	-0.09	-0.13	0.99	-0.98	-0.28	0.27	-0.57	-0.37	0.24	1.44	0.58
5Y	1.17	-1.01	0.11	0.35	0.93	0.61	0.93	-0.04	0.04	0.98	-0.99	-0.42	0.24	-0.59	-0.38	0.32	1.63	0.85
10Y	1.37	-0.81	0.33	0.29	0.88	0.72	0.99	0.02	0.15	1.68	-0.28	-0.15	0.29	-0.54	-0.36	0.47	2.02	1.08
30Y	1.55	-0.63	0.73	0.28	0.87	0.78	1.14	0.17	0.55	2.14	0.17	1.02	0.27	-0.56	-0.29	0.67	2.40	1.42

^a Pickup relative to Germany

JPY-based	US		Germany		France		Italy		Spain		UK		Australia		Sweden			
	FX hedge:	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling
2Y	0.65	-2.12	-0.62	-0.48	-1.07	-0.56	-0.25	-0.83	-0.33	0.95	0.36	0.87	0.09	-0.49	0.01	0.40	-1.16	-0.69
5Y	0.82	-1.95	-0.50	-0.35	-0.93	-0.61	-0.02	-0.61	-0.29	1.29	0.70	1.02	0.50	-0.09	0.24	0.58	-0.97	-0.57
10Y	1.08	-1.69	-0.40	-0.29	-0.88	-0.72	0.17	-0.41	-0.26	1.73	1.14	1.30	0.78	0.20	0.35	0.70	-0.86	-0.57
30Y	1.27	-1.50	-0.05	-0.28	-0.87	-0.78	0.39	-0.19	-0.11	2.12	1.54	1.62	1.14	0.56	0.64	0.86	-0.69	-0.24

USD-based	Japan		Germany		France		Italy		Spain		UK		Australia		Sweden			
	FX hedge:	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling	Maturity-matched	None	Rolling
2Y	-0.65	2.12	0.62	-1.14	1.05	0.06	-0.90	1.28	0.29	0.30	2.48	1.49	-0.56	1.62	0.63	-0.26	0.96	-0.07
5Y	-0.82	1.95	0.50	-1.17	1.01	-0.11	-0.85	1.34	0.21	0.46	2.65	1.52	-0.32	1.86	0.73	-0.24	0.97	-0.07
10Y	-1.08	1.69	0.40	-1.37	0.81	-0.33	-0.91	1.27	0.14	0.65	2.83	1.70	-0.30	1.89	0.75	-0.38	0.83	-0.17
30Y	-1.27	1.50	0.05	-1.55	0.63	-0.73	-0.88	1.30	-0.06	0.85	3.03	1.67	-0.13	2.05	0.69	-0.41	0.80	0.29

* Yield pick-up defined as foreign currency yield + hedge cost – domestic currency yield, using par govie curves (except Sweden, where we use benchmark bonds).

** Cost of 3M rolling hedge defined as 3M FX cross-currency basis + domestic 3M swaprate (3s curve) – foreign-currency swaprate (3s curve).

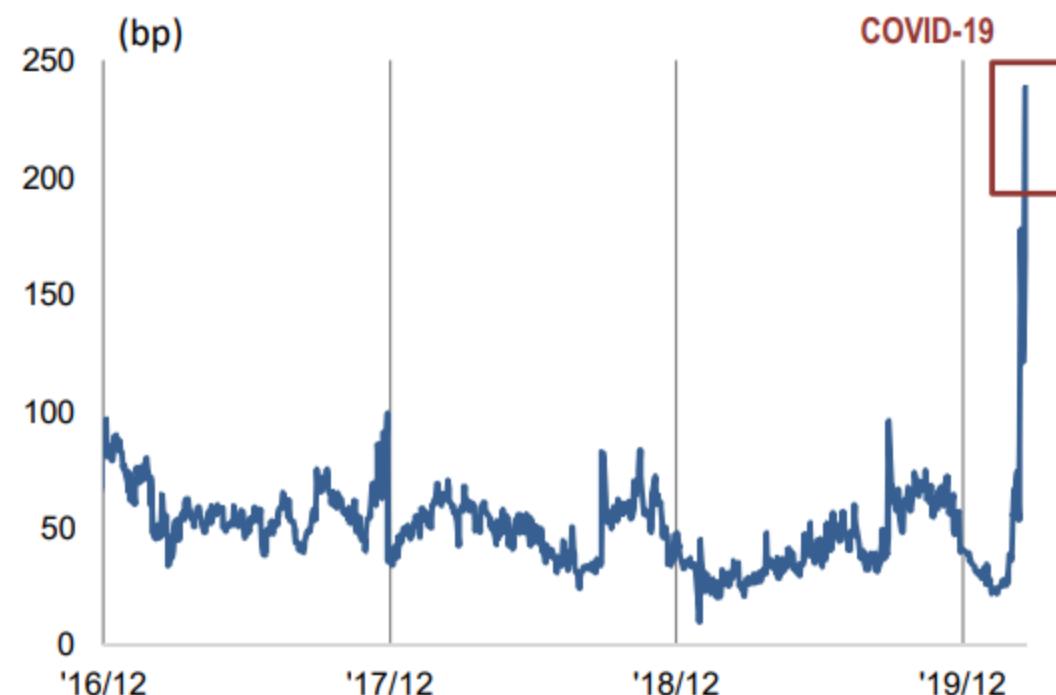
*** Cost of maturity-matched hedge defined as the maturity-matched FX cross-currency basis + domestic swaprate (3s curve) – foreign-currency swaprate (3s curve).

Levels as at COB 19 March 2020.

Source: J.P. Morgan

Exhibit 4: 3M JGB\$ASW cheapened to an unprecedented level

3M JGB\$ASW- 3M \$Bill (3M) (bp)

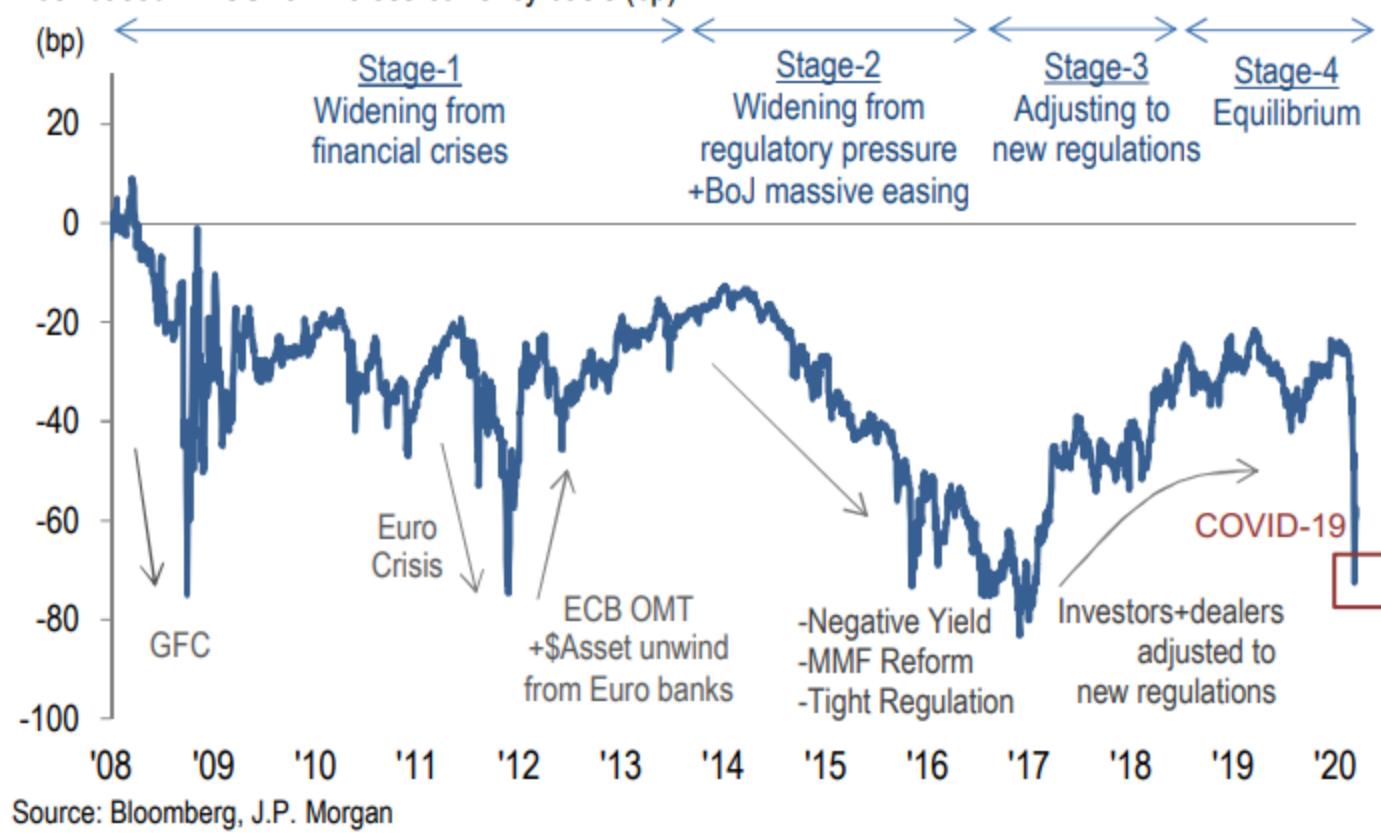


Source: Bloomberg, J.P. Morgan

3). Since mid-2018, the pace of narrowing has decelerated. We envisage that the bulk of these adjustments following regulatory changes have been completed (e.g., \$ deposit accumulation by city banks has moderated of late). We had believed that we had entered a so called Stage-4 where the market would be more stable and going forward would see less narrowing as compared to the past (**Exhibit 3**).

Exhibit 3: USDJPY cross-currency basis market has reverted to a crisis-like dynamic....

Liber-based 1Y USDJPY cross-currency basis (bp)

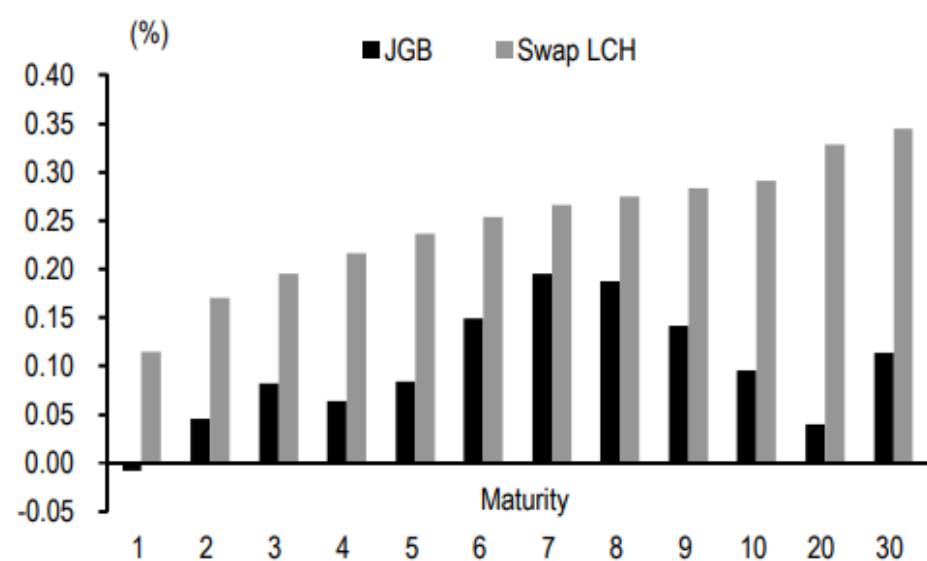


Source: Bloomberg, J.P. Morgan

However, we seem to have reverted to a crisis-like price dynamic of late. We consider this to be part of broad USD funding pressures rather than a Japan-specific issue. As our colleagues in US derivatives research have pointed out, the dramatic cheapening of cash/future basis symbolizes considerable strain in the US short-term market, which extended to other short-term investments including cross-currency basis, unsecured bank paper, and FX forwards (see [note](#) and [note](#)). In fact, JGB\$ASW (i.e. swap USD into JPY and buy JPY bills) has been left untouched at one of the most attractive spread over US bills (**Exhibit 4**). This shows the reluctance of USD holding investors to take risk in the current cash-is-king environment. Therefore, we judge the current volatility in JPY cross-currency basis to be more global in scope.

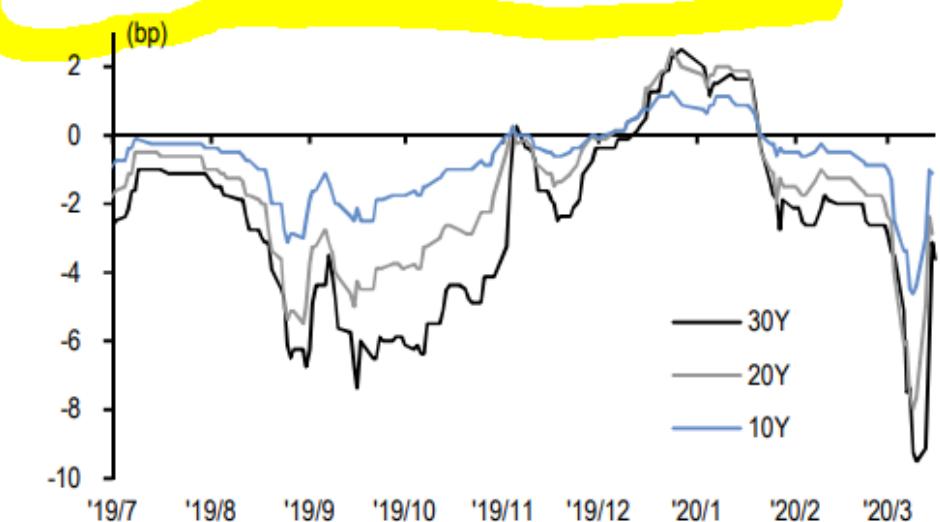
JPY rates sold off as investors deleveraged their positions as a reaction to the extreme sell-off in risk assets. On the JGB curve, 7Y was the weakest point as JGB futures led the sell-off (Exhibit 1). Foreign investors rapidly added net longs in JGB futures in the first week of March, but much of these positions was probably unwound in the last few days (available data up to March 13th still shows overall net long). JPY swap had an even more stark sell-off, with super-long yields rising more than 30bp in a 4-day-week with Wednesday being a particularly volatile day. As swaps were extremely well bid last week in a thin market, leaving swap spreads extremely narrow, they had a bigger reversal than JGBs. As a result, LCH-JSCC clearing spreads, which fell to historical lows last week, returned to more familiar levels (Exhibit 2).

Exhibit 1: Swaps sold off this week after extreme rally last week...
Change in JGB yield and swap rate (LCH) from March 13 to 20 (%)



Source: J.P. Morgan

Exhibit 2: LCH-JSCC clearing spreads came back up
LCH-JSCC spread for 10Y, 20Y and 30Y JPY swap (bp)

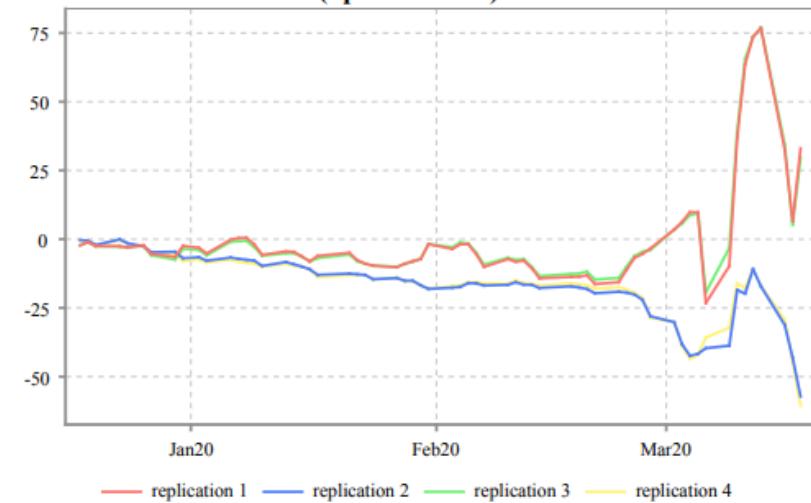


Source: Bloomberg

Derivatives Strategy

Benchmark and Bond Index Replication with Futures**Hedge Ratio (# of contracts)**

// shock	FV	TU	TY	TN	US	WN
Replication 1	145	153	169	na	195	na
Replication 2	145	153	169	na	na	111
Replication 3	145	153	86	54	195	na
Replication 4	145	153	86	54	na	111
Beta-adjusted	TU	FV	TY	TN	US	WN
Replication 1	145	160	190	na	213	na
Replication 2	145	160	190	na	na	114
Replication 3	145	160	96	57	213	na
Replication 4	145	160	96	57	na	114

Cumulative outperformance of replication strategies over the index (bp of notional)**Hedge Ratio (// shock, # of contracts) Hedge Ratio (Beta-adj, # of contracts)**

Tenor	Hedge Ratio (// shock, # of contracts)			Hedge Ratio (Beta-adj, # of contracts)		
	1 contract	2 contracts(L)	2 contracts(R)	1 contract	2 contracts(L)	2 contracts(R)
2Y	45	na	na	45	na	na
3Y(TU)	68	na	na	68	na	na
3Y(FV)	55	35	26	57	35	28
5Y	91	84	5	95	88	20
7Y	77	na	na	87	na	na
10Y(TY)	109	70	18	122	78	20
10Y(TN)	71	na	na	74	na	na
30Y(US)	110	na	na	120	na	na
30Y(WN)	62	na	na	64	na	na

June 2020 Futures

Contract	Price	BPV (\$/contract)		BNOC	Repo rate (bp)
		// shock	beta-adj		
TU	109.82	43.1	43.1	-6.0	95
FV	123.30	53.9	51.3	-5.9	95
TY	134.08	86.4	77.0	-5.9	95
TN	148.64	132.4	126.5	-9.1	130
US	167.97	210.5	192.4	-12.2	118
WN	197.22	370.2	361.0	-9.9	124

Note: For replication of the J.P. Morgan Government Bond Index (GBI) we consider 4 replication strategies: We assume the 1- to 3-year bucket is hedged with TU and 3- to 5-year with FV for all. Replications 1 and 3 hedge the 10+ year bucket with US, and Replications 2 and 4 do the same with WN. For replications without TN (replications 1 and 2), we assume the entire 5- to 10-year bucket is hedged with TY, and for those with TN (replication 2 and 3) we use TY for 5- to 7-year maturities and TN for 7- to 10-year maturities. We assume monthly rebalancing of bpv-based hedge ratios (either using parallel or beta-adjusted shocks to the curve). The GBI index is also assumed to be unlevered--i.e., no repo funding cost.

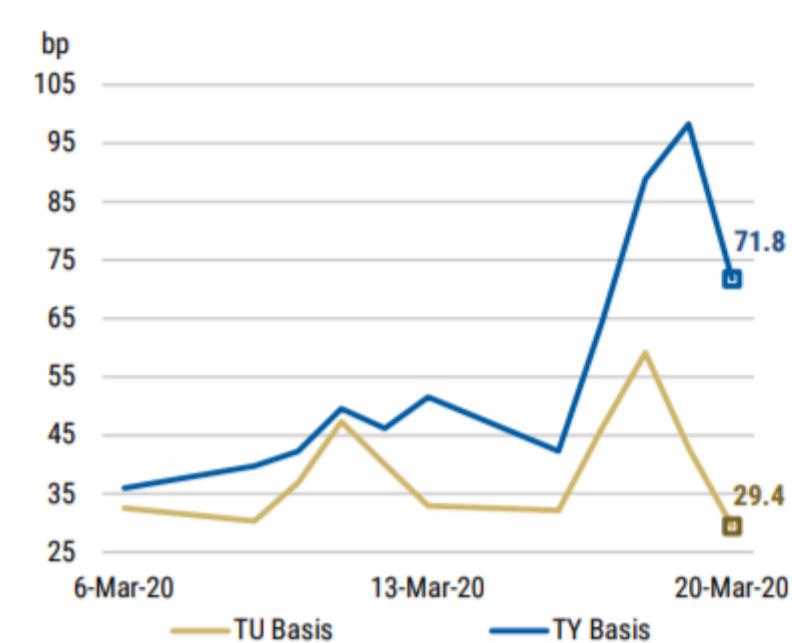
For benchmarks, we assume hot-run returns, rolled on the first day of the month and financed in term repo through the next roll (accounting for specialness as well) versus either one future contract (specified in parenthesis if necessary) or, a TU/FV, FV/TY or TY/US blend for 3Y, 5Y and 10Y OTRs, respectively. When using a single contract we assume pbvp-neutral hedge ratios matching the pbvp of the current note to the futures DV01 (based on parallel or beta-adjusted shocks to the curve), rebalanced monthly and rolling the contracts on the first delivery date. When using 2 contract blends, we use empirical hedge ratios calculated as the 3-month beta of daily changes in the hot-run yield versus the 2 underlying CTD yields, again with monthly rebalancing.

strained, this is improvement compared to the last couple of days. We can look at futures-cash basis as a gauge for Treasury liquidity.

As shown in [Exhibit 3](#), both the TU and TY basis (and those further out the curve) tightened today. The basis spreads across the board give us a sense of how cheap bonds are trading to futures. This cheapness reflects the increased funding costs of cash.

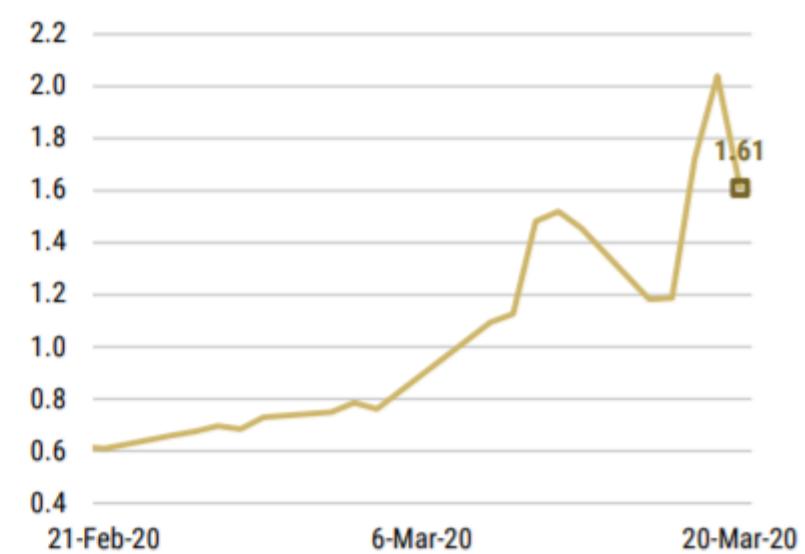
Part of the increased funding costs are due to the lack of a term funding market. This is something the Fed has attempted to address by introducing longer term repo operations in essentially infinite size, as well as other facilities targeted at term funding (see [US Dollar Cash is Liquid Gold](#)). The limitation, however, continues to be limitations to primary dealer balance sheets and a diminished capacity to intermediate funding markets.

Exhibit 3: TU-cash and TY-cash basis as of March 20



Source: Bloomberg, Morgan Stanley Research

Exhibit 4: Morgan Stanley Treasury Relative Opportunity Value Index (MSTVI Index)



Source: Morgan Stanley Research

Our Morgan Stanley Treasury Relative Opportunity Value Index (MSTVI Index) corroborates this finding (see [Exhibit 4](#)). The MSTVI Index tracks the overall dispersion of Treasuries from the spline. In general, the larger this number is, the more dispersion there is in the Treasury market. In this context, a larger number indicates lower liquidity. As seen below, the index is lower than yesterday, but still remains elevated.

Hedge fund Millennium shuts several ‘trading pods’ over virus turmoil

(Financial Times) -- US hedge fund **Millennium Management** has closed several of its “pods” run by teams of traders in response to losses related to violent market swings caused by growing fears over the economic impact of coronavirus.

Closures...

The full story is available on Bloomberg to Financial Times corporate subscribers. [Click here](#) for more.

[Click here](#) to see the story as it appeared on the Financial Times web site.

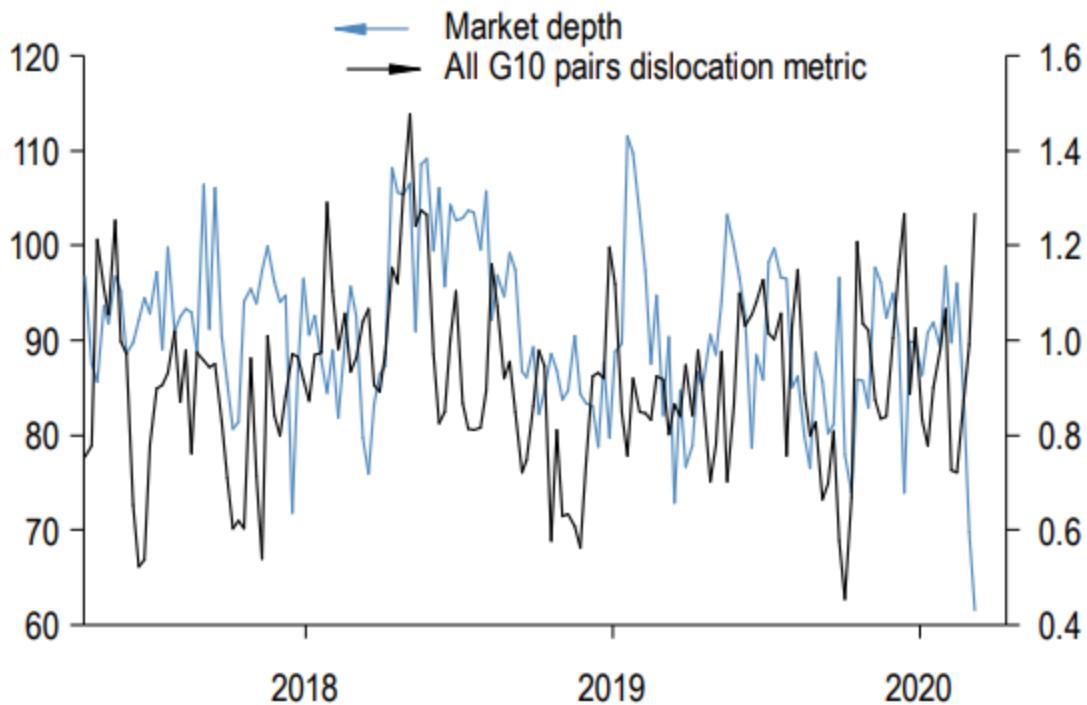
<https://www.bloomberg.com/news/articles/2020-03-19/ben-levine-s-lmr-raises-capital-after-hedge-fund-drops-12-5>

A reminder from last week

<https://www.bloomberg.com/news/articles/2020-03-13/bluecrest-shrinks-from-relative-value-trades-amid-losses-exits>

Exhibit 1: FX market depth has plummeted substantially in even the most liquid pairs and FX dislocations relative to concurrent drivers have gone up

Market depth* for USD/JPY and EUR/USD (Starting value indexed to 100) and aggregate dislocation metric (average of absolute mispricings on short-term models across G10 pairs; 1y z-scores)



* Size of the top 5 bid and offer levels of the order book; averaged for 5 minute snapshots for a 2-hour liquid window by pair. Source: J.P. Morgan, External venues

[Citadel Launching New Fund to Take Advantage of Market Conditions](#)

Naturally, that's what you're supposed to do when one blows up, to avoid the watermark

12:38:27 ExodusPoint Capital Management lost 4% this month through March 13, on pace for its worst month ever, according to people familiar with the situation. It was unclear how much the basis trade contributed to the loss.

An LMR Partners' fund fell 12.5% in the first two weeks of this month and spurred the firm to raise new capital.

Capula Investment Management's Global Relative Value Fund dropped 5.2%, people said, and Field Street Capital Management's fixed-income relative-value flagship fund, in which the basis trade is substantial, sank 14.5% and had to reduce the size of its positions.

Raymond Wang of BlueCrest Capital Management was dismissed March 9 after he couldn't find a buyer for the investment firm's losing positions in the basis trade. They were paper losses, according to a person familiar with the situation, because the futures contract hadn't reached the expiration date before which Wang might have sold the position and made money. If BlueCrest were able to hang on to the future contract it's possible the firm could've come out ahead on the trade, the person said. The firm declined to comment. [Show less](#)



I'm sorry, I need to dump all my off-the-run bonds onto the Fed.

HEDGE FUNDS

Citadel, Millennium and others hit by losses in 'basis trade'

The basis trade is a long-running investment that seeks to exploit pricing gaps between Treasury securities and futures



Ken Griffin of Citadel — Getty Images

By Juliet Chung

March 20, 2020 7:09 am GMT

A wide swath of hedge funds was hit by the recent unwinding of the so-called basis trade last week.

The basis trade is a long-running investment that seeks to exploit pricing gaps between Treasury securities and futures. It has been pitched as a stable, reliable source of returns with low volatility. While most of the funds have since rallied, their sudden and significant declines last week show there are heightened risks during times of market volatility.

Citadel's global fixed-income unit last week was among those stung by the trade. A person familiar with Ken Griffin's firm said the unit lost hundreds of millions partway through the week, with basis trade losses contributing to the decline.

The unit has since recovered and was flat through Monday. Citadel manages more than \$30bn overall. It has told clients that basis trading was a culprit behind what investors said were month-to-date losses through March 13 of between 3% and 3.5% in its largest hedge funds, Kensington and Wellington.

Other hedge funds that also were hurt by the trade, said investors or other people familiar with the firms, include: Capula Investment Management, a \$20bn fixed-income firm based in London; LMR Partners, part-owned by a Goldman Sachs private equity fund; and New York-based ExodusPoint Capital Management, the largest hedge-fund startup to date.

The losses pale next to the steep drops in the stock market, but hedge funds have long promised they would be a ballast in rough patches. Relative value fixed-income strategies in particular have been pitched as a steady source of returns in up and down markets. But while many other hedge-fund strategies have provided some protection through the market volatility, relative value fixed income has emerged as a trouble spot as volatility in credit and fixed-income markets has spiked.

These managers tend to take advantage of spreads of similar instruments based on historical relationships that nearly always converge, but in times of stress, those correlations can break down. Veteran investors described last week as one of the worst environments for relative value fixed income traders since Long Term Capital Management was bailed out in 1998, though the magnitude of losses has been far smaller.

Scroll for more of this story

The Federal Reserve rushed to repair disorderly trading conditions in the Treasury market last Thursday. Analysts and investors said conditions had broken down in large part because of unwinding risk-parity and basis trades. The Fed's intervention Thursday and over the weekend ended up aiding Citadel and many funds deploying the basis trade, said people familiar with the matter.

Risk parity funds try to equally distribute risk among stocks, bonds and commodities so their portfolios can weather huge price swings without sacrificing returns. They count in part on bonds and stocks moving in opposite directions and use leverage to try to increase returns on

US Money Markets Expand and liquefy

The Fed's efforts to expand liquidity have begun. Outstanding discount window loans jumped and bank reserves climbed to their highest level since mid-2018. This week's liquidity facilities are too new to appear on the Fed's balance sheet. We wonder if banks and dealers be able to re-distribute this liquidity.

- Discount window borrowing rose following Sunday's announcement. The Fed issued additional words of encouragement yesterday to de-stigmatize the program.
- Bank reserves jumped \$165bn in the week to \$1.945trn. We expect that balances could reach \$3trn by spring.
- It is difficult to forecast how much program use the Fed will see in its CP and money fund programs.
- Successful liquidity re-distribution would push CP rates (and by extension, 3m Libor) to 25bp by spring.
- Fed Treasury purchases and a near doubling of open market operations offset a precautionary scramble for Fed deposits.
- Indeed, "other deposits" more than doubled this week. These include balances from the GSEs as well as financial market utilities such as exchanges.
- With interest rates back at zero, GSEs may feel more comfortable leaving their cash in unremunerated deposits at the Fed.
- Moreover, financial market utilities may also be putting more of their customer cash margin deposits at the Fed (which earn IOER).
- Finally, consistent with media reports of currency withdrawals at banks – circulating paper money increased by \$24bn this week – the most since at least 2009.

However, as we wrote recently, the Fed needs to adopt additional strategies to ensure its liquidity is widely distributed.¹

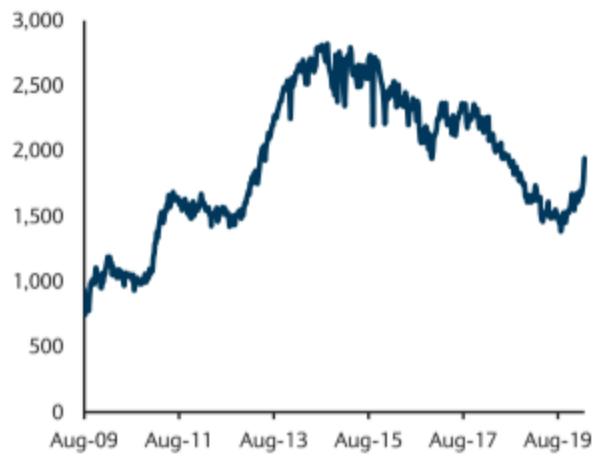
Joseph Abate
+1 212 412 7459
joseph.abate@barclays.com
BCI, US

www.barclays.com

How extensively will the Fed's programs be used?

As several of these programs focus on the CP market, we think this market will be critical to watch for signs that banks and dealers are distributing cheap financing widely to borrowers. Outstanding CP volumes are roughly \$1.1tn. A portion of the market is rated lower than A1/P1 – how much exactly is a bit unclear – and this paper largely ineligible from the Fed's programs. Our sense based on Tier 2 rated paper is that lower rated CP might account for

FIGURE 1
Bank reserves (\$bn)



Source: US Treasury, Barclays Research

20 March 2020

FIGURE 2
Open market operations (\$bn)



Source: Federal Reserve, Barclays Research

2

Barclays | US Money Markets

about 10% of total outstandings. Prime money funds held about \$300bn worth of CP at the end of February.

We think program use of the CPFF and the MMLF could easily reach \$400bn. But our sense is that program demand will quickly fall off. One caveat – the CPFF is open only to US issuers; foreign financial companies that issue in dollars but do so from their home office are excluded from the program. Balance sheet and credit ratings have pushed non-US banks with dollar funding needs to issue out of their parent rather than the smaller and lower rated US office. This, along with the high program rate relative to some other financing alternatives, may dampen use of the CPFF.

That said, whether CP borrowers issue directly to the Fed through the CPFF or through the intermediation of banks and dealers with financing provided by the discount window or the PDCF, respectively, we look for borrowers to quickly satisfy all their immediate and precautionary 3m liquidity needs in the next few weeks. Moreover, we expect rates on 3m CP – and, by extension Libor – to quickly come down to 25bp – the rate the Fed is charging at the discount window and PDCF.

Other developments

This week, “other deposit” balances more than doubled to \$241bn. As a deposit liability of the Fed, these balances drain bank reserves. Other deposits is a catch-all for money held at the Fed largely for two counterparties: the GSEs and systemically important financial market utilities (FMUs) such as ICE, CME, OCC, and the DTCC. The GSE balances are unremunerated while financial market utilities earn IOER. ICE, CME, and the OCC maintain accounts at the Chicago Fed. The DTCC maintains an account at the New York Fed. The jump in other deposits this week was split between both branches of the Fed.

Customer margin cash?

This leads us to suspect that it might have been the FMUs that were shifting their customer margin balances to the safety of the Fed’s balance sheet. FMUs are legally limited in their choices of places to put customer margin – investments need to be safe and in liquid assets or accounts. Customer margin is typically held in commercial bank deposits, gov-only money funds, or against Treasury repo. As repo rates have spiked and become more volatile, the FMUs may have felt more comfortable leaving their customer margin at the Fed. Separately, as interest rates have returned to zero, the GSEs may also have decided to leave more of their cash in unremunerated balances at the Fed.

Cash: Still king?

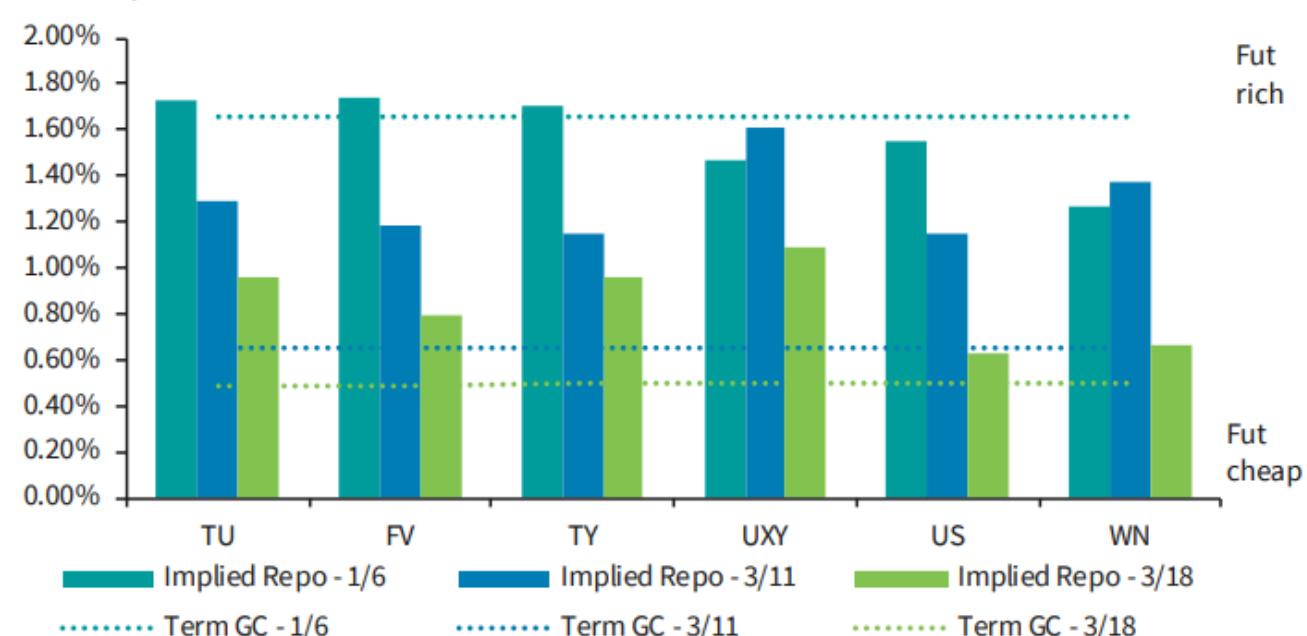
Apparently, people are not just stockpiling household goods but other, more valuable bits of paper as well. Currency in circulation jumped \$24bn this week, consistent with media reports of people draining ATMs in anticipation of long period of “sheltering in place.” As far as we can tell, this is a post crisis record for paper currency growth. Indeed, in the past three weeks, demand for paper money has risen \$45bn. Although the share of paper money in transactions is declining, we wonder if this cash is going to be spent or simply returned to banks once the crisis passes.

Treasury futures are still trading rich relative to cash

Treasury futures basis: Last week, the richness of Treasury futures relative to cash reached a crescendo, exacerbated by the stopout and unwind of these long basis trades (i.e. long cash, short futures). The Fed's asset purchases provided some mitigation as the basis improved, at least initially. The implied versus actual repo spread (to the last delivery date) narrowed across the curve as of March 18 compared with March 11, Figure 1. The richness is still elevated when compared to the beginning of the year, when balance sheet stress was lower and implied repo was more in line with term repo. Towards the end of the week, the basis relationship worsened with futures richening again relative to cash. The implied repo traded back above the 1.00% handle. For example, the TU implied repo spread versus matched-maturity OIS (to the last delivery date) has retraced back to around OIS+100bp

FIGURE 1

Treasury futures richness relative to cash is still elevated



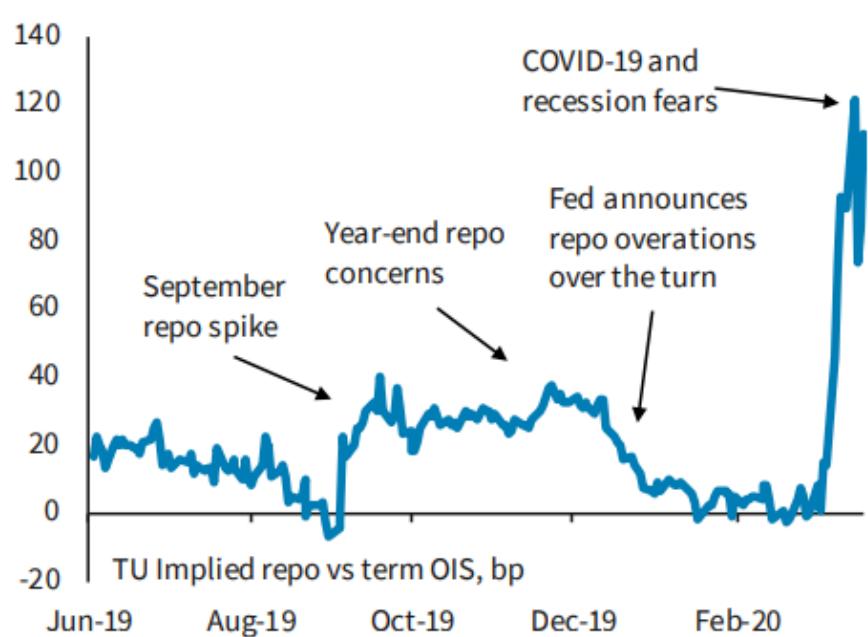
Note: As of close of business, March 18, 2020, Source: Barclays Research

19 March 2020

8

FIGURE 2

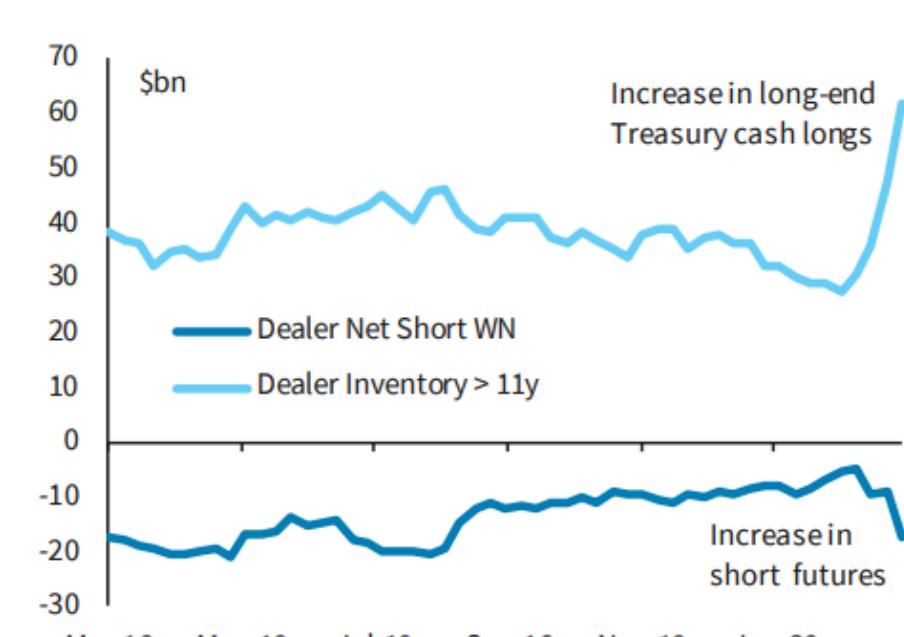
TU implied repo vs. OIS has retraced from elevated levels



Note: Intraday for last data point, Source: Barclays Research

FIGURE 3

Long Treasury dealer positions hedged with WN futures



Source: NY Fed Reserve, CFTC, Barclays Research

after falling as low as OIS+70bp this week, Figure 2. This richness is still more elevated when compared with the September repo spike at OIS+40bp.

At the long end, primary dealer inventories greater than 11 years rose to \$62bn as of March 11. This was accompanied by higher net short positions in WN futures, Figure 3. This suggests an increase in long basis positions as dealers used futures to manage their duration risk and corresponds to the period when we witnessed large outsized moves in the basis. While the primary dealer data is reported on a delayed basis, we think dealer balance sheets were still stretched heading into this week, continuing to exert pressure on the basis.

Dealers increased long basis positions using futures to manage their duration risk

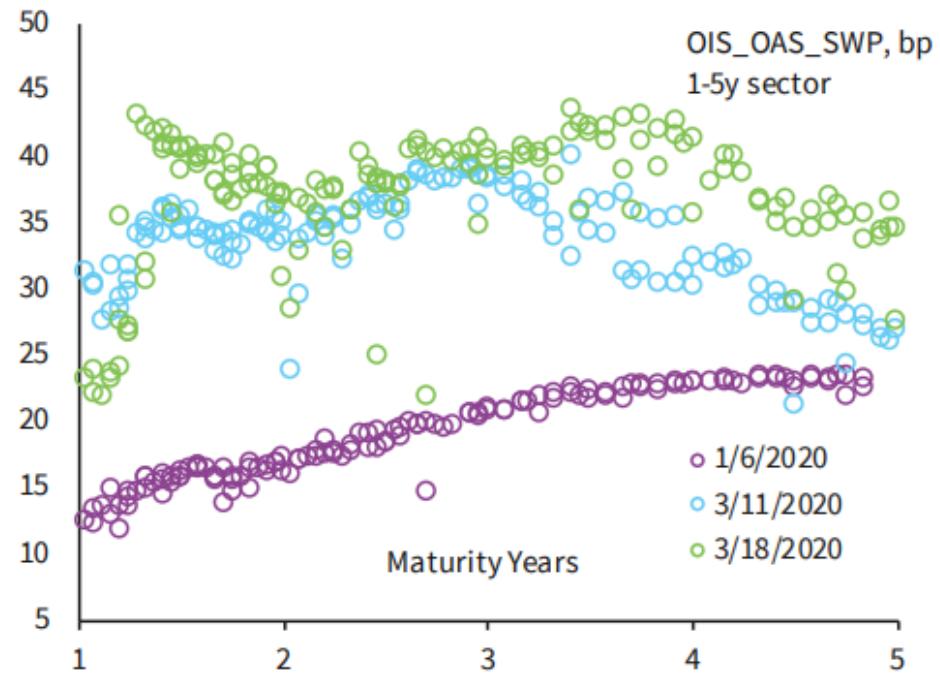
Further, according to TRACE, aggregate trading volumes in Treasuries declined nearly \$800bn (week ending March 13) as compared to the prior week, underscoring concerns that the lack of liquidity has disrupted trading flows.

Aggregate trading volumes in Treasuries have declined

Off-the-runs cheapened further particularly in the 5-10y sector of the curve

Off-the-runs: Off-the-run Treasuries in the 1-5y sector did not see much improvement and cheapened versus OIS, particularly in the 3-5y maturities (Figure 4). In the 5-10 sector, the move was more pronounced with spreads trading around OIS+50bp compared with around OIS+30bp just a week ago (Figure 5). This suggest that the Fed's Treasury purchases may not be large enough to help alleviate dealers' balance sheets and the Fed needs to do more.

FIGURE 4

1-5y sector: Further cheapening at the long-end

19 March 2020

9

FIGURE 5

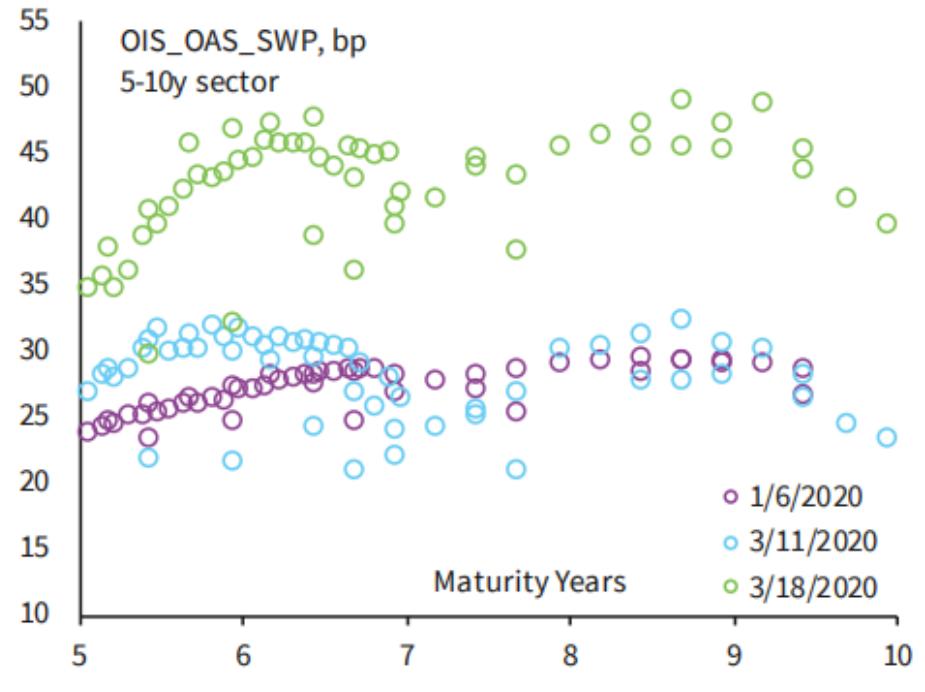
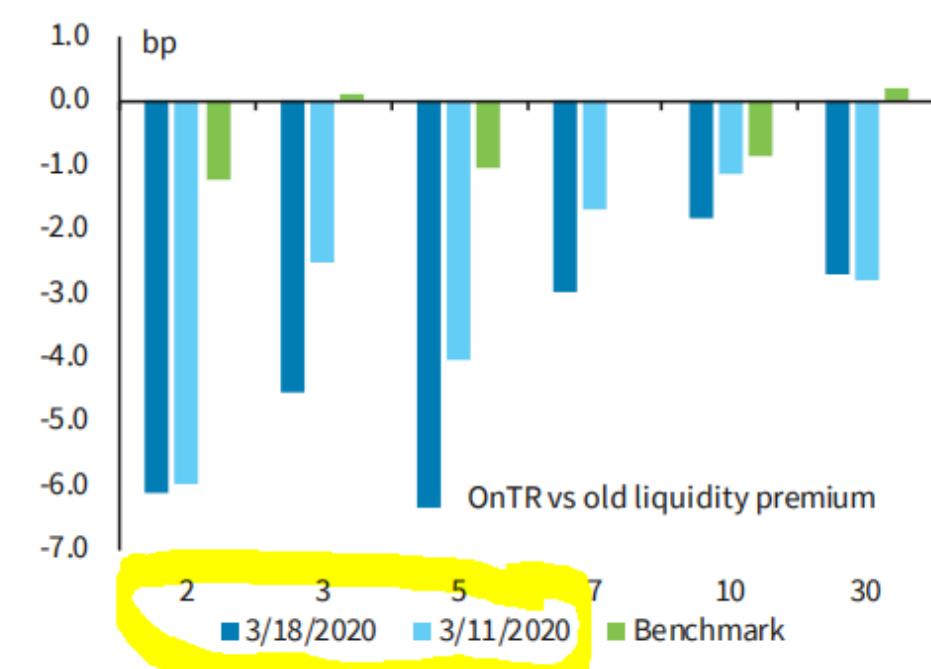
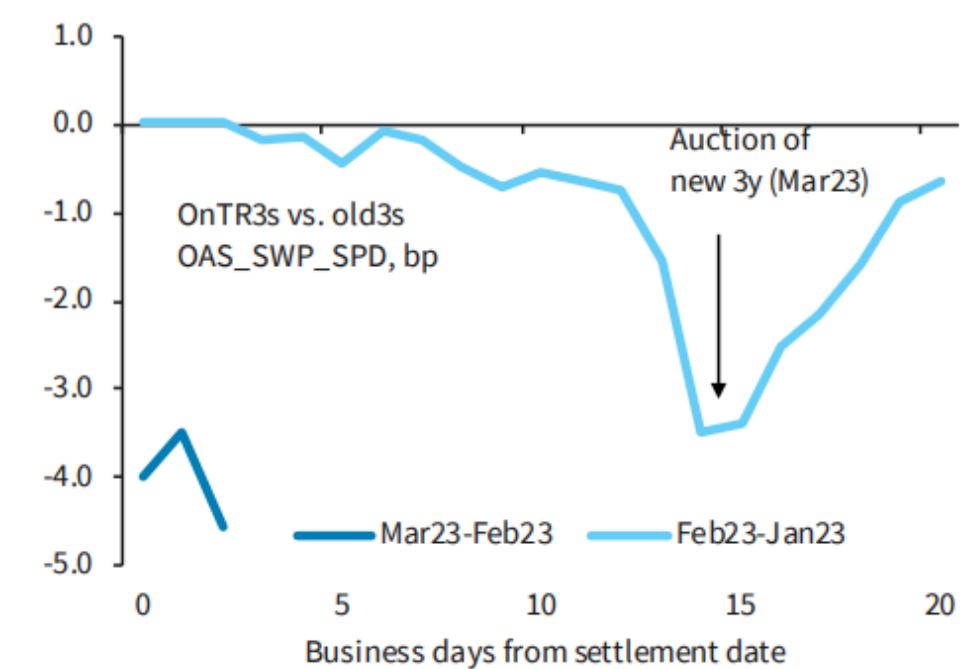
5-10y sector: Even more cheapening in intermediates

FIGURE 6

Further increase in on-the-run liquidity premia...

On-the-run liquidity premia increased further

FIGURE 7

...which persists until after the new auction

On-the-run liquidity premia: On-the-run liquidity premia increased further across the curve (Figure 6) compared to last week. On-the-runs did cheapen relative to off-the-runs but that was short-lived as conditions deteriorated further, similar to the future basis discussion above. In addition, we note that the richness of on-the-runs fades when an issue ceases to be the benchmark note, as the liquidity premium feeds into the new issue. This can be seen at the 3y tenor when the previous benchmark 3y note (Feb23) cheapened after the auction and the new benchmark 3y note (Mar23) inherited the liquidity premium (Figure 7).

USRG1T CMPN .3000 +.1000 ANON .8000 / -.2000 ANON
 At 23:39 Op .3000 Hi .3000 Lo .3000 Close .2000
 G #BTV 6094: 30 bid ask collateral

USRG1T Curncy

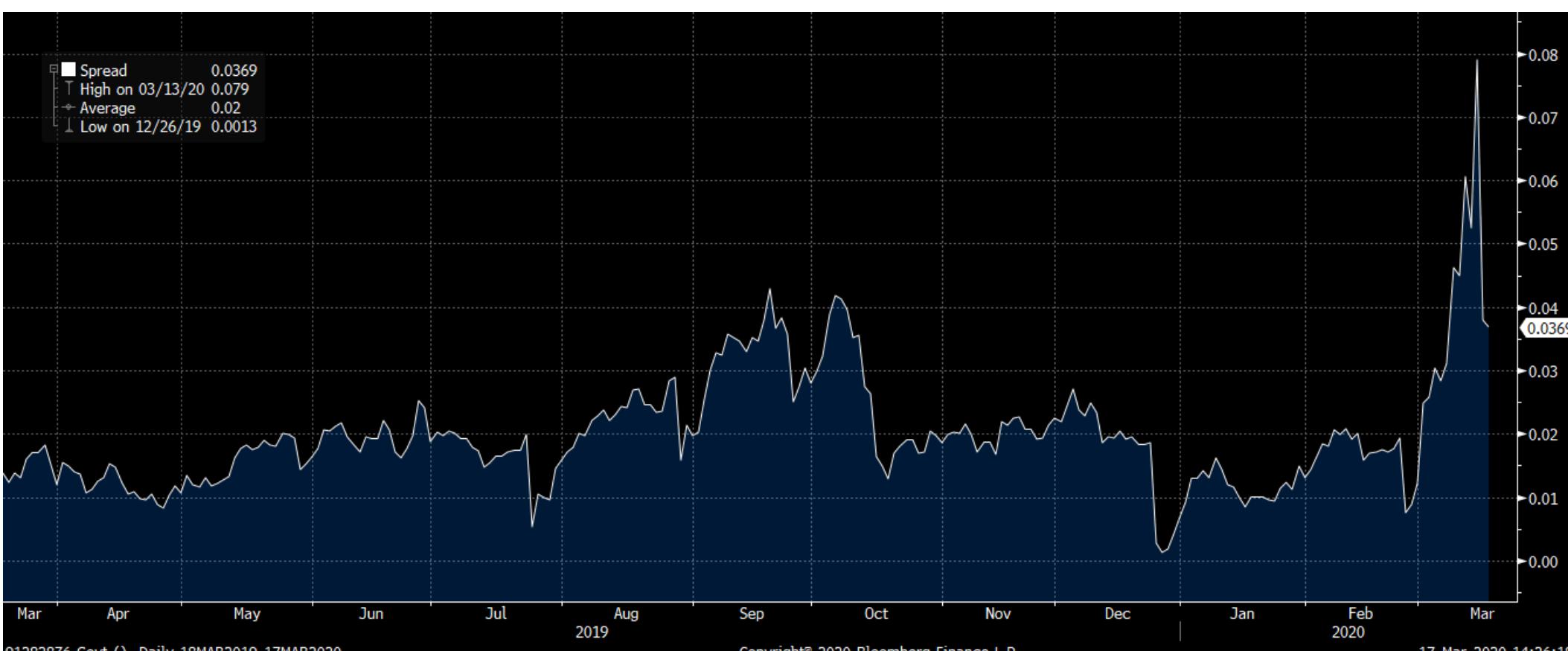
96 Actions ▾

03/18/2019 - 03/17/2020 Local CCY

1D 3D 1M 6M YTD 1Y 5Y Max Daily ▾ Table ▾ Chart Content ▾

The Micro Signs of Fed Action

30-year bid/ask spread, UST swap spread and normalized o/n repo



91282Z6 Govt () Daily 18MAR2019-17MAR2020

Copyright © 2020 Bloomberg Finance L.P.

17-Mar-2020 14:26:18

CTD Scenario Analysis Pg1 of 2
 CTD Basis 0.32nds Stl 3/17/20 Dlv 6/30/20

	PARALLEL	YIELD	SHIFTS	(BP)
	-25	-10	0	10
Price:	235-23	229-01	224-22	220-15
Chng:	+11-09	+4-19	+ 08	-3-31
Risk:	45.39	43.84	42.84	41.86
				40.44

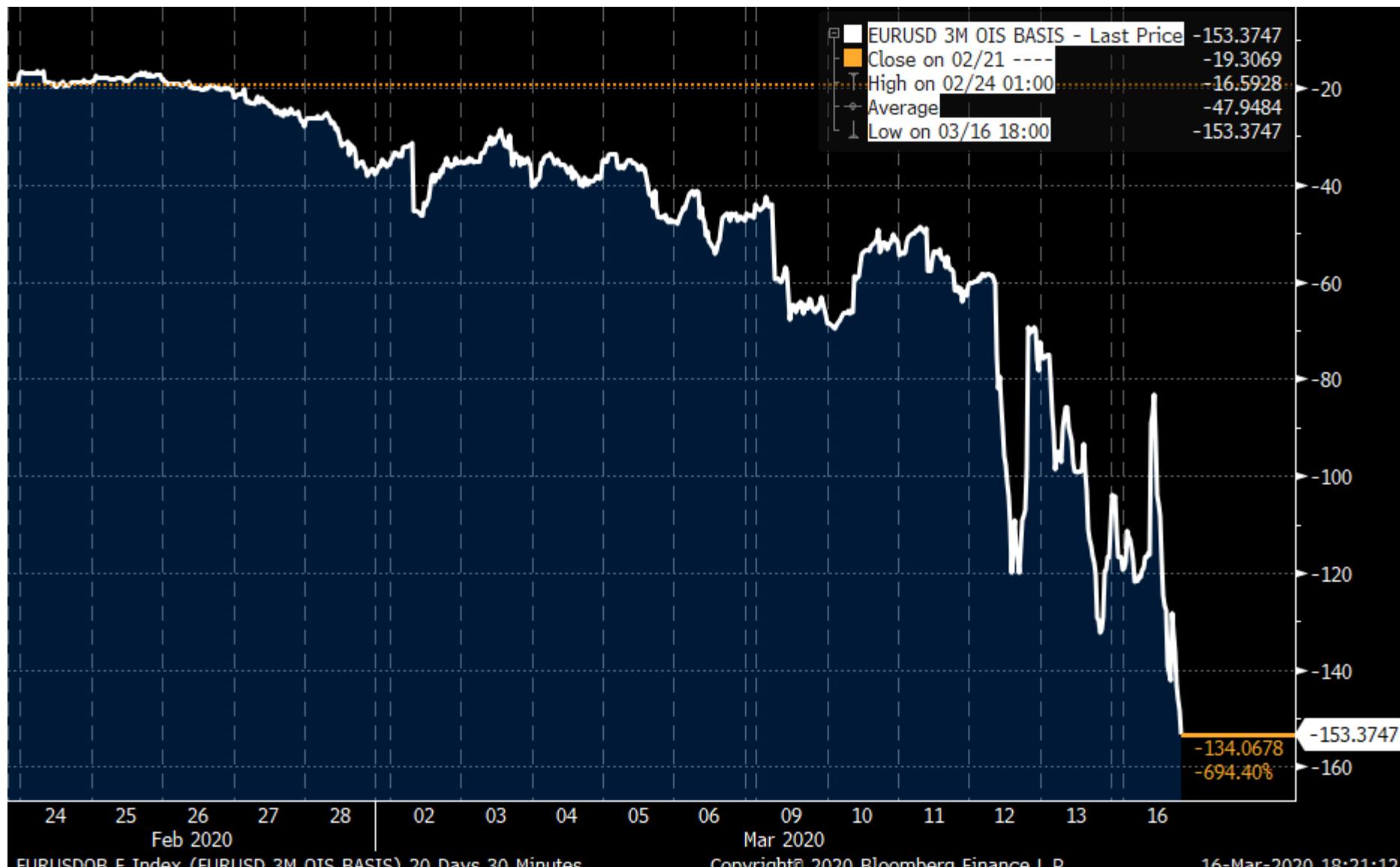
WNMO 224-14

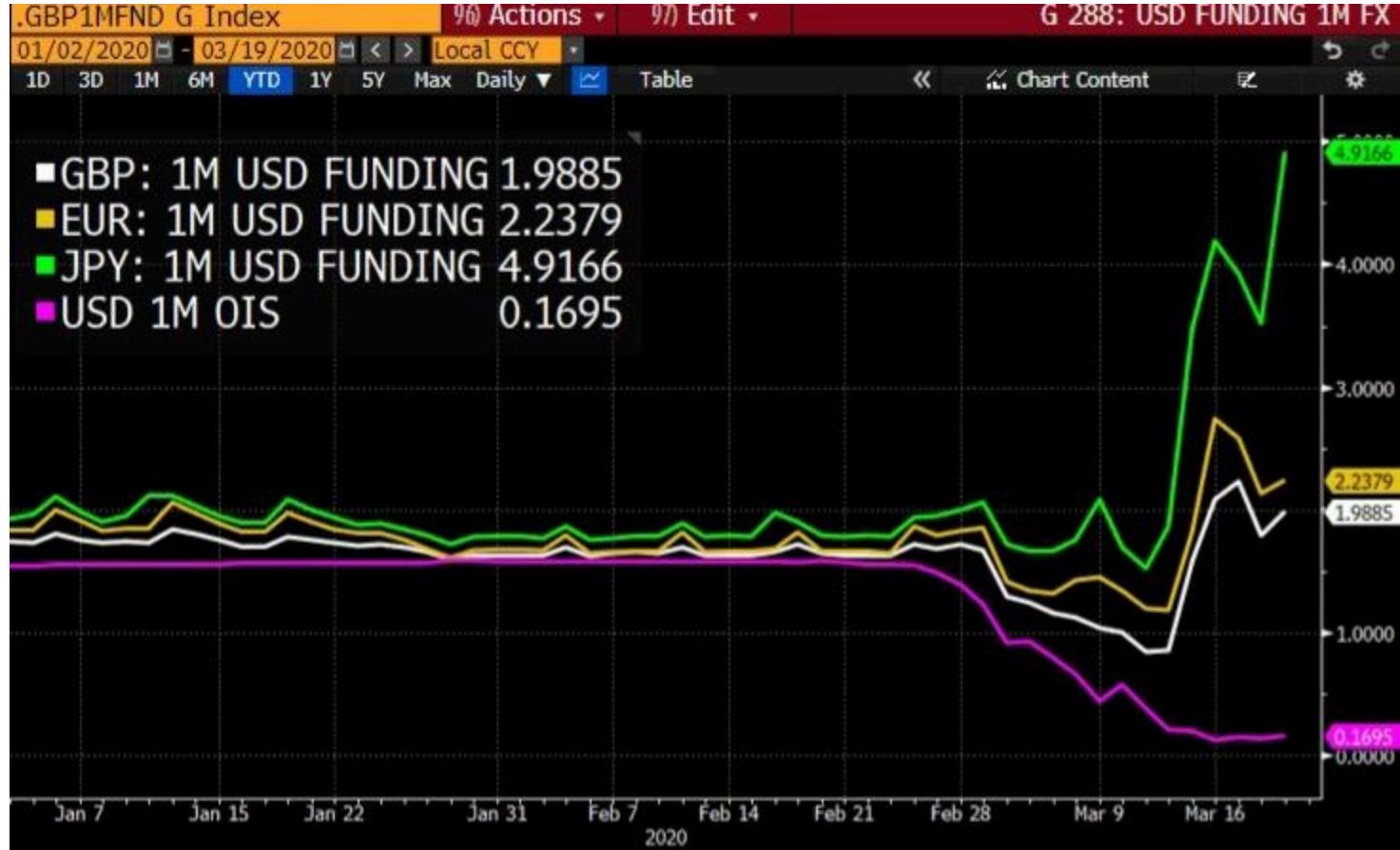
Issue	Price	Src	Yield	Basis	\$	Contract	BPV	(@ Horizon)	
1) T 3 11/15/45	137-30 ¹ / ₄	BGN	1.264	16.7	453.9	438.4	428.4	418.6	404.4
2) T 2 7/8 08/15/45	134-26	BGN	1.268	19.2	453.8	438.4	428.5	418.7	404.6
3) T 2 7/8 11/15/46	136-00	BGN	1.277	118.2	483.4	466.3	455.2	444.4	428.8
4) T 3 02/15/47	139-18+	BGN	1.261	125.7	484.3	467.0	455.9	445.1	429.3
5) T 3 05/15/47	139-12	BGN	1.279	130.7	488.2	470.7	459.4	448.4	432.4
6) T 3 3/8 11/15/48	149-16+	BGN	1.300	153.5	500.3	481.7	469.7	458.1	441.1
7) T 2 1/2 02/15/46	126-22 ¹ / ₄	BGN	1.285	133.6	486.3	469.3	458.4	447.7	432.2
8) T 3 1/8 05/15/48	142-24+	BGN	1.305	160.9	501.8	483.3	471.4	459.8	442.9

<https://www.bloomberg.com/news/articles/2020-03-17/treasury-futures-domino-that-helped-drive-fed-s-5-trillion-repo>

Most Viewed People

	Name	Hits	Heat	Role	Organization
1	Israel Englander "Izzy"	1409	...	Chairman/CEO/Founder	Millennium Mgmt LLC
2	Ken Ohara	1072	...	Portfolio Manager/ Managing Dir..	Millennium Capital Management(
3	William A Ackman "Bill"	891	...	CEO/Portfolio Manager/Founder	Pershing Square Capital Mgmt
4	Ben Lynch	804	...	Portfolio Manager	Exoduspoint Capital
5	Yu Liu	567	...	Portfolio Manager	Millennium Capital Management(
6	Glenn Hadden	496	...	Partner/Portfolio Manager	Alphadyne Asset Management LP
7	Raymond T Dalio "Ray"	488	...	Co-Chairman/Co-Chief Invsmt O...	Bridgewater Associates LP
8	Masahide Yamakawa	322	...	Portfolio Manager	Millennium Capital Mgmt Asia Ltd
9	Bill Miller	298	...	Chair/Chief Invsmt Ofcr/Founder	Miller Value Partners LLC
10	Oscar Wan	294	...	Trader	Millennium Capital Management(
11	April Li	289	...	--	Goldman Sachs & Co LLC
12	Takeo Serizawa	265	...	Portfolio Manager	Balyasny Asset Management (HK..
13	Jeffrey E Gundlach	249	...	CEO/Chief Invstmnt Ofcr/Co-Fou..	DoubleLine Capital LP
14	Steven Terner Mnuchin	216	...	Secretary:Treasury	United States of America
15	Eric Ng	214	...	--	Millennium Capital Management(
16	Drew Doscher	202	...	Head:Distressed Debt Sales & Tr..	Intl Fostone Financial Inc
17	Jacob Morey Weinig	199	...	Founding Partner/Portfolio Mgr	Malachite Capital Management L..
18	Lee McQueen	199	...	--	CLSA Hong Kong
19	Donald John Trump	187	...	President	United States of America
20	Boaz Ronald Weinstein	186	...	Chief Invsmt Ofcr/Portfolio Mgr..	Saba Capital Management LP
21	Dr Michael J Burry	186	...	CEO/Founder	Scion Asset Management LLC
22	Tom Brady	170	...	Professional Football Player	New England Patriots
23	Bruno Crastes	141	...	CEO/Co-Founder	H2o AM LLP
24	Ralf Kalt	139	...	--	Jefferies International Limited
1019	3/18 17:54 News Alert/Junk Debt Market Freeze Risks \$35 Billion Banker He				
1018	3/18 17:49 News Alert/President Trump: RT @realDonaldTrump: STRONG & UNIT				
1017	3/18 17:48 News Alert/Donald J. Trump: STRONG & UNITED, WE WILL PREVAIL!				
1016	3/18 17:45 News Alert/President Trump: RT @realDonaldTrump: I only signed				





3 3/4 one?

[REDACTED] 1:02 PM

that 9k lot in a sea of hundred lot bid offers, its iceberging now instead

03.625

[REDACTED] 1:03 PM

Gotcha

Ronin likely arb/basis related

Yeah I meant 3.625. I hate the new 2yr pricing

[REDACTED] 1:04 PM

its horrible..

[REDACTED] 1:04 PM

It is plain stupid

[REDACTED] 1:05 PM

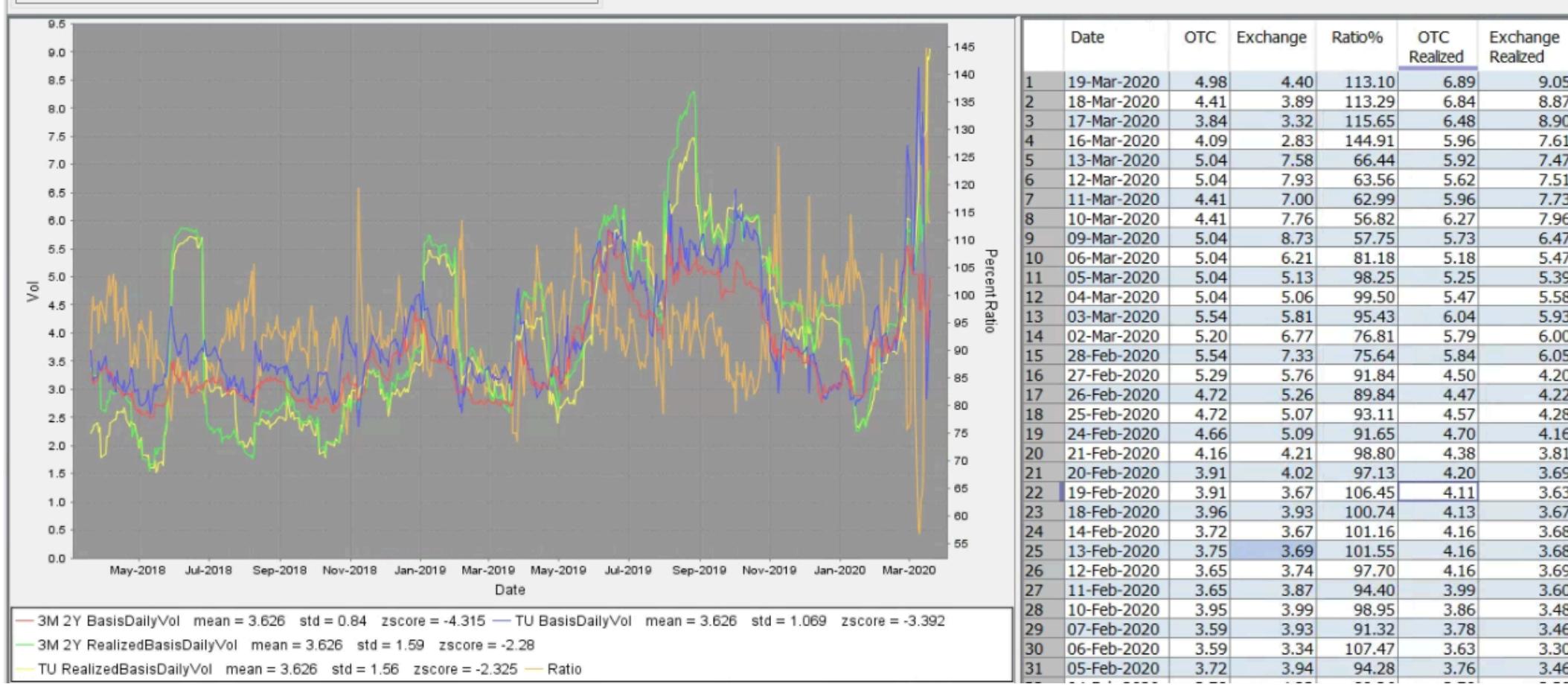
gotta be a margin clerk, worst trader i've ever seen, we're eating him alive right now

USD EUR

Swaption vs CBOT	Swaption DailyVol(BP)	CBOT DailyVol(BP)	Ratio	PercentRank 6M	PercentRank 2Y
1 3M2Y vs TU	4.98	4.40	113%	94.31%	98.20%
2 3M5Y vs FV	6.87	7.58	91%	17.89%	11.20%
3 3M7Y vs TY	7.50	10.73	70%	2.44%	0.60%
4 3M10Y vs TY	4.34	4.50	96%	61.11%	65.53%
5 3M30Y vs US	4.09	4.30	95%	9.52%	19.04%

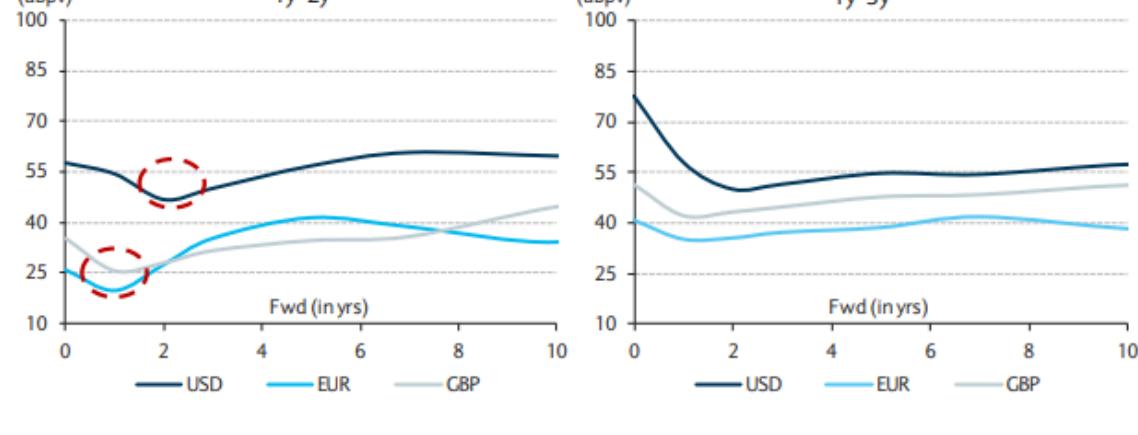
Ratio: Swaption DailyVol/ CBOT DailyVol
 PercentRank: percentage of ratio in the historical data ordered from small to large.

Hist Period: 2Y Start: 3/20/2018 End: 3/19/2020 Graph Realized Vol Hist: 20 Days

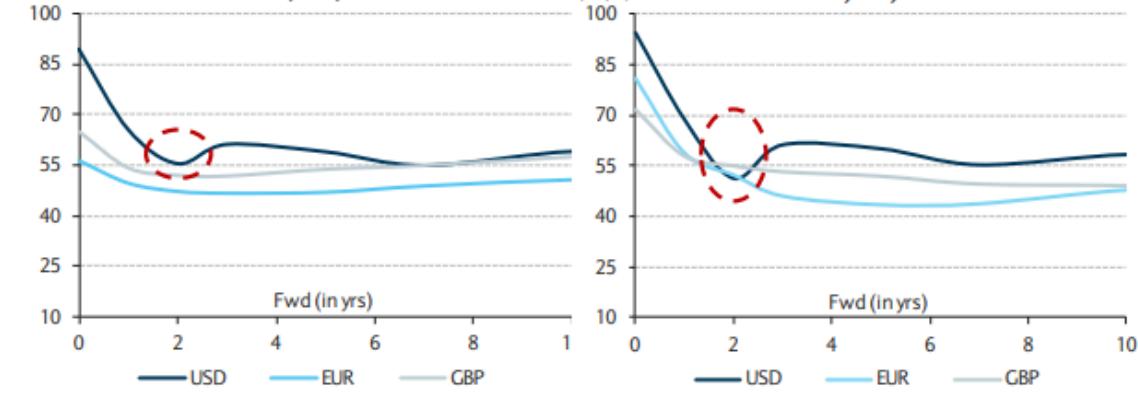


Forward vol surface analysis offers RV opportunities

Forward vol curves for 1y expiry options



USD	2y	5y	10y	30y	EUR	2y	5y	10y	30y
1y	58	78	90	95	1y	26	41	56	81
1yf 1y	55	59	66	69	1yf 1y	21	37	53	63
2yf 1y	48	50	56	51	2yf 1y	29	37	50	56
3yf 1y	50	52	61	61	3yf 1y	37	39	49	49
4yf 1y	51	46	56	55	4yf 1y	37	42	49	44



GBP	2y	5y	10y	30y
1y	35	51	65	71
1yf 1y	25	42	54	58
2yf 1y	27	43	52	56
3yf 1y	31	45	52	54
4yf 1y	30	46	53	50

0% 50% 100%
 (Richness/Cheapness as been determined by as (current value – 1ymin) / (1y max – 1y min))

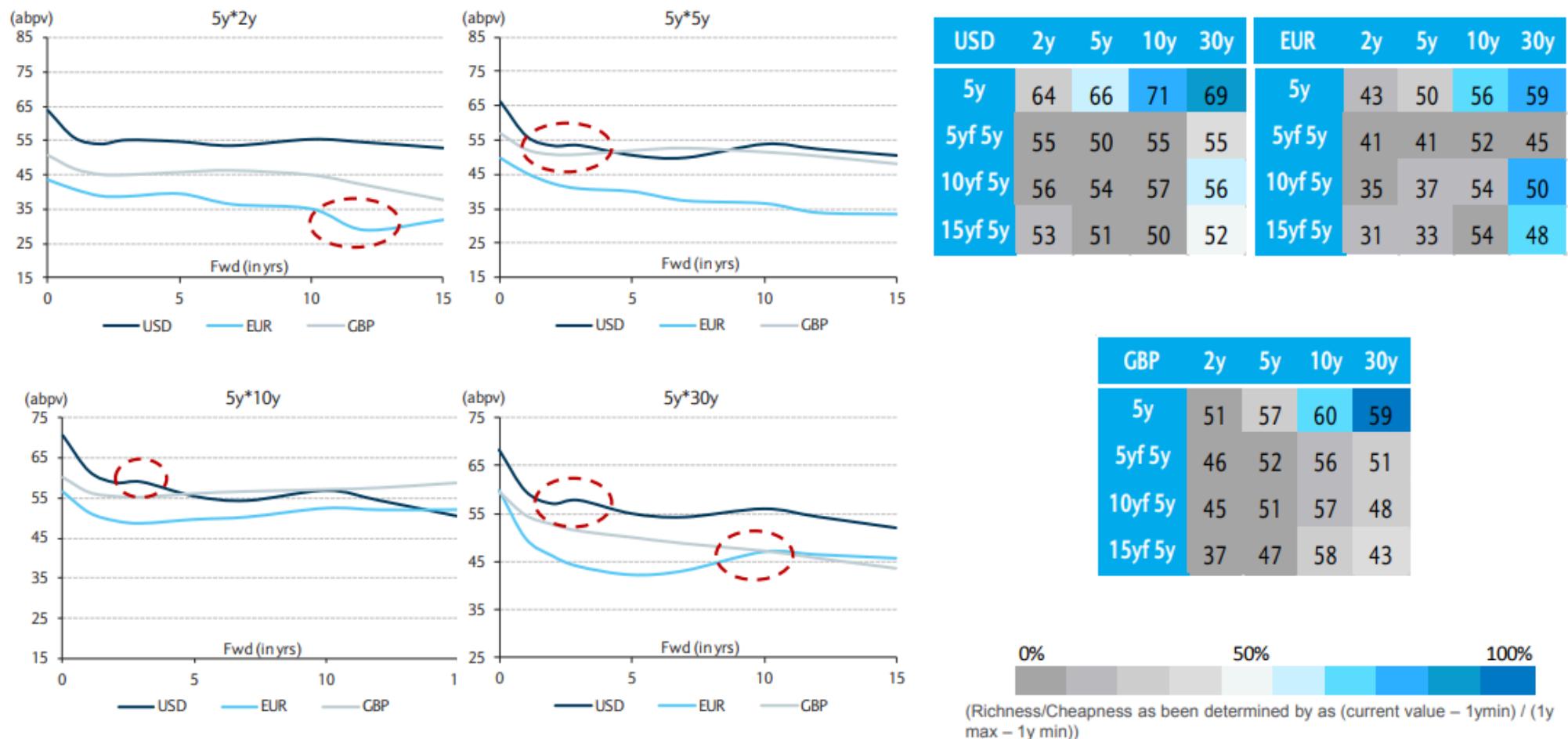
- Numerous RV opportunities have opened up in the sharp vol moves

Note: As of 16 March 2020. Source for tables and charts: Barclays Research



Forward vol surface analysis offers RV opportunities

Forward vol curves for 5y expiry options



- Numerous RV opportunities have opened up in the sharp vol moves

Note: As of 16 March 2020. Source for tables and charts: Barclays Research



13
Restricted - External

17 March 2020

Option triangle structures in USD

USD Option Triangles							USD Option Triangles										
Long Legs		Short Leg	fwd vol	Fwd vol level (abpv)	Price of option triangle (cts)	1y carry (cts)	1y P&L, if rates stay at their strikes (as % of initial cost)	1y P&L, normalised for expiries of options	Long Legs		Short Leg	fwd vol	Fwd vol level (abpv)	Price of option triangle (cts)	1y carry (cts)	1y P&L, if rates stay at their strikes (as % of initial cost)	1y P&L, normalised for expiries of options
1y1y	2y1y	1y2y	1yf 1y1y	57	18	25	1.07	0.76	1y5y	6y10y	1y15y	1yf 5y10y	62	534	657	1.20	2.22
2y1y	3y1y	2y2y	2yf 1y1y	50	10	7	0.81	2.67	5y5y	10y10y	5y15y	5yf 5y10y	55	306	31	0.10	1.19
1y2y	3y1y	1y3y	1yf 2y1y	51	23	25	1.92	2.06	10y5y	15y10y	10y15y	10yf 5y10y	57	263	-4	-0.02	-0.54
2y2y	4y1y	2y3y	2yf 2y1y	49	17	7	0.34	1.36	1y10y	11y10y	1y20y	1yf 10y10y	59	817	650	0.77	2.12
1y3y	4y1y	1y4y	1yf 3y1y	52	31	43	1.71	2.33	5y10y	15y10y	5y20y	5yf 10y10y	56	571	29	0.04	0.70
2y3y	5y1y	2y4y	2yf 3y1y	50	23	8	0.30	1.36	10y10y	20y10y	10y20y	10yf 10y10y	52	421	18	0.04	0.96
1y1y	2y2y	1y3y	1yf 1y2y	55	31	42	1.78	1.26	1y5y	6y20y	1y25y	1yf 5y20y	60	977	1261	1.26	2.33
2y1y	3y2y	2y3y	2yf 1y2y	48	17	13	0.75	2.46	5y5y	10y20y	5y25y	5yf 5y20y	53	553	57	0.10	1.23
1y2y	3y2y	1y4y	1yf 2y2y	52	44	67	2.16	2.32	10y5y	15y20y	10y25y	10yf 5y20y	53	451	-2	-0.01	-0.23
2y2y	4y2y	2y4y	2yf 2y2y	48	31	14	0.41	1.65	1y10y	11y20y	1y30y	1yf 10y20y	56	1472	1258	0.83	2.27
1y3y	4y2y	1y5y	1yf 3y2y	49	52	100	2.29	3.13	5y10y	15y20y	5y30y	5yf 10y20y	53	1015	54	0.05	0.75
2y3y	5y2y	2y5y	2yf 3y2y	47	40	13	0.26	1.21	10y10y	20y20y	10y30y	10yf 10y20y	50	744	29	0.03	0.89
1y2y	3y5y	1y7y	1yf 2y5y	56	118	240	2.41	2.59									
3y2y	5y5y	3y7y	3yf 2y5y	50	68	15	0.19	1.16									
1y5y	6y5y	1y10y	1yf 5y5y	56	227	340	1.48	2.72									
5y5y	10y5y	5y10y	5yf 5y5y	51	127	11	0.09	1.09									
1y10y	11y5y	1y15y	1yf 10y5y	59	423	327	0.75	2.05									
5y10y	15y5y	5y15y	5yf 10y5y	57	297	15	0.04	0.66									

0% 50% 100%

(Note: Richness/Cheapness as been determined by as (current value – 2ymin) / (2y max – 2y min))

Note: For 1y P&L, normalised for expiries: Consider an option triangle where the longer expiry is t_2 years and the shorter expiry is t_1 years. If the normal implied vol surface is flat across expiries and tenors, then the P&L of the trade in t_{carry} years (as a fraction of the initial cost), under the conditions of the forward rates getting realised, is approximately equal to $[\sqrt{t_2 - t_{carry}} - \sqrt{t_1 - t_{carry}}] / [\sqrt{t_2} - \sqrt{t_1}] - 1$. We therefore divide the P&L by this factor to normalise them for expiries.

The forward vols have been calculated from the vanilla implied vol surfaces. 1y P&L, if rates stay at their strikes, has been calculated assuming constant implied vols after roll-down. Normalized 1y P&L numbers have been formatted based on how rich/cheap they are compared with other points. As of 16 March 2020. Source: Barclays Research



16
Restricted - External

17 March 2020

Option triangle structures in EUR

EUR Option Triangles							EUR Option Triangles										
Long Legs		Short Leg	fwd vol	Fwd vol level (abpv)	Price of option triangle (cts)	1y carry (cts)	1y P&L, if rates stay at their strikes (as % of initial cost)	1y P&L, normalised for expiries of options	Long Legs		Short Leg	fwd vol	Fwd vol level (abpv)	Price of option triangle (cts)	1y carry (cts)	1y P&L, if rates stay at their strikes (as % of initial cost)	1y P&L, normalised for expiries of options
1y1y	2y1y	1y2y	1yf 1y1y	21	6	6	2.33	1.65	1y5y	6y10y	1y15y	1yf 5y10y	51	500	510	1.04	1.92
2y1y	3y1y	2y2y	2yf 1y1y	32	8	-3	-0.31	-1.02	5y5y	10y10y	5y15y	5yf 5y10y	51	345	3	-0.00	-0.03
1y2y	3y1y	1y3y	1yf 2y1y	26	11	8	1.78	1.91	10y5y	15y10y	10y15y	10yf 5y10y	53	297	5	0.00	0.03
2y2y	4y1y	2y3y	2yf 2y1y	33	13	-2	-0.15	-0.62	1y10y	11y10y	1y20y	1yf 10y10y	52	814	661	0.76	2.08
1y3y	4y1y	1y4y	1yf 3y1y	34	22	14	1.17	1.59	5y10y	15y10y	5y20y	5yf 10y10y	51	638	-3	-0.02	-0.26
2y3y	5y1y	2y4y	2yf 3y1y	36	19	4	0.17	0.76	10y10y	20y10y	10y20y	10yf 10y10y	53	572	0	-0.00	-0.08
1y1y	2y2y	1y3y	1yf 1y2y	20	8	17	4.27	3.02	1y5y	6y20y	1y25y	1yf 5y20y	49	886	1254	1.38	2.53
2y1y	3y2y	2y3y	2yf 1y2y	29	12	-4	-0.32	-1.05	5y5y	10y20y	5y25y	5yf 5y20y	46	575	-11	-0.03	-0.37
1y2y	3y2y	1y4y	1yf 2y2y	28	23	23	1.97	2.11	10y5y	15y20y	10y25y	10yf 5y20y	48	522	-17	-0.04	-0.98
2y2y	4y2y	2y4y	2yf 2y2y	31	22	2	0.07	0.27	1y10y	11y20y	1y30y	1yf 10y20y	47	1387	1481	1.02	2.80
1y3y	4y2y	1y5y	1yf 3y2y	34	42	43	1.41	1.93	5y10y	15y20y	5y30y	5yf 10y20y	45	1004	2	-0.01	-0.14
2y3y	5y2y	2y5y	2yf 3y2y	33	31	13	0.36	1.64	10y10y	20y20y	10y30y	10yf 10y20y	47	952	-4	-0.01	-0.15
1y2y	3y5y	1y7y	1yf 2y5y	38	87	124	1.87	2.01									
3y2y	5y5y	3y7y	3yf 2y5y	38	58	9	0.10	0.61									
1y5y	6y5y	1y10y	1yf 5y5y	45	213	224	1.13	2.09									
5y5y	10y5y	5y10y	5yf 5y5y	42	120	4	0.02	0.27									
1y10y	11y5y	1y15y	1yf 10y5y	49	393	299	0.74	2.02									
5y10y	15y5y	5y15y	5yf 10y5y	49	300	1	-0.01	-									

Derivatives markets remain dysfunctional

Amrut Nashikkar
+1 212 412 1848
amrut.nashikkar@barclays.com
BCI, US

Hitendra Rohra
+44 (0) 20 7773 4817
hitendra.rohra@barclays.com
Barclays, UK

Tong Jin
+1 212 526 1262
tong.jin@barclays.com
BCI, US

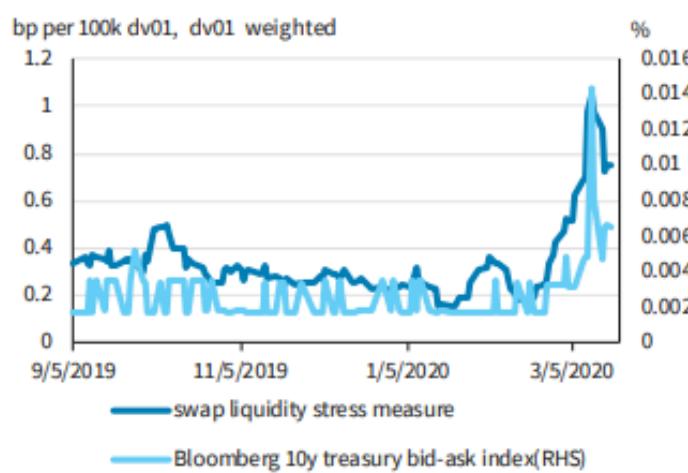
Market functioning is again getting worse in derivatives markets and the worsening in liquidity is correlated to cash markets. We find the 10s30s spread curve to be a dislocation and recommend a spread curve steepener as a normalization trade. We also recommend a 2yf 2s30s bear steepener (payer vs payer spread). In EUR, we recommend selling 5y*10y payers versus 5y*5y and 5y*30y payers, as a way to position for lower mid tenor vols amid low-for-longer rates. The trade also fades the recent cheapening of the 5y (5s10s30s) rate fly.

Market structure: Swap market functioning was starting to improve, but is again getting worse

In *The market has become dysfunctional*, we had introduced a measure of liquidity for the swap market using intraday data on rates and transaction activity from SDR data. Earlier this week, it appeared that market functioning in swaps was beginning to improve, with Figure 1 showing a reduction in illiquidity in the swap market as measured by volatility over volume intervals. However, the improvement appears to be faltering, despite various measures introduced by the Fed to improve market functioning including QE, the various short-term lending programs against collateral, and most recently the money market funding facility. This can be seen in Figure 1, which also plots Bloomberg's measure of 10y treasury bid-ask along with our measure of swap market liquidity stress. Figure 2 shows a tenor-wise breakdown of our stress measure in terms of the intraday volatility in each tenor scaled by the DV01 intervals in that tenor. In the last day or two, stress appears to have worsened in the most challenged parts of the curve. This is understandable, because most derivatives market makers would be using the cash market to hedge.

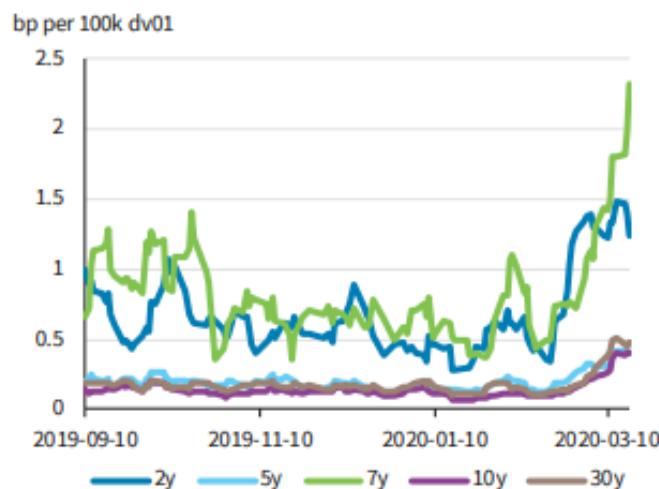
This suggests that regulators need to do more to fix intermediation over and above already announced measures. A number of indicators of the relationship between cash and derivative markets (such as futures basis, Treasury spreads relative to OIS, etc.) suggest that the problems in intermediation are arising from the cash market, and the failure of arbitrage is because of balance sheet constraints on taking on additional Treasury positions. In many ways, the cash market appears to be in worse shape, liquidity-wise, than the derivatives

FIGURE 1
Swap market liquidity has stopped improving



Source: Barclays Research, Bloomberg

FIGURE 2
Tenor-wise breakdown of swap market liquidity



Source: Barclays Research

market. This is a worse situation than in 2008, when there were no explicit balance sheet based capital requirements (and market risk capital is small when treasuries are hedged with a derivative positions) – the SLR was introduced as a result of post-crisis reforms in the form of Basel III. To us, the fix needs to involve, at least on a temporary basis, exempting treasury securities and cash from SLR, so that the large desks that are part of GSIBs find it less onerous to intermediate in rates markets.

Swap spreads: Unwind front end spread widener, Initiate 10s30s spread curve steepener

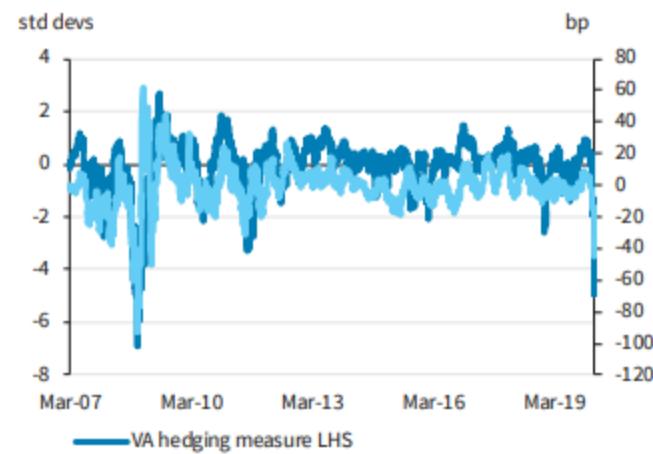
Dislocations continue to emerge in funding markets, with front-end Libor OIS spreads blowing out on Thursday. The Fed's CPFF effectively puts a cap on Libor-OIS spreads at 200bp, and further the Fed's recently launched money market facility should help normalize the money market. 2y swap spreads have widened to 22bp with the widening in 2y Libor-OIS spreads offsetting the cheapening of treasuries to OIS. Massive fiscal stimulus and the related supply expansion in treasuries has caused the cheapening of Treasuries relative to OIS. Libor-OIS basis looks in line with other measures of bank credit such as CDS on major banks and there is little reason for it to widen more. On the other hand, the increase in Treasury bill supply from the fiscal stimulus could cause a tightening in front-end spreads relative to OIS. As a result, we are unwinding our front-end spread widener recommendation.

We think 30y spreads are especially dislocated because of a combination of poor liquidity, receiving in swaps (our VA measure suggests the largest amount of receiving needs in the post GFC era, Figure 3), and lately expectations of supply increases in the long end. One interpretation is that a sovereign default risk premium is being priced into long end Treasuries, but we think this interpretation is false. Unlike peripheral European countries, the US issues debt in its own currency, as a result of which it can always be inflated away.

In particular, speculation of 25y and 50y issuance may be causing concerns. However, 30y swap spreads are now at levels where it should start making sense for even buyers who are constrained by the leverage ratio to consider adding positions. In that sense, 30y spreads are already fairly well priced for supply increases. Further, we expect the Fed to expand the size of its asset purchase program above the \$500trn announced, to at least \$1trn. This should offset the increase in issuance.

FIGURE 3

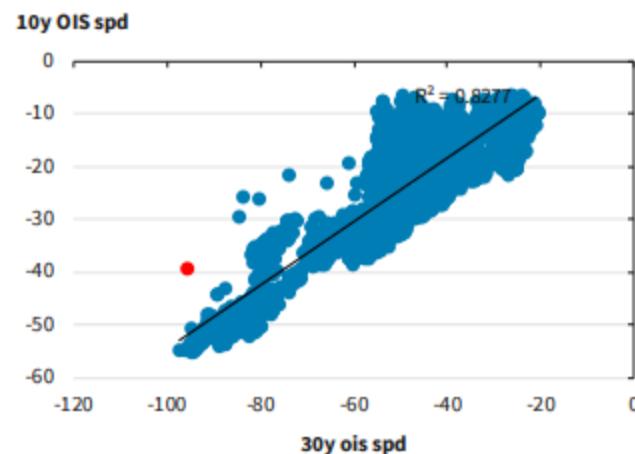
Our measure of VA hedging needs is the farthest into receiving territory it has been in the post GFC period



19 March 2020

FIGURE 4

30y spreads are dislocated relative to 10y spreads, likely because of flows and illiquidity.



15

Swaps benchmark vanishes as traders flee firm price venues

Dollar Ice swap rate fails to publish in March rout; patchy Sonia Clob prices could delay term rates



Helen Bartholomew

 @HelenBarthol

20 Mar 2020

A rate underpinning trillions of dollars' worth of swaptions and structured products has failed to publish for more than two weeks as the firm swap prices required to produce the benchmark were pulled from electronic order books amid wild market swings.

The Ice swap rate, a daily measure of term Ibor-referencing swap rates from one to 30 years, has not yet published across any of the 13 dollar maturities during March. That means 182 scheduled fixings have been missed so far this month (to March 18) in dollars alone. Sterling versions of the rate have also suffered severe disruption, with just 45 fixings published out of 195.

"This is a macro issue. Dealers aren't displaying firm prices in fixed income right now. They're not taking risk. It's the same across all currencies and all products in the fixed income markets," says a rates expert at a financial

infrastructure provider.

The Ice swap rate is based on firm quotes held out on interdealer central limit order books, or Clobs. But amid soaring volatility, dealers have fled the Clobs, dumping their algorithmic pricing engines in favour of old-fashioned voice broking, where prices can be negotiated in line with sudden market moves as central banks take policy action in response to the spreading Covid-19 pandemic.

"In a market like this, dealers aren't going to allow an algo to display prices and they're not going to want to put firm prices out. Every deal they do will be negotiated based on where they think they can lay off the risk," says the rates expert.

In part, the scale of the latest outage reflects unprecedented levels of remote working. Major financial centres including London and New York are heading into lockdown mode as part of global efforts to contain the spread of the coronavirus, forcing **traders to work from home** *en masse*.

At the core, non-publication stems from a deeper, structural problem. As part of its evolution from the former IsdaFix in 2015, the Ice swap rate aimed to satisfy the behaviour and conduct focus of the International Organization of Securities Commissions' benchmark principles by replacing panel bank submissions based on 'expert judgement' with firm prices at three swap execution facilities: Trad-X, BGC Trader and TP Icap's i-Swap.

The rate is based on order book data taken from a two-minute window. The 11am New York fix

covers 13 tenors while an additional one-year fixing is published at 3:15pm.

“ This is a macro issue. Dealers aren't displaying firm prices in fixed income right now. They're not taking risk. It's the same across all currencies and all products in the fixed income markets

Rates expert at a financial infrastructure provider

The shift assumes continuous liquidity at these venues – something that has not materialised. Dodd-Frank rules still permit large portions of the US swap market to execute bilaterally on a request-for-quote basis, away from exchange-like venues envisaged under post-crisis reforms.

"From regulator's point of view, the top priority is conduct and behaviour, but from the market's point of view, the top priority is finding out what yield curve they are working with. Both regulators and the market have a shared interest in the integrity, governance and resilience of the benchmark. We need to work harder to make sure that we've got enough flexibility built into the system to allow us to achieve both of those objectives," says David Clark, chairman of the European Venues and Intermediaries Association (Evia), and member of the Ice Swap Rate Oversight Committee.

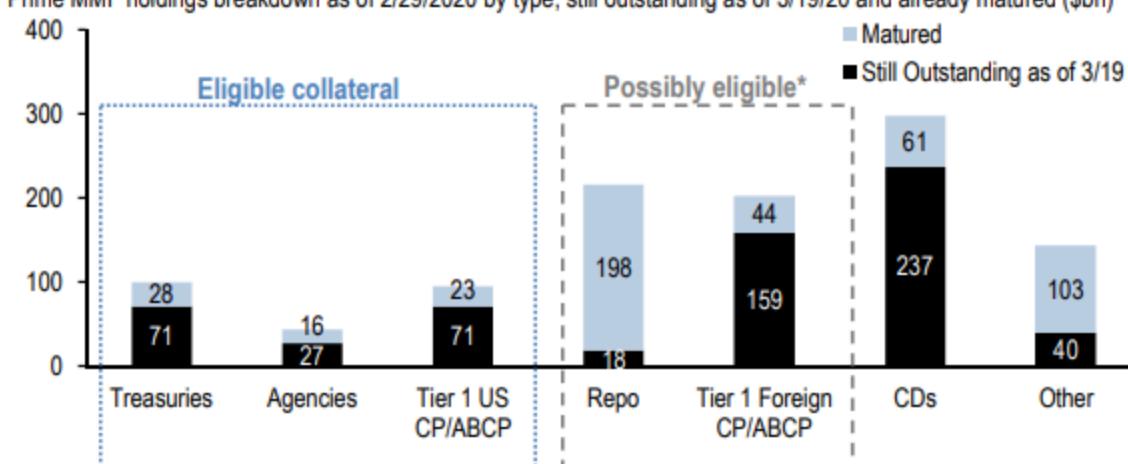
This is currently being addressed with planned methodology changes, which aim to address a rise in non-publication. Since an **initial outage** following the equity volatility spike of February 2018, publication of the rate has been inconsistent. Gaping holes appeared in August 2019 when the benchmark failed to publish across all dollar maturities for **nine out of 22 days** as volatility surged amid US-China trade tensions.

The failure means exotics desks must resort to dealer polling or use the last available rate to price products such as cash-settled swaptions and constant maturity swaps, which underlie the majority of rates structured products, including range accruals.

Use of the last rate is impractical given the extent of the disruption: the last five-year dollar fixing printed on February 27 at 1.093%. Since a 50 basis-point rate cut, five-year swaps were quoted at 0.737% on March 19, according to data from Chatham Financial.

Evia's Clark believes the latest blackout – the benchmark's longest to date –

Exhibit 7: At least \$170bn of eligible collateral should be available for prime MMFs to sell
 Prime MMF holdings breakdown as of 2/29/2020 by type, still outstanding as of 3/19/20 and already matured (\$bn)



Source: Crane Data, Bloomberg, J.P. Morgan, data as of 2/29/2020

* The Fed announcement notes that "the facility may accept receivables from certain repurchase agreements," but the criteria for this are not yet clear. Foreign-issuer CP is not eligible, but many foreign banks can issue out of US branches, such paper is eligible.

BUT, as far as their weekly liquidity buckets go, it's unclear how much MMLF could help in improving their weekly liquidity figures. This is because Treasuries and Agencies are already included in those buckets. If we exclude Treasuries/Agencies as well as eligible securities that already mature within 7 days, we estimate only roughly between \$65bn and \$100bn of liquidity could be created to bring them back up from the 30% threshold.

IMPORTANTLY, certificates of deposits are not scoped in. This sector generally makes up roughly \$300bn or 30% across the MMF portfolio. We point this out because not every fund manages the portfolio the same: some could be overweight CDs, some could be overweight ABCP. Depending on the individual portfolios of the MMFs, MMLF may not be able to provide as much liquidity to the MMFs as hoped.

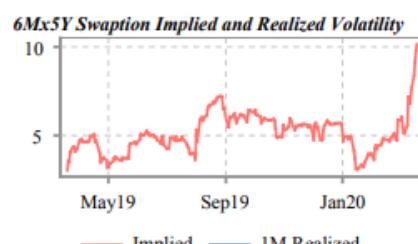
Depending on the collateral, the rate at which eligible borrowers can purchase from MMFs will either be based on amortized cost or fair value. For ABCP and unsecured CP in particular, the rate will be based on amortized cost. Arguably, eligible borrowers will buy eligible collateral if the amortized value of the security is above 0.25% for Treasuries/Agencies and 1.25% for CP. Prime MMFs have been running a barbell portfolio, with their WAM and WAL at around 35 and 70 days respectively. In this sense, of the eligible paper, we suspect term paper would be most attractive to sell as they were likely bought BEFORE the Fed reduced rates by 150bp emergency rate cuts (i.e., above 0.25% for Treasuries/Agencies and above 1.25% for CP).

Derivatives Strategy

Cross Market Volatility Report

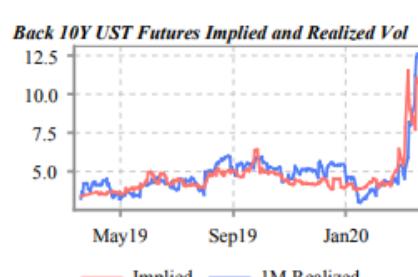
Short Dated Swaptions

Mat/Und	Current	Implied (bps/day)				Realized Vol	
		Chg	Min	Avg	Max	1M	3M
3Mx1Y						6.8	4.9
3Mx2Y						6.7	4.9
6Mx1Y						6.4	4.8
6Mx2Y						6.8	5.1
6Mx5Y						10.2	6.7
6Mx7Y						11.3	7.3
6Mx10Y						12.6	7.9
6Mx30Y						14.1	8.7



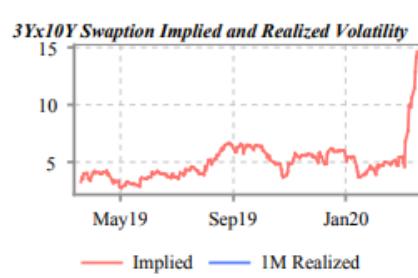
Exchange Traded Options

Mat/Und	Current	Implied (bps/day)				Realized Vol	
		Chg	Min	Avg	Max	1M	3M
Back FV	7.6	2.4	3.6	4.6	8.8	9.7	6.3
Back TY	10.7	5.6	3.8	4.9	11.5	12.6	7.8
Back US	13.7	8.6	3.7	4.8	14.3	16.6	10.0
Back ED	3.3	-0.9	1.4	2.8	5.6	7.4	5.0
Back E1	3.5	-1.5	3.1	4.3	6.1	6.6	5.1
Back E2	4.7	-0.2	3.8	4.7	6.5	8.7	6.1
Back LE	2.1	0.9	.4	1.0	2.3	3.1	1.8
Back SS	3.8	1.3	1.3	2.1	3.8	50.6	3.8



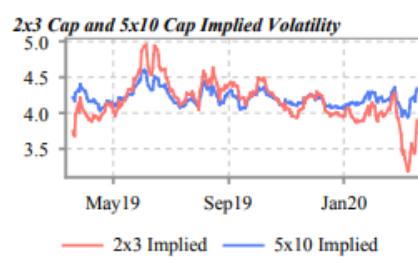
Long Dated Swaptions

Mat/Und	Current	Implied (bps/day)				Realized Vol	
		Chg	Min	Avg	Max	1M	3M
2Yx2Y						10.5	7.0
2Yx5Y						12.8	8.1
5Yx5Y						15.4	9.5
1Yx10Y						13.1	8.2
2Yx10Y						13.9	8.7
3Yx10Y						14.6	9.1
5Yx10Y						15.2	9.4
10Yx10Y						15.2	9.4



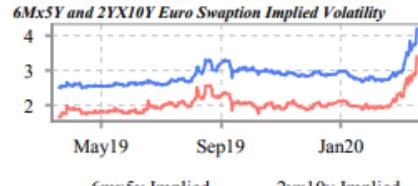
Liber Cap Volatility

Mat/Und	Current	Implied (bps/day)				Realized Vol	
		Chg	Min	Avg	Max	1M	3M
1x2	3.1	-1.1	2.6	3.7	4.6		
2x3	3.9	-0.3	3.2	4.0	4.5		
3x5	4.2	0.0	3.7	4.2	4.5		
5x7	4.3	0.2	3.9	4.2	4.4		
5x10	4.3	0.3	3.9	4.2	4.4		
7x10	4.4	0.3	4.0	4.2	4.4		
10x20	4.0	0.3	3.8	3.9	4.0		



European Swaption Volatility

Mat/Und	Current	Implied (bps/day)				Realized Vol	
		Chg	Min	Avg	Max	1M	3M
6Mx2Y	2.4	0.9	1.0	1.3	2.4	3.3	2.2
6Mx5Y	3.4	1.3	1.8	2.1	3.4	4.4	3.3
2Yx2Y	2.4	0.7	1.6	1.8	2.4	4.4	3.4
2Yx10Y	4.2	1.2	2.7	3.0	4.2	6.3	4.7



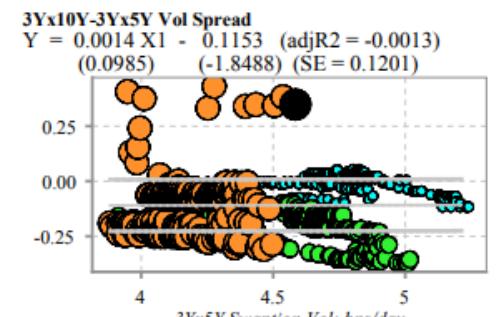
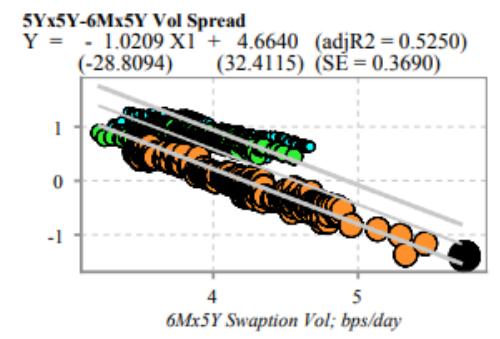
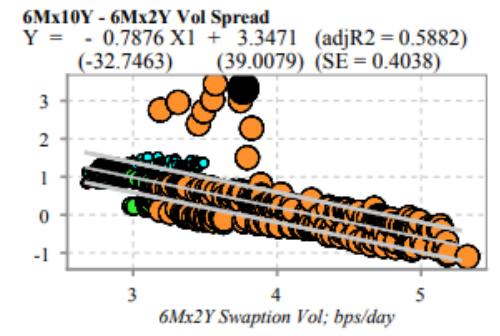
Other Vols (% per year)

Mat/Und	Current	6M			
		Chg	Min	Avg	Max
VIX	72.0	57.6	11.5	19.6	82.7
3M Gold vol	32.4	17.8	9.8	12.9	37.7
3M EUR/USD vol	13.0	7.4	4.2	5.4	13.0
3M USD/JPY vol	14.8	8.3	4.8	6.5	16.9

Drivers

Mat/Und	Current	6M			
		Chg	Min	Avg	Max
Vol of Funds*	8.6	4.9	0.8	2.7	8.6
ED2/ED6 curve	4.0	31.0	-33.0	-19.8	11.5
Euribor 2/6 curve	8.5	13.0	-6.5	-0.3	8.5
2s10s US swap curve	36.4	-70.4	59.2	155.6	187.3
OAS	156.0	103.5	34.5	47.0	156.0
Vol supply					
MBS duration	3.3	0.4	1.1	2.5	3.3

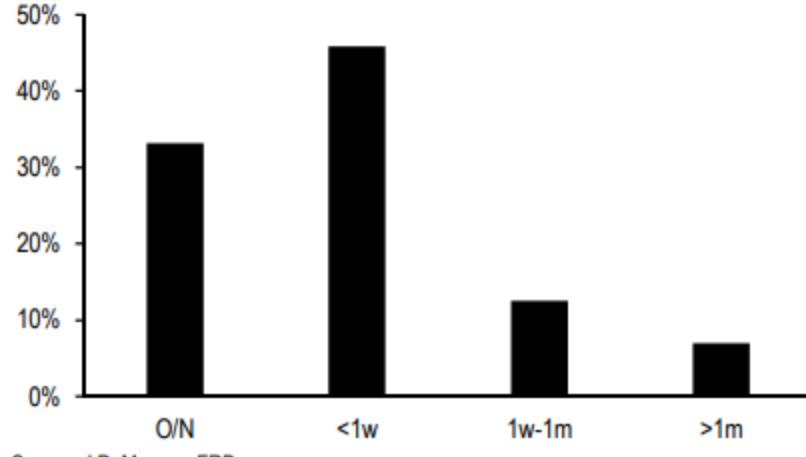
* Vol of First Constant Mat. ED Contract



Money Market Fund Liquidity Facility (MMLF), and Primary Dealer Credit Facility (PDCF)—all with the approval and participation of the Treasury. Similar facilities collectively provided nearly \$1tn of liquidity during the most acute phases of the financial crisis of 2008 (**Exhibit 1**). Though disclosure at the time was somewhat limited, we now have the benefit of both hindsight and a much more granular look at how those facilities were used at the time. **There are, of course, key differences between then and now, but nonetheless we believe a look back at usage, including participants and borrowing terms, is instructive for thinking about their likely efficacy in the current environment.**

Exhibit 2: When the FX swap lines were expanded bank in 2008, the vast majority of borrowing was in very short maturities

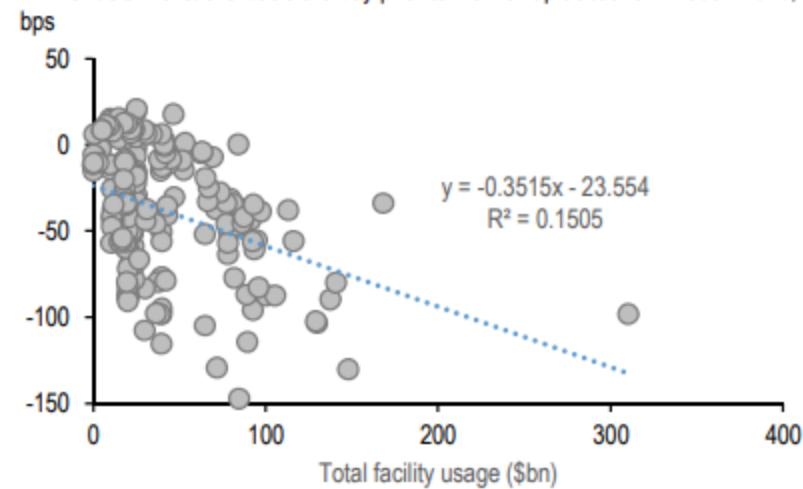
Fraction of lending to foreign central banks via FX swaps with the Federal Reserve from late-2007 to mid-2010, weighted by USD equivalents; %



Source: J.P. Morgan, FRB

Exhibit 3: During the last crisis, European take-up of dollar swap lines was most acute when dollar funding was most stressed, suggesting active policing of sub-50 basis levels

1Y EUR/USD OIS/OIS basis the day prior to ECB swap auctions in 2008 - 2010;



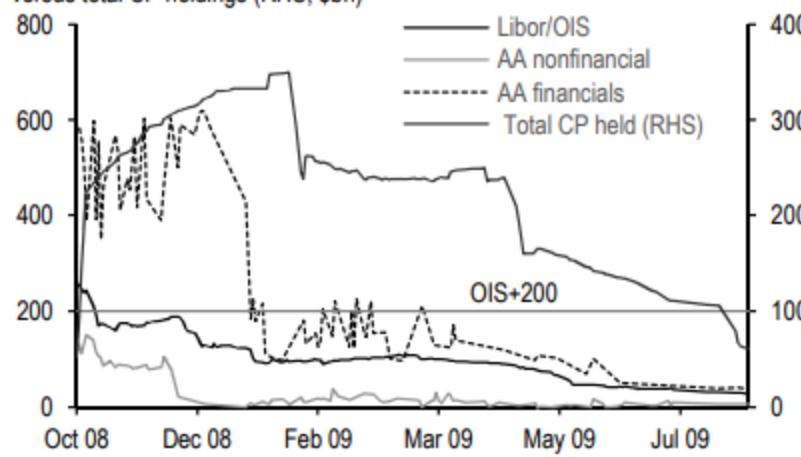
Source: J.P. Morgan, FRBNY

First, the FX swap lines. These arrangements with foreign central banks represent an important backstop for dollar funding in FX swap and cross currency basis markets, ensuring that financial corporates can adequately hedge their dollar assets and liabilities. As our colleagues in Europe have explained in comprehensive detail (see [Fed eases USD facility](#), F. Bassi & K. Gupta et al., 3/15/20), **FX swap lines end up acting like a kind of leaky floor for short-end OIS/OIS basis.** Banks can choose to deploy cash (or raise cash in exchange for securities) to pledge at their respective central bank in exchange for dollars, or they can achieve the equivalent outcome via the interdealer market, effectively arbitraging the gap in relative value. However, haircuts both for collateral pledged, and for use of the swap lines, as well as the periodicity of these facilities being offered (usually a weekly basis), limit the extent to which OIS/OIS basis is capped to the downside. **However, the Fed's more recent announcement of enhanced provision of dollar funding,** which involves core central bank participants conducting auctions daily, rather than weekly, **certainly takes some of the leakiness out of this floor.** Additionally, the expansion of facilities to other central banks also broadens the extent of dollar funding support.

Next, we have the 13(3) facilities, beginning with the CPFF. Resurrecting this facility was, in our view, one of the most important decisions by the Fed this week because it addresses the likely channel through which corporate demand for liquidity can trigger bank deleveraging. To the extent that CP primary markets are not functioning properly, by providing access to cash at an administered rate that is not intermediated by bank balance sheets, the Fed can reduce the risk of broader flight to liquidity. Based on prior experience, usage is likely to be dominated by issuers who have a strong economic incentive, which both back in 2008 meant Yankee banks (**Exhibits 4 & 5**). At present, Tier 1 names can likely get better pricing from their resolvers; Tier 2 names are potentially in the best position to benefit but are not broadly eligible to participate. **Because this particular crisis is much more centered on the real economy, unless spreads are tightened and/or more issuers are scoped in, many non-financial corporates are likely to continue to rely on their bank credit lines** (see also discussion in [Today's Policy Announcements: The End of the Beginning](#), S. Dulake et al., 3/17/20 and [Rise of the Zombies](#), A. Roever & T. Ho, 3/17/20). But if the operational aspects of the CPFF were adjusted, it could be more effective at reopening CP markets.

Exhibit 4: The CPFF initially was priced well below market levels for AA financials, and remained competitive with private sources of funding for several months after spreads initially compressed

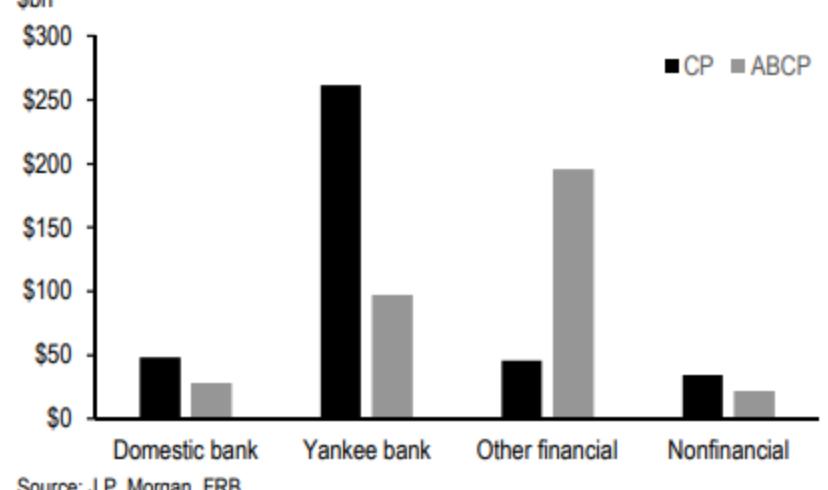
3-month spread to OIS for Libor, AA financials, and AA non-financials (LHS; bp) versus total CP holdings (RHS; \$bn)



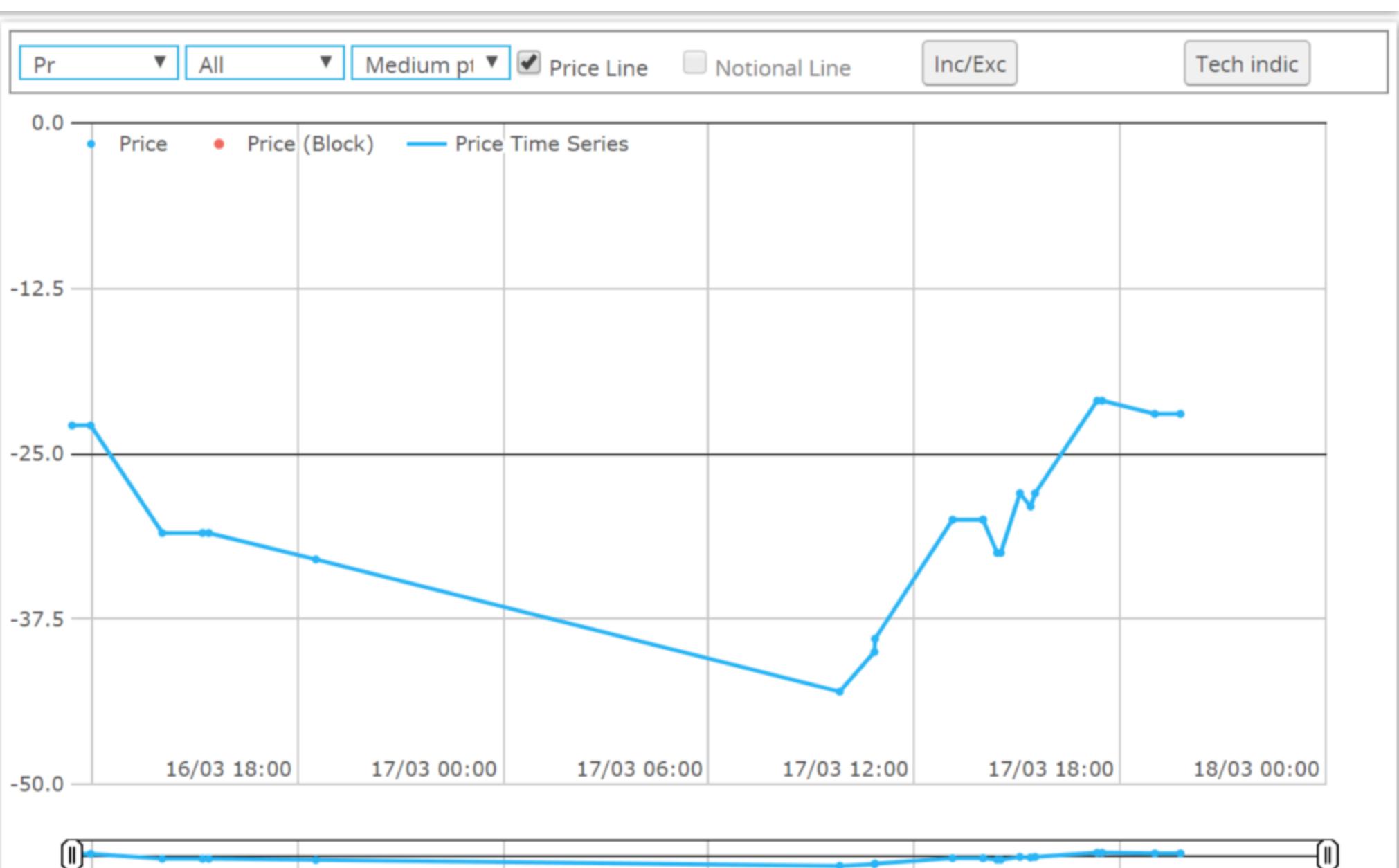
Source: J.P. Morgan, FRB

Exhibit 5: Usage of the CPFF was highest among Yankee banks who had a more difficult time accessing capital markets

Gross usage of CPFF loans by issuer type, secured (ABCP) and unsecured paper; \$bn



Source: J.P. Morgan, FRB



Tenor	Count	Not(M)	Av Not(M)	Av Price	High	Low	Last Time	Last
9M	1	50	50	-32	-32	-32	Mar 17 14:01:21	-32
1Y	15	1,960.5	130.7	-29.867	-21	-43	Mar 17 19:45:48	-22
2Y	2	317.6	158.8	-27	-23	-31	Mar 17 16:52:56	-23
4Y	4	135.3	33.8	-23.531	-22.375	-25.75	Mar 17 16:44:16	-22.375
5Y	12	727.6	60.6	-22.917	-21.625	-24.625	Mar 17 17:10:23	-22
7Y	2	93.5	46.8	-23.75	-23.25	-24.25	Mar 17 15:16:15	-24.25
8Y	1	40.1	40.1	-22.5	-22.5	-22.5	Mar 17 14:23:45	-22.5
10Y	10	408.2	40.8	-21.651	-20.5	-22.5	Mar 17 18:46:45	-20.5
11Y	1	10	10	-21	-21	-21	Mar 17 16:33:52	-21
20Y	2	37.1	18.5	-14.875	-14.25	-15.5	Mar 17 14:32:40	-14.25
25Y	2	40	20	-9.45	-9.375	-9.525	Mar 17 14:58:30	-9.375
30Y	2	24.5	12.3	-4.813	-4.25	-5.375	Mar 17 17:59:15	-4.25
Total	54	3,844						

New York
For Business: Mar 19, 2020

Joshua Younger (212) 270-1323

J.P. Morgan Securities LLC

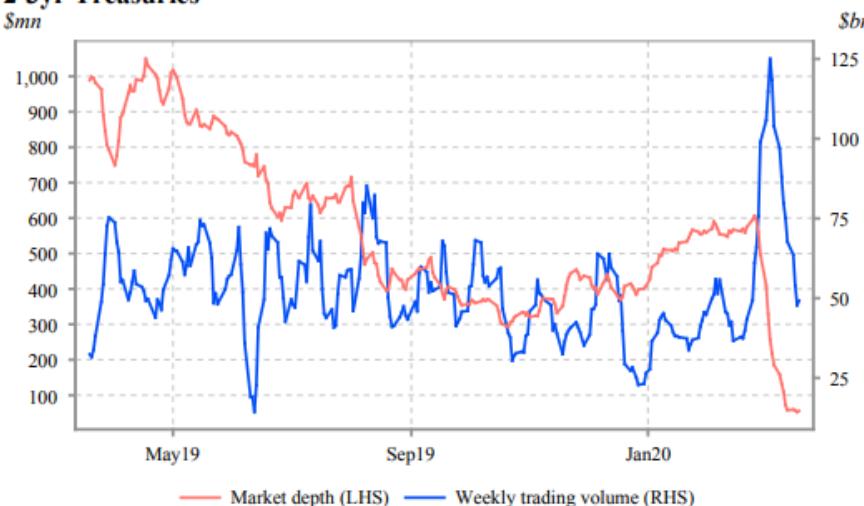
J.P.Morgan

Page 10

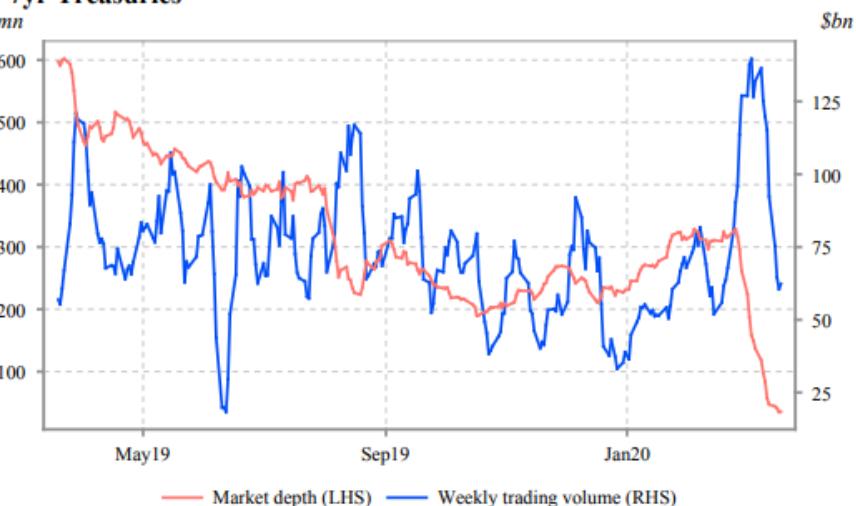
Fixed Income Strategy

Cash Treasury Market Liquidity Summary

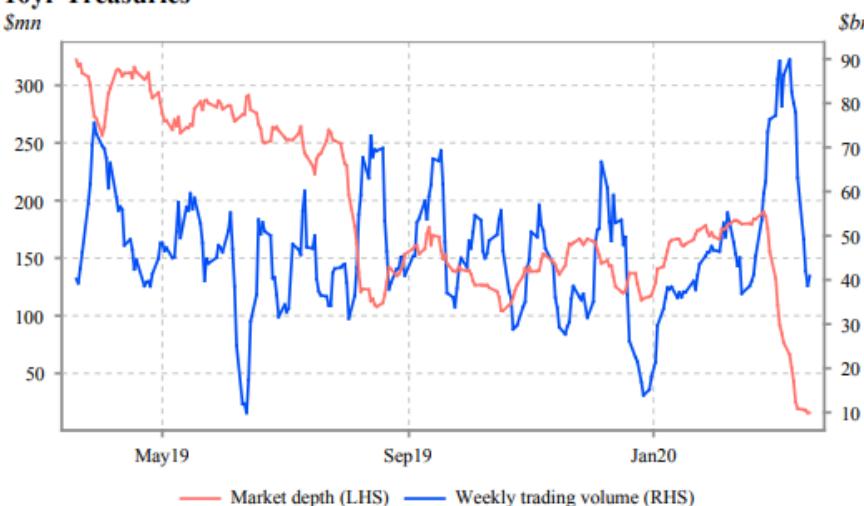
2-3yr Treasuries



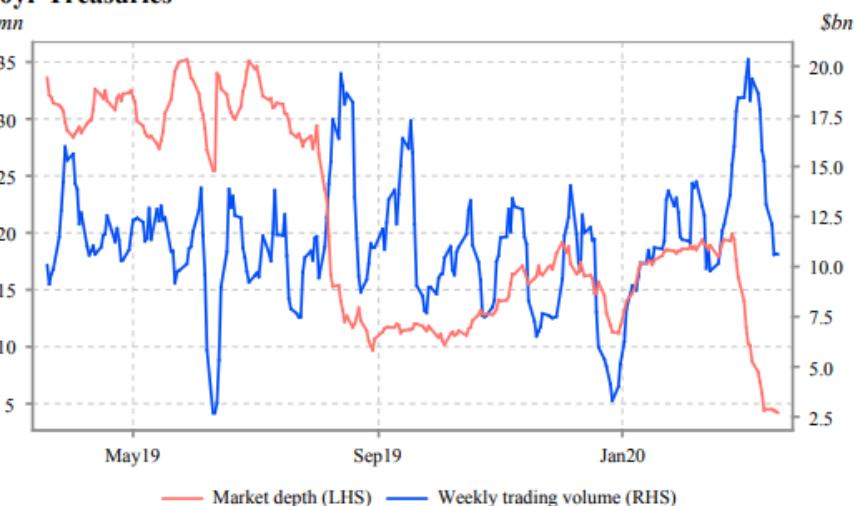
5-7yr Treasuries



10yr Treasuries



30yr Treasuries



Market depth is defined as the weekly moving average of the top 3 bid/ask sizes in OTR Treasuries, averaged between 8:30am and 10:30am daily. Both market depth and volume data are taken from BrokerTec, an interdealer electronic trading platform.

don't need cash or are constrained by leverage ratio limitations - to those that don't, but desperately need immediate funding to refinance short-term borrowing or drawn-down cash piles. Similar problems can be seen even in the US Treasury market through its dramatic liquidity problems. Which is important given the area one might have felt could quickly benefit from effective resumption of Fed QE was this sector. Leverage ratio limitations mean even banks that could in principle engage with the Fed in profitable repo transactions are unable to do so. As for Libor rates, the pressure on the CP market has been sufficient to force a renewed Fed facility to purchase 3m paper directly with a Treasury guarantee, but on terms so far not seen as sufficiently enticing to overly excite markets. The UK and Canada announced yesterday a very similar scheme. We note that US IG issuance was a massive \$25bio yesterday, as firms take advantage of acceptably-low absolute term funding rates to lock in funding.

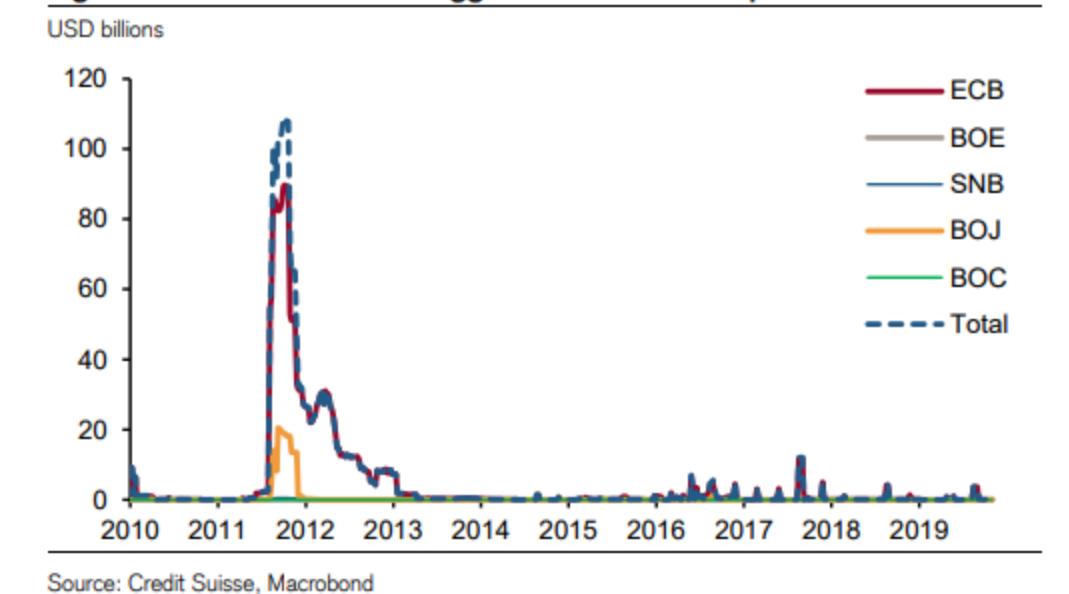
Matters are even more awkward in the FX swap market, where Zoltan broadly makes the point that:

- a) The Fed needs to extend the reach of swap lines to many more central banks than just the 5 that currently have access to Fed swap lines, especially in EM space
- b) The Fed may need a much more active approach to managing these swap lines, for example by conducting daily as opposed to just weekly swaps and dramatically expanding the range of tenors

Even then, it can be the case that after local central banks access USD, they are not able to funnel them to where they are needed efficiently if local banks are the transmission source via USD auctions. For example in Japan, it is possible that direct access to BOJ USD auctions would be needed for Japanese lifers with large positions in US CLOs, as opposed to relying on local banks acting as an intermediary.

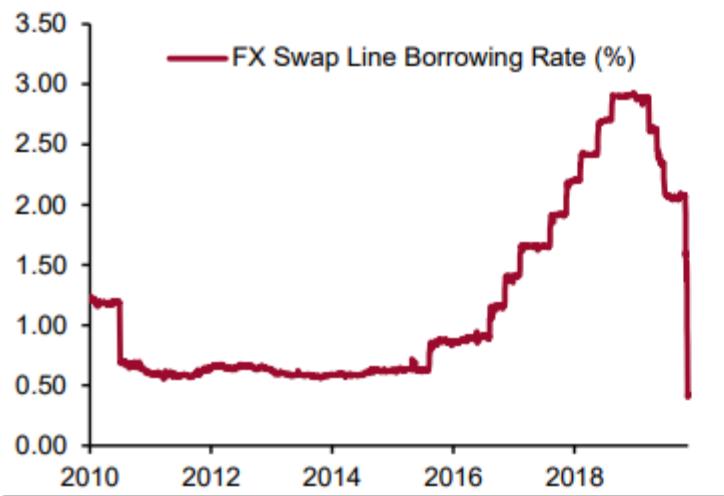
The bottom line is that sufficient system blockages remain to lead us to stay concerned about funding markets, and by extension to leave us USD bulls on a broad basis given the correlation of spot to funding stress across many pairs.

Figure 2: The ECB was the biggest user of the swap line in 2011-12



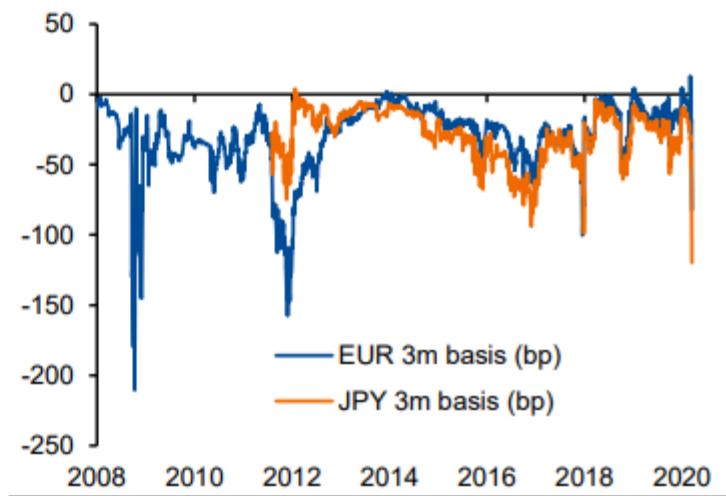
In October 2008 the capacity limits were removed and access to the facility was expanded to include the BOJ, SNB, BOE, RBA, RBNZ, BOC, Norgesbank and Riksbank on the G10 side, and Banxico, BCB, BOK, and MAS on the EM front. These arrangements were ended in February 2010, and subsequently revived in May 2010, but only for a smaller selection of jurisdictions: the participant list was limited to the ECB, BOJ, SNB, BOE and BOC. In October 2013, the swap lines were made permanent as part of a set of bilateral currency standing arrangement, which are currently still active. The rate applied to these FX swap lines in their first iteration was OIS + 100bp; it was then lowered to OIS + 50bp in November 2011 and to OIS + 25bp on 15 March 2020. The latest modification of swap line access terms also added an 84-day term operation to the outstanding 1-week maturity. So far the biggest user of the swap line has been the ECB in the midst of the 2011-12 crisis, with a maximum uptake of \$109bn. Results from the most recent swap line drawdown, reportedly in Japan, are not included in the data in Figure 2, and will be available later this week upon publication by the Fed.

Figure 3: The combination of Fed rate cuts and easing of penalties has lowered swap line costs



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Figure 4: FX basis has widened to 2011-12 levels; 2008 levels not seen since swap line inception



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

So, what could change our resolve?

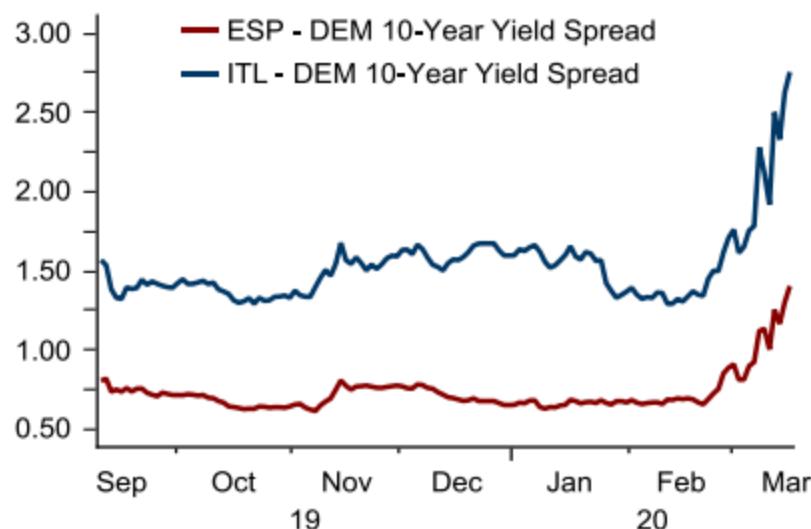
Beyond relief from immediate funding pressures, we need 3 other factors to come into play before taking a more constructive view on risky currencies:

1. Massive fiscal stimulus – markets are anticipating a fiscal program from the US of anywhere between \$800 billion to 1.2 trillion, as things stand. This encompasses a range of measures such as tax cuts, cash handouts and credit guarantees, with an explicit promise by Treasury Secretary Mnuchin (who argued that unemployment can reach 20% without counteracting measures) to get money into the system within the next 2 weeks. The truth is that the House and Senate both need to agree, and the devil as ever is in the details. Still, now that President Trump has finally acknowledged the true scale and depth of the problem to hand, the odds are far higher that coordinated action involving both fiscal and monetary authorities is possible in the US. This in our view gives the USD an edge over EUR, where in all likelihood as much stimulus is needed but where

SNB FX intervention should smooth the envisaged downward trend. We also acknowledge that the FX options market has partly started to reflect our bearish view in EURCHF with risk-reversals increasingly favouring EURCHF puts over calls. Implied volatility also has moved higher. (Figure 7). Although not at extreme levels yet, both factors make us hesitant to be more aggressive with our downside target. However, we would stress the risk that EURCHF could gap lower should the SNB not be able to defend the downside in times of renewed stress in the global financial system.

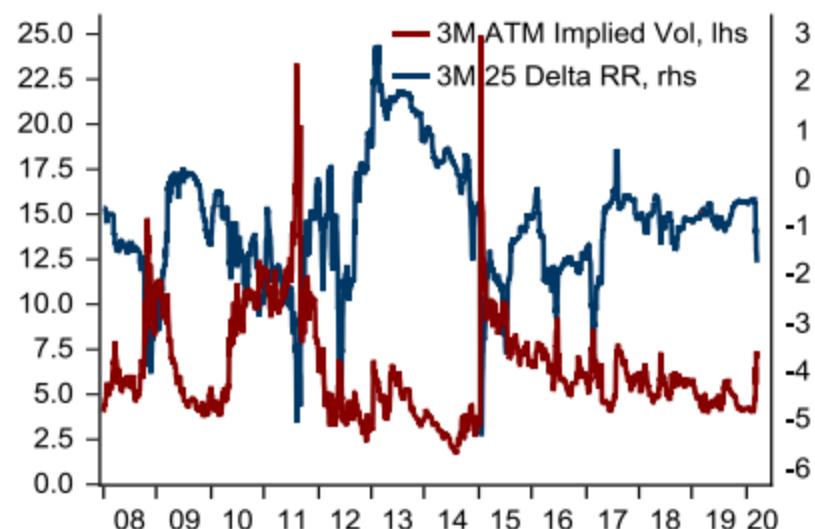
Should there be signs that the coronavirus crisis abates and that there are prospects of a swift recovery in the Eurozone economy coupled with an increase in inflation expectations closer to the ECB's inflation target, we might re-assess our view.

Figure 6: Peripheral spread widening weighing on EURCHF



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service,
Macrobond

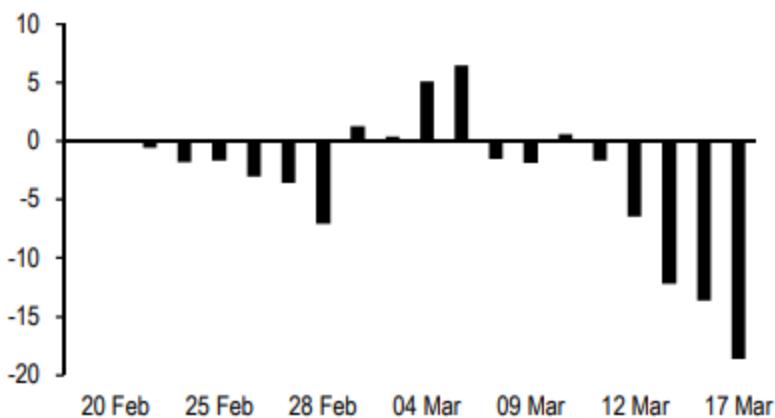
Figure 7: Option market signals positioning not extreme yet



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service,
Macrobond

- **Liquidity in the CP market remained impaired in spite of the CPFF and PDCF announcements yesterday.** This was no surprise given the myriad details that still remain unknown. Not to mention, the programs are not yet fully operational. PDCF is expected to be opened on Friday, while the timing for CPFF is undetermined. At a minimum, we need more clarity on these facilities before the markets can even begin to recover.
- **At their core, CPFF and PDCF do not fully address the crux of the issue in the money markets—that is, secondary market liquidity.** The lack of term liquidity in the CP markets was a function of the defensive position many liquidity investors adopted when they started seeing redemptions. Those redemptions have only intensified over the past few days. Indeed, **since March 12, prime institutional MMFs have lost \$51bn in assets or 16% of the portfolio (Exhibit 1).** And while they have always been conservative and ran their portfolios with roughly 40% 7d liquidity, further, rapid withdrawals could push this down to the 30% threshold. In fact, **the past few days of redemptions have already pushed some funds to be within 2-3%-pts of that 30% threshold (Exhibit 2).** Once breached, SEC Rule 2a-7 rules require the fund's board to decide whether to impose a liquidity fee (up to 2%) on all redemptions and/or suspend redemptions for up to 10 days. **The MMF industry is only as strong as its weakest link.** If one fund breaches the threshold and imposes gates/fees, this could prompt another wave of redemptions which could further impair the CP markets.

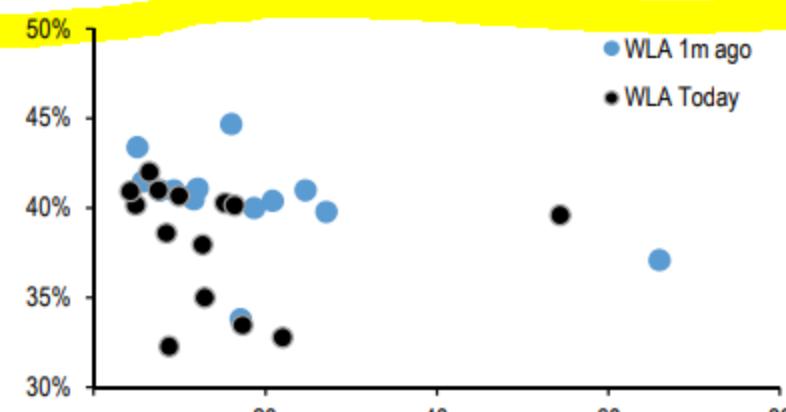
Exhibit 1: Daily change in prime institutional MMF balances (\$bn)



Source: iMoneyNet, data as of 3/17/2020

Exhibit 2: Some funds are close to breaching their 30% threshold

Prime fund weekly liquid assets (%) vs total net assets (\$bn) by fund, 1m ago and current



Source: MMF websites, J.P. Morgan as of 3/17/2020; includes prime funds with > \$5bn in AUM as of 2/14/20 and WLAs of <45%

- **Like issuers, short-term investors need liquidity.** They need it to meet redemptions. Faced with their binding constraint, prime institutional MMFs have an urgent need to access liquidity. Under normal circumstances, they can sell their securities to dealers in exchange for cash. However, in recent days, dealers have been severely hampered in their ability to intermediate in the CP markets, with most citing “full” on their balance sheet capacity. **While PDCF should help in this regard as it gives an outlet for dealers to pledge their securities, it remains to be seen what the participation rate will be among primary dealers. Borrowing from the Fed still has regulatory implications, especially from a capital and liquidity perspective.** To the degree banks are already liquidity constrained, as they face large drawdowns on their capital commitments and clients running towards deposits, it’s unclear how much room there is for primary dealers to intermediate. Furthermore, PDCF loans are made with recourse which means the dealer still bears the credit risk of the underlying collateral.

- Treasury's proposal to provide a guarantee for MMFs does not really help.** In 2008, Treasury used the Exchange Stabilization Fund to guarantee MMFs' NAV should they fall below \$0.9950, otherwise known as "breaking the buck." While that helped stabilize markets back then and stemmed further MMF outflows, we would argue today's circumstances are different than those of 2008. During the Global Financial Crisis, the outflows were predominately driven by credit concerns following Lehman's bankruptcy which then led to a MMF liquidity crisis. Today, we would argue it's the other way around.
- The Fed, in conjunction with Treasury, needs to establish facilities that target secondary market liquidity.** We believe a facility like the AMLF (Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility) would be most efficient in providing liquidity to the CP markets. The facility made nonrecourse loans to dealers to purchase ABCP. Presumably, the liquidity facility would buy paper other than just ABCP if this were to be reinstated today. Alternatively, the Fed could allow the CPFF to purchase secondary market paper from dealers. Either way, the goal is to inject liquidity to end investors via primary dealers such that the end investors can continue to provide funding for CP issuers.

An overview of the CP/CD universe

With attention focused on commercial paper markets, we take this opportunity to update our analysis of the broad composition of CP/CD. By tracking individual CP and CD transactions using DTCC data, we compute an estimate of outstandings across product types, structures, tenors and issuers. We look at issuers with total average outstandings of at least \$1bn. Furthermore, for each product type, (original issue) maturity bucket, and rate type (fixed and floating), we also compute the number of unique issuers (issuers with at least \$250mm outstanding on average in a given sector). We count distinct issuers at the parent company level, so in cases where a company has issued CP/CD through multiple entities we generally aggregate them together. Together, the data give us a sense of the diversity of issuers that are active in different parts of the market. Our results are summarized in **Exhibit 3**.

Exhibit 3: DTCC transaction data give us a comprehensive view of the CP/CD universe

1y (3/17/19-3/16/20) average outstandings (\$bn) and number of unique active issuers by product type and original issue maturity bucket; total, fixed, and floating*

	Estimated Outstanding (\$bn)							# of Unique Active Issuers							
	O/N	1-2w	3w-2m	3-5m	6-8m	9m+	Total	O/N	1-2w	3w-2m	3-5m	6-8m	9m+	Total	
Total	Financial CP	14	23	48	141	175	204	605	10	18	35	60	52	42	70
	CD	0	26	16	157	198	340	736	0	13	16	45	42	47	57
	Non-Financial CP	13	30	148	109	35	32	367	19	34	89	62	19	11	104
	SSA CP	0	4	16	64	32	10	126	0	3	10	18	15	8	19
	ABCP	17	19	52	102	59	23	272	23	23	39	45	32	13	50
Fixed	Financial CP	14	23	47	139	135	42	399	10	18	33	59	50	34	69
	CD	0	26	14	126	94	52	312	0	13	15	43	38	33	56
	Non-Financial CP	13	30	148	109	33	23	356	19	34	89	62	19	11	104
	SSA CP	0	4	16	63	30	7	120	0	3	9	18	15	7	19
	ABCP	17	19	52	101	38	4	232	23	23	39	45	30	4	50
Floating	Financial CP	0	0	2	2	40	162	206	0	0	2	2	21	25	28
	CD	0	0	2	31	104	287	424	0	0	1	9	33	41	42
	Non-Financial CP	0	0	0	0	2	9	11	0	0	0	0	1	1	1
	SSA CP	0	0	0	1	2	3	6	0	0	0	1	3	3	4
	ABCP	0	0	0	1	21	19	40	0	0	0	0	15	10	17

Source: DTCC, Bloomberg, J.P. Morgan, as of 3/16/20

*All outstandings are estimates based on DTCC transaction data. Issuers with less than \$1bn in total YTD average outstandings are excluded, as are transactions with maturity longer than 13 months. Active issuers are those with at least \$250mm outstanding in a particular product type and maturity bucket. Unique issuers are generally counted at the parent company level, based on parent data from Bloomberg. Note that DTCC reports all sales from an issuer or dealer to an investor, without distinguishing between primary and secondary market transactions. As such our

US WN 30Y 5Y z

USD Sprd US1/WN1/30

X

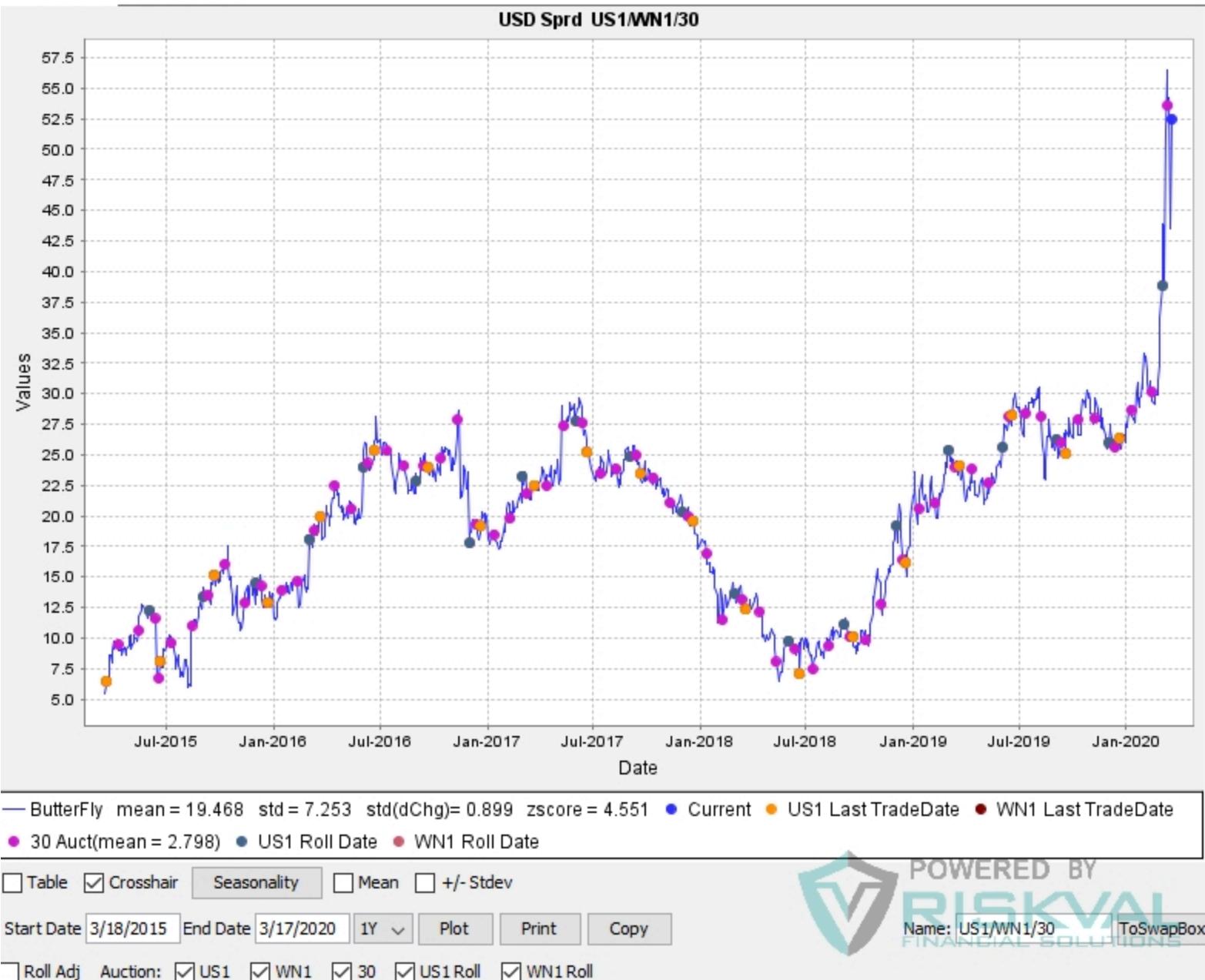
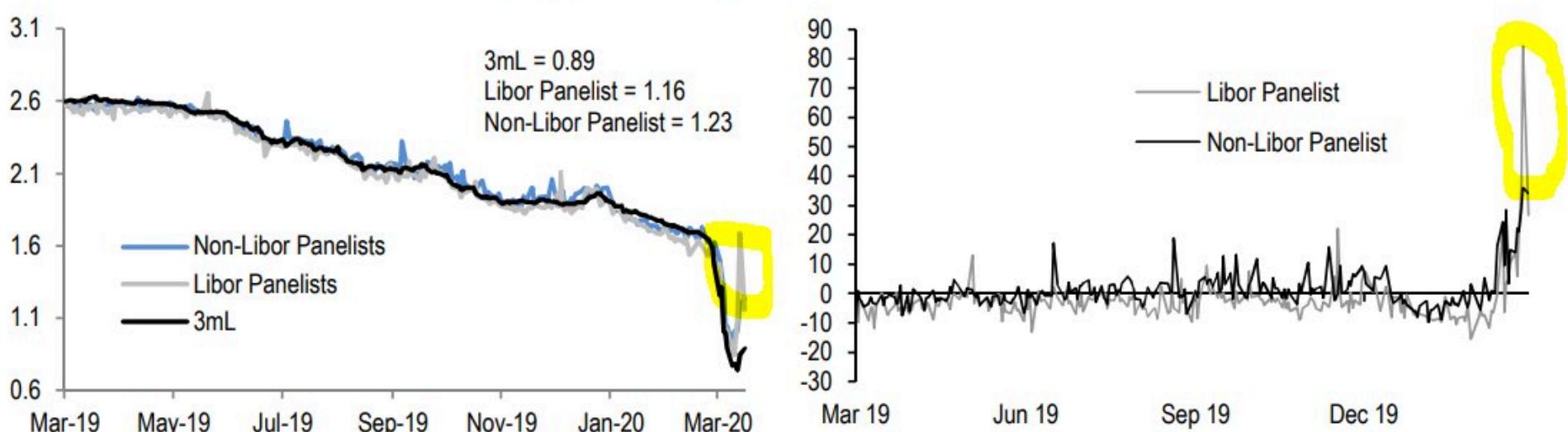


Exhibit D: Fixed CP/CD 3m transaction rates (%), spread to libor (bp)



J.P. Morgan

17 March 2020

JPM Daily US Short Duration Update

Rise of the Zombies: Fed brings back CPFF and PDCF

In an effort to provide more color on the state of the money markets, we are temporarily converting our mid-week update to a daily publication. We will continue to do this as needed.

- This morning, the Fed announced that they would reinstate the Commercial Paper Funding Facility (CPFF) to help unclog the commercial paper market. This facility is very similar to the one established in 2008 in providing issuers (non-financial, financial, and ABCP) with access to backstop liquidity. In particular, the Fed will create a special purpose vehicle to purchase CP from eligible issuers via primary dealers. One notable difference between the old and new programs is the \$10bn of credit protection from the Treasury's Exchange Stabilization Fund (ESF) which was not available before (see [The Fed gets creative; expect more](#), M. Feroli, 3/17/20).
 - While the launch of CPFF 2.0 is a welcome development, we are cautious around how much this facility alone would work to alleviate funding stresses on the credit side of the money markets. Importantly, there are a variety of key elements that we think are missing:
 1. **Eligible issuers.** The facility will purchase US denominated CP (including ABCP) that are rated at least A-1/P-1/F1 by the major rating agencies, and if rated by multiple rating agencies, is rated at least A-1/P-1/F1 by two or more of the rating agencies. The definition would encompass the Tier 1 market which is currently about \$1tn (\$250bn ABCP, \$250 non-financial, \$500bn financial). However, the announcement seems to suggest that issuers that currently have Tier 2 ratings would not be scoped in—the very market that is facing the most stress at this point (Fed data shows Tier 2 issuers printed 90-day paper at 3.04% on Monday, while Tier 1 issuers were at 1.34%). Their lack of access will likely continue to put pressure on them to draw on bank lines, intensifying liquidity risks at banks.
 2. **Pricing.** The facility allows eligible CP issuers to borrow 3-month CP at a price of OIS + 200bp. Based on today's pricing, that would mean a rate of 2.12% or 3mL + 107bp. **Relative to other funding sources, this pricing is very punitive.** Most corporations, and particularly A1/P1 issuers, can draw on their bank lines at better levels. It's unclear whether the Fed simply took the pricing from the CPFF facility in 2008, but it would appear that this rate does not reflect current pricing conditions of the broader CP markets. Issuers will also have to pay a one-time facility fee of 10bp.

That said, in spite of the punitive rate, CPFF will not go unused. After CPFF was resurrected today, a common comment was to the effect of "gee, OIS +200 is high." Our response is "beggars can't be choosers." While some 3-month CP positions may be marked at tighter spreads, deep secondary markets are not being actively made at these levels. Dealer liquidity in the credit side of US money markets is still weak, and may remain so for several weeks more. CPFF won't immediately address any market depth issues, but it will provide eligible issuers with reliable funding in unreliable times.

 - 3. **Primary market.** The facility will purchase CP from eligible issuers in the primary market, up to the greatest amount of CP outstanding the issuer had over the past year. **While this is helpful and provides a liquidity backstop for issuers, this importantly does not address liquidity in the secondary market.** Currently, dealers continue to be hampered in their ability to intermediate, and prime institutional MMFs continue to face the prospect of more redemptions as shareholders search for safety (i.e., rotating from prime funds to government funds).
- This last point is worth focusing on. **Over the past three days alone (3/12-3/16), prime institutional MMFs have lost \$32bn in assets or 10% of the portfolio.** As they face more redemptions, their liquidity levels will likely continue to deplete. And while they have always been conservative and have run their portfolios with ~40% 7d liquidity, further, rapid withdrawals could push this down to the 30% threshold. Once breached, fund managers will have to decide whether to impose fees and/or gates. Which leads us to second zombie...

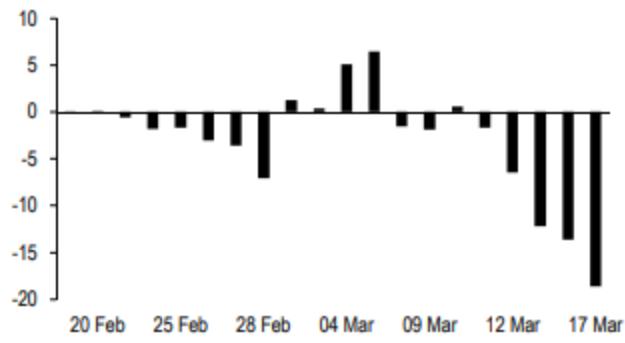
JPM Daily US Short Duration Update

Secondary market liquidity needs help

In an effort to provide more color on the state of the money markets, we are temporarily converting our mid-week update to a daily publication. We will continue to do this as needed.

- **Liquidity in the CP market remained impaired in spite of the CPFF and PDCF announcements yesterday.** This was no surprise given the myriad details that still remain unknown. Not to mention, the programs are not yet fully operational. PDCF is expected to be opened on Friday, while the timing for CPFF is undetermined. At a minimum, we need more clarity on these facilities before the markets can even begin to recover.
- **At their core, CPFF and PDCF do not fully address the crux of the issue in the money markets—that is, secondary market liquidity.** The lack of term liquidity in the CP markets was a function of the defensive position many liquidity investors adopted when they started seeing redemptions. Those redemptions have only intensified over the past few days. Indeed, since March 12, prime institutional MMFs have lost \$51bn in assets or 16% of the portfolio (Exhibit 1). And while they have always been conservative and ran their portfolios with roughly 40% 7d liquidity, further, rapid withdrawals could push this down to the 30% threshold. In fact, the past few days of redemptions have already pushed some funds to be within 2-3%-pts of that 30% threshold (Exhibit 2). Once breached, SEC Rule 2a-7 rules require the fund's board to decide whether to impose a liquidity fee (up to 2%) on all redemptions and/or suspend redemptions for up to 10 days. **The MMF industry is only as strong as its weakest link.** If one fund breaches the threshold and imposes gates/fees, this could prompt another wave of redemptions which could further impair the CP markets.

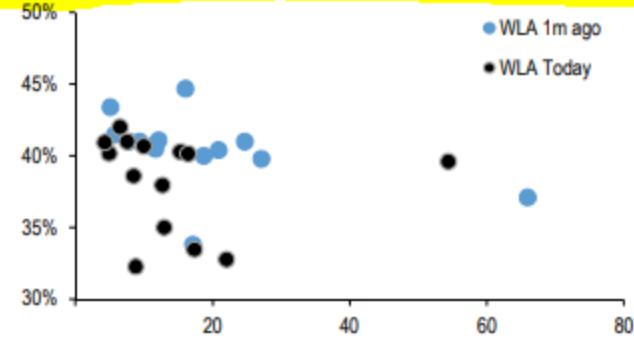
Exhibit 1: Daily change in prime institutional MMF balances (\$bn)



Source: iMoneyNet, data as of 3/17/2020

Exhibit 2: Some funds are close to breaching their 30% threshold

Prime fund weekly liquid assets (%) vs total net assets (\$bn) by fund, 1m ago and current

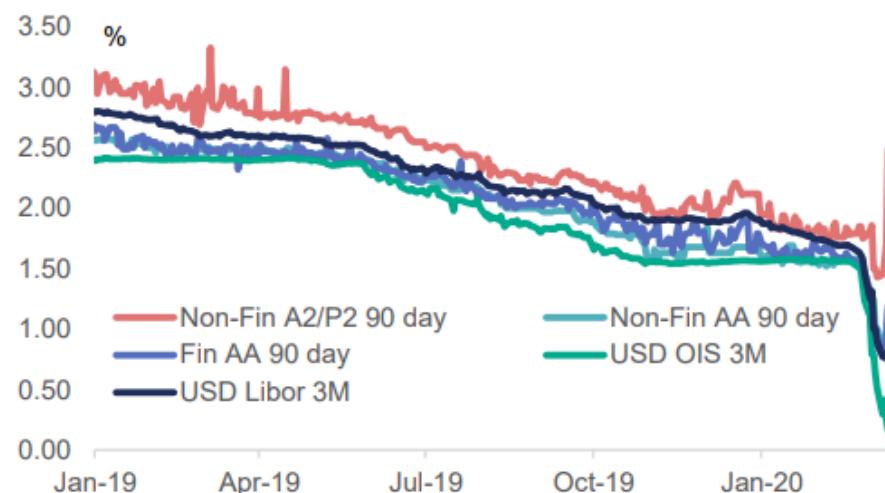


Source: MMF websites, J.P. Morgan as of 3/17/2020; includes prime funds with > \$5bn in AUM as of 2/14/20 and WLAs of <45%

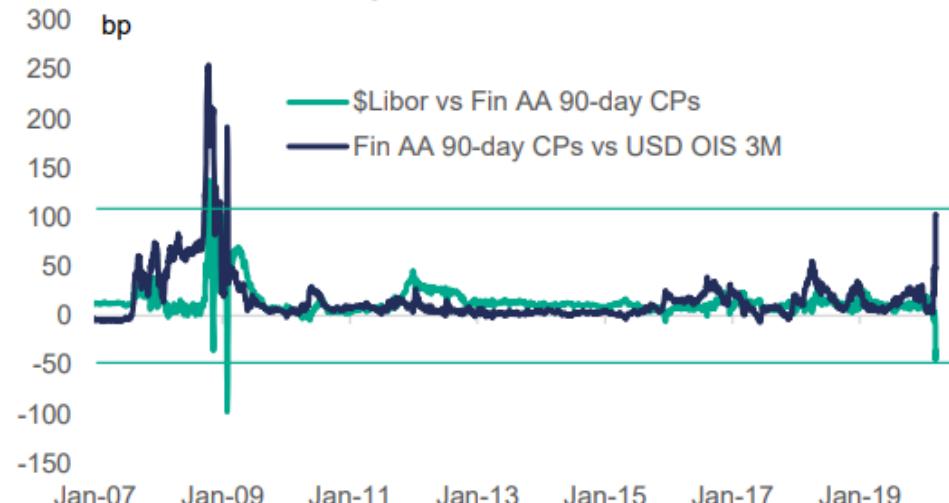
- **Like issuers, short-term investors need liquidity.** They need it to meet redemptions. Faced with their binding constraint, prime institutional MMFs have an urgent need to access liquidity. Under normal circumstances, they can sell their securities to dealers in exchange for cash. However, in recent days, dealers have been severely hampered in their ability to intermediate in the CP markets, with most citing “full” on their balance sheet capacity. **While PDCF should help in this regard as it gives an outlet for dealers to pledge their securities, it remains to be seen what the participation rate will be among primary dealers. Borrowing from the Fed still has regulatory implications, especially from a capital and liquidity perspective.** To the degree banks are already liquidity constrained, as they face large drawdowns on their capital commitments and clients running towards deposits, it’s unclear how much room there is for primary dealers to intermediate. Furthermore, PDCF loans are made with recourse which means the dealer still bears the credit risk of the underlying collateral.

US: Stress in Money Market

Commercial Paper Rates rise as 3M OIS falls

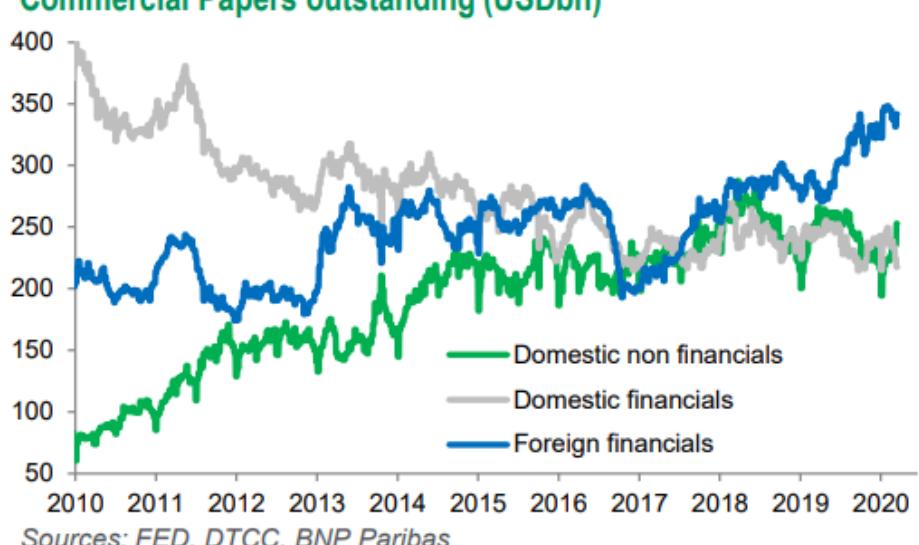


Financial Commercial Papers & Libor versus OIS



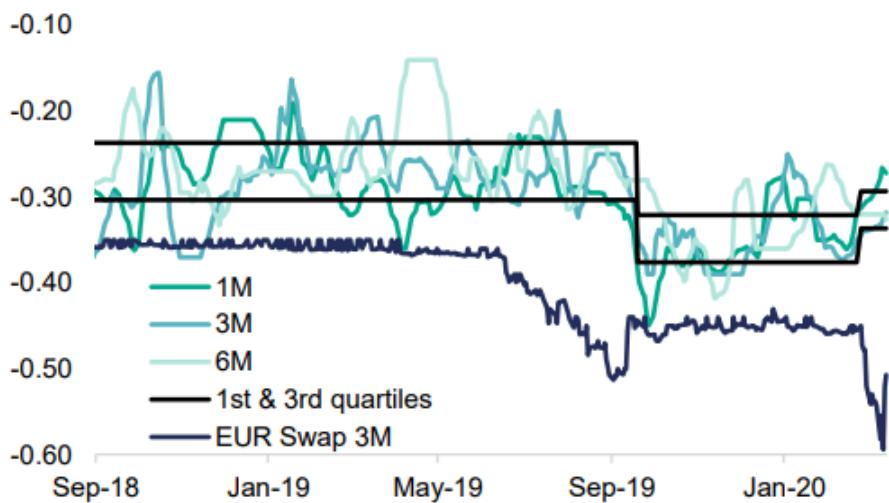
- Significant shift from March 6th : CP rates on a rising trend albeit further rates cut expectation (3M OIS down 35bp)
 - Non-financial A2: +106bp
 - Non-financial AA: +17bp
 - Financial AA: +33bp
- Spreads to 3M OIS have surged to levels not seen since 08-09
 - Financial AA widened 38bp versus Libor: Libor is lagging
 - Spread to OIS surged by ~70bp
- Libor rise even further after Fed cut rates 100bp
- Outstanding CP issuance at a 10-year high hide heterogeneous trend:
 - Foreign financials keep reaching new record highs
 - Non-financial domestics surge last week
 - Domestics whose parent is a foreign bank ease at a 2-year low (as low as at turn of year) making financial domestics ease to a 10-year low

Commercial Papers outstanding (USDbn)



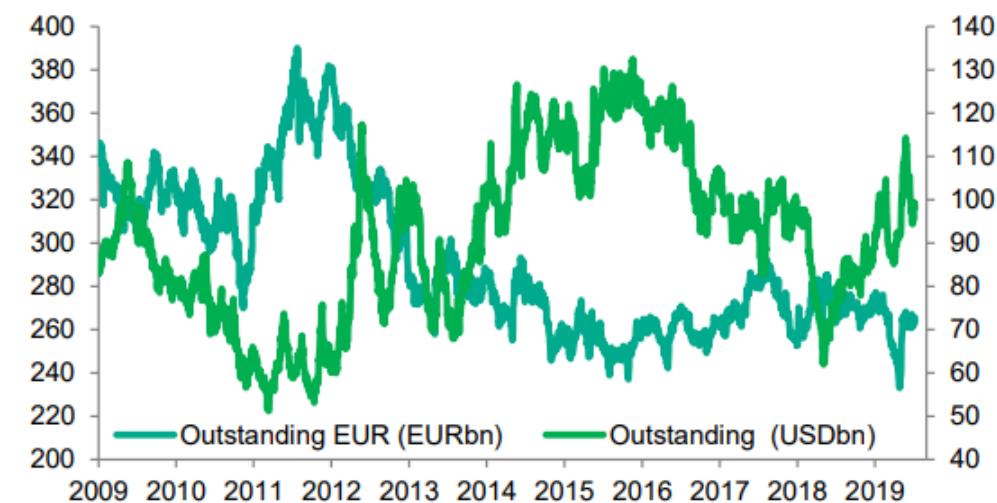
Short-Term Euro Paper: No clear sign of stress yet

Non-financial corps



Sources: ECB, BNP Paribas

Outstanding amounts of STEP securities



Sources: ECB, BNP Paribas

- Non-financial corps: EUR39bn outstanding STEP securities across currencies
 - 1st & 3rd quartiles through 3 periods show **marginally higher rates since the virus spread to Europe, in contrast with lower OIS yield**
 1. September 2018 to 2019
 2. Sep-19 ECB rate cut to 21 February 2020
 3. Since the virus spread to Europe
- Outstanding STEP securities: **USD funding down 14% since late Jan, but back to average** (currently USD95-100bn)



The bank for a changing world

MARKETS 360 | 4

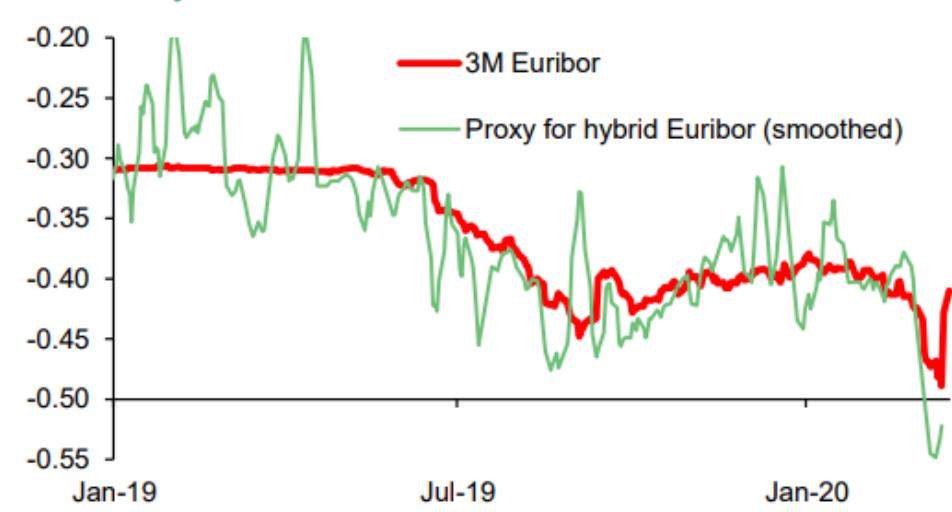
Short-Term Euro Paper: MFI STEP yields still very low

MFIs: Outstanding amounts of STEP securities (all currencies (EURbn))



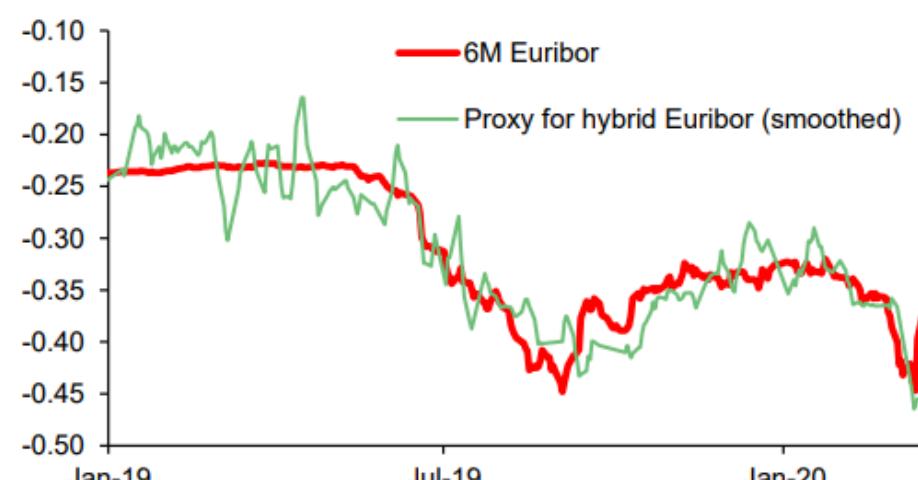
Sources: ECB, BNP Paribas

MFI STEP yields versus Euribor



Sources: ECB, BNP Paribas

- MFI issuance of STEP papers still very much unchanged;
- MFI STEP yields have declined along with rate cuts expectations.
- Euribors look too high compared to STEP data.



Sources: ECB, BNP Paribas

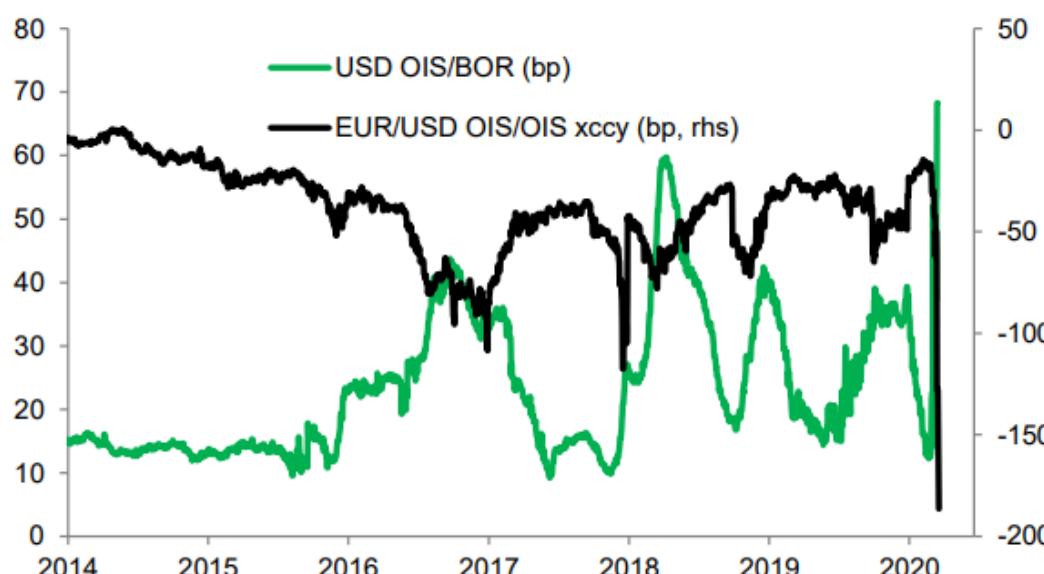


The bank for a changing world

MARKETS 360 | 5

Funding stress spreads to xccy basis

OIS/OIS xccy basis widen sharply since 12 March, and further still following Sunday's Fed announcements



Sources: Bloomberg, BNP Paribas

■ Unchanged until the end of February, USD funding stress finally spread to the xccy basis swap market:

- From a relatively 'benign' 20bp widening early March, the EUR/USD 3M OIS/OIS xccy basis widened by 70bp at the end of last week, showing stress has now spread to the xccy swap market
- The OIS/OIS basis is more relevant to capture that stress as IBOR/IBOR xccy basis is impacted by the widening in OIS/BOR bases



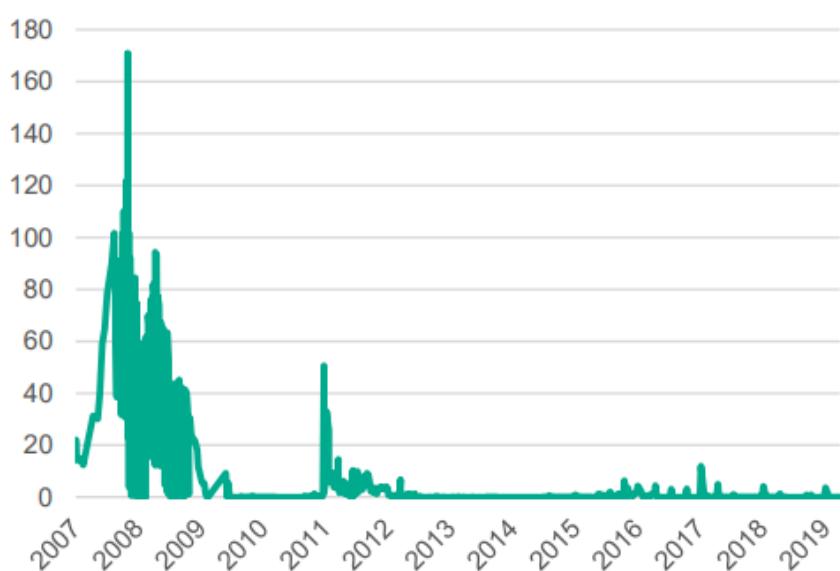
BNP PARIBAS

The bank for a changing world

MARKETS 360 | 6

ECB-Fed FX swap line: All eyes on tomorrow's operation

USD tender operations with the ECB (USDbn; source: ECB)



Upcoming USD tender operations (source: ECB)

Announcement	Allotment	Settlement	Maturity	Term
Wed, 18/03/2020	Wed, 18/03/2020	Thu, 19/03/2020	Thu, 26/03/2020	7
Wed, 18/03/2020	Wed, 18/03/2020	Thu, 19/03/2020	Thu, 11/06/2020	84
Wed, 25/03/2020	Wed, 25/03/2020	Thu, 26/03/2020	Thu, 02/04/2020	7
Wed, 25/03/2020	Wed, 25/03/2020	Thu, 26/03/2020	Thu, 18/06/2020	84
Wed, 01/04/2020	Wed, 01/04/2020	Thu, 02/04/2020	Thu, 09/04/2020	7
Wed, 01/04/2020	Wed, 01/04/2020	Thu, 02/04/2020	Thu, 25/06/2020	84
Wed, 08/04/2020	Wed, 08/04/2020	Thu, 09/04/2020	Thu, 16/04/2020	7
Wed, 08/04/2020	Wed, 08/04/2020	Thu, 09/04/2020	Thu, 02/07/2020	84
Wed, 15/04/2020	Wed, 15/04/2020	Thu, 16/04/2020	Thu, 23/04/2020	7
Wed, 15/04/2020	Wed, 15/04/2020	Thu, 16/04/2020	Thu, 09/07/2020	84
Wed, 22/04/2020	Wed, 22/04/2020	Thu, 23/04/2020	Thu, 30/04/2020	7
Wed, 22/04/2020	Wed, 22/04/2020	Thu, 23/04/2020	Thu, 16/07/2020	84
Wed, 29/04/2020	Wed, 29/04/2020	Thu, 30/04/2020	Thu, 07/05/2020	7
Wed, 29/04/2020	Wed, 29/04/2020	Thu, 30/04/2020	Thu, 23/07/2020	84
Wed, 06/05/2020	Wed, 06/05/2020	Thu, 07/05/2020	Thu, 14/05/2020	7
Wed, 06/05/2020	Wed, 06/05/2020	Thu, 07/05/2020	Thu, 30/07/2020	84
Wed, 13/05/2020	Wed, 13/05/2020	Thu, 14/05/2020	Fri, 22/05/2020	8
Wed, 13/05/2020	Wed, 13/05/2020	Thu, 14/05/2020	Thu, 06/08/2020	84
Wed, 20/05/2020	Wed, 20/05/2020	Fri, 22/05/2020	Thu, 28/05/2020	6
Wed, 20/05/2020	Wed, 20/05/2020	Fri, 22/05/2020	Thu, 13/08/2020	83
Wed, 27/05/2020	Wed, 27/05/2020	Thu, 28/05/2020	Thu, 04/06/2020	7
Wed, 27/05/2020	Wed, 27/05/2020	Thu, 28/05/2020	Thu, 20/08/2020	84



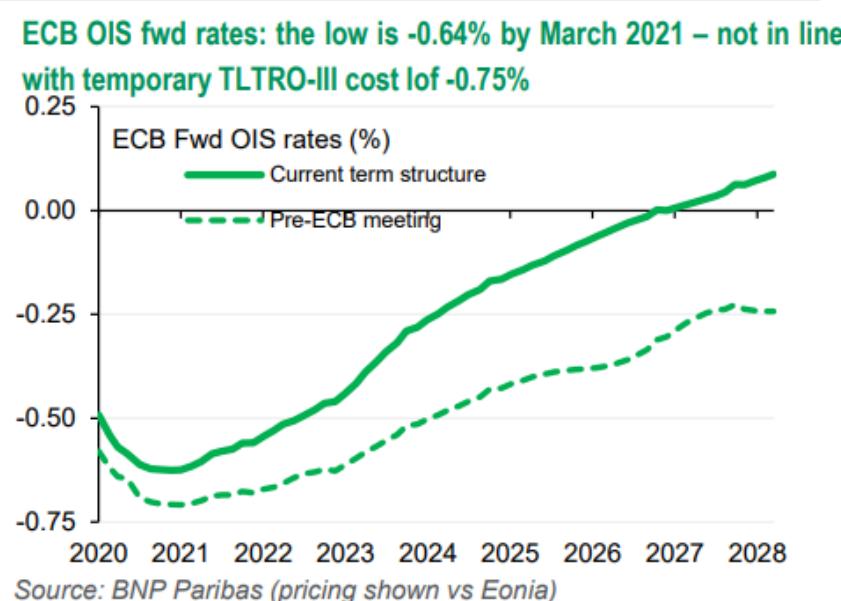
BNP PARIBAS

The bank for a changing world

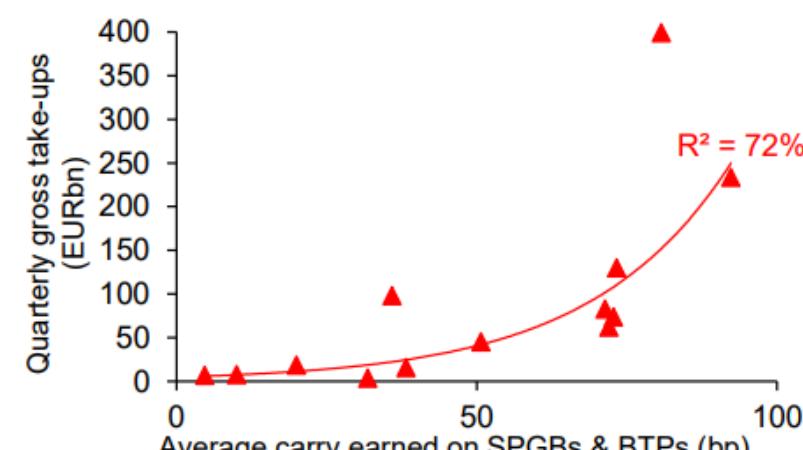
MARKETS 360 | 8

ECB makes (T)LTROs as accommodative as possible & officialise the DFR as the new refi rate

- TLTRO-III: changes to be applied as soon as at this week's TLTRO-III (19 March)
 - Cost temporarily lowered by 25bp from 24 June 2020 to 23 June 2021 for all TLTRO-III operations outstanding during that time;
 - 2.5% threshold removed temporarily: counterparties maintaining their levels of credit provision between 1 April 2020 and 31 March 2021 will benefit from the reduced cost of DFR -25bp; in any case not higher than -0.75%;
 - Borrowing allowance rises to EUR3trn gross, or 2.6trn net of outstanding TLTROs (a EUR1.2trn increase);
 - 10% bid cap removed from each operation;
 - Option to repay early after 1-year instead of 2, starting in September 2021;
 - Eurosystem committees to investigate collateral easing measures to ensure that counterparties continue to be able to make full use of the funding support.
- In addition, the ECB introduces a new weekly operation, LTRO, starting this week:
 - Aim to bridge the period March and June TLTRO-III;
 - No conditions attached;
 - Up to 3-months term (weekly operations maturing on 24 June 2020);
 - Cost DFR flat.
- Overall, banks have the availability to take a lot more money and at a reduced cost. Will they?



TLTRO-III: Back to appealing territory? Average 'carry' at 120bp



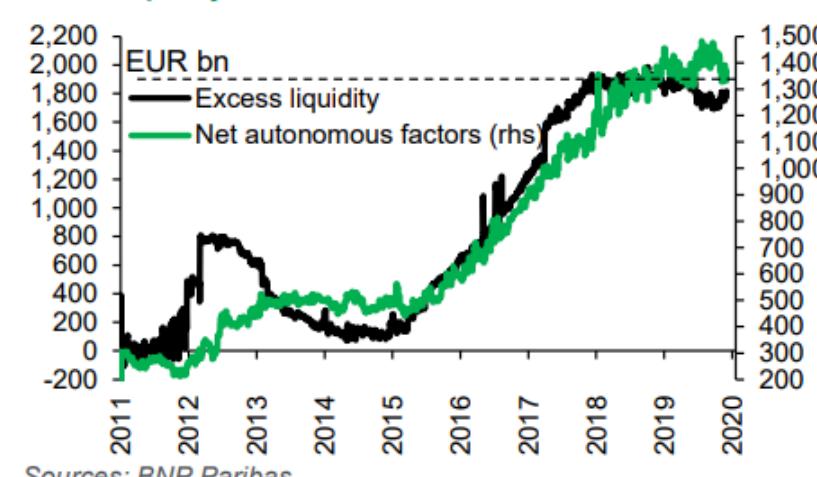
The bank for a changing world

MARKETS 360 | 9

ECB: Excess liquidity set to rise again? The pace of QE matters

- An additional envelope of EUR120bn will be added until the end of the year, with no prefixed monthly target. A strong contribution towards the private sector purchase programmes will be ensured.
- Will it be enough to support the real economy? The fiscal tool will be, from that standpoint, instrumental, while the ECB can act to prevent the negative feedback loop from corporates to banks, thus safeguarding the financial system.
- Heightened uncertainty vs last week large TLTRO-II early repayment
- TLTRO-III cost below DFR vs market volatility ('carry' trade not appealing)
- EUR120bn QE expansion vs pace at which it will be run (see top chart)

Excess liquidity failed to rise further in 2018 amid 30bn/m QE



TLTRO-II repayments schedule: lower but still very elevated repayment in March. Quid of this week's TLTRO-III take-up - another negative net demand ahead?

TLTRO-II	Allotment	Maturity	Take-up	Voluntary early repayments (all in EURbn)								Early repayments	Outstanding amount	
				Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20			
TLTRO-II.1	24-Jun-16	24-Jun-20	399.29	11.00	2.70	2.43	0.49	21.23	23.34	112.10	65.57	238.86	160.43	
TLTRO-II.2	22-Sep-16	30-Sep-20	45.27	-	0.93	0.03	0.13	0.50	1.17	10.69	4.41	17.85	27.42	
TLTRO-II.3	15-Dec-16	16-Dec-20	62.16	-	-	0.68	0.07	0.01	3.55	9.62	6.74	20.66	41.50	
TLTRO-II.4	23-Mar-17	24-Mar-21	233.47	-	-	-	2.77	4.20	3.77	14.40	15.91	41.05	192.42	
Total				740.19	11.00	3.63	3.13	3.45	25.94	31.83	146.81	92.62	318.42	421.77

Sources: ECB, BNP Paribas

TLTRO-III	Allotment	Maturity	Take-up	Net take-up
TLTRO-III.1	19-Sep-19	28-Sep-22	3.40	-28.43
TLTRO-III.2	12-Dec-19	21-Dec-22	97.72	-49.09
TLTRO-III.3	19-Mar-20	29-Mar-23		
TLTRO-III.4	18-Jun-20	28-Jun-23		
TLTRO-III.5	24-Sep-20	27-Sep-23		
TLTRO-III.6	10-Dec-20	20-Dec-23		
TLTRO-III.7	18-Mar-21	27-Mar-24		
Total				101.12 -77.52



BNP PARIBAS

The bank for a changing world

MARKETS 360 | 10

Chart 2: Mortgage vs UST spread

Source: Bloomberg

Table 6: Eligible agency debt includes notes, bonds, debentures, obligations, certificates of interest & participation certificates from:

- Federal Intermediate Credit Bank
 - Federal Home Loan Bank
 - Federal Land Bank
 - Bank for Cooperative
 - Fannie Mae
 - GNMA
 - Merchant Marine
 - Export-Import Bank
 - Farmers Home Administration
 - Small Business Administration
- Federal Housing Administration
 - District of Columbia Armory
 - Tennessee Valley Authority
 - Local urban renewal or public housing agencies
 - Commodity Credit Corporation
 - Federal Home Loan Mortgage Corporation
 - US Postal Service
 - General Services Administration
 - Secretary of Health, Education and Welfare
 - Overseas Private Investment Corp

Source: Federal Reserve

Other assets: credit or equities

The Federal Reserve Act grants the Fed power to purchase securities that are direct obligations of, or fully guaranteed as to principal and interest by, the United States. Table 6 has the specific obligations that can be purchased. The act states the Fed can purchase:

"any bonds, notes, or other obligations which are direct obligations of the United States or which are fully guaranteed by the United States as to the principal and interest may be bought and sold without regard to maturities but only in the open market"

The Fed is currently unable to purchase credit or equity obligations of private sector entities. The Fed could have their QE purchase authority expanded only via an act of Congress and formal change to the Federal Reserve Act.

13(3) and changes to Fed authority

The Federal Reserve used the "unusual and exigent circumstances" clause (i.e. "section 13(3)") of the Federal Reserve Act to extend credit to financial firms during the Global Financial Crisis in 2008. Using this broad authority, the Fed created and implemented five funding facilities to provide liquidity to primary dealers and act as a backstop to the commercial paper and asset-back securities markets (Table 8). In addition to general funding facilities, the Fed provided special assistance to four firms that the Fed deemed "too big to fail". The Fed purchased troubled assets off of these institutions' balance sheets through financial vehicles (i.e. Maiden Lane LLCs) to make sure the firms did not become insolvent and destabilized funding markets.

In the fallout, Congressional action has reined in some of the Fed's emergency lending powers. The new guidelines do not eliminate the Fed's lending authority but raise the procedural bar. The new law still allows the Fed act as the "lender of last resort" and create broad funding facilities to help market functioning. However, there are more hoops to jump. The Fed is also restricted from providing "tailored" help to individual firms. Specifically, the Dodd Frank Act of 2010 changed the Fed's 13(3) authority and requires programs established under this authority to have (See Table 9 for all changes):

- Approval from the US Treasury Secretary
- "Broad based eligibility" is meant to include a program or facility that is not designed for the purpose of aiding any number of failing firms and in which at least five entities would be eligible to participate. It also suggests programs should not be for the purpose of aiding specific companies to avoid bankruptcy or resolution.
- Limited risk of insolvency: the definition of insolvency to cover borrowers who fail to pay undisputed debts as they become due during the 90 days prior to borrowing or who are determined by the Board or lending Reserve Bank to be insolvent.

Other provisions within the Dodd-Frank Act may make the funding facility less attractive to financial institutions. The rate charged at the funding facility must be a "penalty rate" defined as "a rate that is a premium to the market rate in normal circumstances. Also, any Fed actions taken under Section 13(3) of the Federal Reserve Act requires the Fed to provide disclosures to Congress within 7 days of creating the funding facilities with updates every 30 days which may or may not be kept confidential. Thereafter, public disclosures of the identities of borrowers, amount borrowed, rate charged and collateral pledged must be disclosed quarterly within one year after a credit facility is terminated.

Nonfinancial firms, if needed, would have access to the Fed's credit facility as the Dodd-Frank Act does not limit participants to financial firms. However, section 13(3) of the Federal Reserve Act limits the Fed to providing liquidity to the financial system. It excludes them from bailing out or supporting sectors outside financial markets, notwithstanding a change in the Fed's Charter or Congressional approval.

Table 8: Funding facilities created under Section 13(3) of the Federal Reserve Act

Facility	Loans Outstanding at peak	Number of participating institutions
Term Securities Lending Facility (TSLF)	\$235.5bn	18
Primary Dealer Credit Facility (PDCF)	\$146.6bn	18
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)	\$152.1bn	11
Commercial Paper Funding Facility (CPFF)	\$348.2bn	120
Term Asset-Backed Securities Loan Facility (TALF)	\$48.2bn	177

Source: Federal Reserve, Labonte (2016) "Federal Reserve: Emergency Lending", Congressional Research Service.

Table 9: Changes to the Federal Reserve's emergency powers

Pre Dodd-Frank	Post Dodd Frank
• Fed may assist "any individual, partnership, or corporation"	• Fed may assist "participant in any program or facility with broad-eligibility"
• Borrower must provide collateral	• Collateral "sufficiently protect taxpayers from losses" and have "lendable value"
• Fed can charge interest rates consistent with the discount window	• Assistance is for liquidity purposes only and not to aid a failing financial company
• Fed must have evidence that the borrower has no private alternative	• Cannot move assets from the balance sheet of a single specific company
• Fed may not help insolvent firms	• Fed may not help insolvent firms
	• Program needs to be "terminated in a timely and orderly fashion"
	• Requires approval of the Treasury Sec

Source: Labonte (2016) "Federal Reserve: Emergency Lending", Congressional Research Service.

- **Term lending actions:** these include term discount window lending for depositories via a “Term Auction Facility” & term collateralized lending for dealers via a “Term Securities Lending Facility”
- **Unusual & exigent actions:** these include non-traditional activities to facilitate lending to corporations under the “unusual & exigent” clause of Federal Reserve Act section 13(3). The Fed might also consider employing Federal Reserve Act section 10B which allows for “back to back” lending via advances to depository institutions in certain circumstances.¹

These tools can be deployed to ensure that short-term funding markets remain in relatively stable condition, facilitate liquidity and lending against a range of collateral, and support corporate and financial institutions whose operations have been significantly disrupted by external forces. However, the Fed’s tools are not as wide ranging as prior to the financial crisis since some of the “unusual & exigent” actions are now subject to greater legal limitations & oversight (see [here](#)).

Expected playbook: cut to zero, support MBS & liquidity

In the **monetary policy** sphere, we now expect the Fed to cut rates to zero by April and put in forward guidance which shows a commitment to low rates given the shock that has hit the economy. At the April meeting, we also expect the Fed to shift existing MBS paydowns away from the Treasury market and back into agency mortgages. The next step will be to consider further LSAPs or QE in both USTs & MBS. However, we think we are quite some time away from those policies being enacted.

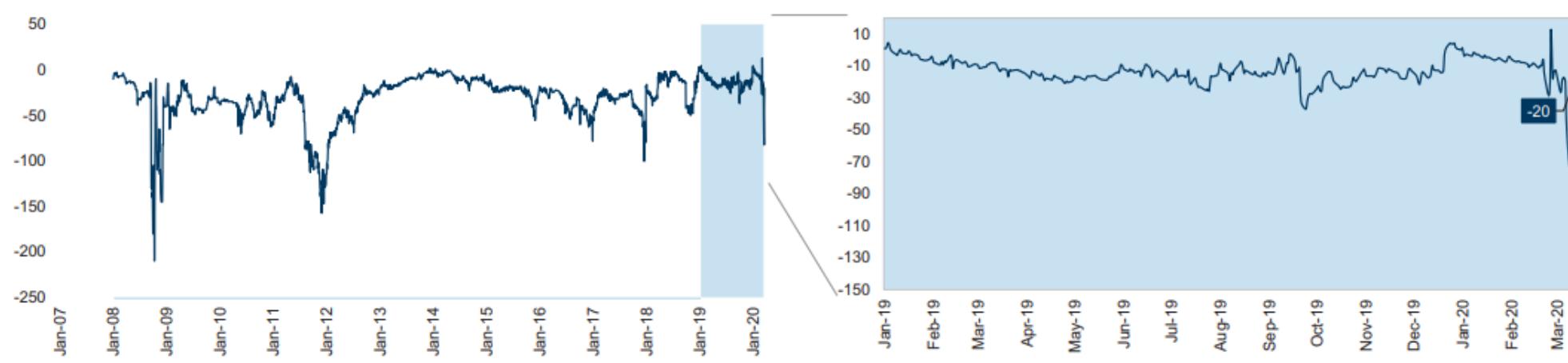
For **liquidity operations**, we expect that the Fed will keep providing large amounts of funding in the overnight and term repo markets; the Fed will keep increasing the sizes on these operations as necessary and will not taper them until markets stabilize. To lessen some of the upward pressure on short-term unsecured USD funding markets we expect the Fed and other global central banks will expand the tenors and eligibility for the FX swap lines in coming days or weeks (see [here](#)).

Depending on the depth and severity of market strain and credit availability we would look for the Fed to potentially lower the discount window in relation to the top of the fed funds target range (current spread = 50 bps, historical tight = 25 bps), employ term lending actions, and potentially engage in targeted lending under their “unusual & exigent” or 10B authority. In an extreme scenario we could envision the Fed invoking these “unusual & exigent” measures and lend to entities most adversely impacted by COVID-19. We think there is a high hurdle for the Fed to engage in another Term Asset Backed Lending Facility style program that could lend in hard hit markets ([Appendix](#)).

¹ Section 10B of the Federal Reserve Act allows for “advances to any member bank on its time or demand notes having maturities of not more than four months”. This was used to facilitate the JPMorgan takeover of Bear Stearns in March 2008.

Exhibit 1: US\$ currency swap markets have shown signs of severe stress over recent days; \$MRO take-up is a key-backstop to this trend

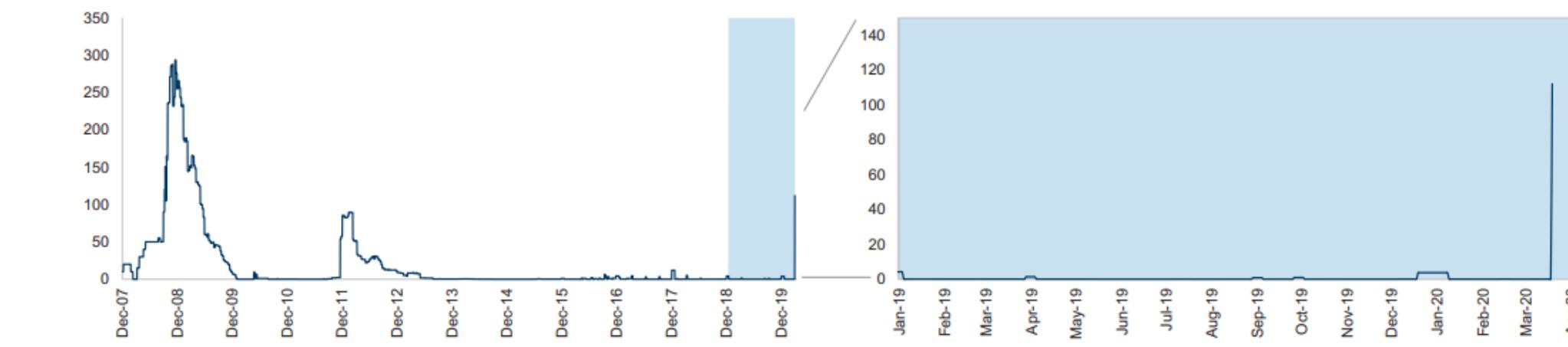
US\$/€ cross-currency swap (3-months). Pricing as of Wednesday 18th March (Intraday).



Source: Bloomberg

Exhibit 2: \$ MRO take-up has increased to >US\$100bn, from US\$0.05 bn previously, matching the 2011 crisis peak, while well below the 2008 peak ...

\$ Main-Refinancing Operations, \$bn

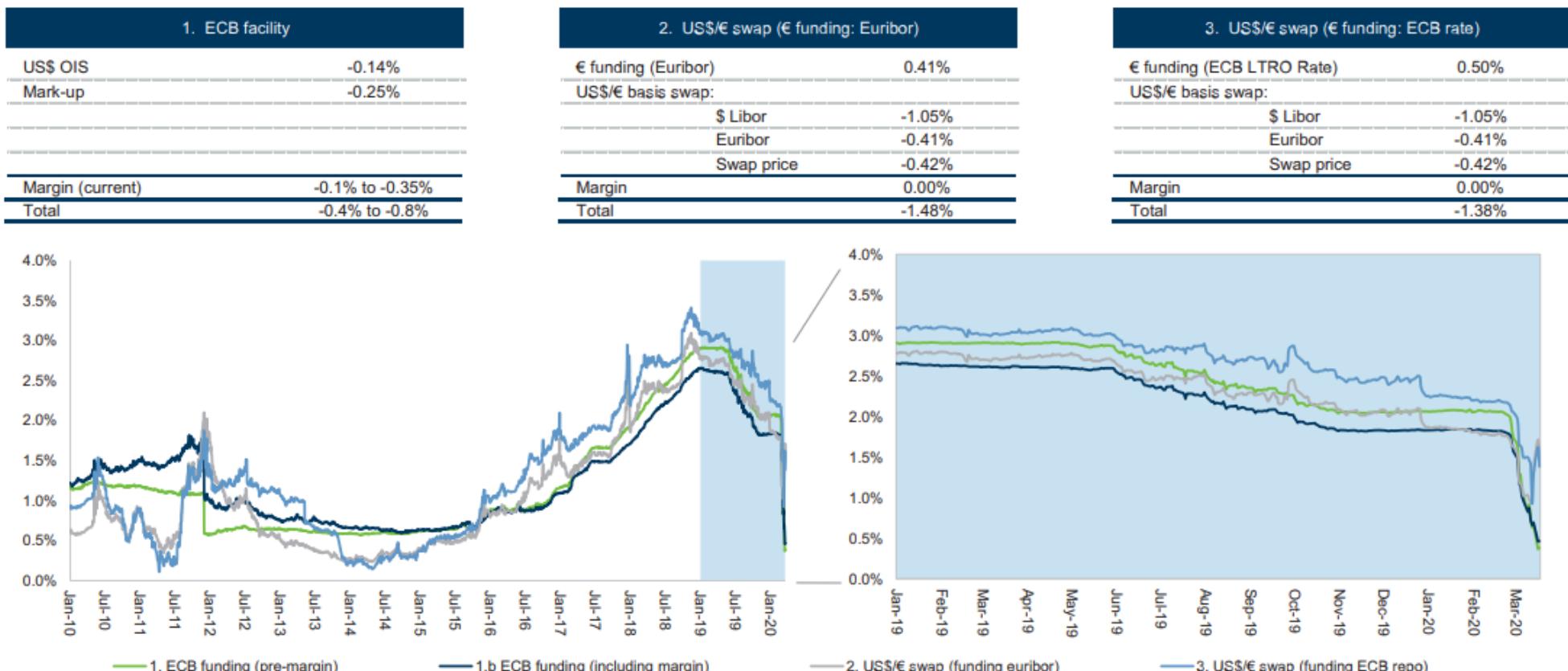


Source: European Central Bank

18 March 2020

Exhibit 3: Cost of funding in US\$ for European banks has been greatly reduced

US\$ funding cost. Prices as of 17/03/2020.



* Up until 12/03/2020, € ECB Funding is estimated using the ECB Repo facility rate. After this date, the LTRO rate (-50bps) is used. We estimate the margin for using the Fed \$ facility by using 5Y Senior CDS spreads. The line (dark blue) is computed by using the lowest pricing point of the range for the aforementioned margin.

Source: Datastream, Bloomberg

18 March 2020

Appendix 1: ECB's liquidity backstops remain in place

We published key liquidity indicators most recently on March 13 (ECB ensures ample liquidity, SSM releases ~€100 bn of capital; fiscal support for corporate borrowers needed) and March 9 (Marginal tightening of liquidity indicators for now; CB backstops in place).

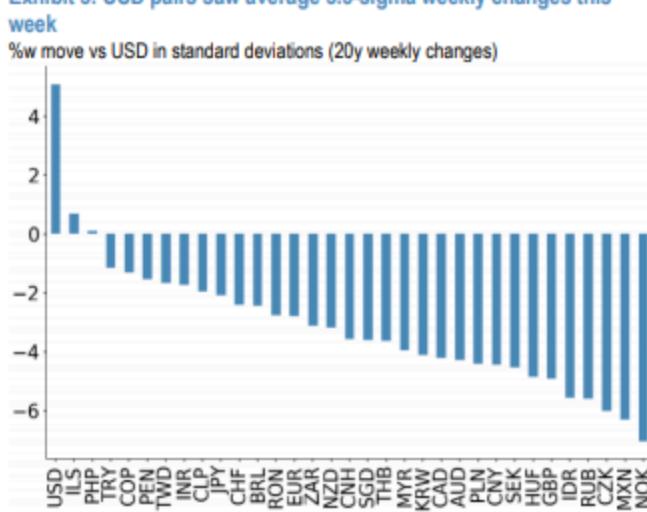
Exhibit 4: ECB backstops: were liquidity conditions to deteriorate dramatically, "crisis backstops" remain in place, on a full allotment / fixed rate basis for € (MRO, LTRO, TLTRO and ELA) and US\$, at the ECB.

Eurosystem open market operations

		Current Terms (revised March 12 & 15, 2020)			Pro-Memoria: Previous Terms		
		Tenure	Rate	Conditions	Tenure	Rate	Conditions
Regular Open Market Operations	MRO	1-week	0 bps	X	1-week	0 bps	X
	LTRO	3-months	0 bps	X	3-months	0 bps	X
Non-Standard Monetary Policy Measures	\$ MRO	1-week 3-months	OIS + 25 bps (last: 38-45bps)	X	1-week	OIS + 50bps	X
	TLTRO III	3-years	-75 to -25 bps (over 06/2020 - 06/2021) -50 - 0 bps (over remaining lifetime)	✓ Rate linked to lending growth (0.0%) ✓ Max amount at 50% of eligible loans	3-years	-50 - 0 bps (over loan lifetime)	✓ Rate linked to lending growth (2.5%) ✓ Max amount at 30% of eligible loans
	LTRO	Bridge until 06/2020	-50 bps (linked to DFR)	✓ Full allotment	Not Available		
	ELA	Bank by bank basis			Bank by bank basis		

Source: ECB, Goldman Sachs Global Investment Research

Exhibit 3: USD pairs saw average 3.5-sigma weekly changes this week



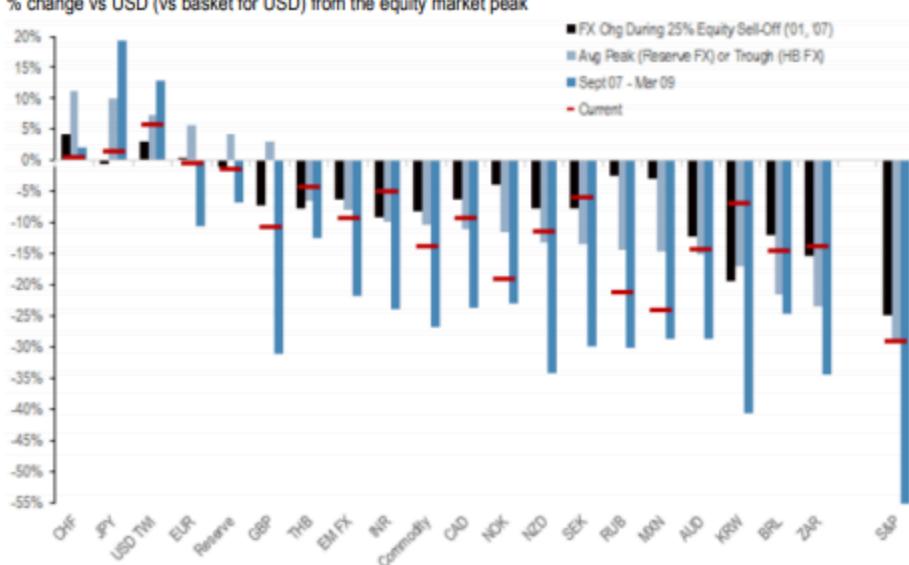
So how should we think about the mounting range of central bank and government interventions from an FX perspective? The palpable sense of urgency in many if not all countries is to be welcomed, of course, as countries face an unprecedented slump in activity with the risk that the slump could outlive the virus if cash flow issues begin to morph into genuine credit distress at a corporate level. **But it is important to recognize that, while the range of support measures (funding and outright fiscal loosening including 2% of GDP in the UK, 4% in NZ, 6% in Sweden and possibly 5% in the US, see p. 10) will ameliorate the**

severity of the unfolding downturn, they cannot by definition signal the end of the market crisis, or even the beginning of the end, without evidence that the public health emergency itself is peaking let alone receding.

This is a key differentiating factor from the GFC, when the problem was very much sector-specific and hence much more contained than now. It was therefore amenable to a resolution from financial and macro-economic policy measures in a way the current crisis unfortunately is not. But even then, it should be remembered that while policy initiatives such as TARP did eventually come to define the turning point in the GFC crisis, the SPX did not bottom for another three months, and another 30% of losses, after the passage of TARP.

The view of the JPM FX strategy, therefore, is that the onset of policy activism is not a reason to buy risk nor a reason therefore to sell USD (we would stress that gains in the broad USD index, extending record highs again this week, is not just the product of stresses in USD funding markets, even though this has been an aggravating factor, and hence won't be reversed by the cheapening of USD swap facilities and the reintroduction of the Fed's CPFF). And even at an individual currency level it is not obvious that markets are yet rewarding policy initiatives to judge by the continued frailty in those high-beta currencies such as GBP, NZD and SEK where governments are taking the lead, except in a very small-scale sense, i.e. the accelerated slide in NOK/SEK and AUD/NZD.

Exhibit 4: The deepening of the downturn is moving the goalposts; FX is now performing roughly in-line with the worst case for the average equity "bear" market, but still only half-way to the performance extremes seen during the GFC.



FX & EM Macro Strategy

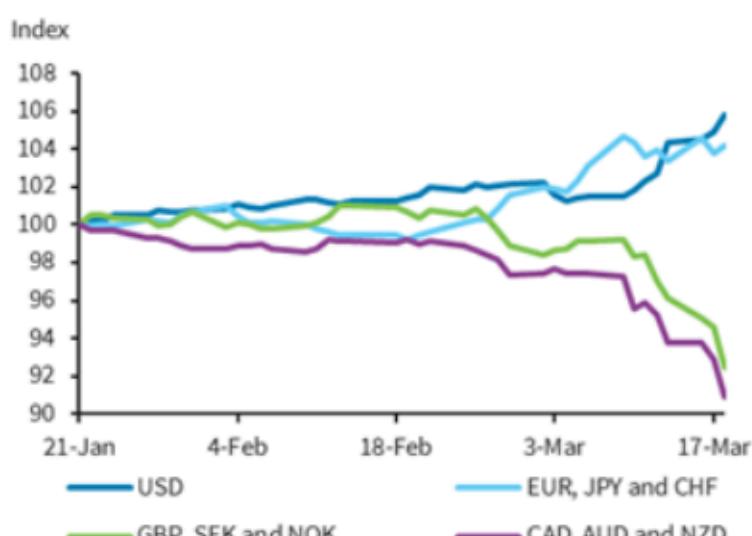
USD dislocations: Liquidity preference in FX markets

The deterioration of market risk sentiment due to increased uncertainty as a result of the COVID-19 outbreak has supported safe havens and funding currencies in FX. However, even within those, the USD has outperformed. Adjusting for its beta to broader asset market movements, the USD's outperformance has been most severe against G10, rather than EM. We believe this is largely explained by the FX market's liquidity preference echoing USD funding issues in domestic US markets. This is consistent with increased volumes in G10 FX, despite wider bid-ask spreads, an increasingly negative USD basis in low-yielding G10 and EM FX and outflows from underlying higher-yielding G10 and EM assets.

As the market continues to digest the negative effect of the virus outbreak, the broad USD is likely to remain strong against more cyclically sensitive currencies, such as G10 commodity FX and EM. However, recent Fed measures are targeted at reducing the attractiveness of the USD, particularly versus other funding currencies. These have yet to show their effectiveness, as USD funding issues remain, but further Fed and Treasury policy interventions to improve the transmission of Fed liquidity are likely to weigh on the USD, particularly versus G10 and EM Asia low-yielders.

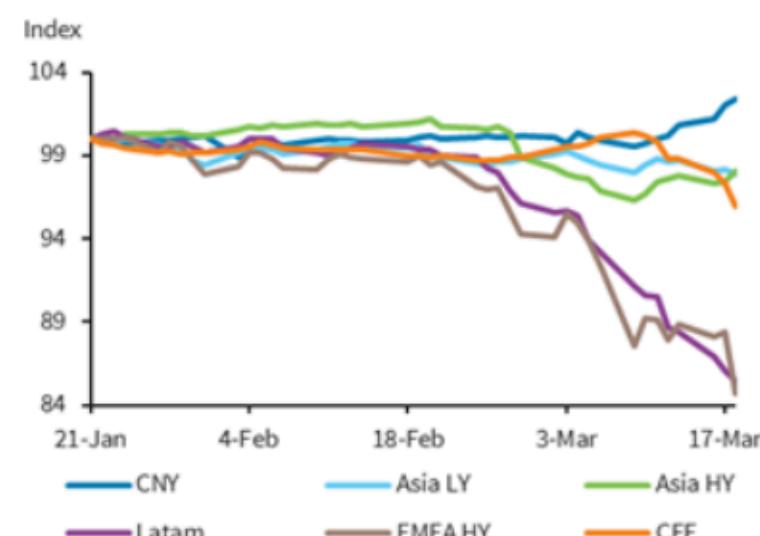
The deterioration of market risk sentiment has boosted the value of safe havens in FX, with low beta/funding currencies outperforming the high beta/investment ones. This dynamic is seen with G10 outperforming EM but is also notable within these groupings. For example, Figures 1 and 2 show that the outperformance of low beta vs. high beta in G10 and EM as markets have been digesting the economic effect of a widening COVID-19 outbreak. Specifically, commodity FX and cyclically sensitive European economies (outside of the EUR) within G10, as well as high-yielders in EEMEA and LatAm, have underperformed. On the other side, low-beta/funding currencies in G10 (USD, EUR, JPY and CHF) and EM (CNY, EM Asia low yielders and CEE) have been remarkably stable or have appreciated since the virus outbreak on 21 January 2020.

Figure 1: G10 NEERs show differentiation between low-beta/funding currencies/safe havens vs. high-beta/investment currencies...



Note: Basket performance is GDP PPP weighted. Source: Bloomberg, Barclays Research

Figure 2:...as do EM NEERs, with Asia outperforming



Note: Basket performance are GDP PPP weighted. Asia LY is HKD, KRW, SGD, THB and TWD. Asia HY is INR, IDR, MYR and PHP. LatAm is BRL, COP, CLP and MXN. Source: Bloomberg, Barclays Research

Within that, the USD's recent outperformance versus G10 (since end-February 2020) has been severely in excess of its beta to broader asset market movements. We can see this by fitting the movements of various USD crosses to their betas to rate differentials, equities and commodities using our Financial Fair Value (FFV) model (see [The Financial Fair Value Model: Implications of asset market distortions](#), 7 January 2013). In fact, G10 FX, aggregated using their USD trade weights, is now almost 4SD (standard deviations) away from fair value at present (Figure 3). On the flipside, misvaluations in EM are more modest, with Figure 4 showing that these are only 1.3SD away. The most significant misvaluations on a currency-by-currency basis are in G10, with the JPY, GBP, NOK, AUD and EUR all near or above 2SD away from fair value.

Figure 3: G10 weighted average misvaluation after adjusting for betas to rate differentials, equities and commodities (FFV model)



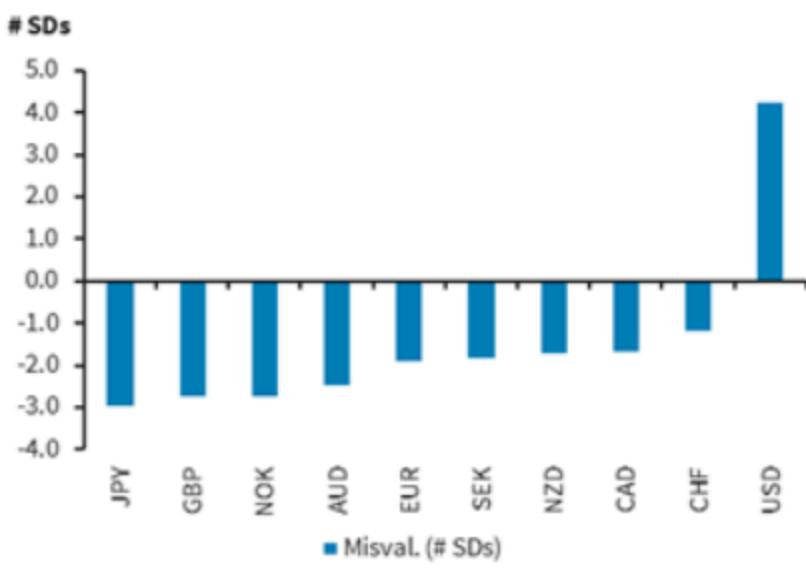
Note: We aggregate using each country's weight in the USD EER, adjusted to sum to 1 for G10. Source: Bloomberg, Barclays Research

Figure 4: EM weighted average misvaluation after adjusting for betas to rate differentials, equities and commodities (FFV model)



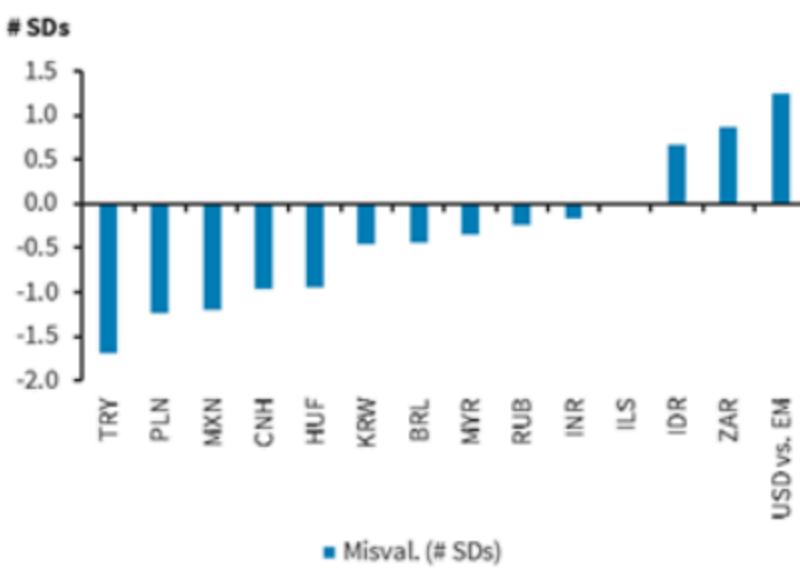
Note: We aggregate using each country's weight in the USD EER, adjusted to sum to 1 for EM. Source: Bloomberg, Barclays Research

Figure 5: Individual G10 FX misvaluations based on the FFV model, normalized by their standard deviations



Note: We compute the USD's misvaluation by aggregating using

Figure 6: Individual EM FX misvaluations based on the FFV model, normalized by their standard deviations



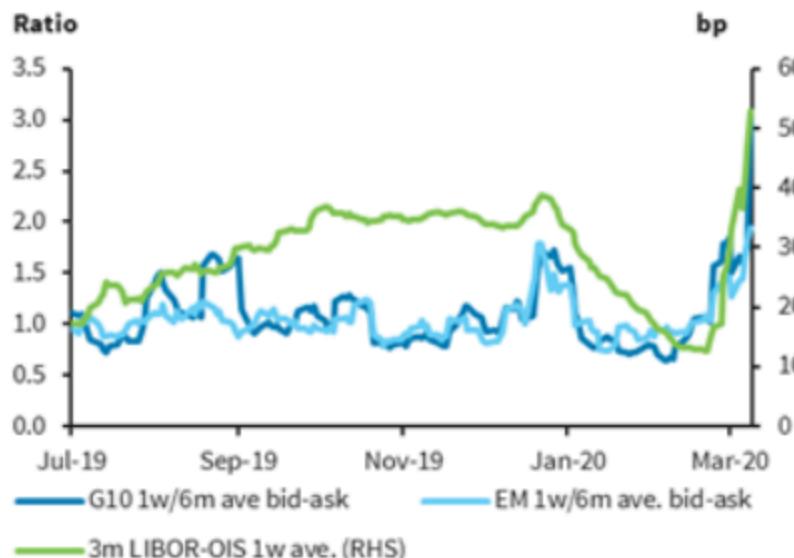
Note: We compute the USD's misvaluation by aggregating using

We believe the FX market's liquidity preference amid USD funding issues may be at play. The dynamics in FX markets appear to reflect a liquidity preference much as in other asset markets (see [Seeing the Forest through the Trees - Patterns and Dislocations amid the Sell-Off](#), 5 March 2020). We believe this has put the thumbs on the scales in favor of the USD in the near term, particularly given the outsized importance of the USD in cross-border borrowing - about 68% of all claims on the non-bank sector are denominated in USD, with the EUR a distant second at 23% - amid signs of stress in US funding markets (Figure 7). We believe this reflects the reduced supply of USDs as a result of regulatory balance sheet constraints and precautionary demand for USD cash among institutional investors and corporate treasurers ([Xccy basis: Dollar funding squeeze and CB swap lines](#), 13 March 2020).

Increased uncertainties regarding the outbreak are being reflected in wider bid-ask spreads across G10 and EM; however, volumes in the liquid FX pairs have picked up. Figure 7 shows that the average bid-ask spread over the past week is now 3x higher in G10 and about 1.7x larger in EM, and this increase have been highly correlated with USD funding pressures, as proxied by the spread in 3m Libor-OIS (Figure 8). However, this widening in bid-ask spreads has actually been alongside more substantial flows in the liquid FX pairs: the 1w average of flows in major G10 FX pairs has increased relative to less liquid (eg, EM) pairs particularly over the past six months (Figure 9).

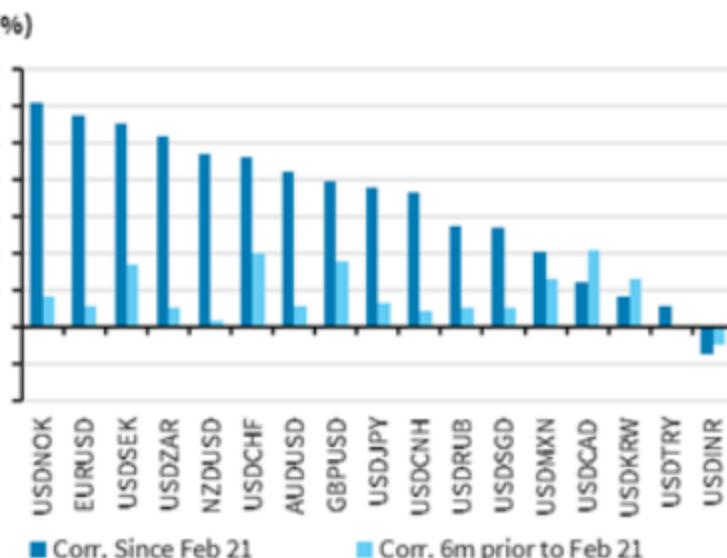
Higher trading activity in the liquid FX pairs is consistent with patterns in other fixed income markets, pointing to increased constraints on dealer balance sheets. Market activity/volumes are likely to be generally lower, driven by ambiguity aversion. However, to the extent that there are increased constraints on dealer balance sheets, investors have gravitated towards trading the more liquid instruments. In FX, this shows up as increased volumes for the liquid FX in relative terms versus the less liquid and has implied an underperformance of the latter (as captured by the significant cheapness of G10 vs EM per our FFV model). In other parts of fixed income, this has shown up as increased activity on-the-runs vs. off-the-runs in USTs, single As vs. BBBs and BBs vs. CCCs in credit etc., as investors have sold assets to raise USD cash.

Figure 7: Bid ask spreads have widened in G10 and EM, alongside USD funding pressures



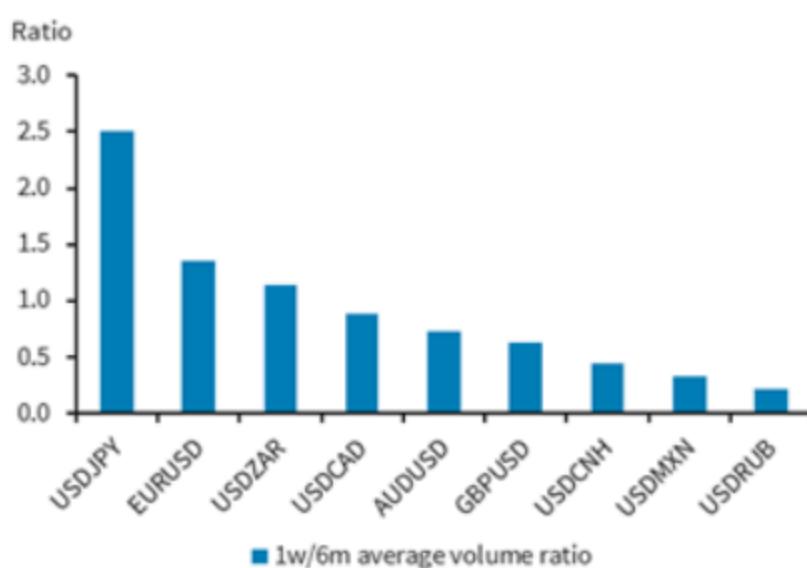
Source: Bloomberg, Barclays Research

Figure 8: Correlation of bid-ask spreads to USD funding pressures has picked up



Source: Bloomberg, Barclays Research

Figure 9: Volumes in liquid G10 pairs have increased relative to EM (1w average volume compared to past 6 months)



Source: Barclays Live Volt, Barclays Research

Figure 10: Wider 3m xccy basis suggests spillover of USD funding issues into FX markets



Note: Median moves in xccy basis in G10 and EM are shown. Source: Bloomberg, Barclays Research

USD funding issues have also spilled over into FX forward and cross-currency swap markets, reflecting the nature of the cross-border asset liability position. Figure 10 shows that the xccy basis has turned more negative – implying a premium for borrowing USDs in the cross-currency swap/FX forward market – in recent weeks. However, on a country-by-country basis, it depends on whether USD assets are being synthetically funded with local currency borrowing (typical for funding currencies in G10 and EM) or whether local currency assets are being funded using USDs (typical for high-yielders/investment currencies). The two cases largely determine how USD funding issues spill over into the xccy/FX forward market.

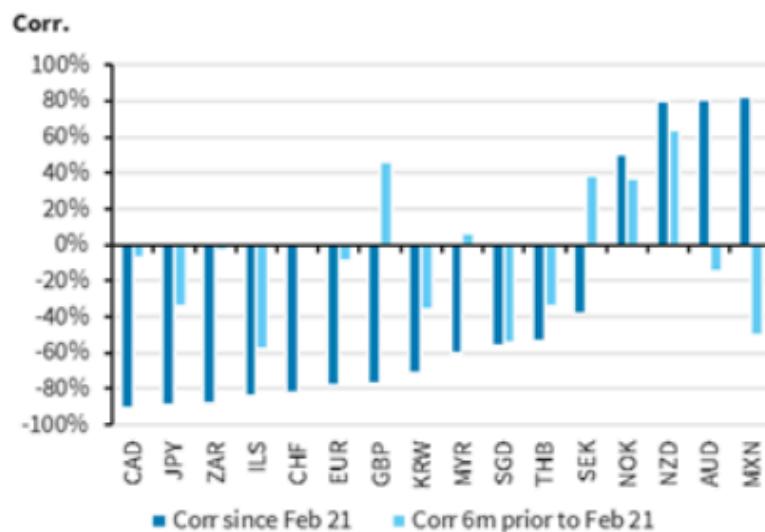
In the case of funding currencies, this implies an increased premium for borrowing USDs, ie, a more negative basis. We believe this dynamic has been at play for the low-yielders in G10 such as the JPY, EUR, CHF, GBP and CAD ,as well as in low-yielders in EM such as the KRW, SGD, THB and ILS. Figure 11 shows that the basis in these currencies has turned more negative as USD funding pressures have increased. The basis market has likely had USD supply crowded by the funding issues in US money markets, as well as increased demand for both precautionary reasons and redirected demand from other funding markets (eg, repo), including market participants who are unable tap the USD funding being provided by the Fed. The latter point is crucial since nonbanks (eg, asset managers, life insurance companies) have increasingly been active participants in the cross-currency market and do not have access to the existing Fed liquidity facilities.

Recently announced facilities have expanded the availability of USD liquidity on an unsecured and collateralized basis, for term liquidity and at a cheaper price, but are largely designed for banks and broker-dealers (see [Federal Reserve increases capacity of overnight and term repo operations, The Fed steps up in a Sunday night surprise, Fed restarts the Commercial Paper Funding Facility, Fed reopens Primary Dealer Credit Facility](#)). Alleviating pressures on dealer balance sheet via Fed QE and PDCF could ease tensions in onshore dollar funding markets (eg, repo), which could cascade to offshore funding markets (eg, cross-currency and FX forward). Access to Fed USD swap lines have also been broadened from the standing facilities with major central banks (ECB, BoJ, BoE, SNB and BoC) to also include temporary facilities (for 6 months) with a number of large G10 and EM central banks (RBA, BCB, BoK, Banxico, MAS, Riksbank, DNB, Norges Bank and RBNZ). The intention of the Fed to stabilize USD liquidity in offshore markets is underlined by the breadth of these announcements but also by the extended maturity of these swap facilities (now up to 3m from 1w) and at a cheaper price than previously available (to OIS+25bp from OIS+50bp).

For high(er) yielders/investment currencies, the demand for USD cash implies pressure to liquidate local currency assets and repay the USD borrowings. The implications for basis are the opposite in this case as investors sell the underlying assets and unwind the FX hedge. Figure 11 shows that this is indeed the case, with the basis in currencies such as the AUD and NZD in G10 and the MXN in EM correlated positively with USD funding pressures. Additionally, this fits in with daily data showing significant outflows from EM that exceed anything seen since the GFC (Figure 12).

Broad USD strength is likely to remain, particularly versus the cyclically sensitive currencies, but narrow USD weakness is possible with improved transmission of Fed liquidity. As the market continues to digest the negative effect of the virus outbreak, the broad USD is likely to remain strong against more cyclically sensitive currencies, such as G10 commodity FX and EM. However, recent Fed measures are targeted to reduce the attractiveness of the USD, particularly versus other funding currencies. These have yet to show their effectiveness, as USD funding issues remain, but further Fed and Treasury policy interventions to improve the transmission of Fed liquidity is likely to weigh on the USD, particularly versus G10 and EM Asia funding currencies.

Figure 11: Correlation of 3m xccy basis to 3m Libor-OIS shows variation across currencies



Source: Bloomberg, Barclays Research

Figure 12: Outflows from EM have accelerated (20-day moving sum of daily flows)

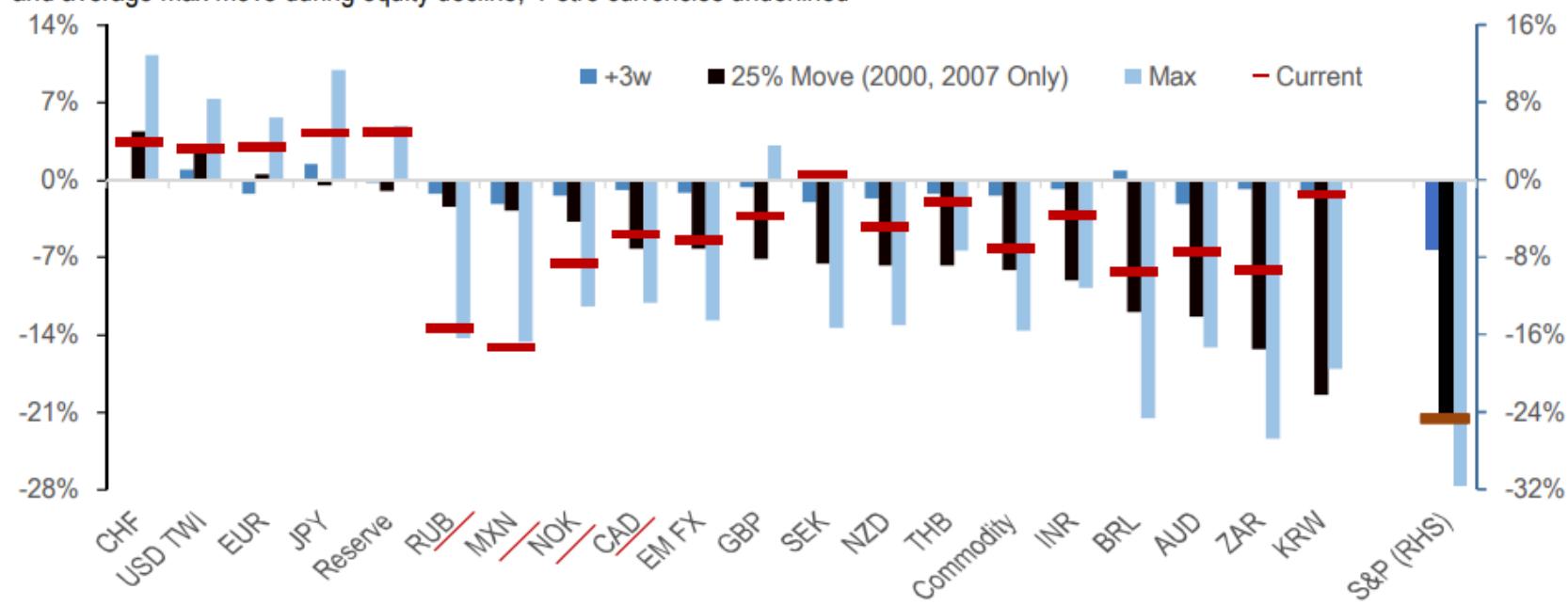


Source: Bloomberg, Barclays Research



Exhibit 6: Benchmarks for FX performance in significant equity drawdowns

FX Performance vs USD (vs TWI basket for USD) from Equity peak during "bear" markets; average 3w from peak; average 25% equity fall from peak (for 2000 and 2007); and average max move during equity decline; Petro currencies underlined



Source: J.P. Morgan; Note historical study includes all S&P drawdowns of > 15% since 2000; conventionally equity drawdowns only of > 20% are termed "bear markets"

berg	Desc	Collateral	Coupon	Color	PxTalk	Trade	Settle	\$
< 2019-1A A1	Snr Bond	other	3.233		6:93.96	2020-03-17	03/19	
2013-1A A1R	Snr Bond	other	2.924		6:94.50	2020-03-17	03/19	
016-1A A1R	Snr Bond	other	3.328		6:93.96	2020-03-17	03/19	
019-6A A1	Snr Bond	other	3.237		6:93.96	2020-03-17	03/19	
2019-80A A1	Snr Bond	other	3.214		6:93.96	2020-03-17	03/19	
4A A	Snr Bond	other	3.129		6:94.71	2020-03-17	03/19	
2016-22A A1R	Snr Bond	other	2.918		6:93.67	2020-03-17	03/19	
2019-36A A	Snr Bond	other	1.330		6:93.96	2020-03-17	03/19	
2019-1AA A	Snr Bond	other	3.119		6:93.75	2020-03-17	03/19	
2019-1AA A	Snr Bond	other	3.234		6:93.75	2020-03-17	03/19	
2016-1A AR	Snr Bond	other	2.993		6:93.46	2020-03-17	03/19	
2018-2 E	Sub Bond	auto	5.020			2020-03-17	03/19	
< 2019-4A A1	Snr Bond	other	3.119		6:94.00	2020-03-17	03/19	
2017-29A A	Snr Bond	other	2.972		6:92.83	2020-03-17	03/19	
2019-2A A1A	Snr Bond	other	3.171		6:92.00	2020-03-17	03/19	

*GOLDMAN SACHS SAYS IT ACCESSED FED DISCOUNT WINDOW TODAY

To view the source of this information click [here](#)

GS US Equity
Graphic Dashboard»



Australia Sell 2Y & Buy 10Y Bo Index



122.750 +43.250 +54.40% At 03/19/20

Price Chart 5Y 03/19/15 - 03/19/20 Period: 1D

■ Start 55.600
■ High on 03/19/20 201.500
■ SMA(100) 36.313

■ Change 67.150 (120.77%)
■ Low on 09/06/19 9.149
■ SMA(50) 34.321
■ SMA(200) 32.395



J
S
D
M
J
S
D
M
J
S
D
M
J
S
D
M
J
S
D
M
'20

2015 2016 2017 2018 2019

1D

3D

1M

6M

YTD

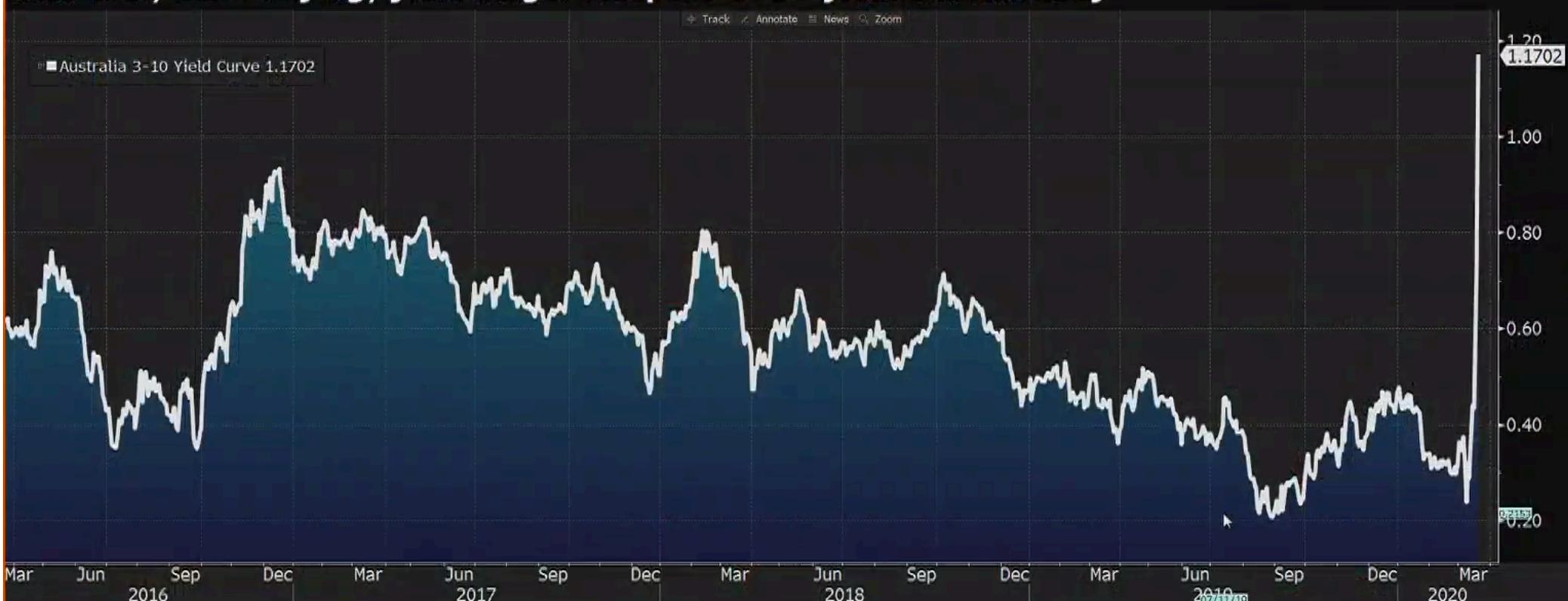
1Y

5Y



RBA Pulls a BOJ

Rate cuts, bond buying, yield target steepens 3-10 yield substantially



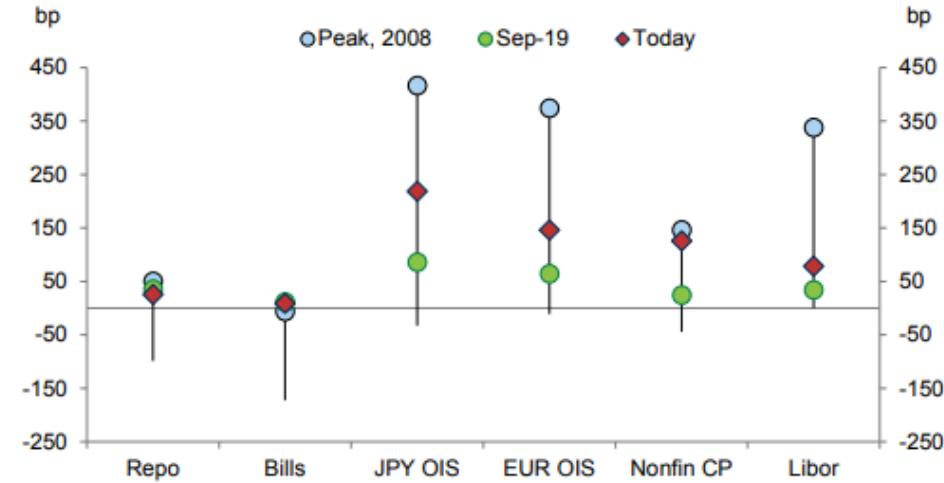
Period Year To Date ▾ Basket Major Currencies ▾ Base U

Range 12/31/19 - 03/19/20

Total Returns (%)

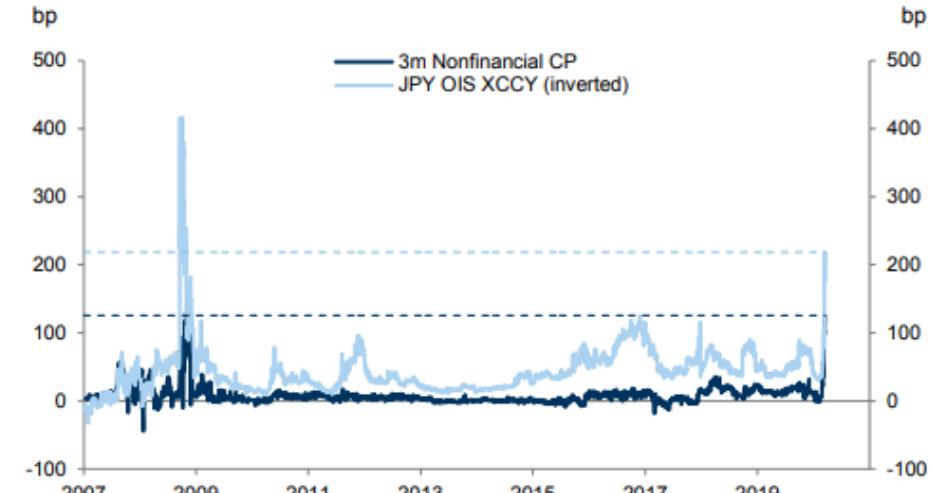
Rank	Currency	Total Returns (%)
1)	United States Dollar	-0.43
2)	Swiss Franc	-0.70
3)	Japanese Yen	-1.18
4)	Taiwanese Dollar	-2.86
5)	Euro	-2.94
6)	Danish Krone	-6.99
7)	Singapore Dollar	-9.85
8)	South Korean Won	-9.87
9)	Swedish Krona	-10.95
10)	Canadian Dollar	-13.08
11)	British Pound	-17.43
12)	New Zealand Dollar	-18.61
13)	South African Rand	-20.46
14)	Australian Dollar	-20.51
15)	Brazilian Real	-21.18
16)	Mexican Peso	-25.94
17)	Norwegian Krone	0.35

Exhibit 1: Unsecured funding spreads started to blow out last week, but in most cases remain below their 2008 peaks
3m funding spreads vs. OIS, since 2007



Source: Goldman Sachs Global Investment Research

Exhibit 2: While currency bases have not widened to 2008 levels, non-financial CP spreads have
3m CP and JPY OIS XCCY, relative to 3m OIS



Sources: Federal Reserve, Goldman Sachs Global Investment Research

Banks rush to tap new dollar liquidity facilities

Daniel Hinge

Abdool Fawzee Bhollah

19 Mar 2020

The new Federal Reserve-backed 12-week dollar liquidity facilities offered by four major central banks saw strong demand on their first day of operation (March 18).

Of the four, the European Central Bank (ECB) saw the strongest demand, with \$75.8 billion allocated through its 12-week facility and \$36.2 billion in the one-week operation. The Bank of Japan (BoJ) allocated \$30.2 billion and \$2 billion in its 12- week and one-week facilities, respectively, the Bank of England (BoE) \$7.2 billion and \$8.2 billion, and the Swiss National Bank (SNB) \$315 million and \$2.3 billion.

The SNB also had data regarding the number of participants in both operations: 10 banks for the one-week and five for the 12-week.



Important Notice
Fixed Income Clearing Corporation - GSD

GOV#: GOV857-20

Date: March 20, 2020

To: Government Securities Division Netting Members

Category: Service Update

Subject: Ronin Capital LLC

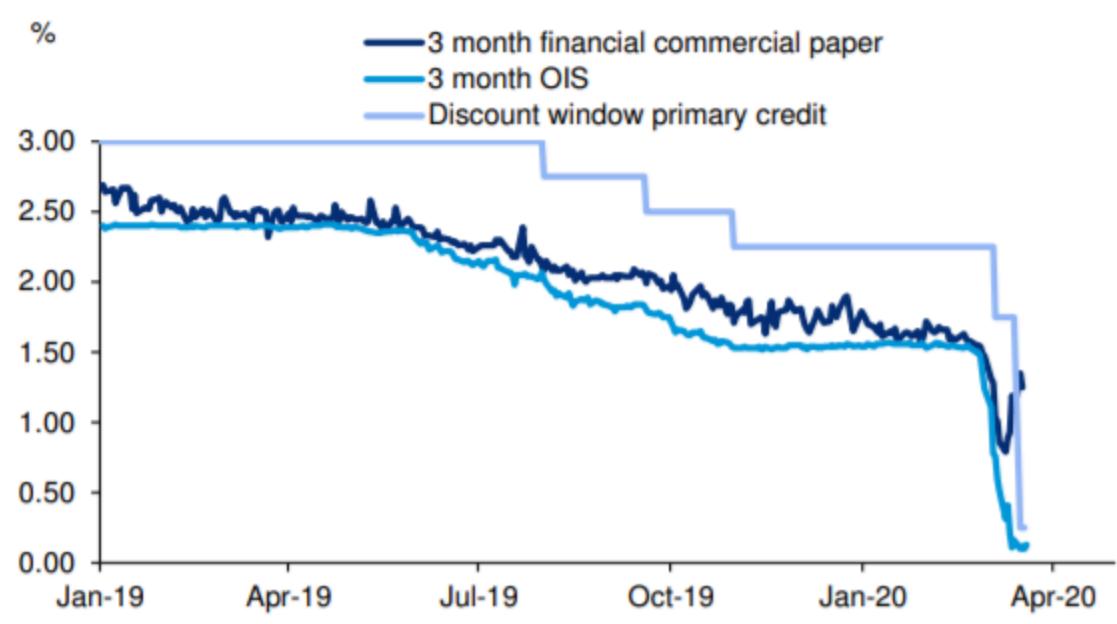
Effective **immediately**, the Government Securities Division (“GSD”) of the Fixed Income Clearing Corporation (“FICC”) has ceased to act for Ronin Capital LLC, and account numbers 9633 and 9937, respectively, pursuant to Rule 21 of the GSD Rulebook. GSD will continue to take all actions it deems necessary to resolve all outstanding obligations and other pending matters involving Ronin Capital LLC and FICC.

Members that have questions or concerns regarding this matter should contact their Relationship Manager.



The Fed can ease liquidity conditions further by loosening some of the terms for its commercial paper facilities. For example, it can expand eligible collateral for the MMLF to include assets previously purchased from prime money market funds. It can also reduce the pricing for the CPFF to be more in line with the market. The pushback for doing so could be that the Fed is inserting itself too much in the short-term credit market, which is traditionally an area the Fed has avoided intervening too closely. But to ensure that their accommodation is being transmitted to the economy, this may be a necessary step.

Figure 1: Commercial paper rates have failed to fall as the Fed has eased



Source : FRB, REFINITIV, Haver Analytics, Deutsche Bank

Next step for the balance sheet: Re-up QE before considering front-end YCC

Since the Fed's aggressive actions to ease monetary conditions, nominal interest rates have not moved lower, and in fact recently rose to their highest level in several weeks, even as equities plunged. The dynamics of this yield rise have been troubling. Since the trough in nominal yields on March 9th, 2020, real yields have risen sharply across the curve, as the rise in nominals has been accompanied by a decline in breakeven inflation which was especially acute at the front end given the plunge in oil prices (Figure 2). At about 75bps, 10-year breakeven inflation rates are at the lowest level since the crisis.

INCOHERENT VIRAL RANT

"I wanted to share for any input. I've been watching what is going on in markets and my conclusion was that Risk Parity has blown up and Citadel and Millennium are in deep trouble. I just received a call from an old GS friend who now runs a large part of a Japanese bank balance sheet in the US and he was highly agitated..."

His observation is that Bridgewater has faced massive redemptions from Saudi and others and that is what is caused some of the more dramatic moves last week (gold, bonds, equities and FX). He thinks AQR and 2 Sigma are in the same boat. There is massive forced liquidation of risk parity. All of them run leverage in the strategy, sometimes significant. Sovereign wealth, he thinks, is running for the hills as are others.

As you all know, I think Bridgewater goes under for reason not involving this but the exposure of massive fraud but this will force it.

My friend explained that due to the Volker rules, now that vol has risen, we has to cut risk limits by 80% in many areas – to put it in perspective his Dollar Mex position limit has gone from 200m to 12m. Thus, just when he was supposed to prove liquidity, he has to reduce it. His hands are tied. Even worse, he has to hedge counterparty risk with corp borrowers and that is adding to the tail spin of selling. There is no liquidity from the banks.

The same VAR issue, he claims, is hitting Citadel and Millennium but with a twist. He, along with all the banks, is jacking up lending rates to counterparties from Libor +35 to Libor +90 and he has a \$1.5trn balance sheet. The funding stress is forcing banks to reduce lending risk. The issue is that the funding stress is coming from Citadel and Millennium it seems. They rely on repo but via the banks but the transmission mechanism is broken (regulation). It appears that Bernanke probably called Powell and asked him to flood with liquidity at repo but instead of \$500bn being drawn, only \$78 was drawn. The banks don't need the cash and don't want to lend to counterparties. And there in lies the problem – a full credit crunch.

With rates going up, all the relative value trades have blown up. Nothing works any more as they were making 12bps in illiquid stuff on massive leverage (off the runs, etc). As funding goes up they instantly go wildly unprofitable and are stuck either begging for repo funding or having to unwind and realize massive losses.

There is no funding. This is big trouble.

These guys are short vol (VAR), short liquidity and short rates. The perfect fucking storm.

Then on top of that, my friend who was almost yelling to me about it, says he cannot take any risk and therefore cannot provide liquidity. His hands are tied.

COVID makes it even worse and liquidity is going to massively dry up next week and for the next few weeks. You see under Series 24 of FINRA, a trader cannot make markets from home. It is illegal. So everyone is getting sent home but the traders. The problem is the traders are now falling ill – JPM and CS are the two I've heard thus far. They will have to go home and each day more do, or decide they want to, the lower liquidity gets. No one can make markets.

Also, in the corp credit markets things are equally fucked up. Credit, due to the liquidity issues, has stopped trading. That is causing IG etc to blow out. When banks lend to corps, a separate desk (CVA or CPM desk) shorts the stock or buys the CDS etc as a hedge (regulations again) and if the loan is still on the books (they are not allowed to own the bonds but can lend to counterparties, bizarrely) they continue to do that as stocks fall or CDS widens. Essentially, they are short gamma, creating a lopsided market. Everyone is a seller and no one is a buyer. The banks have made money on the hedges while the debt markets get worse.

This is causing the equity value of many firms such as Haliburton, to fall below the debt levels. Whether these borrowers have cash on balance sheet or not is irrelevant because of the falling equity value in this market and from the CVA hedging. That is causing spreads to blow out and it will cause downgrades, thus creating a doom loop.

So, we have a total shit storm if vol stays here for any period of time. I do not see vol falling yet and that is going to cause a really big issue with Citadel, Millennium, all the risk parity unwinds, all the risker credit that is being shorted for hedging and the repo that no one wants in the banks but their counterparties desperately need. Every day this situation continues, the more dangerous it is going to get....

We have a big fucking margin call underway.

In my friends opinion, the only way to stop this is to remove the Volker rule under the emergency powers act (to allow banks to provide liquidity), the Fed to cut to zero and for them to buy corporate bonds. All the banks have been talking to FINRA and they have said go to the government. Problem is Jamie Dimon is in bed.

They need him to run the US Treasury as he is the only person who understands all of this and can navigate it through the politics.

This is likely the fix that needs to happen. What happens to Citadel, Millennium, Bridgewater, AQR, 2 Sigma and the corp bond market until they pull that trigger, I have no idea."

Whoever wrote that is an imbecile.... Volker could disappear tomorrow and it would be MEANINGLESS for liquidity
Why?

Regulation	Description	Deregulation potential	Likelihood / Timing?
Liquidity coverage ratio <small>LCR = HQLA / Total Net Cash Outflows must be > 100%.</small>	Requires banks to hold sufficient high-quality liquid assets (HQLA) to cover their net cash outflows over 30 days.	Minimal – USTs are already HQLA Level I (like reserves). LCR ratio for GSIBs has been stable ~120%.	Unlikely as only 31% of SFO cited HQLA as important to demand for reserves.
Leverage ratios (eSLR) <small>Tier 1 capital / leverage exposure</small>	Ensures that banks are sufficiently capitalized vs leverage exposure (on- and off-balance sheet assets). US banks use daily averaging for SLR since 2015. All banks to report end-period <u>and</u> daily averages from 2022 (Basel).	(i) Lower eSLR buffer requirement from 2% (to 50% of GSIB surcharge). (ii) Remove reserves from denominator (Dudley, former NY Fed president) (iii) Remove reserves + USTs from denominator of SLR.	(i) Possible as Fed, OCC proposal based on Basel recommendations. (ii) Could increase preference for reserves over USTs. (iii) Unlikely to see this level of relief in 2020.
US G-SIB assessment <small>Higher Loss Absorbency HLA = [common equity Tier 1 / risk-weighted assets (RWAs)].</small>	Relative bank score at reported date covering size, interconnectedness, banking substitutes for services provided, global activity, and complexity.	Changing GSIB scoring process from a snapshot at statement date to a daily average over the entire period.	Unlikely in 2020. Possible in 2021 to mitigate the impact of window-dressing at year-end. May reduce volatility at the cost of higher average rates.
Intraday liquidity buffers <small>Implicit and explicit regulatory oversight Internal resolution planning and liquidity stress testing with private supervisory guidance is subject to firm interpretation.</small>	<i>"A bank should actively manage its intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions and thus contribute to the smooth functioning of payment and settlement systems."</i>	Changing the liquidity taxonomy (USTs vs reserves) allows banks to replace some of their persistent demand for reserves with USTs. Standing Repo Facility may enable this as it facilitates a cash for UST collateral switch on demand.	Treasury Secretary Mnuchin and Fed Chair Powell are open to adjusting existing supervisory and regulatory practices to improve the flow of liquidity. Timing and specifics uncertain but 2020 is possible.



BNP PARIBAS

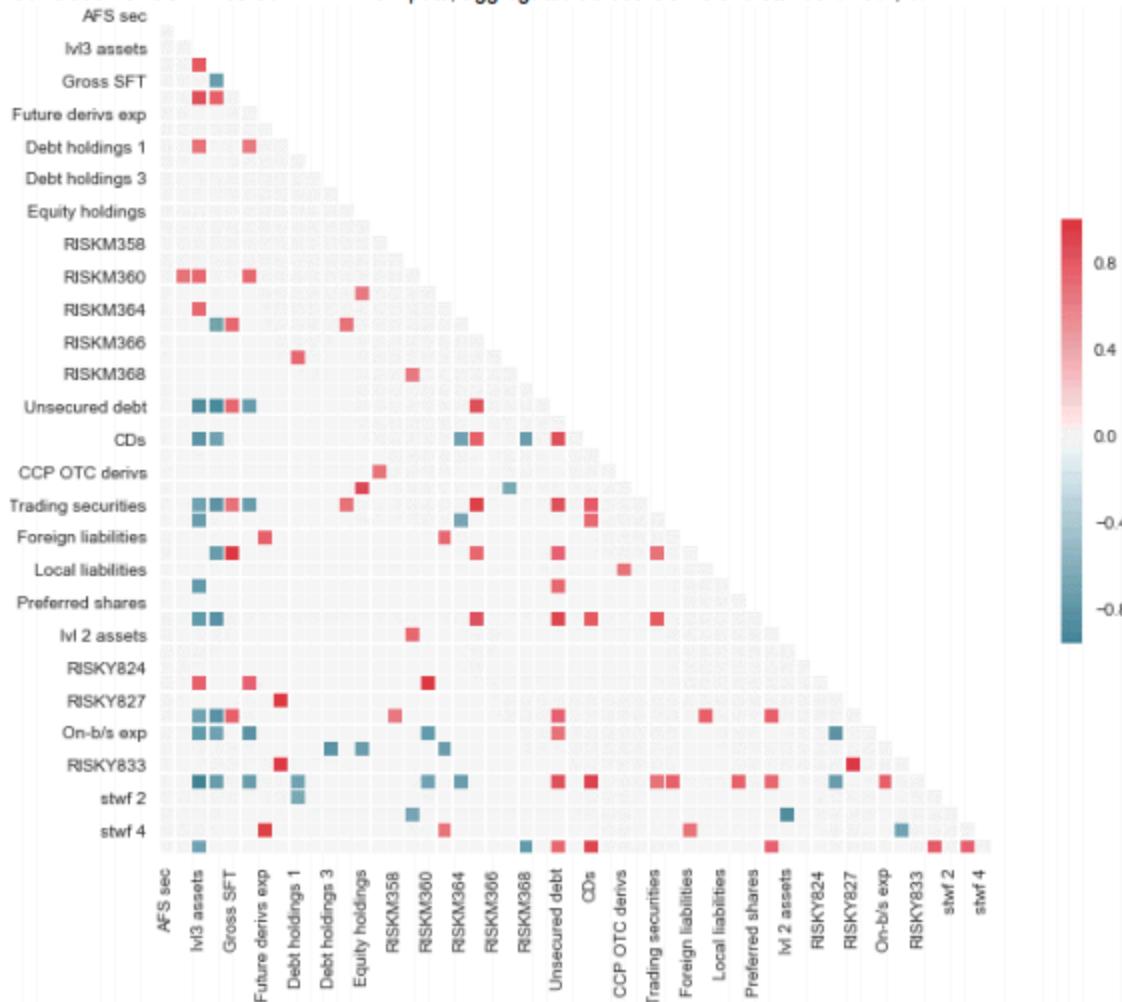
The bank for a changing world

MARKETS 360 | 40

Many of these contributors are, in fact, far from independent. A correlation matrix of average inputs across the 8 US GSIBs is illustrative of this dynamic (**Exhibit 3**). For example, gross OTC derivatives exposure, which is usually viewed as a culprit for inflating GSIB scores (not without reason), is significantly positively correlated with level 3 assets and holdings of other banks' debt, and significantly negatively correlated with total trading securities and short-term wholesale funding. By contrast, gross securities financing (SFT) exposures are positively correlated with a bank's own debt on its liability side, and with its trading securities on its asset side. While these features are observable when we aggregate across GSIBs, **the correlation matrices also vary significantly across individual banks.**

Exhibit 3: Beneath the surface, we observe many pockets of statistically significant correlation amongst GSIB input variables, alluding to some of the difficulties in adjusting parameters into year-end to avoid excessive charges

Correlation of GSIB Method 2 FR Y-15 inputs, aggregated across GSIBs and standardized*; %



Note: We sum the input variables across each individual GSIB, and then standardize those values for the quarterly data from Dec-16 to Jun-19. We make null those correlations which are not statistically significant at a 95% confidence level.

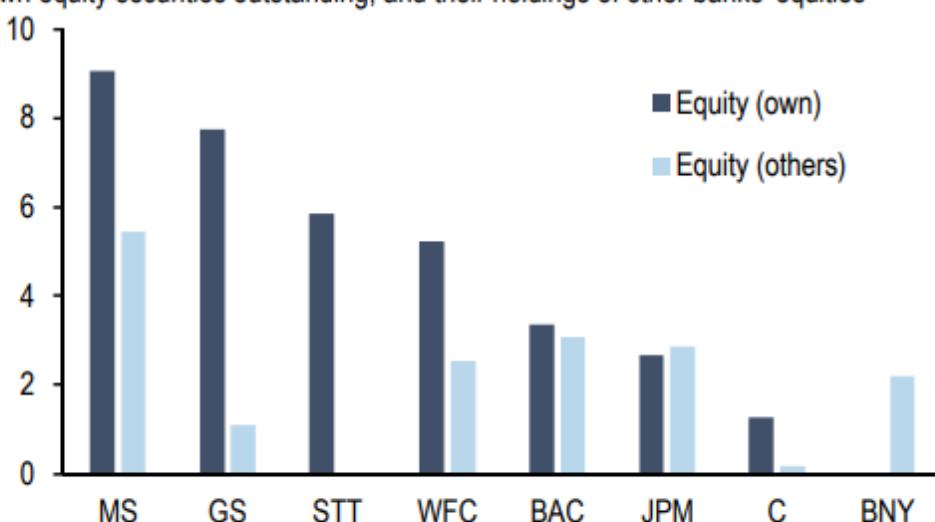
For simplicity of presentation, we leave some more niche variables labelled using their FR Y-15 tickers.

Source: J.P. Morgan, FFIEC, FRB

Attention is often drawn to the sensitivity of GSIB scores to equity market price action. With US-China trade headlines turning somewhat more upbeat of late, and sentiment data showing the earliest signs of stabilization, this focus has been renewed as the path higher for equities into year-end has become clearer. This reflects the combined effect of two variables; the market value of a GSIB's own common equity, and the market value of holdings of other financial institutions' equity securities, both of which contribute to interconnectedness. Importantly, **these two variables, while highly correlated to one another, are relatively uncorrelated with the other GSIB input variables.** In the absence of negative correlations, which work as a kind of pressure valve, an incremental move higher in equities results in a fairly clean pass-through to GSIB scores, although the extent of this move does vary across institutions, as a function of capital structure and asset mix (**Exhibit 5**).

Exhibit 5: Most banks' GSIB scores tend to exhibit significant sensitivity both to the value of their own equities, and those of other banks

Change in GSIB method 2 score per 5% increase in stock price for individual banks' own equity securities outstanding, and their holdings of other banks' equities



Note: See Exhibit 4 for detail

Source: J.P. Morgan, FFIEC, FRB

Exhibit 6: A rally in bank equities requires a significant pullback in market exposures to OTC derivatives, or repo, to fully offset the implied GSIB impact

Implied offset in market-wide OTC derivatives or SFT gross notional exposure from a 5% rally in individual bank equities, the financials index, or both, for the entire population of US GSIBs

GSIB score	Share price	
	0%	5%
Financials index	0%	- 12.0
	5%	4.1 16.0

Derivs offset (% change)	Share price	
	0%	5%
Financials index	0%	- -5.9
	5%	-4.4 -6.7

SFT offset (% change)	Share price	
	0%	5%
Financials index	0%	- -4.7
	5%	-4.2 -5.2

Note: To estimate the implied change in GSIB score (total across all GSIBs), we use the historical beta from a regression of the individual FRY15 input data on each banks' share price, and the S&P financials index.

To get the offset in OTC derivatives, we scale the analytical beta ($d\text{GSIB}/dX$) for gross OTC derivs exposure relative to the GSIB shock from the top left table, and compute the change in exposures required for each bank to neutralize their GSIB score, and then aggregated across GSIBs. The same is done for gross SFT exposure.

North America Rates Flash

Alert: A quick take on CPFF 2020

- At 11AM today, the Fed rolled out the Commercial Paper Financing Facility 2020.¹ The Treasury department – using the Exchange Stabilization Fund – will provide \$10bn of credit protection to the NY Fed. It is unclear how much of CD/CP purchases can be done using \$10bn. The Treasury secretary subsequently declared that the Fed has ability to buy \$1tn of CPs, which assumes a haircut of 1%. If additional funding is needed to secure more usage, we think that mobilization of FEMA or more appropriation from the Congress could be forthcoming. In other words, the size will likely be delivered if needed.
- In terms of eligible assets, the SPV will buy US issuers of 3m commercial paper, including US issuers with a foreign parent company. The SPV will buy CPs and ABCPs that are rated at least A1/P1 by at least two or more rating agencies. They will buy at OIS + 210bp, including a facility fee. In the footnote, the Fed noted that the SPV will make one-time purchases of A2/P2, which would be under separate pricing (we wouldn't be surprised if it is OIS + 500bp). The schedule of purchases is not out yet but should be published by the Fed soon.
- Also, SPV cannot hold more than the largest amount of CP outstanding that an issuer had from 3/16/2019 to 3/16/2020. The highest outstanding CP outstanding amount during the period is 1162bn versus 1143bn as of today. Looking at non-financial issuers only (corporates), the amount is 345n versus 336bn, respectively. Although the current outstanding levels of CP are already quite high, rapid maturities of very short-term paper would still allow issuers to access the facility if they wanted to do so.
- Our take is that the pricing of 3m OIS +210bp (versus current A1/P1 pricing at OIS + 118bp) suggests that the Fed is thinking of this as a backstop facility – a backstop after bank loans and other traditional CD/CP investors, such as prime funds. We expect prime funds to remain defensive, which should keep L/OIS wide for some time. The news of the facility brought FRA/OIS moving higher, and we think that there's more room to go wider. We like selling EDJ0 at 68.25bp (12:54PM 3/17/2020) in small size of 20K. With spot 3m LIBOR at 105bp, we target 88bp and put a stop at 58bp. The risk of this trade is fast easing of credit.
- Going forward, we expect the Fed to continue to attempt to smooth out the intermediation problem and primarily work through banks – which is why we have seen a technical change in banks' capital earlier this morning. Our concern is that this channel will not be fast enough to deal with a problem that gets worse over time. Time is the true enemy – lowering the spread over OIS would be helpful here, but it is likely to be further down the waterfall.

Note: Futures trading involves substantial risk of loss.

¹ https://www.federalreserve.gov/news_events/pressreleases/files/monetary20200317a1.pdf

US Rates Watch

CPFF helps, but more for CP / CD & MMF needed

Fed announces CP funding facility, version 2.0

The Fed today announced a Commercial Paper Funding Facility (CPFF), as we anticipated. This facility is similar to the one implemented during the financial crisis. It allows CP issuers to sell directly to the Fed and serves "as a funding backstop to facilitate the issuance of term CP." This program reflects a step in the right direction for funding markets but it needs to be adjusted to have a material impact on MMF liquidity issues & to more materially unfreeze the CP / CD market. There are two things that will limit its effectiveness:

- (1) **Purchase rate:** the Fed will purchase CP at a rate of OIS +200 bps. We believe this is far too high to be effective at easing high quality issuer funding pressures. The Fed's 90D AA financial and non-financial CP Indices have recently been trading in the 3m OIS + 120 bps range (Chart 1). As a result the CPFF serves as a ceiling on high quality CP issuers but may be ineffective in reducing current levels. We believe a CPFF purchase rate at 50 or 100 bps above OIS would be more effective in reducing funding pressures for high quality issuers.
- (2) **Secondary market impact limited:** the CPFF program is directed at issuers. The program will ensure that there is a backstop buyer of new CP issuance for both high quality financial and non-financial issuers. However, the program does not address bloated dealer holdings of CP & CD paper which constrains their ability to provide MMF liquidity in the face of outflows (Chart 2, Table 1). A more tailored program such as the Fed's Money Market Investor Funding Facility (MMIFF) established in the '08 financial crisis would better address MMF liquidity concerns (detail [here](#)).

There are still many CPFF details that need to be ironed out. Below is what we currently know and don't know about the Fed's CPFF program.

What we know - Using this facility, issuers can sell USD denominated 3m CP and ABCP to a special purpose vehicle acting on behalf of the Fed. Issuers must be A1/P1 rated and US based, including US issuers with a foreign parent company. Pricing is OIS + 200bp, subject to review by the Fed. The largest amount an issuer can sell is the max outstanding CP for the issuer between March 16 2019 – March 16 2020. Treasury will provide \$10bn of credit protection for the CPFF facility from its Exchange Stabilization Fund; the \$10 bn is not the full size of the program but it is the first loss piece.

Along with this standing facility the Fed will also conduct one time purchases of A2/P2 CP. The largest amount an issuer can sell is the max outstanding CP for the issuer on March 17 2020. Note that the CPFF program will be effective at reducing borrowing costs for A2/P2 facility (Chart 3).

17 March 2020

Rates Research
United States

Mark Cabana, CFA
Rates Strategist
BofA
+1 646 855 9591
mark.cabana@bofa.com

Olivia Lima
Rates Strategist
BofA
+1 646 855 8742
olivia.lima@bofa.com

US Rates Research
BofA
+1 646 855 8846

BNY Mellon steps in to support money market fund after outflows

Bank swaps \$1.2bn of assets for cash to cover redemptions at Dreyfus Cash Management fund

Richard Henderson and Robert Armstrong in New York 8 HOURS AGO

BNY Mellon stepped in to support one of its money market funds amid [sharp outflows](#) from parts of the sector this week, buying \$1.2bn of the fund's assets so it had cash to help cover redemptions.

The US bank made the liquidity injection as investors withdrew \$6bn from the Dreyfus Cash Management fund in the week ending Thursday, around half of its assets, according to Crane Data.

The fund is a “prime” money market fund that invests in short-term corporate debt, including commercial paper and certificates of deposit. Outflows from these funds have heaped pressure on short-term funding markets as concern about coronavirus has grown, sending [borrowing costs](#) higher for companies and US municipalities and prompting a series of interventions from the Federal Reserve.

Investors have shifted instead to the safety of money market funds that invest only in short-term government debt, which are used as a proxy for cash.

BNY Mellon's move to take \$1.2bn of short-term debt held by the Dreyfus fund on to its own balance sheet came after outflows dragged the fund's assets close to an important liquidity threshold. If prime money market funds' so-called weekly liquidity falls below 30 per cent, they are allowed to impose restrictions on investors withdrawing funds, including added fees — something that severely crimps the fund's attractiveness to investors.

“Given the current challenging market environment, money market investors are moving out of prime funds that include commercial debt . . . and into

Dreyfus Cash Management fund assets

\$bn



Institutional share class of mutual fund

Source: Bloomberg

© FT

The Fed's interventions to stabilise markets this week included a lending facility to backstop money markets, which it [announced](#) on Wednesday and [expanded](#) on Friday.

After a run on money market funds in the days after the Lehman Brothers

collapse in 2008, the sector was split into two buckets – ultra-safe funds that

Fed-funded Credit Repo CP Buybacks

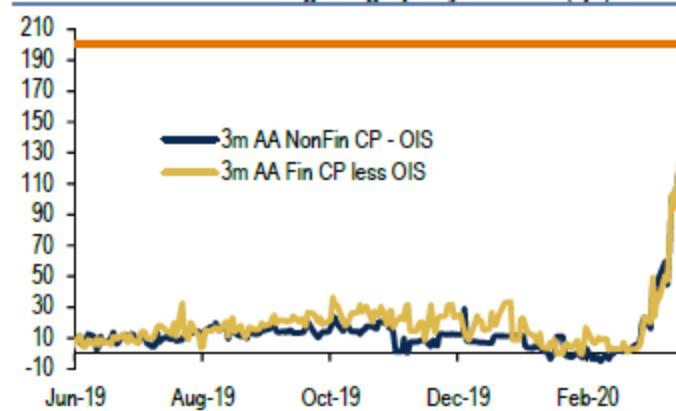
What we don't know:

- **Size of program?** The total size of the program is currently unknown. We are unaware of any limitation on the size of the total CPFF program. The US CP market is currently \$1.1 tn and it is possible that the Fed could own the vast majority of it (Table 2, Chart 4). For example, US Treasury Secretary Mnuchin today suggested the size of the CPFF could reach \$1 tn.
- **Exactly who is eligible?** Outside of the ratings criteria we are not sure which CP Issuers are eligible to participate in the program. The lack of specificity as to whether a financial or non-financial entity can participate in the program suggests to us that both bank and non-bank corporate Issuers can participate in the program. The Fed stated that US Issuers including US Issuers with a foreign parent company are eligible to sell to the CPFF; we currently interpret this to mean that CPFF access is available to Yankee CP Issuers (foreign institutions who issue in USD).
- **When purchases will begin?** The CPFF is effective as of March 17 2020, but it is not clear when the Fed will begin purchasing or when Issuers will begin to sell. We hope the Fed can stand up the facility as quickly as possible.
- **Can Issuers repurchase outstanding CP from Investors & finance this in CPFF?** The Fed has not provided explicit guidance on this point but this was allowed during the CPFF version 1 back in 2008. We expect it will still be allowed in the current CPFF version 2.
- **How much it will help?** As noted above, the CPFF only addresses one side of the current CP market issue. It allows Issuers to continue funding themselves despite lack of buyers but does not tackle bloated dealer balance sheets or MMFs desire to liquidate in the face of outflows.

Bottom line: the CPFF is a very important step to improving the current frozen state of the CP & CD market. However, we believe that additional measures are necessary to improve CP & CD market functioning while also ensuring MMF have adequate liquidity. To unfreeze CP & CD markets more broadly we believe the Fed needs to (1) lower the rate on the facility (2) assist in providing a liquidity outlet for MMF either through the re-establishment of MMLF or by purchasing CP & CD directly off dealer balance sheets.

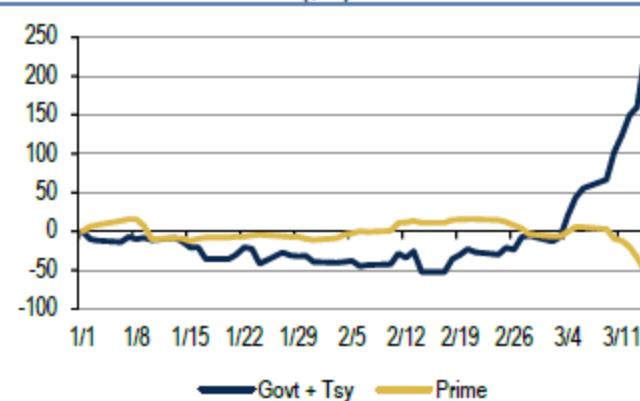
One other important takeaway: the Fed is listening to market participants and reacting to ameliorate stressed market conditions. We praise their efforts in these extraordinarily challenging times and we trust they will continue.

Chart 1: CPFF serves as a ceiling on high quality CP issuers (bps)



Source: Bloomberg

Chart 2: Cumulative MMF flows (\$bn)

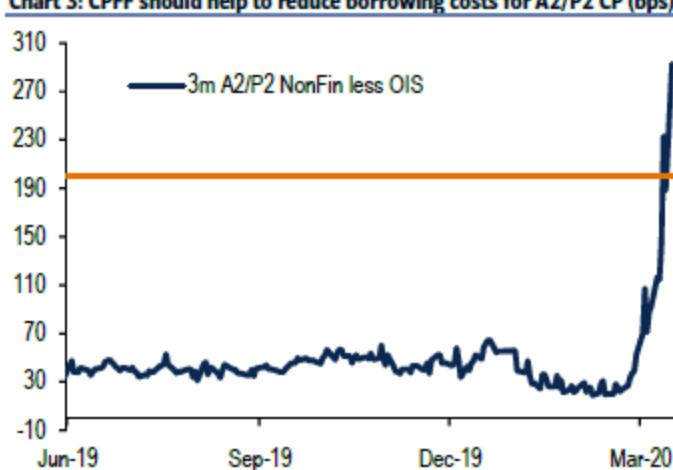


Source: Crane Data

Table 1: Prime MMF holdings by product type (\$bn)

	CD & TD	Govt & Treasury	Fin CP	NonFin CP and Other	Asset Backed	Total
Jan 2018	266	121	142	98	42	668
Jan 2019	289	216	161	99	58	824
Jan 2020	369	311	227	154	60	1121

Source: SEC

Chart 3: CPFF should help to reduce borrowing costs for A2/P2 CP (bps)

Source: Bloomberg

Table 2: CP outstanding (\$bn, NSA)

	3/4/2020	3/6/2019
All	1126	1092
Financial	555	524
Non-Financial	321	328
2a-7 Tier 1	436	403
2a-7 Tier 2	90	90

Source: Federal Reserve

Chart 4: Total CP outstanding (\$bn, NSA)

Source: Federal Reserve

Table 3: Details of Fed announcement

Commercial Paper Funding Facility	
Pricing	OIS + 200bp, subject to review by Fed
Eligible Assets	3m USD CP and ABCP
Seller	US issuers of CP including those with foreign parent, rated at least A1/P1/F1
Buyer	Special Purpose Vehicle via loans from NY Fed
Per Issuer Max Size	Max CP outstanding between March 16 2019-March 16 2020
Facility Fee	10bp of issuer's max size
One Time Purchases	
Eligible assets	CP A2/P2/F2
Per Issuer Max Size	Max CP outstanding on Mar 17 2020

Source: Federal Reserve



Interest Rates Research

17 March 2020

US Money Markets CPFF 2.0

As expected, the Fed has recreated the CP funding facility. The 2020 version is identical to the 2008 one – it only differs in two slight ways. We expect the program to cap unsecured funding rates and to calm some of the market's liquidity anxiety.

- Pre-emptive liquidity hoarding is accelerating. Balances are leaving prime funds and borrowers are scrambling to raise term financing.
- The restoration of the CPFF is fortunate, in our view. It also suggests the Fed is willing to use its 13(3) exigent circumstances clause.
- The program matches its earlier version in several key ways: lending rate, issuance amount and the registration fee.¹
- Unlike the original, CPFF 2.0 will have a credit guarantee of \$10bn provided by the Treasury through its Exchange Stabilization Fund.
- Nonetheless, markets seem somewhat disappointed by the 200bp spread to OIS. This is about 75bp higher than where AA CP was trading on Monday.
- However, this ignores the fact that many issuers were unable to sell 3m paper and the market was quickly shifting to overnight lending.

We expect the program to cap rates. But how much it lowers LOIS depends on whether the program restores "liquidity confidence."

Joseph Abate
+1 212 412 7459
joseph.abate@barclays.com
BCI, US

www.barclays.com

Pre-emptive liquidity hoarding

Signs of pre-emptive liquidity hoarding have grown. On Monday, institutional gov-only fund balances jumped by \$36bn. These balances are up 11% since March 4. Declines in prime fund balances have started to accelerate. As balances leave these short-term credit funds, their managers have turned increasingly cautious. They are moving to shore up liquidity – shortening up the maturity of any CP and wholesale time deposits they purchase and shifting re-investments from these markets to repo and Treasuries. Prime funds keep about 65% of the holding in CP and other short-term unsecured credit instruments. Although we do not have as high frequency or as granular data on other CP investors – such as foreign official institutions, cash-rich non-financial companies and securities lenders – our sense is that they too, are reducing their CP holdings and shortening up maturities.

Issuers, meanwhile, are scrambling to raise term money in expectation that their businesses could be shut down for an extended period or that they could be shut out from funding markets. Most notably, this has led to a surge in the number of companies – across an array of industries – to draw on their bank credit lines. “Liquidity anxiety” is pushing Libor higher and widening LOIS.

CP funding markets have frozen

Despite the Fed's 100bp rate cut and efforts to encourage discount window borrowing, AA financial and non-financial companies – assuming they have access to term funding – were paying 125bp over OIS for 3m funding. In normal market conditions this spread is closer to 10-25bp. While the overall daily pace of CP issuance is down somewhat from earlier this year, a larger portion of new issuance has very short tenors (under 4d). Replacing term funding with effectively overnight financing leaves borrowers exposed to roll-over risk – especially in markets in which rates are moving quickly driven by liquidity hoarding and fear. Indeed, between Wednesday and Thursday last week, AA financial and non-financial CP rates rose 30bp and 25bp, respectively.

Enter the Fed

The Fed announced the recreation of the CPFF program this morning. Given the deterioration in unsecured funding markets, we expected the Fed to recreate this 13(3) backstop lending facility.²

We think there are two important considerations. First, the Fed moved quickly to recreate this program. CP markets started coming seriously unglued mid-last week. Indeed, it seems the Fed has responded to the distress in unsecured short-term borrowing somewhat faster than the time it took to cut rates to 0bp. Coupled with Sunday's aggressive action on the discount window, central bank liquidity swap lines, and its multiple rounds of super-sized open market operations, the Fed is clearly prepared to quickly meet market demand for (precautionary) liquidity. Second, the fact the Fed used its 13(3) unusual and exigent circumstances clause to reinstate the CPFF suggests that other, similar, programs may be in the offing. Alongside these emergency programs, the Fed may also be ready to tweak some regulations – perhaps, even temporarily lowering the leverage ratio to encourage more bank intermediation across markets and between borrowers and lenders.

Mechanically, CPFF 2.0 looks like the 2008 program. The Fed will create a special purpose vehicle (SPV) that will buy CP from issuers. Eligible program participants must be rated A1/P1, although the Fed appears ready to buy A2/P2 paper from participants that have subsequently been downgraded. They will be able to sell the Fed 3m CP up to the maximum amount they had outstanding between March 16, 2019, and yesterday. This is meant to limit the program to those issuers who need liquidity rather than non-CP borrowers looking to raise cheap 3m money. Keep in mind that the CP market is skewed toward high quality

² See *Expand, Circulate and create a CPFF*, March 16, 2020

Barclays | US Money Markets

borrowers. Outstanding Tier 1 paper is several times larger than Tier 2 paper. Overall CP outstanding is about \$1.15trn. Non-financial issuers represent about one-third of total CP outstanding. Finally, it is worth noting that companies raising money in the CP market – even in Tier 2 – are large. Recreating the CPFF, unlike the lengthening of discount window tenor and lowering the primary credit rate may only have an indirect effect on small businesses. To the extent that the CPFF keeps non-financial firms that have no access to the discount window operating and sufficiently supplied with funds for working capital, they can keep their suppliers in business and their employees on the job.

The CPFF has an explicit expiration

There are two key differences between the new and old programs. First, unlike the old program, the new one has an explicit expiration date (March 17, 2021). The Fed kept rolling the old program until demand faded away. There are likely two reasons for the inclusion of an expiration. First, under the Dodd-Frank rules governing the creation of 13(3) lending facilities, these programs must be short-term, temporary operations. Second, we – and the Fed apparently – think the strains in the CP market are temporary. Once the market internalizes the fact that the Fed is providing all the secured and unsecured liquidity that financial and non-financial borrowers could want, we expect market rates will come down quickly and program use will evaporate.

Second, the Treasury will be providing the Fed with \$10bn worth of credit protection. The Treasury will use the Exchange Stabilization Fund (ESF) to provide the financing for the guarantee. This will be supplemented by a 10bp registration fee that eligible borrowers will pay to access the program. We think the explicit credit protection was put in place to make it more Dodd-Frank friendly. The Fed also seems ready to buy A2/P2 paper from downgraded issuers that were formerly rated A1/P1 on March 17, 2020. It is unclear if the Fed expects a pickup in downgrades or is only attempting to make the program as broad as possible so that no issuer is dropped who meets the initial program ratings.

Gift horses?

It is said that you should not look a gift horse in the mouth – that is, it's best not to discover how old the horse really is and thus, how generous the donor was. Markets seem a bit disappointed by the rate on the Fed's CPFF. At OIS+200bp, the program rate is about 75bp higher than where AA CP was trading on Monday.

It might be helpful to put the rate in context. First, the 200bp spread to OIS is consistent with the earlier version of the program. That program was priced at a 100bp spread to OIS and included an additional 100bp of "credit spread" meant to account for the risk the Fed faced. The Fed has combined the explicit credit spread with the 100bp standard spread. Once the TLGP program was created, the Fed waived the 100bp credit fee for financial companies participating in the FDIC's liquidity backstop program. The fee waiver may be why the market seems somewhat disappointed by the current CPFF. Second, like any lender of last resort facility, the CPFF rate is meant to be a penalty rate. This is meant to encourage borrowers to find other financing channels and only come to the Fed when these other sources have been exhausted.

That said, we wonder if the Fed could have been slightly more generous. Credit losses in the CP market are rare. When the Fed designed the original program, it was assuming losses of more than 1%. This became the basis for their 10bp registration fee and the 100bp credit spread when the program was launched in 2008. Separately, market strains in 2020 are considerably different from 2008. In 2008, the primary concern was counterparty credit and the risk of default. As noted above, the strains in today's market stem from a pre-emptive rush for liquidity – investors are less concerned about default and more worried about how much liquidity they might need to have in a recession with businesses and access to funding markets shut down for a few weeks or longer.

17 March 2020

3

Barclays | US Money Markets

That said, we expect that the CPFF will establish a ceiling on short-term unsecured funding rates. Despite concerns about the rate, we think, given market sentiment, issuers will borrow heavily from the program to lock in 3m funding. Program usage should quickly come off as these borrowers should be able to meet any – and importantly, all – of their precautionary demand for liquidity. As the Fed takes pressure off these markets, we expect LOIS to come in. However, at this point, Libor may depend more on very fragile market sentiment and the uncertainties around COVID-2019 so it could be a week or so before the spread comes down.

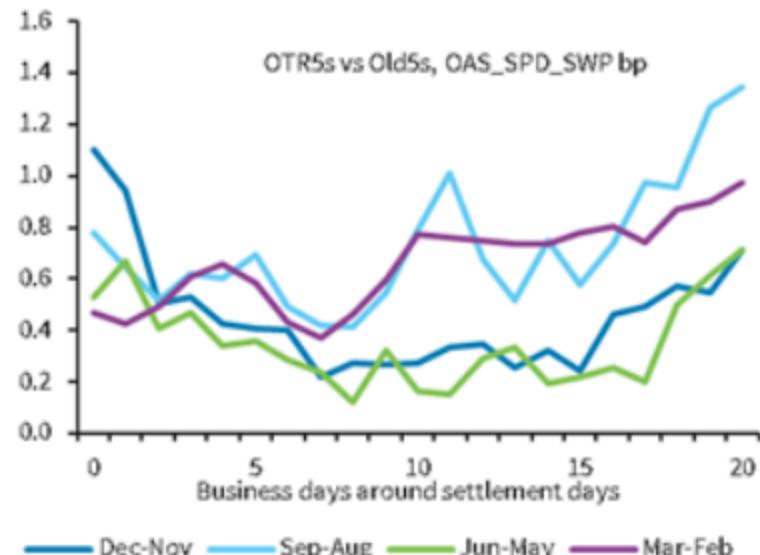
Treasury roll estimates for 2y, 5y, and 7y auctions

- The Treasury is scheduled to announce sizes for the upcoming 2y, 5y, and 7y auctions today at 11am. We expect auction sizes to be unchanged at \$40bn, \$41bn, and \$32bn, respectively. The auctions are scheduled for March 24, 25, and 26. All auction settle on March 31.
- We estimate fair values for the 2y, 5y, and 7y rolls at settlement of -0.2bp, 3.1bp, and 0.4bp, respectively. This translates to rolls at announcement of 1.0bp, 3.7bp, and 0.9bp. We assume coupons of 0.55%, 0.75%, and 1.00%, respectively. There is the potential for coupon shifts across tenors given the recent volatility; however, there is minimal impact to our rolls estimate. Figure 1 shows our estimates of the curve, liquidity premium, and carry.
- SOMA Add-ons and Liquidity Premium: The Fed is scheduled to add on \$5.4bn, \$5.6bn, and \$4.3bn at the 2y, 5y, and 7y auctions, respectively. These are smaller compared with \$6.0bn, \$6.2bn, and \$4.8bn at January auctions. In addition, there is significant on-the-run liquidity premia at benchmark tenors.
 - At the 2y tenor, current 2s are trading rich on the curve reflecting heightened on-the-run liquidity premium, Figure 2. We estimate the WI will trade flat to the current issue. In addition, the WI will not likely be a CTD in TUM0 given the low coupon.
 - At the 5y tenor, current 5s are deferred CTD in FVZ0 and trading rich on the curve. There is likely to be a discount in the WI, reflecting the richness of current 5s, Figure 3.
 - At the 7y tenor, current 7s are also trading rich on the curve. We estimate the WI will trade flat to the current issue. At current yields, the new 7y will not likely be CTD in TYU0 (the seasoned 10y 2.375% May27 would be).

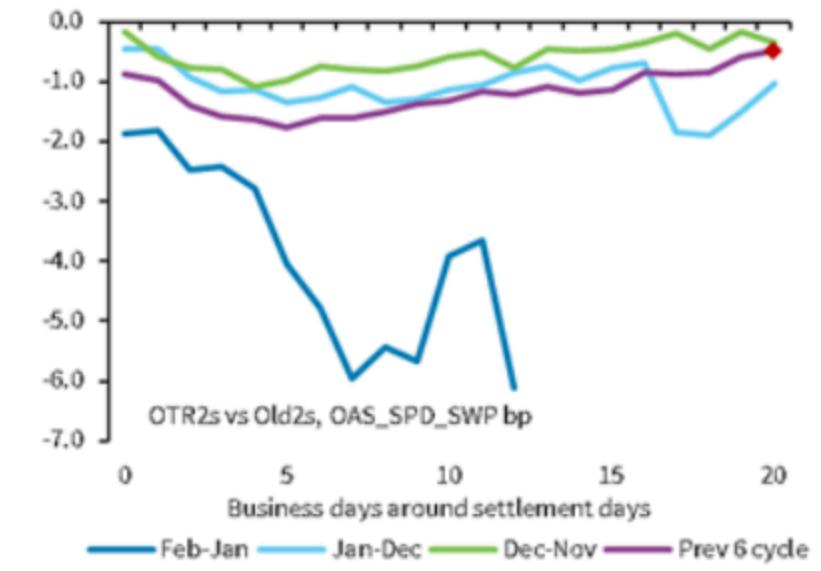
Figure 1: Roll Estimates

Roll Estimate	2y	5y	7y
Announcement Date	19-Mar	19-Mar	19-Mar
Settlement Date	31-Mar	31-Mar	31-Mar
Expected Issue Size, \$bn	40	41	32
Assumed Coupon	0.50%	0.75%	1.00%
Yield of Current Benchmark	0.53%	0.74%	1.05%
Fin. Rate from Mar 20 to Mar 31	-0.20%	-0.20%	0.00%
Rate Curve (bp)	(0.2)	0.6	0.5
Bad Days (bp, net)	(0.0)	(0.0)	(0.0)
Relative ASW curve (bp)	0.0	2.5	0.0
Fair Value Roll at settle. date (bp)	(0.2)	3.1	0.4
Net Carry (bp)	1.2	0.6	0.5
Fair Value Roll at ann. date (bp)	1.0	3.7	0.9

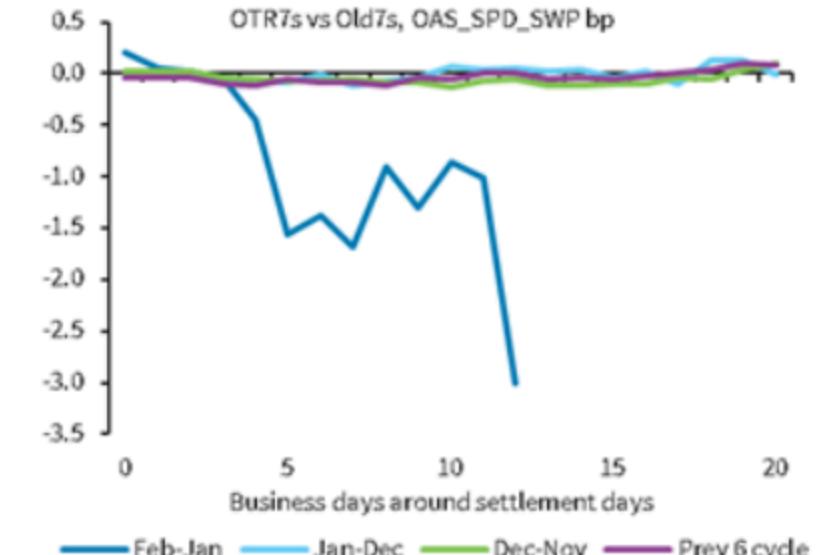
Note: Rate curve refers to the swap curve after accounting for the coupon effect. Source: US Treasury, Barclays Research

Figure 3: 5y Liquidity Premium


Note: Non-deferred CTD vs deferred CTD pairs shown. Source: Barclays Research

Figure 2: 2y Liquidity Premium


Note: Non-CTD vs non-CTD pairs shown. Source: Barclays Research

Figure 4: 7y Liquidity Premium


Note: Non-CTD vs. Non-CTD pairs shown. Source: Barclays Research

THE HUNGARIAN

Credit Suisse Economics

Global Money Notes #28

Lombard Street and Pandemics

The Fed's liquidity injections appear not to be working.

All segments of funding markets – secured, unsecured and FX swaps – continue to show growing signs of stress. The Fed may have to do more still.

In the U.S., we watched, but didn't feel the funding impact of large banks in other countries being asked to help their economies. Now that U.S. banks are asked to do the same, dollar funding markets are starting to feel the impact.

As U.S. banks increase their lending to the real economy as corporations draw on credit lines and banks lend more to households and firms, lending will consume more balance sheet and risk capital, and that will leave less room for market making and arbitrage, which under current circumstances are "luxury".

The breakdown of o/n repo markets yesterday tell us that balance sheet is now getting scarce to conduct even the most basic type of market making.

As banks are pulling back from market making, the Fed and other central banks need to assume the role of dealer of last resort...

The Fed needs to become a buyer of CDs and CP, but not through the CPFF.

The Fed needs to offer dollars on a daily frequency through the swap lines, and other central banks need to lend dollars on to both banks and non-banks.

The Fed needs to broaden access to the swap lines to other jurisdictions as dollar funding needs are large in Scandinavia, Southeast Asia, Australia and South America, not just in the G-7. The dollar funding needs of both banks and non-banks is what's at risk and the assets that are being funded are U.S. assets – Treasuries, MBS and credit – so the Fed has a vested interest.

A hallmark theme of the post-QE global financial order has been the secular growth of FX hedged fixed income and credit portfolios at non-bank institutions like life insurers and asset managers from negative interest rate jurisdictions – the new shadow banking system, epitomized by money market funding (FX swaps) of capital market lending (Treasuries and the full credit spectrum).

CONTRIBUTOR

Zoltan Pozsar

212 538 3779

zoltan.pozsar@credit-suisse.com

Unless these non-bank entities get access to dollar auctions – from local central banks – FX swap spreads may remain wide if banks won't serve as matched-book intermediaries.

There is a growing risk that such intermediation will fracture as the assets that FX swaps fund include not only Treasuries but credit and CLOs too. Credit quality is fast deteriorating across various sectors and that makes it riskier for dealers to fund some life insurers through FX swaps, just like it became riskier to fund some insurers during the 2008 crisis.

Over the past five years balance sheet and the availability of reserves were the main drivers of spreads in the FX swap market. It's time to think about credit risk creeping in to funding markets through the asset side of some portfolios funded through FX swaps.

Fourth, the geographic reach of the swap lines is too narrow.

The Fed has swap lines only with the BoC, the BoE, the BoJ, the ECB and the SNB, and that's because the 2008 crisis hit banks mostly in these particular jurisdictions.

But the breadth of the current crisis is wider as every country is struggling to get dollars. The dollar needs of Sweden, Norway, Denmark, Hong Kong, Singapore, South Korea, Taiwan, Australia and Brazil and Mexico seem particularly striking for a variety of reasons.

Scandinavia countries, like Japan have large dollar needs due to institutional investors' hedging needs and only Norway is endowed with large FX reserves to tap into. Mexico is dealing with a terms of trade shock due to the collapse of oil prices. Southeast Asian countries that serve as banking centers need U.S. dollars to clear dollar payments and countries like South Korea and Taiwan have life insurers with meaningful hedging needs.

The Fed's dollar swap lines need to go global, the hierarchy needs to flatten.

The message for central banks that emerges from this brief note is this:

backstop not only the banks at the core of the financial system, but also markets and non-banks. The market backstops should include the CD and CP market where we need a buyer of last resort as the structural buyers of paper are losing cash fast; the backstop of the FX swap market should include daily operations at more points along the FX curve.

Like primary dealers offer round the clock liquidity across timezones, dealers of last resort – the central banks of the swap network – should offer dollar liquidity round the clock too.

Finally, like primary dealers, who trade with anyone with an ISDA, dealers of last resort should too: the Fed by broadening access to other central banks and other central banks by broadening access to dollar auctions to non-banks like life insurers and asset managers.

The Fed's liquidity response may not trickle down to every corner of the financial system.

The liquidity response doesn't address the functioning of unsecured funding markets, and the effectiveness of the FX swap lines may be limited by its operational details and reach.

It feels like the Fed needs to do more still.

We are concerned about four areas: liquidity in the CD and CP markets; the frequency with which the Fed plans to do swap line operations and the FX points where it's active; and the funding needs of institutions and regions that aren't embraced by the swap lines.

First, the initial shock to the CD and CP markets came from the equity market collapse and the flows it triggered whereby cash started to flood back from securities lenders' cash collateral reinvestment accounts to short sellers' accounts. Given that seclenders invest cash in the CD and CP markets and short sellers invest mostly in Treasury bills, these flows turned seclenders into net sellers of CD and CP, precisely when issuance from corporations and banks is picking up. Outflows from prime money funds have been small to date, but given ongoing stresses in funding markets and heightened risk aversion, prime funds could see more outflows this week as investors take refuge in the safety of government money funds. Such a rotation would further hurt demand for CD and CP this week and will continue to pressure funding spreads including U.S. dollar Libor-OIS.

It isn't reasonable to expect real money accounts – reserve managers and bond funds – to substitute demand from seclenders and prime money funds as reserve managers are raising dollar liquidity themselves to help banks in their jurisdictions and bond funds have better yielding opportunities to harvest elsewhere if they are not struggling with outflows.

We do not think that the right solution here is re-activating the [CPFF](#). The legal aspects of onboarding issuers takes time and liquidity can kill you quick. Our recommendation would be for the Fed to come to an agreement with the U.S. Treasury whereby the latter provides a "first-loss buffer" on any financial or non-financial CP the New York Fed buys in the primary or secondary market. The first loss buffer would ensure that the Treasury takes the credit risk and the Fed only takes the liquidity risk such that the Fed feels "secured to its satisfaction" – which is what the Fed cares about most in a crisis situation.

The money to fund such a first loss buffer is already in the system – it's sitting in the Treasury General Account. Putting up \$50 billion of the \$400 billion sitting idly at the Fed would provide sufficient comfort for the Fed and near immediate support for the market – the Bank of Japan and the Bank of Canada already buy CP in their domestic jurisdictions.

This template could then be extended to corporate bond purchases by adding more buffer and as President Dudley would say "going out the curve and down the credit spectrum".

the 2008 "Commercial Paper Funding Facility" or CPFF (2) a facility that would specifically target purchases of CP on dealer balance sheets which we will call a "Commercial Paper Dealer Purchase Facility" or CPDPF. We discuss each below.

CPFF: the CPFF would likely be structured similarly to the facility in the financial crisis. In 2008 3m LOIS widened to around 350bps amid mounting credit concerns. The Fed announced the CPFF to purchase CP directly from issuers and allow corporates to continue funding themselves despite market stress. After this facility was announced, LOIS and Fin CP to OIS spreads started to tighten, though NonFin to OIS spreads continued to widen until the purchases were implemented (Chart 8, Chart 9, Chart 10).

CP was purchased at a discount rate of 3m OIS + 100bp plus either an additional 100bp surcharge or a collateral arrangement with the issuer (Table 4). The Fed would provide 3m loans to a specially created LLC, which would use those funds to purchase CP directly from issuers. This LLC held the CP to maturity and used the proceeds to repay its loan from the Fed. US issuers of CP were eligible to use this facility and they were required to register with the CPFF.

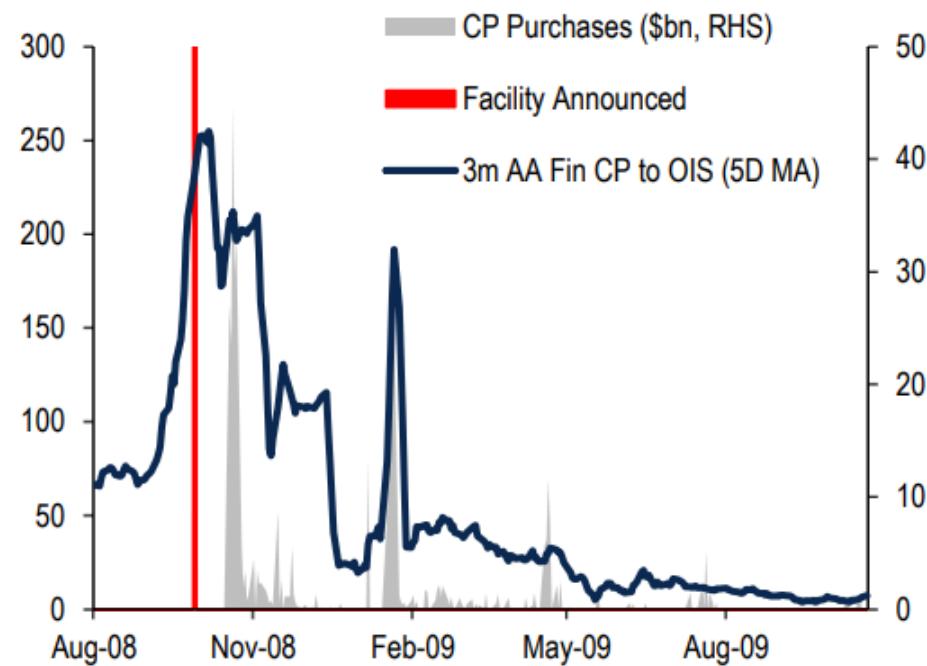
We expect the Fed will likely launch a CPFF similar to the '08 facility. This CPFF would be targeted at to re-open CP issuance markets and to alleviate the potential bank funding strain from having numerous credit lines drawn over a short period of time.

CPDPF: our suggested "Commercial Paper Dealer Purchase Facility" would essentially entail creating a special Fed vehicle aimed at purchasing CP directly off of primary dealer balance sheets, similar to the current UST purchases discussed above. The purchase program would likely need to be relatively small and short lived in its existence. The facility would only be used to clear existing inventory off dealer balance sheets and provide an outlet for additional prime MMF sales until they had built sufficient liquidity buffers. There is roughly \$9.5bn of CP on dealer balance sheets according to primary dealer data as of March 4. We might imagine prime MMF might only need to sell \$20-\$40 bn more to build their liquidity buffers by another 5%. Therefore, it seems likely that the size of the Fed's CP dealer facility might only need to total \$30-\$50 bn.

Facilities require 13-3 and Treasury approval

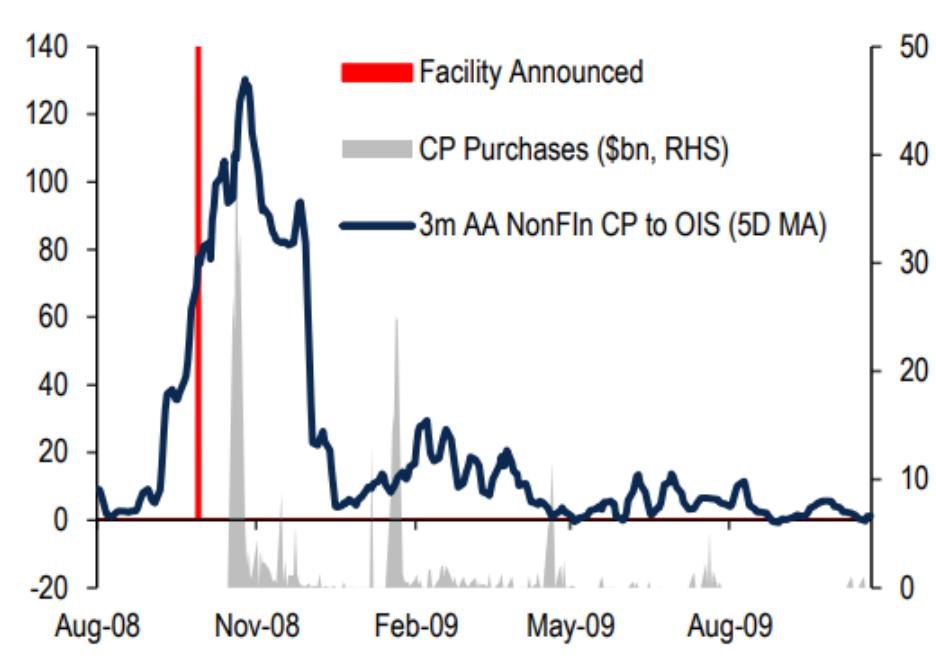
Both of these facilities that we expect cannot be unilaterally authorized by the Fed due to law changes since the financial crisis. The existence of these facilities would only occur through the authority of [section 13-3 of the Federal Reserve Act](#). The Federal Reserve used the "unusual and exigent circumstances" clause (i.e. "section 13(3)") of the Federal Reserve Act to extend credit to financial firms during the Global Financial Crisis in 2008. Using this broad authority, the Fed created and implemented five funding facilities to provide liquidity to primary dealers and act as a backstop to the commercial

Chart 9: 3m AA Fin CP and CPFF usage



Source: Bloomberg, Federal Reserve

Chart 10: 3m AA NonFin CP and CPFF usage



Source: Bloomberg, Federal Reserve

Table 4: CPFF, CP purchase details

Eligible securities	3m CP rated at least A-1/P-1/F1, non interest bearing US issuers including those with a foreign parent.
Eligible Issuers	Excludes municipal issuers
Price	3m OIS + 100bp
Unsecured credit surcharge	100bp or collateral arrangement
Seller	CP issuers sells through primary dealer
Buyer	CPFF LLC using loans from NY Fed
Purchase Limit	Max outstanding CP an issuer had outstanding from Jan1-Aug31 2008

Source: Federal Reserve

Appendix

A few other notes on the discount window per recent client questions:

Who can access the discount window? The discount window provides loans to depository institutions in sound financial condition. US branches and agencies of foreign banks that hold reserves are also eligible to borrow.

Can CP be pledged to the discount window? USD denominated, investment grade commercial paper (CP) can be pledged to the discount window. The margin for CP is similar to that for US Treasuries (Table 1).

When is data released? Discount window usage is released weekly as a part of the Fed's H.4.1 release (Chart 3).

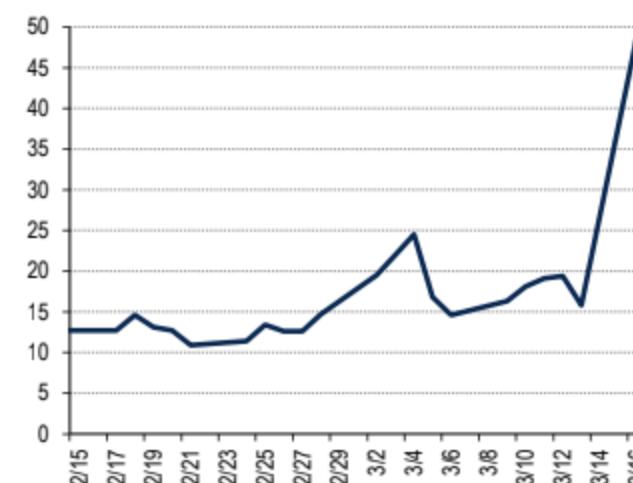
Chart 1: CP rates increasing vs OIS (bps)



Source: Bloomberg

Chart 2: GC repo vs ON RRP (bps)

March 16 GC repo is BofA 10AM avg GC rate for USTs <10Y



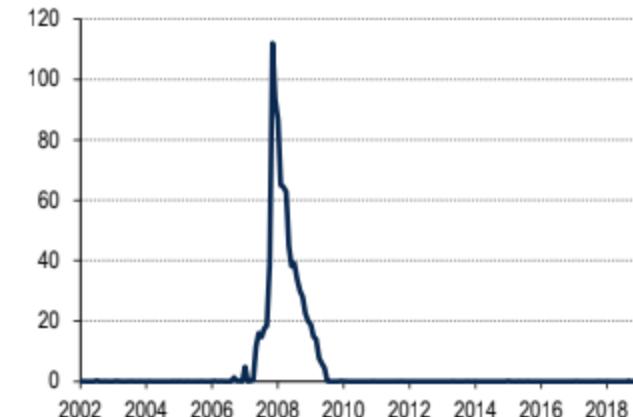
Source: Bloomberg

Table 1: Margins for Securities (% of market value)

Duration	0-1	>1-3	>3-5	>5-10	>10
USTs	99%	99%	98%	97%	95%
GSEs	98%	98%	97%	96%	94%
CDS	98%	98%	97%	96%	94%
CP, Banker's Acceptance, ABCP	98%	98%	97%		

Source: Federal Reserve

Chart 3: Discount window usage (\$bn)



Source: Federal Reserve

Commercial Paper Funding Facility 2020: Program Terms and Conditions

Effective March 17, 2020

Facility

The CPFF2020 will be structured as a credit facility to a special purpose vehicle (SPV) authorized under section 13(3) of the Federal Reserve Act. The SPV will serve as a funding backstop to facilitate the issuance of term commercial paper by eligible issuers.

The Federal Reserve Bank of New York will commit to lend to the SPV on a recourse basis. The New York Fed will be secured by all the assets of the SPV. The U.S. Treasury Department—using the Exchange Stabilization Fund (ESF)—will provide \$10 billion of credit protection to the FRBNY in connection with the CPFF.

Assets of the SPV

The SPV will purchase from eligible issuers three-month U.S. dollar-denominated commercial paper through the New York Fed's primary dealers. Eligible issuers are U.S. issuers of commercial paper, including U.S. issuers with a foreign parent company.

The SPV will only purchase U.S. dollar-denominated commercial paper (including asset-backed commercial paper (ABCP)) that is rated at least A-1/P-1/F-1 by a major nationally recognized statistical rating organization (NRSRO) and, if rated by multiple major NRSROs, is rated at least A-1/P-1/F-1 by two or more major NRSROs, in each case subject to review by the Federal Reserve.¹

Limits per issuer

The maximum amount of a single issuer's commercial paper the SPV may own at any time will be the greatest amount of U.S. dollar-denominated commercial paper the issuer had outstanding on any day between March 16, 2019 and March 16, 2020. The SPV will not purchase additional commercial paper from an issuer whose total commercial paper outstanding to all investors (including the SPV) equals or exceeds the issuer's limit.

Pricing

Pricing will be based on the then-current 3-month overnight index swap (OIS) rate plus 200 basis points.

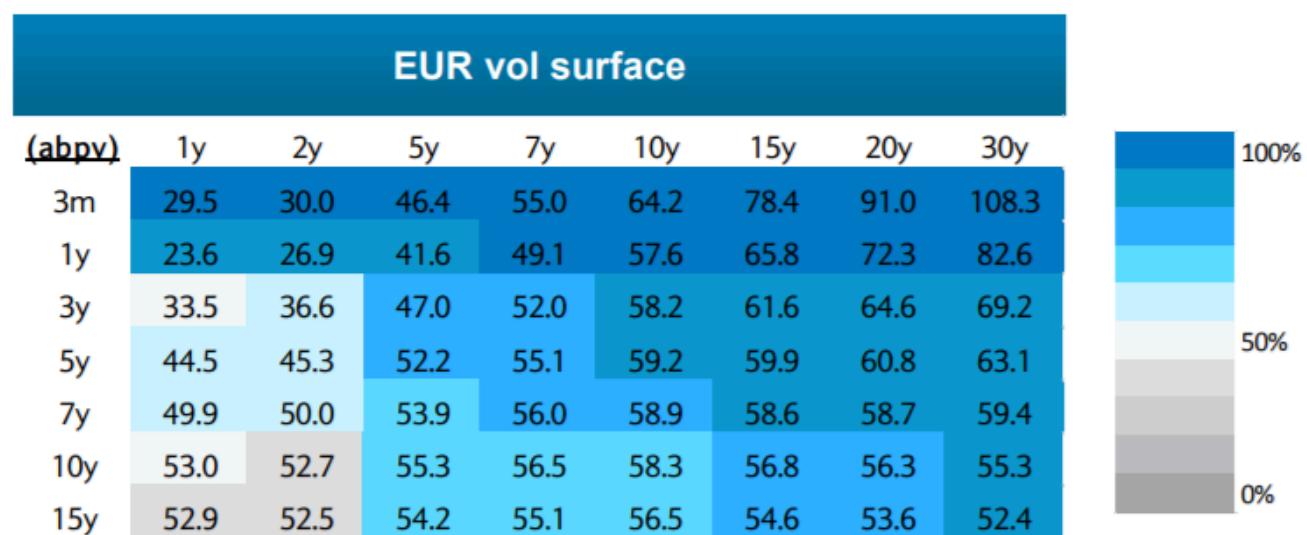
At the time of its registration to use the CPFF, each issuer must pay a facility fee equal to 10 basis points of the maximum amount of its commercial paper the SPV may own.

Termination date

The SPV will cease purchasing commercial paper on March 17, 2021, unless the Board extends the facility. The New York Fed will continue to fund the SPV after such date until the SPV's underlying assets mature.

¹ In addition, the SPV will make one-time purchases of commercial paper (up to the amount outstanding on March 17, 2020) from issuers that met these criteria as of March 17, 2020 and were rated at least A-2/P-2/F-2 as of the purchase date. These purchases will be subject to separate pricing. The Federal Reserve reserves the right to review and make adjustments to the terms and conditions described in this term sheet, including pricing and eligibility requirements.

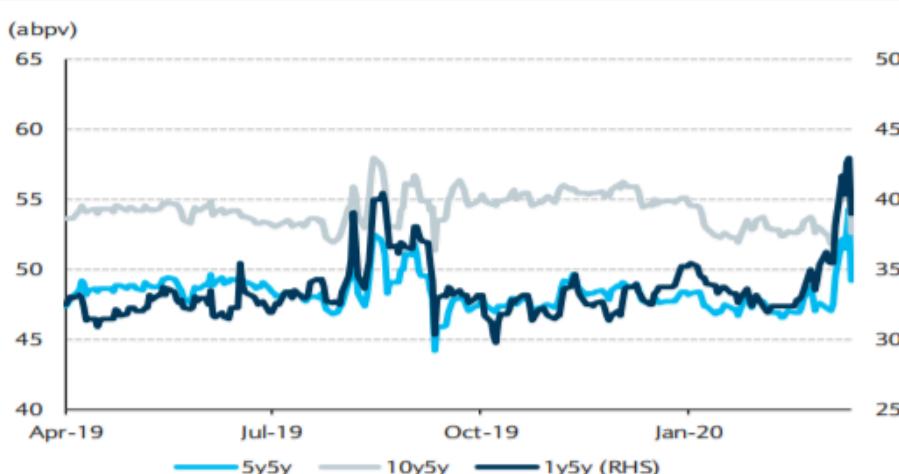
EUR vol surface: Vols across the surface have richened



Note: Richness/Cheapness is determined using the expression $(\text{current value} - \text{1y min}) / (\text{1y max} - \text{1y min})$

Both EUR 1y*5y and...

...EUR 1y*30y have risen sharply in the risk-off moves



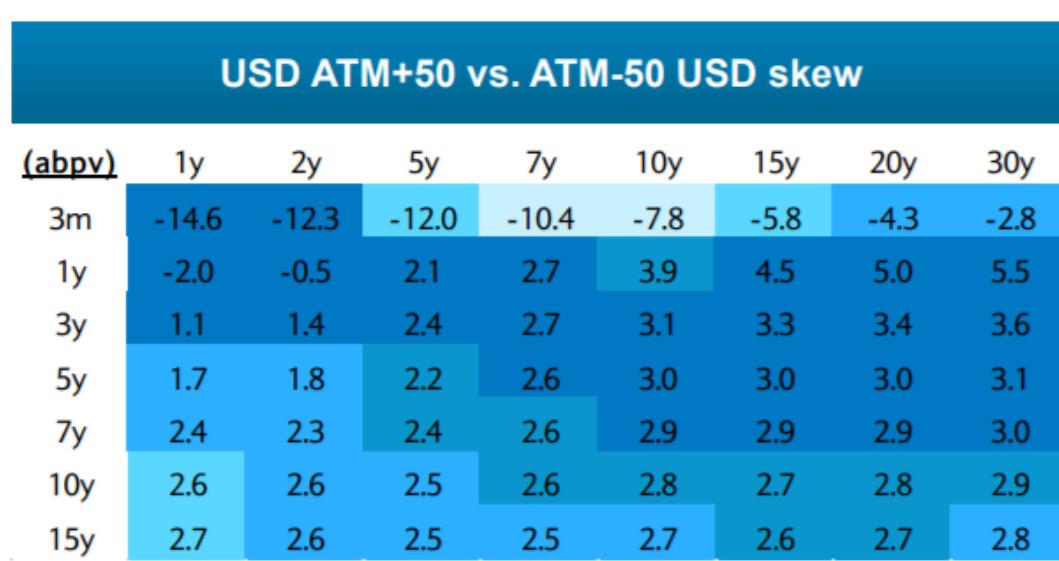
Note: As of 16 March 2020. Source for table and charts: Barclays Research



6
Restricted - External

17 March 2020

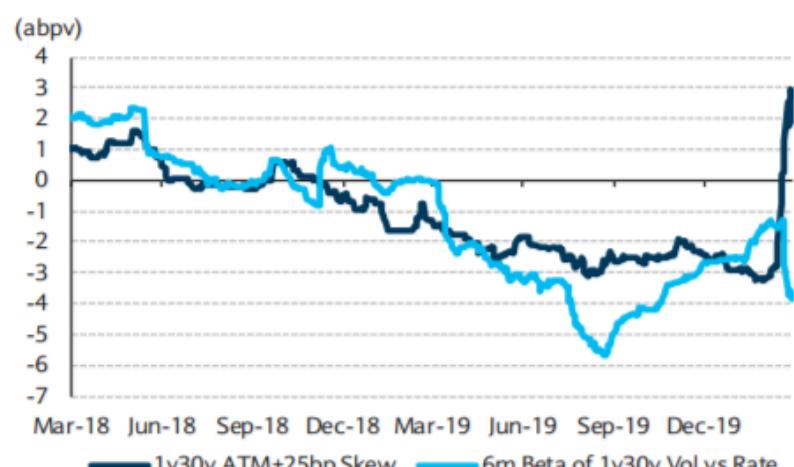
USD vol skew: Skews across the surface have risen



Note: Richness/Cheapness is determined using the expression $(\text{current value} - \text{1y min}) / (\text{1y max} - \text{1y min})$

Both USD 1y*5y and...

...1y*30y skews are high compared with realised rate vol relationship



Note: As of 16 March 2020. Source for table and charts: Barclays Research

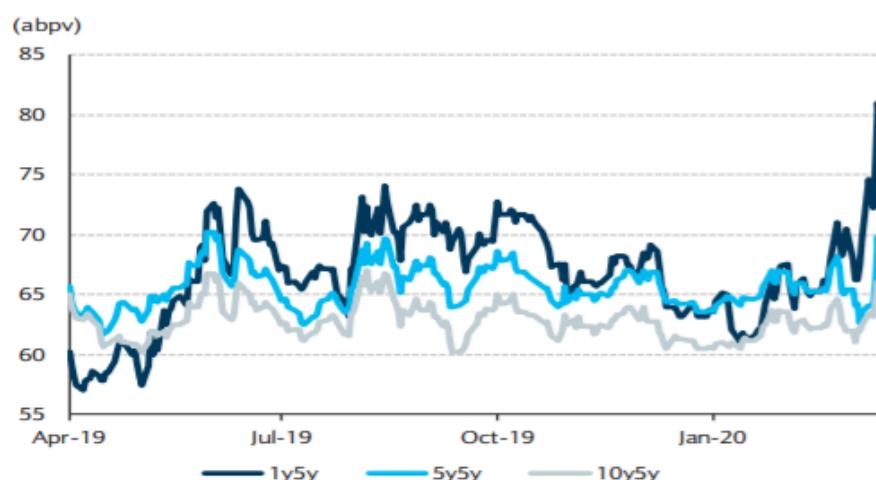


USD vol surface: Vols on mid and long tenors have spiked

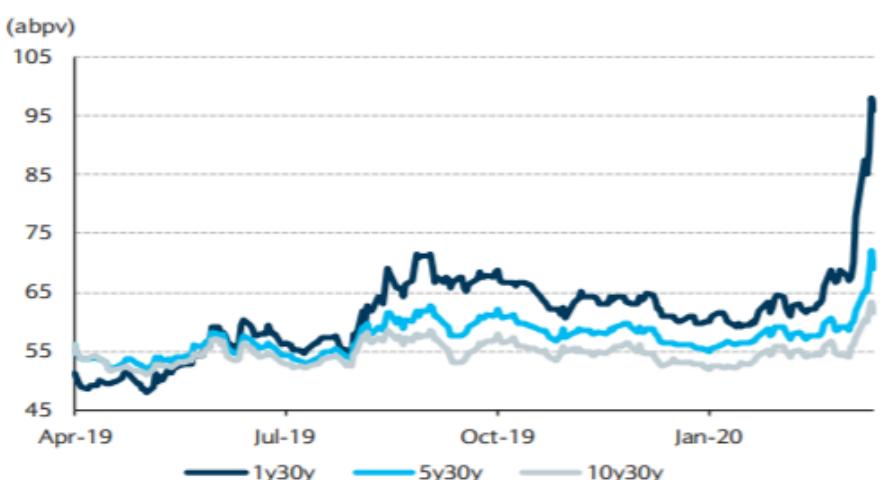


Note: Richness/Cheapness is determined using the expression $(\text{current value} - \text{1y min.}) / (\text{1y max} - \text{1y min})$

USD 1y*5y and...



1y*30y have risen sharply over the past month



Note: As of 16 March 2020. Source for table and charts: Barclays Research

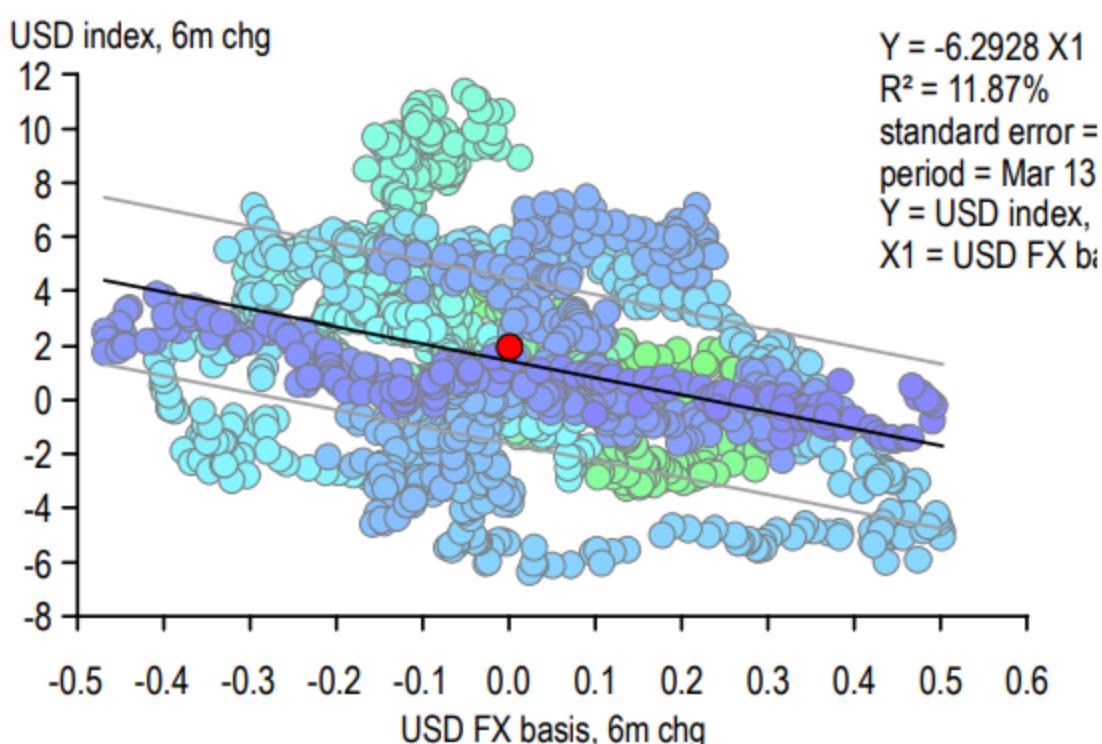


4
Restricted - External

17 March 2020

Exhibit 4: Accelerated dollar strength this week accompanied the first evidence of some distressed dollar demand through the widening in the cross-currency basis

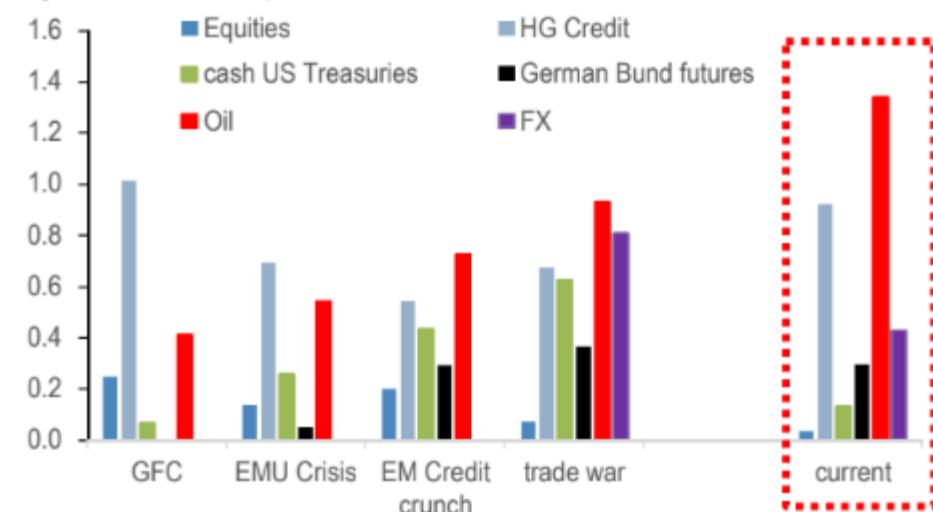
USD FX basis (average of 3mx3m for EUR/USD and USD/JPY) versus JPM's broad USD index. 6m changes



Source: J.P. Morgan

Chart 5: US Equity and Treasury liquidity as bad as during GFC

Minimum value for of JPM preferred market depth measure for each asset class relative to its long-term average. Proxies for liquidity: US Equities (average number of contracts on the bid/offer in ES1), US HG Credit (Trace daily value as % of market outstandings), US Treasuries (average of top 3 bids and offers on Brokertec), German Bunds (average of the top 5 bids and offers), FX (average of top 5 bid and offer levels of the order book for USD/JPY and EUR/USD), and Oil (Brent and WTI front contract volume as % of daily physical production). Sample begins in 2007 for Equities, Credit, UST and Oil, 2010 for Bunds and 2016 for FX.



Source:

J.P. Morgan





Special Executive Report

DATE: March 16, 2020

SER#: 8562

SUBJECT: Amendments to CME and CBOT Rule 589. ("Special Price Fluctuation Limits and Daily Price Limits") Table for the CME and CBOT Interest Rate Futures and All Related Associated Contracts

Effective Sunday, March 29, 2020 for trade date Monday, March 30, 2020, and pending all relevant CFTC regulatory review periods, Chicago Mercantile Exchange Inc. ("CME") and The Board of Trade of the City of Chicago, Inc. ("CBOT") will amend the CME and CBOT Rule 589. ("Special Price Fluctuation Limits") table (the "Table") for CME and CBOT Interest Rate products.

The change is taken in light of recent movements and is intended to ensure fair and orderly trading in all CME and CBOT Interest Rate futures and option contracts (the "Contracts") which are subject to Special Price Fluctuation Limits. Specifically, the Exchanges will amend the special price fluctuation limits applicable during the Extended Trading Hours ("ETH") to align them with those currently applicable to the Regular Trading Hours ("RTH") of the Contracts.

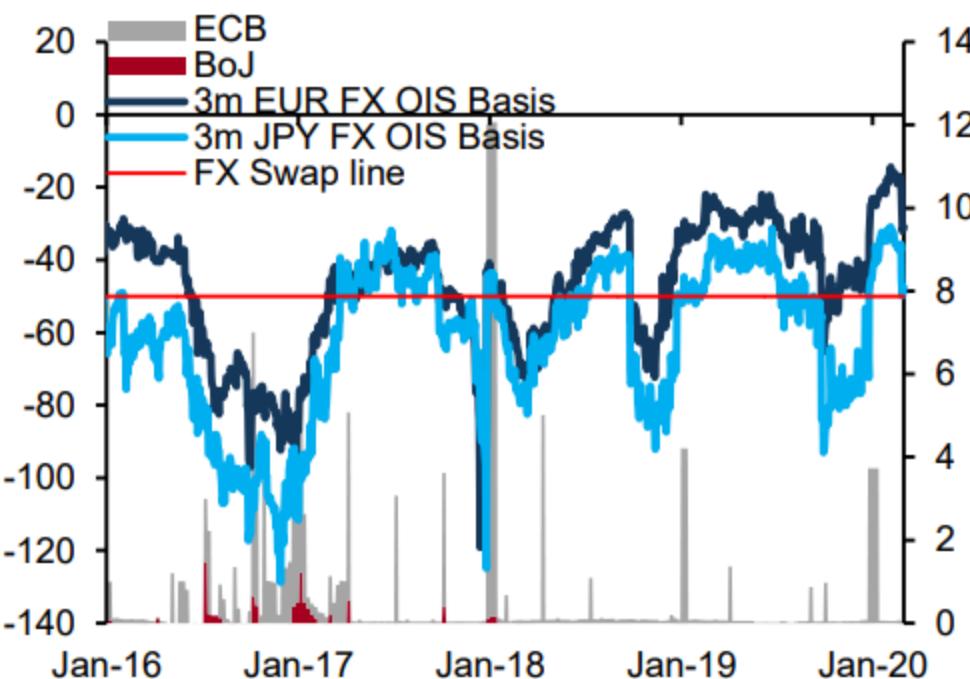
Amendments to the Table are provided in Exhibit A below in blackline format.

Contract Title	Rulebook Chapter	Commodity Code	PRIMARY/ ASSOCIATED	ASSOCIATED WITH
CME Contracts				
Three-Month Eurodollar Futures	452	GE	Primary	Primary
Options on Three-Month Eurodollar Futures	452A	GE, GE0, GE2, GE3, GE4, GE5, E01-E05, E21-E25, E31-E35, TE2-TE4	Associated	GE
Options on Three-Month Eurodollar Futures Calendar Spreads	452D	SPO	Associated	GE
One-Month Eurodollar Futures	453	GLB	Primary	Primary
Options on One-Month Eurodollar Futures	453A	EM	Associated	GLB
One-Month SOFR Futures	461	SR1	Primary	Primary
Three-Month SOFR Futures	460	SR3	Primary	Primary
Options on Three-Month SOFR Futures	460A	SR3, S0 , S01, S02, S03, S04, S05, S2, S21, S22, S23, S24, S25, S3, S31, S32, S33, S34, S35, S4, S5, TS2, TS3, TS4	Associated	SR3
MPC SONIA Futures	471	MPC	Primary	Primary
Quarterly IMM SONIA Futures	470	SON	Primary	Primary
CBOT Contracts				
Short-Term US Treasury Note Futures (2-Year)	21	ZT	Primary	Primary
Standard Options on Short-Term US Treasury Note Futures (2-Year)	21A	OZT	Associated	ZT
Flexible Options on Short-Term US Treasury Note Futures (2-Year) *	21B	58,59	Associated	ZT

<https://www.cmegroup.com/content/dam/cmegroup/notices/ser/2020/03/SER-8562.pdf>

Figure 6: Monitor central bank swap lines for signs of USD liquidity needs

3m FX OIS Basis (xccy adjusted for FRA-OIS differentials), bps
ECB and BoJ FX swap lines outstanding, \$bn rhs



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service



(Bloomberg) -- ECB “to launch a new temporary asset purchase program of private and public sector securities to counter the serious risks to the monetary policy transmission mechanism and the outlook for the euro area posed by the outbreak and escalating diffusion of the coronavirus,” its says in statement.

- “Pandemic Emergency Purchase Programme (PEPP) will have an overall envelope of €750 billion. Purchases will be conducted until the end of 2020 and will include all the asset categories eligible under the existing asset purchase program”
- Says purchases will be conducted in “flexible manner” allowing fluctuations over time, across asset classes and among jurisdictions
- Purchases under PEPP will include Greek debt
- “The Governing Council will terminate net asset purchases under PEPP once it judges that the coronavirus Covid-19 crisis phase is over, but in any case not before the end of the year”
- Eligible assets to include non-financial commercial paper, making all commercial papers of sufficient credit quality eligible
- ECB to ease the collateral standards by adjusting the main risk parameters of the collateral framework
- Will increase size and composition of programs as needed
- Will also consider revising some of its self-imposed QE limits
- **NOTE: ECB Holds Emergency Call on Virus as French Urge Massive Action**

US Daily: Back to the Crisis-Era Playbook: The Fed’s New Commercial Paper Facility and Possible Next Steps (Korapaty/Mericle)

- Reacting to the freeze in the commercial paper (CP) market, the Fed announced a Commercial Paper Funding Facility (CPFF) today. The CPFF will fund high-quality 3-month commercial paper at 200bp over OIS and is unlikely to face any binding constraints on its size. The facility should open a channel for primary issuance and help to provide corporates with funding.
- We see three other crisis-era facilities that the Fed could bring back if necessary. First, if the Fed’s current efforts to destigmatize the discount window are unsuccessful, it could revive the Term Auction Facility (TAF). Second, the Fed could create a program along the lines of the “AMLF” to help banks provide liquidity to money funds. Third, if the credit freeze becomes more widespread, the Fed could revive the Term Asset Lending Facility (TALF) to buy longer-dated credit.

Jan Hatzius
+1(212)902-0394 | jan.hatzius@
Goldman Sachs & Co. LLC

Alec Phillips
+1(202)637-3746 | alec.phillips@
Goldman Sachs & Co. LLC

David Mericle
+1(212)357-2619 |
david.mericle@goldman.com
Goldman Sachs & Co. LLC

Spencer Hill, CFA
+1(212)357-7621 | spencer.hill@
Goldman Sachs & Co. LLC

Daan Struyven
+1(212)357-4172 |
daan.struyven@goldman.com
Goldman Sachs & Co. LLC

David Choi
+1(212)357-6224 | david.choi@
Goldman Sachs & Co. LLC

Joseph Briggs
+1(212)902-2163 |
joseph.briggs@goldman.com
Goldman Sachs & Co. LLC

Blake Taylor
+1(202)637-3756 | blake.taylor@
Goldman Sachs & Co. LLC

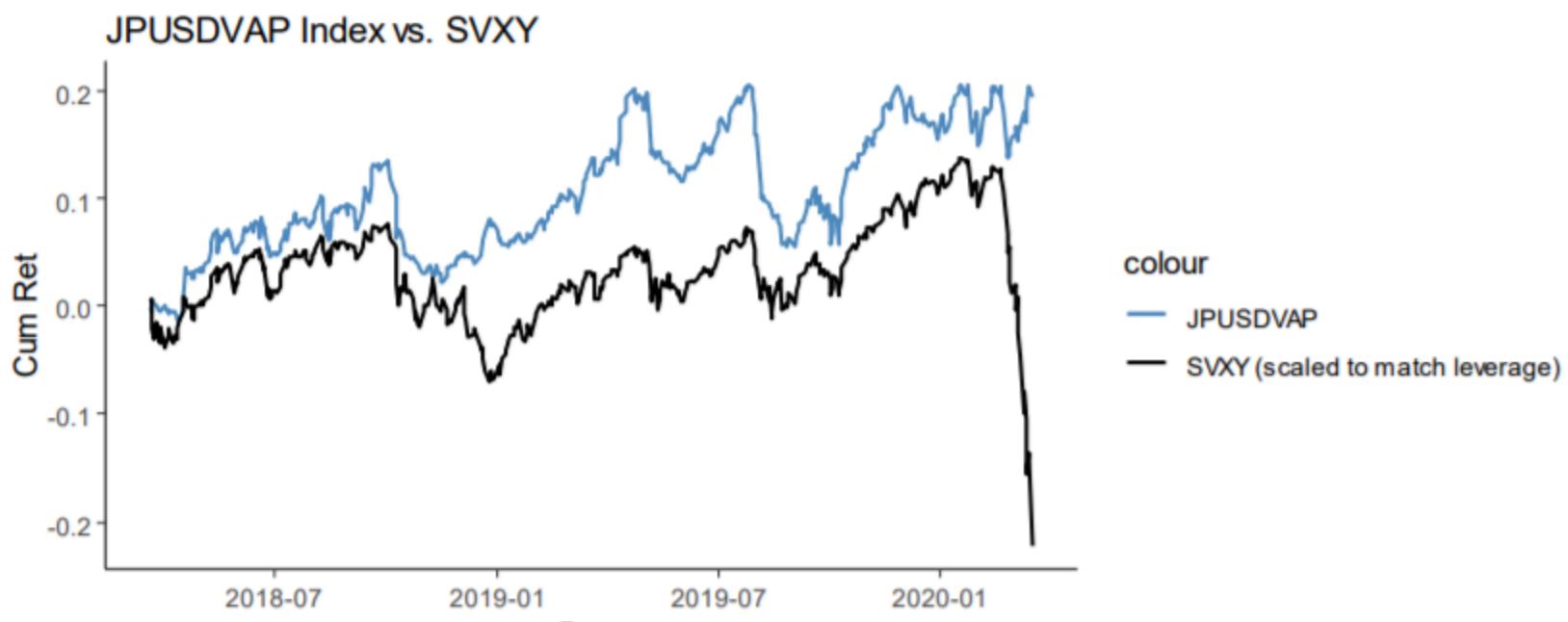
Ronnie Walker
+1(917)343-4543 |
ronnie.walker@goldman.com
Goldman Sachs & Co. LLC

Cross Asset Volatility

Machine Learning Based Trade Recommendations

- Our short VIX strategy (BBG ticker <JPUSDVAP>) has been performing well vs. standard short VIX ETFs (e.g. SVXY, also see the figure on the front page). Currently the strategy is fully long the front month contract, and fully short the 4th and 5th month contracts (see the table in Figure 13).
- Our CARV Model (Figure 2) has initiated a new short 1M vol position in WTI and has initiated two new long 1M vol positions on CDX HY and NDX. For NDX, this coincides with our 1Y variance swap model (Figure 6) which recommends long 1Y variance swaps on NDX in its top 3 pairs' trades.
- Our ETF Relative Value model (Figure 9) suggests **going short 3M ATM vol on SLV and going long 3M ATM vol on TLT**.
- A large difference in our G10 gamma trading vol signal emerged between the major Nordic countries' currencies. In particular, it recommends buying 1M ATM vol on NOK as the model is recognizing more entrenched underlying issues related to oil gyrations and selling 1M ATM vol on SEK which at this point has relatively more favorable backdrop.

Figure:



Global Quantitative and Derivatives Strategy

Peng Cheng, CFA ^{AC}

(1-212) 622-5036

peng.cheng@jpmorgan.com

Thomas J Murphy, PhD ^{AC}

(1-212) 270-7377

thomas.x.murphy@jpmchase.com

Ladislav Jankovic ^{AC}

(1-212) 834-9618

ladislav.jankovic@jpmchase.com

Marko Kolanovic, PhD

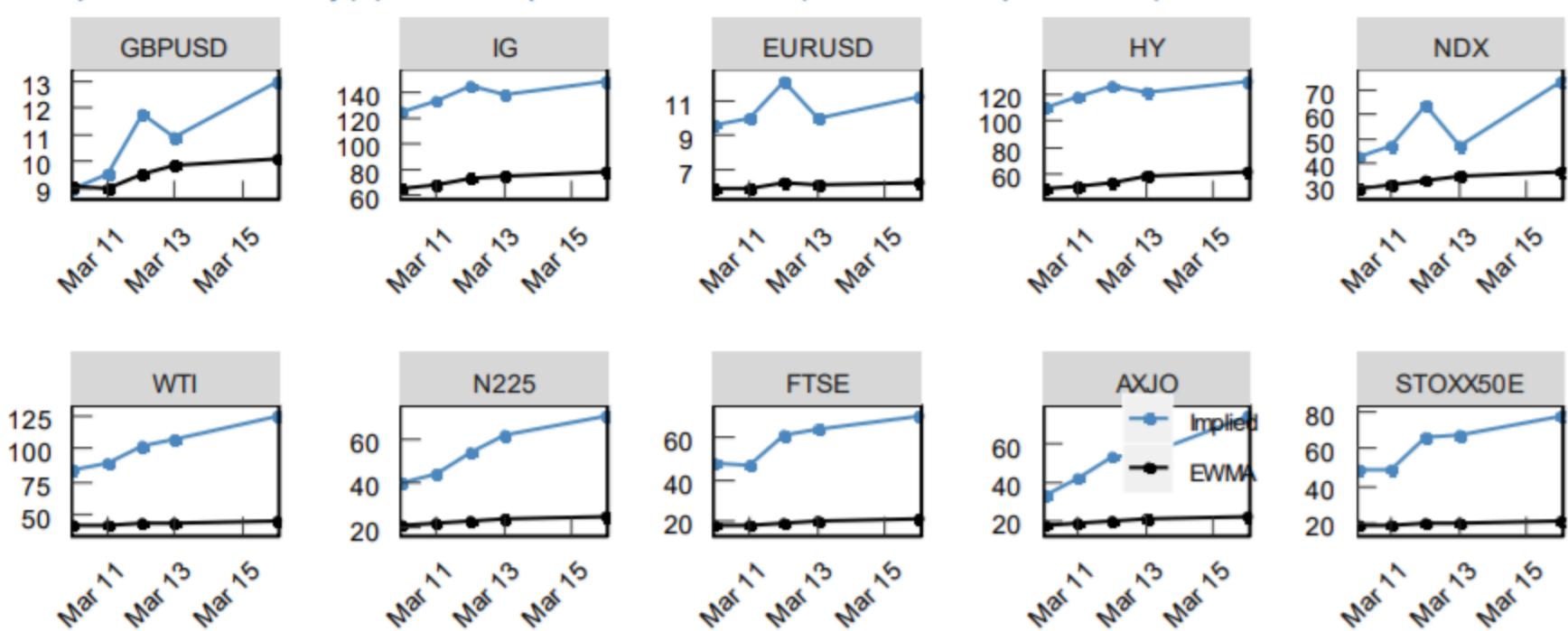
(1-212) 272-1438

marko.kolanovic@jpmorgan.com

J.P. Morgan Securities LLC

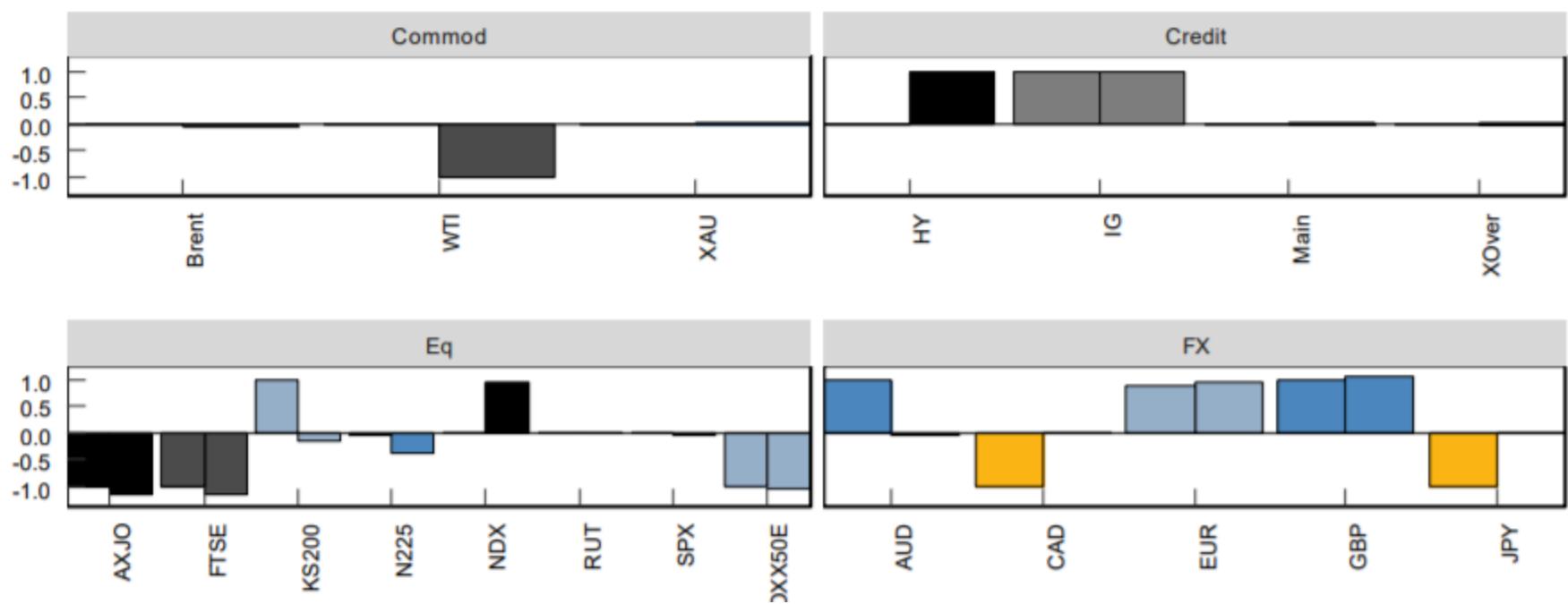
Cross Asset Relative Value Model (CARV)¹

Figure 1: Implied vs. EWMA Volatility (%) of the 5 Cheapest/Richest 1M ATM Vol (ordered from cheapest to richest)



Source: J.P. Morgan

Figure 2: Previous Week and Current Optimal Vol Portfolio Weights



SWAP MY ASS

https://www.boj.or.jp/en/announcements/release_2020/rel200316d.pdf

Timetable and Schedule of U.S. Dollar Funds-Supplying Operations

The Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, the Federal Reserve, and the Swiss National Bank have today announced the coordinated action to enhance the provision of liquidity via the standing U.S. dollar liquidity swap line arrangements and agreed to begin offering U.S. dollars weekly in each jurisdiction with an 84-day maturity, in addition to the 1-week maturity operations currently offered.

Following this, the Bank of Japan will conduct auctions for the U.S. dollar funds-supplying operations for the term of one-week and three-month on the following dates.

--- The Bank will announce auction schedule when decided.

1. Operational timetable

Auction announcement	10:40 am JST
Bid submission cut off time	11:30 am JST
Notification of respective result to counterparties	Around 11:45 am JST
Publication of result	Around 11:45 am JST

2. Auction schedule (Newly added auction schedules are underlined)

Auction and publication of result (JST)	Exercise (EST)	Repayment (EST)	Term	Loan rate	Auction amount
March 17, 2020	March 19, 2020	March 26, 2020	7 days	Fixed rate	Unlimited (Note)
<u>March 17, 2020</u>	<u>March 19, 2020</u>	<u>June 11, 2020</u>	<u>84 days</u>	<u>Fixed rate</u>	<u>Unlimited (Note)</u>
March 24, 2020	March 26, 2020	April 2, 2020	7 days	Fixed rate	Unlimited (Note)
<u>March 24, 2020</u>	<u>March 26, 2020</u>	<u>June 18, 2020</u>	<u>84 days</u>	<u>Fixed rate</u>	<u>Unlimited (Note)</u>
March 31, 2020	April 2, 2020	April 9, 2020	7 days	Fixed rate	Unlimited (Note)
<u>March 31, 2020</u>	<u>April 2, 2020</u>	<u>June 25, 2020</u>	<u>84 days</u>	<u>Fixed rate</u>	<u>Unlimited (Note)</u>
April 7, 2020	April 9, 2020	April 16, 2020	7 days	Fixed rate	Unlimited (Note)
<u>April 7, 2020</u>	<u>April 9, 2020</u>	<u>July 2, 2020</u>	<u>84 days</u>	<u>Fixed rate</u>	<u>Unlimited (Note)</u>
April 14, 2020	April 16, 2020	April 23, 2020	7 days	Fixed rate	Unlimited (Note)
<u>April 14, 2020</u>	<u>April 16, 2020</u>	<u>July 9, 2020</u>	<u>84 days</u>	<u>Fixed rate</u>	<u>Unlimited (Note)</u>
April 21, 2020	April 23, 2020	April 30, 2020	7 days	Fixed rate	Unlimited (Note)
<u>April 21, 2020</u>	<u>April 23, 2020</u>	<u>July 16, 2020</u>	<u>84 days</u>	<u>Fixed rate</u>	<u>Unlimited (Note)</u>
April 28, 2020	April 30, 2020	May 14, 2020	14 days	Fixed rate	Unlimited (Note)

Top US banks' buyback freeze to bolster capital over \$30bn

Lorenzo Migliorato

17 Mar 2020

The eight systemic US banks planned to buyback \$58 billion of their own shares in the first half of this year. But on March 15, [they jointly announced](#) that all purchases would stop and the saved capital be used to support an economy reeling from the effects of the coronavirus.

This means roughly \$34 billion could be switched from payouts to lending, assuming the planned buybacks were to be spread evenly over the first six months of 2020 – equivalent to about 4% of aggregate Common Equity Tier 1 (CET1) capital.

In 2019, the eight banks bought \$110 billion of their own shares. Combined shareholder payouts, through buybacks and dividends, exceeded their aggregate net income by [117% last year](#).

Global Markets Daily: Q&A on USD Funding and Bond Market Liquidity

- In today's note, we discuss funding markets and address some frequently asked questions on Fed actions to date and next steps.

Praveen Korapaty
+1(212)357-0413 |
praveen.korapaty@gs.com
Goldman Sachs & Co. LLC

Avisha Thakkar
+1(212)902-9964 |
avisha.thakkar@gs.com
Goldman Sachs & Co. LLC

Focus: Q&A on USD Funding and Bond Market Liquidity

In today's note, we discuss funding markets and address some frequently asked questions on Fed actions to date and next steps.

Q: We saw funding markets begin to seize up last week. What caused it?

We attribute the funding market stresses seen in the past few weeks to a few factors. **First, the demand for cash has risen.** In periods of market volatility and heightened uncertainty, the preference for staying 'liquid', i.e., holding a larger amount of cash, increases. Some of it is mechanical (due to margin calls or a scramble to hedge currency exposure, for example) and some of it is precautionary (some corporates drawing on credit lines).

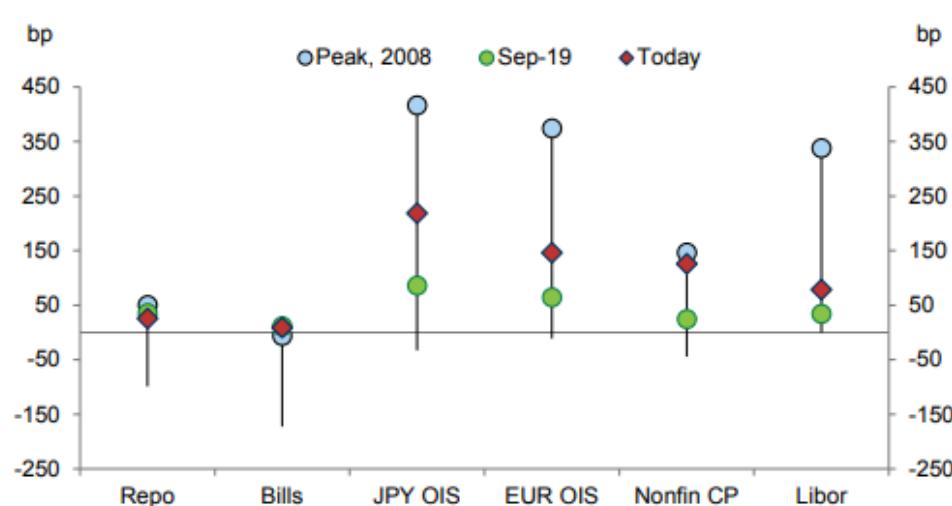
Second, credit and liquidity concerns are starting to get priced. Corporate credit spreads have widened on the view that disruptions to supply chains alongside falling demand as a result of the viral outbreak could impair firms' ability to access liquidity. There are growing concerns vis-à-vis non-financial credit in particular, though, unlike 2008, systemic risk remains low as the banking system is better capitalized. However, if the current shock and associated dislocations persist, actual credit risk in the system could further increase.

Q: Which funding markets were affected? How typical are these moves?

We have seen pressures in both secured and unsecured rates, as well as onshore and offshore dollar funding markets. In Exhibit 1, we compare the recent movements in these markets relative to prior episodes. As can be seen in the figure, while repo and bill rates have widened, they have not breached the levels seen last September, when there was a scramble for reserves in the banking system. The larger moves have been in unsecured markets, such as CP-OIS and cross-currency basis (which has fed through to Libor-OIS), both of which widened to levels not seen since the 2008 financial crisis (Exhibit 2). While pressure on some funding spreads has started to recede, spread levels remain elevated owing to a host of frictions.

Exhibit 1: Unsecured funding spreads started to blow out last week, but in most cases remain below their 2008 peaks

3m funding spreads vs. OIS, since 2007

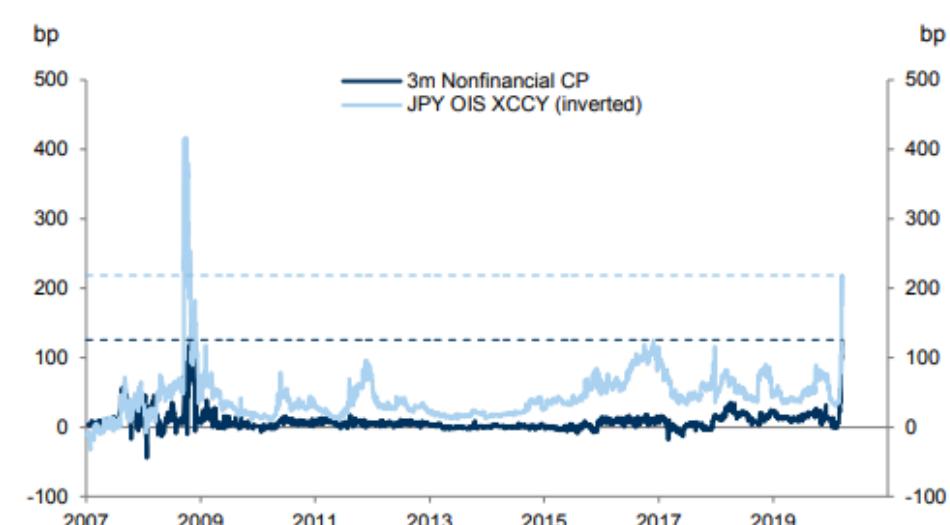


*cross-currency bases shown as negative spreads

Source: Goldman Sachs Global Investment Research

Exhibit 2: While currency bases have not widened to 2008 levels, non-financial CP spreads have

3m CP and JPY OIS XCCY, relative to 3m OIS



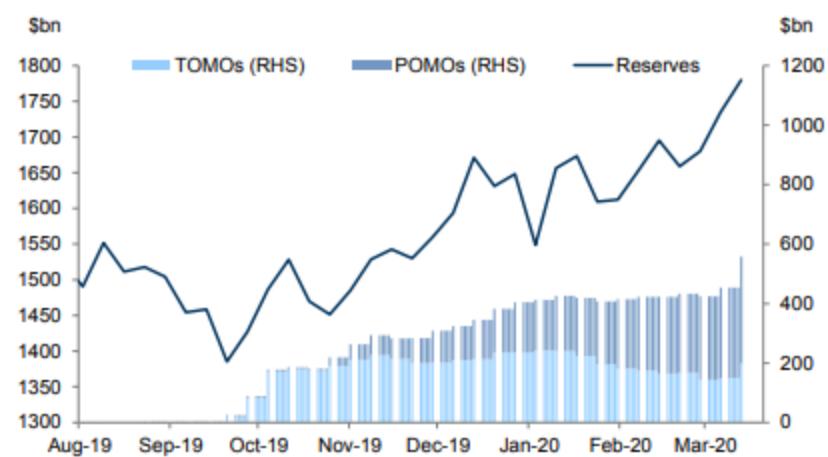
Source: Federal Reserve, Goldman Sachs Global Investment Research

Q: Funding stress is one issue, but it appears there were also some significant liquidity issues in the Treasury and MBS markets. Why did that happen?

The US Treasury market has increasingly shown signs of stress of the past few weeks, with the RMSE of yield dispersion from a fitted spline at post-2010 highs (Exhibit 4). This kind of dislocation is indicative of a breakdown in market microstructure—even spreads between on-the-run and first off-the-runs USTs, which are typically well-behaved, have widened sharply. We think these dislocations occurred because of a large flow imbalance that resulted in a large call on dealers' balance sheets, which is a scarce resource under post-crisis Basel rules. In the new regulatory regime, dealers aren't readily able to "lean against the wind" and absorb these flow imbalances onto their balance sheet. The only entity in the new regulatory regime that is able to freely expand its balance sheet is the central bank. Without a central bank backstop, we would expect to see similar dislocations on large flow imbalances in the future as well.

Exhibit 3: The dislocations have occurred despite reserve balances being well above the \$1.5tn level flagged by the Fed

Reserves held at the Fed vs. total temporary and permanent open market operations



Source: Federal Reserve, Goldman Sachs Global Investment Research

Exhibit 4: Yield dispersion of Treasuries across the curve, which spiked to post-2010 highs, has started to normalize

Root Mean Square Error (RMSE) of the Treasury yield curve



Source: Bloomberg, Goldman Sachs Global Investment Research

What caused the flow imbalances? We hypothesize a few possible causes. First, large futures basis positions which we have previously written about were likely unwound, cheapening the cash leg. Second, fund managers who needed to raise liquidity/cash, either for margin purposes or in anticipation of redemptions, chose to do so by selling the "most liquid" portion of their portfolio, often also USTs. Finally, as discussed here and here, we believe there was also de-risking by multi-asset portfolios following risk

CPFF and PDCF Should Limit Draws for Higher-Quality Issuers

As discussed above, certain industries most affected by COVID-19 are likely to have larger revolver draws. Another potential screening mechanism for revolver draws is commercial paper outstanding in relation to revolver size (*IG Food/Beverage, Consumer Products, Tobacco: Looking through the Liquidity Lens*), as companies with larger balances might seek to draw more quickly, especially as the commercial paper market has widened substantially (Figure 8). The increase in non-financial commercial paper is substantial, at 56% since 2008, and at first glance causes some concern in terms of how companies have financed themselves (Figure 9). However, we note that CP is actually much smaller than the amount outstanding of non-financial investment grade bonds in the Corporate Index today, at 9% relative to 16% at YE08. We are also likely overcounting the amount of true corporate CP outstanding, as SSA CP is bucketed with non-financials in the Fed data, and we believe that it would be much greater today than in 2008. Finally, the duration of the investment grade bond market is at all-time highs, as companies have pushed their issuance even further out the curve.

Still, almost \$320bn of CP that needs to be actively rolled is concerning in the market we have witnessed in the past week. At the peak of the recent dislocation, levels in the CP market exceeded the costs of revolver borrowings for many issuers, which could lead some of the less obvious corporates to tap undrawn credit lines. This is where the CPFF should, in theory, assuage some fears and allow corporates to save revolving credit lines for other purposes.

The goal of the CPFF is to be a backstop, similar to the role it served in the aftermath of the credit crisis. The CPFF is geared toward the highest-quality issuers, with the ability to own the greatest amount outstanding per issuer in the past year for A1/P1 issuers at a charge of OIS+200bp and a fee of 10bp on the maximum amount of its CP that the CPFF SPV may own ([US Money Markets: CPFF 2.0](#)). As shown in Figure 8, these levels are in excess of where many issuers are funding in the CP market even under today's stress, so it still may make sense for issuers with truly temporary liquidity needs to tap revolvers that are cheaper even if they see spreads backup to the level of the CPFF. For cyclicals, where the degree of uncertainty with respect to cash flow needs are even higher, we are likely to see revolvers saved for those purposes and the CPFF used if needed. Also, we note that on most up days in the market in the past 10 days, investment grade bond issuance has been substantial, with Tuesday's \$28bn the highest day since November. The use of proceeds has been focused on front-end bond maturities for the most part, but some issuers may eventually refinance CP with bonds instead of the CPFF or by tapping revolvers.

While there are some provisions in the CPFF for issuers that get downgraded to A2/P2, we believe that current A2/P2 issuers are more likely to draw on their revolvers for the purpose of refinancing CP than the higher-quality issuers that make up the majority of the market. For these issuers and higher quality ones, the reviving of the Primary Dealer Credit Facility (PDCF) could perhaps be as helpful as the CPFF ([US Money Markets: PDCF II and capping rates](#)). Since CP can be posted as part of the PDCF, we would expect an incremental source of demand from banks that could help tighten spreads.

CONTINUED POST-MORTEM

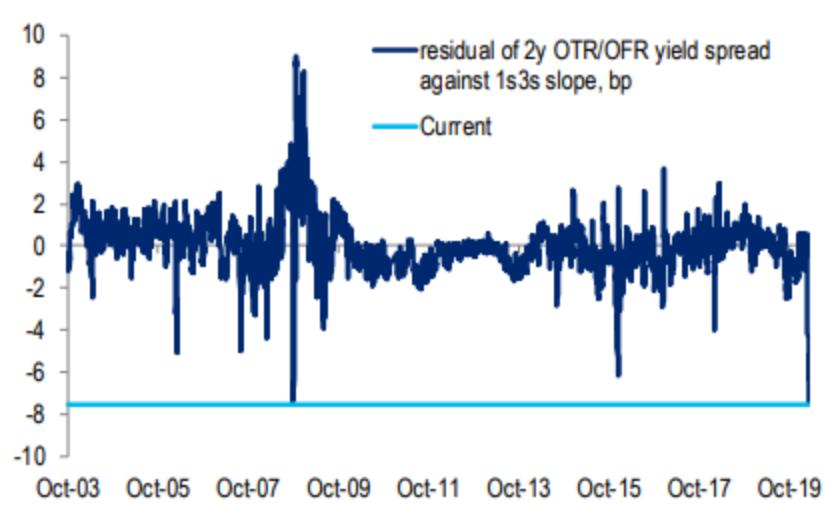
(THE VIEWS OF CERTAIN HOUSES THAT WEREN'T IN LAST WEEK'S FILE)

The Fed backstops the Treasury market to little effect

The price action across rates products in the past week has been striking. In almost every sector of the curve there is a unique story, dislocations are a plenty, and products with liquidity are king in this environment. We've been asked frequently this week if the Treasury market is signaling a repeat of the financial crisis – we think not but there are structural problems. Some dislocations across the curve have reminded us of similar events to the financial crisis – 30y spreads collapsing, TIPS cheapening across the curve, flight to quality into OTRs. Off the run Treasuries have dramatically cheapened up against on the runs and Treasury futures. For example, 2y notes are trading at some of the richest levels since 2009. In Figure 7 we report 2y on/off yield spreads (OTR minus OFR) normalized by the slope of the 1s3s curve to take the market's Fed expectations into account. It is striking that off the run 2y Treasuries can trade at such a cheap level when the market is pricing in return to the zero lower bound. Clearly, there is a premium for balance sheet and liquidity in this environment.

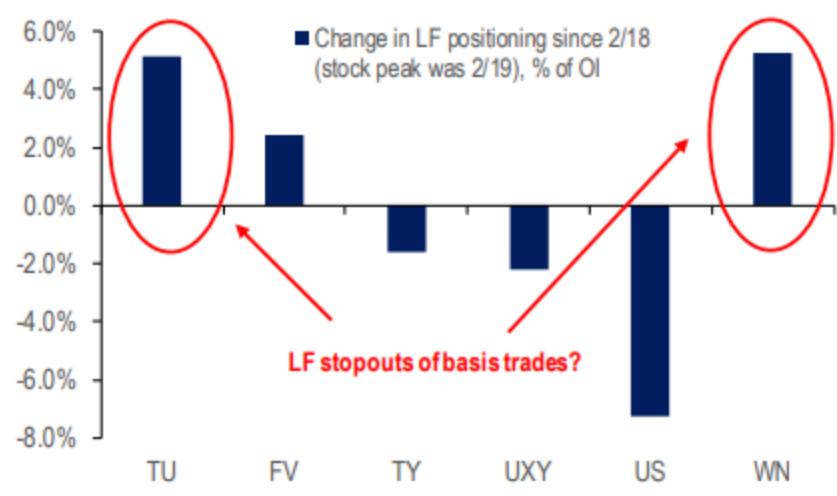
We suspect levered funds stopped out of basis and relative value trades in the past two weeks as dislocations were exacerbated by the flight to quality rally. Macro accounts likely bought out OTRs and futures as a duration grab as equities sold off which dislocated the cash futures basis further and drove hedge funds to close relative value trades. The latest CFTC data indicates TU and WN sectors were most affected by this and we suspect dealers were stuck with a significant amount of off the run supply in these sectors. Indeed, the latest dealer positioning report shows an increase in holding of >11y Treasury bonds.

Figure 7. The 2y OTR/OFR spread has reached levels not seen since the financial crisis



Source: Citi Research, Bloomberg; Note: A lower number represents a richer 2y OTR vs off the run.

Figure 8. There was significant short covering across leveraged funds – we think they were stopped out of basis trades which helped load up the street with off the run Treasuries

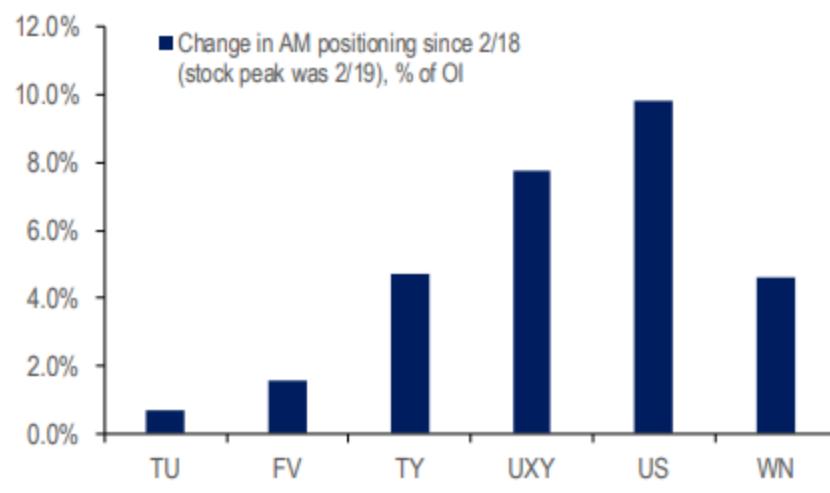


Source: Citi Research; Note: Change in positioning from 2/18 to 3/10. Positioning is normalized by open interest. A positive number represents short covering (LFs are net short across the tsy futures complex).

At the same time, asset managers were likely looking to take profits on their long dated Treasury positions as the 30y hit 1%. Indeed, new positioning by asset managers has focused more on the 10y sector and the US contract as of late and they look like they are leaving the WN sector behind (Figure 9). This perfect storm of increased dealer supply and the lack of demand for off the run 30y paper helped vaporize liquidity in the long-end overnight. At one point 30y spreads moved from -60bp to -85bp, effectively the market was unable to find a place to house 30y OTRs. Why did dealers not take advantage of the Fed's term repo operations to house these securities? We think that desks are unwilling to accept any MTM risks related to basis trades even if these would be profitable terminally given the significant market volatility in the long-end of the curve. As a reminder dealers are typically long off the run paper, especially in this environment, and short futures and OTRs.

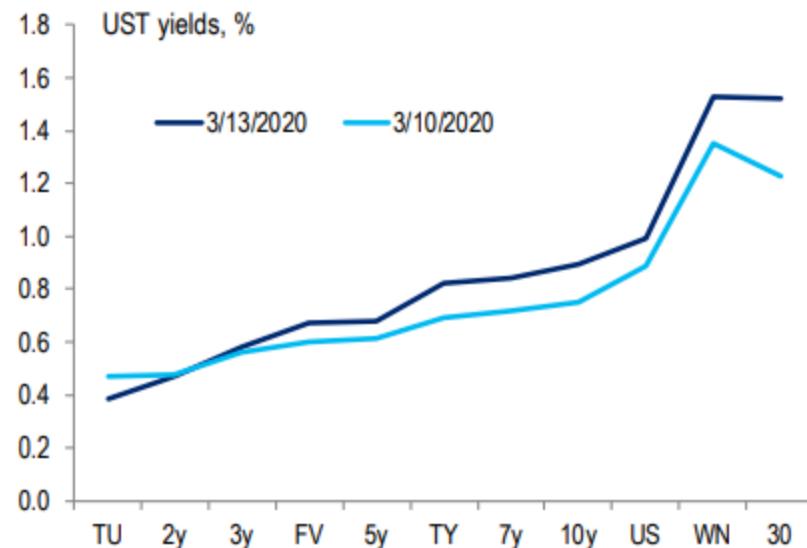
This price action, or lack thereof, drove the Fed to move up their reserve management purchases in the long-end of the curve to directly relieve dealers of these off the run Treasuries. However, these purchases, and the repo injection, did very little to resolve dislocations around the Treasury curve. Indeed, following the Fed purchases this morning long-end WN futures saw block trades that were still 3 full points through mid-market. More importantly following the Fed intervention the OTR 30y bond actually cheapened up to the curve to trade back inline with WN while we would have expected WN and off the runs to ricken closer to OTR 30y yields (Figure 10). In general, we think the Fed will need to run more reserve management programs to fix these issues and we suspect more purchases will be coming next week.

Figure 9. Asset managers are rushing into US futures and abandoning the WN sector just when it needs them



Source: Citi Research; Note: Change in positioning from 2/18 to 3/10. Positioning is normalized by open interest.

Figure 10. The repo injection by the Fed was supposed to ricken off the runs, like the WN sector, but instead 30s have cheapened up (30y spreads at -60bp) – there is still a problem



Source: Citi Research; Note: For each future we report the CTD yield.

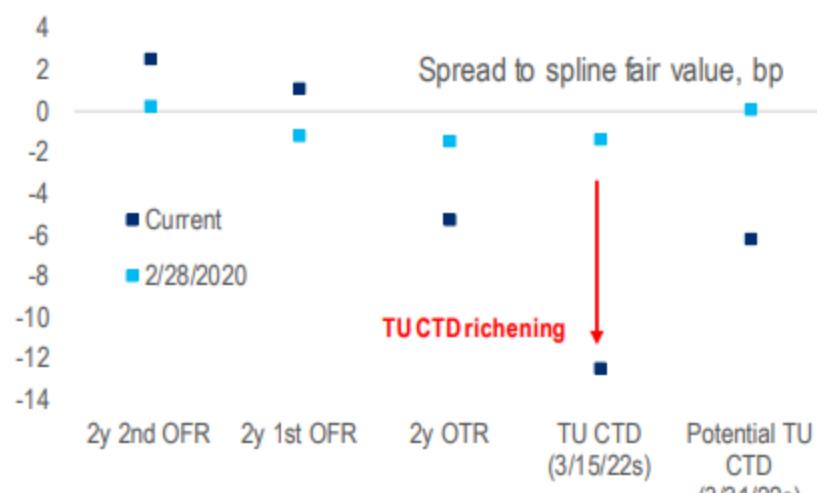
Fade the richness in TUM0 futures

This week we shorted TUM0 futures outright at ~13bp in implied forwards (currently pricing at 21bp as of 1pm on 3/13/20; see [Alert: North America Rates Trade Idea - Futures are too rich here – sell TUM0](#)). TU futures look especially rich in the rates term structure on the back of this liquidity premium demand. First, the CTD is trading almost 11bp rich to the curve (Figure 11). Second, TUM0 is trading especially rich to the CTD with IRRs around 1.4%. At this point TUM0 implies yields are now especially low against cash bonds and should still be faded (Figure 12).

For investors with access to balance sheet simply buying the basis, selling TUM0 against off the run 2y notes is also an attractive trade from a terminal perspective to fade this richness (note the cheapness in the 2y OFRs in Figure 11 and Figure 12). While we could sell TUM0 against OIS forwards we prefer selling TUM0 outright with the forward implied yield at ~21bp which is only a few steps away from 2y OIS at 18bp (pricing as of 1pm on 3/13/20). The 2y OIS rate can fall further, especially in a continued risk-off environment, but the fair value of 2y OIS at the ZLB should be bounded below near 10 to 12bp. A risk to the trade is a continued selloff in equities but the long-end of the Treasury curve may rally more than the front-end in a further drop. We also expect the Fed to ensure the repo market is supported in the near-term which should help the trade.

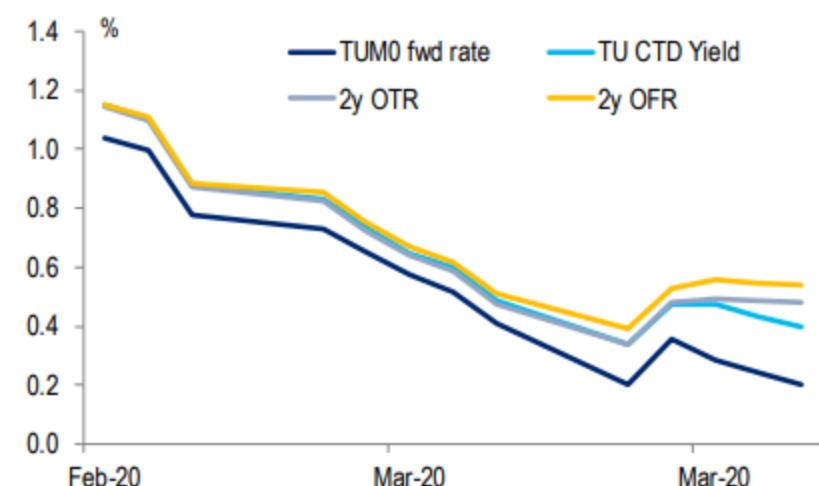
Note: Futures trading involves substantial risk of loss.

Figure 11. TUM0's CTD is exceptionally rich against the curve – demand picked up significantly in the flight to quality rally



Source: Citi Research

Figure 12. We like fading TUM0 outright given 2y OIS is only 17bp but we think relative value trades against OIS are attractive too. Selling TUM0 against off the run 2s is very attractive here if you have balance sheet.

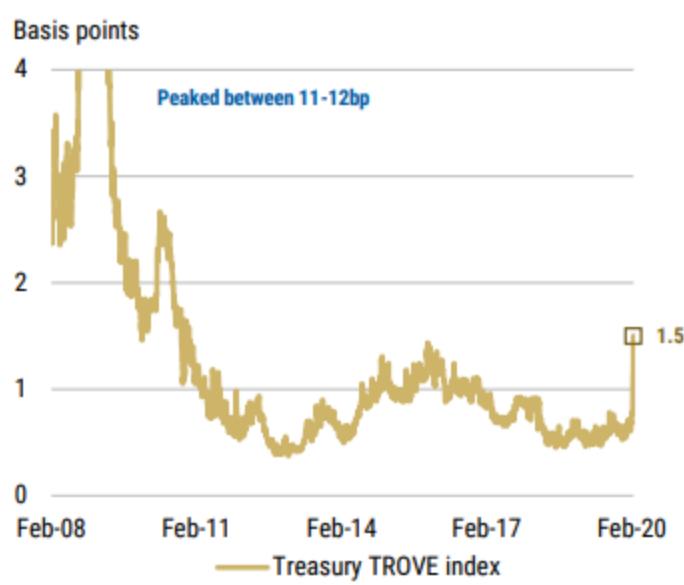


Source: Citi Research

Can US richen further?

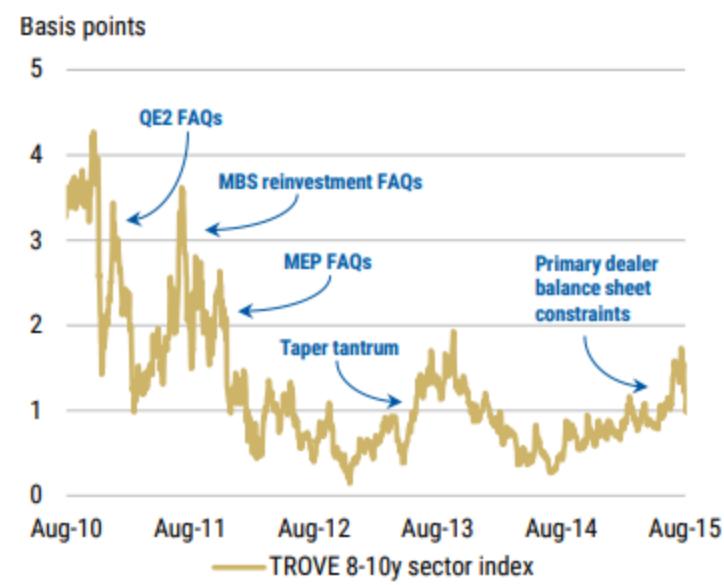
We had been long the US contract, and sold WN against it via swap spreads two weeks ago, as we expected US to richen as yields moved lower (see [Alert: North America Rates Trade Idea - Updating our 20y spreads RV trade](#)). We took profits last week although we noted US was likely to continue to richen against the curve mainly driven by flight to quality flow (see [US Rates Weekly: Life after zero](#)). As we've noted before the US contract is directional with the level of rates. This week the richening has continued and especially stands out relative to the cheapening in WN and 30s this week. Why is US richening in this environment? First there is very little risk for the US contract to cheapen on the back of fiscal stimulus. The long-

Exhibit 12: Morgan Stanley Treasury TROVE index for the entire yield curve



Source: Morgan Stanley Research

Exhibit 13: Morgan Stanley TROVE index for the 8 to 10y sector from 2010 to 2015



Source: Morgan Stanley Research

Exhibit 13 provides some perspective on the 8y to 10y sector during QE2, the maturity extension program (MEP), and taper tantrum. History suggests that LSAPs, in their various forms, successfully lessened the amount of dislocations in sectors of the Treasury curve. The biggest compression of the dislocations happened right after the Fed announced, for the first time, that they would be using "relative value considerations" in selecting bonds for purchase in QE2. Subsequent QE operations maintained the lower degree of dislocations.

Exhibit 14: Primary dealer positions in US Government securities: Total positions

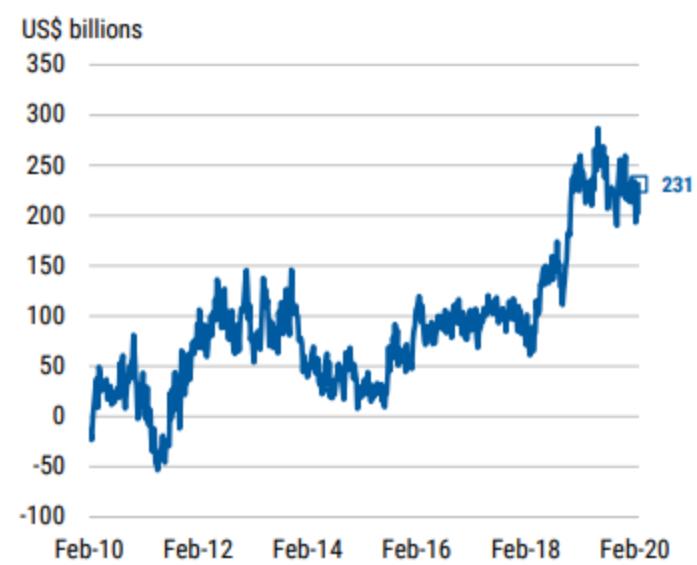
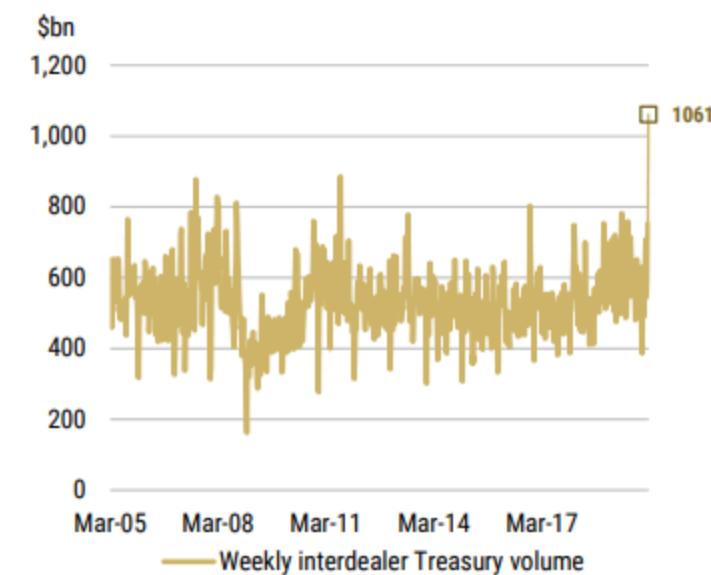


Exhibit 15: Primary dealer positions in US Government securities: by maturity



Global Rates Strategy

Extreme stress in futures basis/spreads

Global Macro Strategists

Global

Off the run Treasuries were under pressure

When the market was extremely illiquid in 2008, there was extreme cheapening in off-the-runs. The recent drop in liquidity in the market has raised concerns of off-the-run cheapening.

Mich

michael-za.clo

+1-

C

Asset managers have massive longs in futures contracts that trade rich.

It seems that in the past two years mutual funds have wanted to show more cash in their portfolio in order to avoid any worries about their ability to meet customer redemptions. An easy way to boost cash is to hold futures/cash rather than off-the-run Treasuries. Asset manager longs in every futures contract have been enormous, which is likely why futures have been structurally rich for a couple of years.

chirag.m

+1-

zh

+1-

Mattl

matthew-c.joh

+6

Hedge funds have enormous shorts in futures, presumably in basis trades.

Someone must take the other side of that asset manager futures trade, and we see massive shorts by leveraged accounts. Presumably, many of those shorts are in basis trades, where hedge funds sell the rich future and buy off-the-runs. That trade has worked very well for most of the past two years, but now that there are concerns of off-the-run cheapening the futures basis has moved to extremes (futures extremely rich versus off-the-runs).

What could end this basis stress? QE

When the Fed does QE, we expect it to focus on the cheapest off-the-runs. We think QE could get announced in very late April, which is a long way off.

30yr spreads hit levels where total return swaps on 30yr Tsys make sense.

However, it can take an extended period to put on TRS. In a whippy market, however, TRS is not a good substitute for swaps, meaning spreads can move more negative.

2yr spreads have disconnected from FRA/OIS.

2yr spreads are at the tight end of their range, while FRA/OIS is at the wide end. We are not overly concerned about draws on liquidity lines creating financing pressure for banks, as mortgage refinancing will rapidly generate cash (at least for US banks).

Extreme stress in futures basis, spreads.

Treasury prices looked more stable today, but there was severe turbulence under the surface. Cheapening in off-the-run Treasuries (when liquidity is bad, the off-the-runs underperform) caused intense pressure in crowded positions in futures basis. Those basis positions are large enough that we think the outlook will be largely driven by expectations about how far away we are from QE. And swap spreads across the entire curve dropped sharply, even though LIBOR remained wide to OIS.

Back in 2008, there was an enormous disconnection between liquid on-the-run Treasuries and less-liquid off-the-run Treasuries. Investors were taking profits in the Treasuries they owned (which was mostly off-the-runs) to offset losses elsewhere, and new inflows into Treasuries came primarily into the on-the-runs. Extreme cheapness of the off-the-runs lasted until QE kicked off in 2009—once it became clear that the Fed would concentrate buying on cheap off-the-runs, they snapped back to the curve (which is one of the reasons why studies of the impact of QE on yields tend to show much larger effects during QE1 than later rounds).

Now that rates liquidity has deteriorated, we are seeing cheapening of off-the-runs. Unfortunately, as we discussed in our February 12th piece, "[Large futures positions: risks in basis/RP](#)", hedge funds seem to be in an enormous basis position in most futures contracts. To review:

- There are periodic concerns about mutual funds having enough liquidity, so some funds seem to be quieting those concerns by owning futures/cash rather than off-the-run Treasuries. This real money long has caused futures to trade structurally rich.
- The other side of the trade is taken by hedge funds that sell the rich futures and buy cheap nearby off-the-run Treasuries.
- As concerns about off-the-runs rise, the enormous hedge fund basis position comes under pressure, and futures continue to ricken.
- Since most futures risk is in the June contracts, there is no near-term relief from shorts being able to deliver their cheap off-the-runs into the rich futures contract.
- So this pressure may persist until the Fed indicates that QE is likely to start soon, as large Fed buying of the cheapest off-the-runs should pull the off-the-runs back to the curve. Our view is that QE won't be announced until the April meeting, which seems like a very long time for anyone in a basis position. Those who expect more rapid Fed QE may feel more comfortable selling the very rich futures contracts and buying off-the-runs. But we think the basis trade is primarily a QE expectations trade going forward.

TRS & LOIS PROXY

Spreads:

30yr spreads approached -50bps, with spreads across the entire curve collapsing.

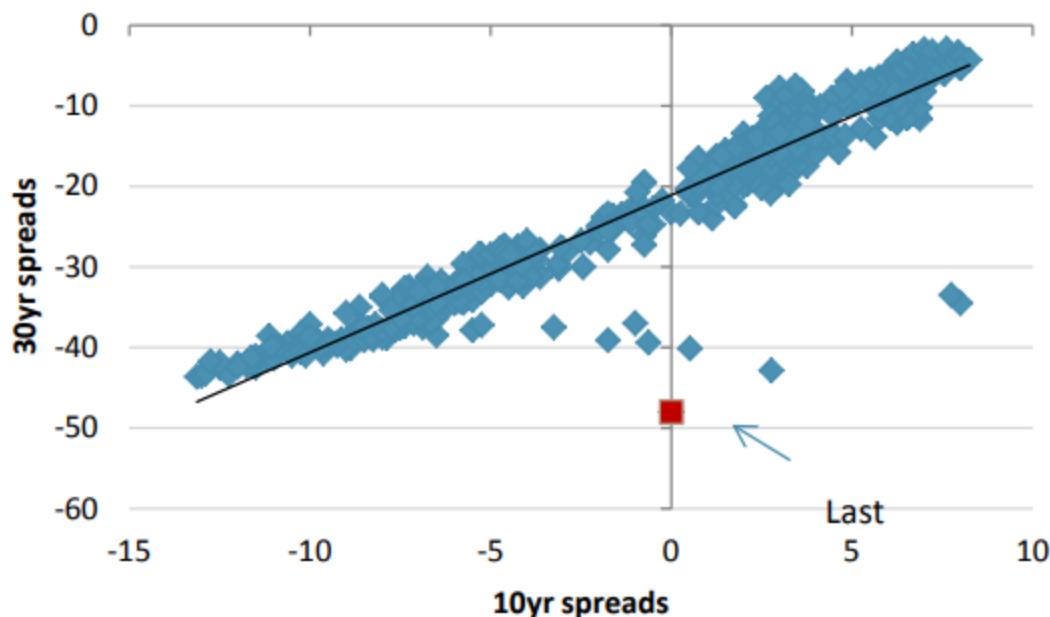
Recent moves have taken 30yr spreads into new territory vs 10yr spreads. We suspect that much of this is due to Variable Annuity hedging. Many VAs pay an equity index less a fee, with a floor of some minimum return. When equity prices fall, the floor becomes closer to being in the money. And when interest rates fall, earning enough to cover that floor becomes more difficult to reach. So there is hybrid equity/rates exposure that forces receiving at the long end when equities fall and rates rally.

That said, today spreads hit levels where the economics should be better in receiving on a total return swap on 30yr Treasuries rather than receiving 30yr fixed. That total return swap should be related to the Treasury yield less the balance sheet cost of the dealer on the other side of the TRS swap. When swap spreads get more negative than the cost of dealer balance sheet, the total return swap should be a better option for most investors in our view.

Unfortunately, a TRS is not a trade you can put on in a matter of seconds. When markets are moving violently, TRS is not a good substitute for receiving fixed.

Which means it is very difficult for 30yr spreads to hold close to -50bp for a very long time (unless balance sheet costs soar dramatically), but in a rapidly moving market they can dip further.

Figure 5: Recent moves have taken 30yr spreads into new territory vs 10yr spreads



Source: UBS, Bloomberg

Short spreads: Typically when there are sharp moves in 2yr spreads, FRA/OIS moves the same direction as they are both representations of the future path of LIBOR. Today, however, 2yr spreads came in sharply to its lowest since November, while March FRA/OIS widened. Now front FRA/OIS is near its widest in the past few years, while 2yr spreads are near their lows.

What is so unusual about this is that 2yr spreads are typically used as a proxy corporate hedge. Someone who has large credit exposure that they can't rapidly reduce in this type of environment will often get long 2yr spreads—it is not a very effective hedge when the market moves modestly, but has been useful in some past extreme market events (we think it will be less useful in those types of events going forward, but there still should be market flows based on expectations that is a hedge for extreme moves). At negative spreads, it seems reasonable to use 2yr spreads as a proxy credit hedge.

The biggest concern with short LIBOR seems to be about short term cash flow disruptions. We have seen a number of large companies that have been disrupted by the Coronavirus outbreak tap their bank credit lines. If this draw on credit lines accelerated, it could create a need for banks to do more short-term financing.

But there is an offset on the mortgage side that should limit the degree of stress. With MBS refinancing rates picking up sharply, any bank with a mortgage book is seeing cash come in quickly. With that much cash coming in, we aren't as worried about financing stress. In past financing stress periods, you tended not to see the same extreme in MBS refinancing. Note that the mortgage offset is likely to be very helpful to most US banks, but not as helpful to foreign banks that tend to have less US mortgage exposure.

Americas Banks: Fed encourages banks to dip into capital buffers to support lending around coronavirus concerns

On 3/17, the Fed announced that they are “encouraging banking organizations to use their capital and liquidity buffers as they respond to the challenges presented by the effects of the coronavirus.” We believe that the Fed, in effect, has given banks modest additional flexibility to increase their balance sheet capacity across credit and funding markets. While we expect that this measure by the Fed frees up incremental capital that can be deployed to support balance sheet growth, banks are bound by multiple constraints that may limit their ability to deploy this capacity. These constraints include: comprehensive liquidity requirements (i.e., liquidity coverage ratio [LCR], resolution planning [living wills], internal liquidity stress testing); as well as the need to maintain capital to support credit ratings; as well as internal risk limits that could limit their ability to increase exposures to individual companies or sectors. Hence, the ultimate impact of this rule change is still unclear.

However, based on our initial read of this rule, we believe that the binding capital constraint could fall from 11.7% on average to 10.0% reflecting banks opting to eliminate excess capital and management buffers.

This generates as much as \$1.1tn of additional balance sheet

capacity that could be deployed into lending as well as providing liquidity to financial markets. However, we note that banks may be reluctant to dip into capital buffers, as restrictions on capital distributions come into effect if certain capital thresholds are breached. That being said, we note that all major banks suspended buybacks on 3/15 (see our report [here](#)), resulting in lower capital disbursements, leaving banks with shorter term capacity to support dividend payouts and grow balance sheets, even if they breached their capital buffers.

- **The Fed’s original implementation of Basel III imposes strict capital distribution requirements in the case that banks breach minimum capital buffers:**

The Fed’s Basel III applied progressively more onerous capital distribution limits (as a % of eligible retained income, which is effectively net capital generation) as banks dip into their spot minimum capital requirements (consisting of minimum + required buffers). Spot minimum capital requirements for non-G-SIBs are 7% today (4.5% CET1 statutory minimum + 2.5% mandatory capital conservation buffer), and for G-SIBs are 8-10.5% (4.5% CET1 statutory minimum + 2.5% capital conservation buffer + 1-3.5% required G-SIB

Richard Ramsden
+1(212)357-9981 |
richard.ramsden@gs.com
Goldman Sachs & Co. LLC

James Yaro
+1(212)902-1913 | james.e.yaro@gs.com
Goldman Sachs & Co. LLC

Sal Saroni
+1(917)343-5320 | sal.saroni@gs.com
Goldman Sachs & Co. LLC

Vishal Agarwal
+1(212)934-8377 |
vishal.agarwal@gs.com
Goldman Sachs India SPL

Goldman Sachs

Americas Banks

buffer - see [Exhibit 2](#)).

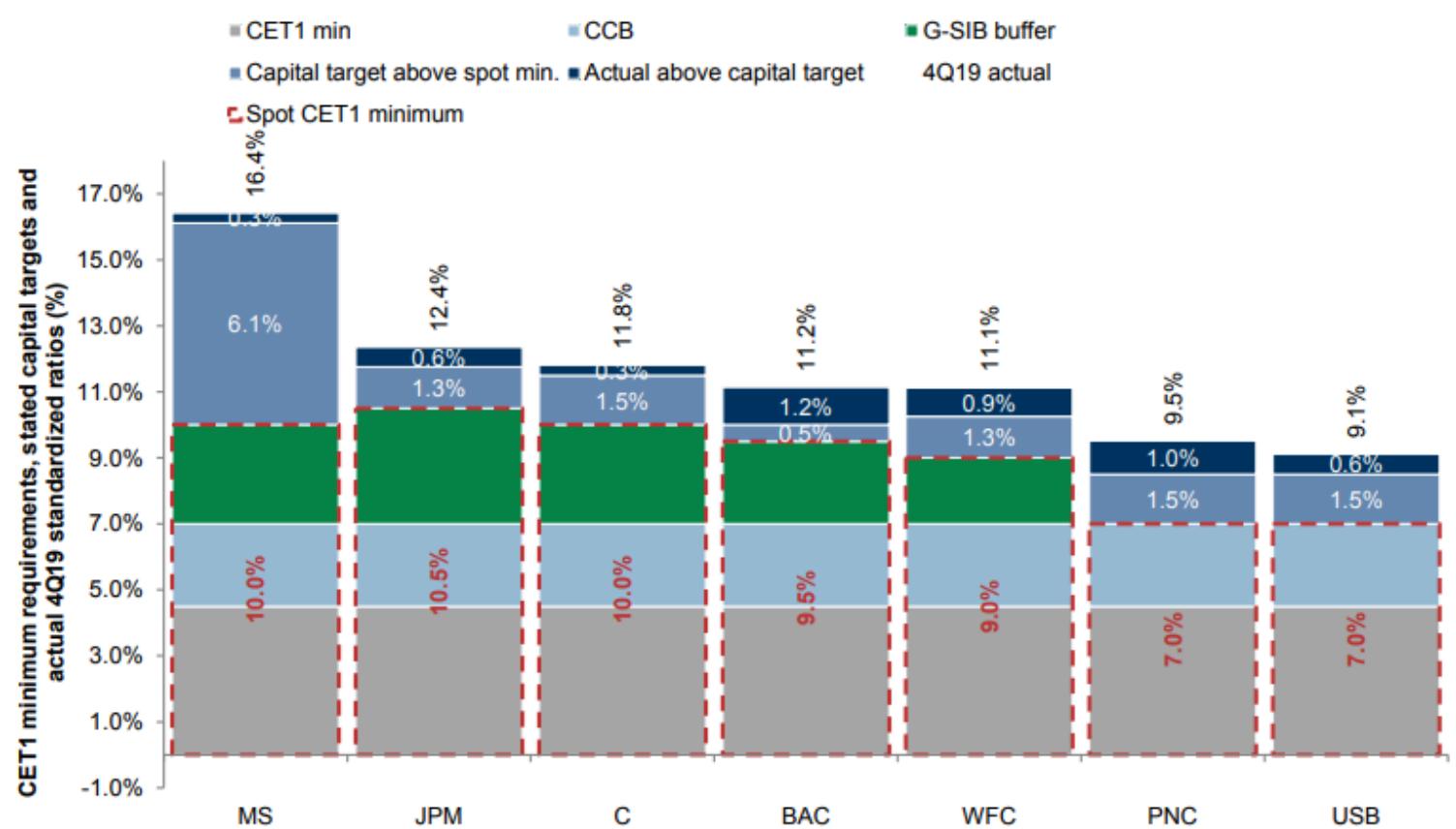
- **The Fed has modestly revised the buffer requirements to facilitate lending, although still imposes significant capital distribution restrictions in the case that a bank falls below buffers, which may deter banks from doing so:** The Fed has encouraged banks to dip into their capital buffers by changing the definition of net income that banks test against to determine what sort of capital distributions they can make. Instead of comparing to eligible retained income, banks are now looking at the greater of the: a) average of the prior four quarters of net income with no adjustments; and b) net income less capital actions. That being said, the Fed still imposes significant payout restrictions if banks fall below their buffers and this likely discourages banks from doing so. Moreover, we continue to believe that banks will not lose money in a modest recession, as we outline in [our report from 3/13](#).
- **Assessing the \$s of excess balance sheet capacity freed up under the Fed’s interim final rule:** Based on this interim final rule, assuming that banks opt to eliminate excess capital and management buffers, this would mean CET1 requirements falling from 11.7% to 10.0%, which frees up \$1.1tn in balance sheet capacity (which is equivalent to a 10% increase in total bank balance sheets).

Exhibit 1: We estimate \$1.1tn of balance sheet capacity if banks eliminate management buffers and excess capital

%,\$bn	CET1 Capital Split by Component								Avg/Tot.	Key
	BAC	C	JPM	MS	WFC	PNC	USB			
Current CET1 Ratio (%)										
Minimum CET1	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	A
GSIB Surcharge	2.5%	3.0%	3.5%	3.0%	2.0%	0.0%	0.0%	2.0%	2.0%	B
2.5% CCB Floor	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	C
Est. SCB over 2.5% Floor	0.0%	0.8%	1.0%	5.1%	0.0%	0.0%	0.0%	1.0%	1.0%	D
Mgmt Buffer/Excess Capital	1.7%	1.0%	0.9%	1.3%	2.1%	2.5%	2.1%	1.7%	1.7%	E
4Q19 CET1 Ratio (%)	11.2%	11.8%	12.4%	16.4%	11.1%	9.5%	9.1%	11.7%	F = sum(A:E)	
Est. CET1 Capital and BS Capacity										
Implied Capital Level (%)	9.5%	10.8%	11.5%	15.1%	9.0%	7.0%	7.0%	10.0%	G = sum(A:D)	
Implied RWA Freed Up (\$bn)	260.3	107.2	112.9	34.1	295.9	123.2	118.9	1,052.5	H = capital * G	

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 2: Laying out current bank capital spot min CET1 requirements, capital targets and actual capital levels as of 4Q19



Note: MS, STT, BK and NTRS are based on GS estimated 2019 CCAR minimums + management buffer, have not disclosed stated CET1 requirements

Source: Company data, Goldman Sachs Global Investment Research

- **Cutting rates:** [The Fed funds target range was cut](#) by 100bp to 0-0.25%, with the IOER being cut to 0.10% (versus 0.25% in 2008).
- **Forward guidance:** The FOMC committed to keeping rates at these levels until “it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.”
- **Initiating large-scale asset purchases:** [The Fed will buy](#) at least \$500bn in Treasuries and \$200bn in MBS over the coming months in order to support proper market functioning. The pace of these purchases is unprecedented: the Fed will buy \$40bn Treasuries tomorrow, and these purchases are likely to be in line with the composition of Treasury securities outstanding. The Fed will also buy \$80bn in MBS over the next month, including \$23bn to reinvest paydowns from existing holdings.
- **Liquidity operations:** The New York Fed will offer at least \$175 billion in overnight repo each day, at least \$45 billion in two-week term repo twice per week, and \$500 billion in one-month term repo and \$500 billion in three-month term repo each week.
- **Discount window:** The Fed [lowered the primary credit rate](#) on the discount window by 150bp to 0.25%, tightening the spread to the top end of the target range by 50bp.
- **Lowering required reserve ratios to 0:** This should immediately free up about \$150bn, the total reserve balance requirements [as of March 11](#).
- **Cross currency swap lines:** The Fed, along with the BoC, BoE, BoJ, ECB and the SNB, enhanced liquidity [lowering the dollar swap lines](#) from OIS+50bp to OIS+25bp, and added 84-day offerings.

How will this impact market functioning? As we have discussed on a nearly daily basis for the past two weeks, market depth in on-the-run Treasuries has fallen precipitously, to levels not seen since 2008. Furthermore, it's been disconcerting that the market for off-the-run Treasuries has become highly illiquid. Of note, the dispersion of off-the-run Treasury yields along our par fitted curve, RMSE, increased to its highest levels since 2010 early last week, before stabilizing at these high levels in recent days since the Fed's announcement on Thursday (**Exhibit 1**). **This increase has been evident across the curve, but most concentrated in sectors which have securities that are eligible for delivery into Treasury futures CTD baskets (Exhibit 2)**. This is very important because as our colleagues in derivatives strategy have highlighted, the Treasury cash/futures basis has come under significant pressure over the last week, which creates a direct channel between stress in futures and other markets (see [Why we should all care about Treasury futures basis](#), Joshua Younger, 3/12/20). In **Exhibit 3**, we highlight potential secondary market purchase candidates, based on cheap relative valuations relative to our par fitted curve. At the long end of the curve, the Aug- and Nov-42s appear highly dislocated. As a reminder, this report is available on a daily basis in our [US Cash Interest Rate Analytics Package](#).

Exhibit 1: Dispersion along the Treasury curve has risen to its highest level since 2010, but stabilized since the Fed's Thursday announcement. We expect this measure to decline this week...
Root Mean Square Error of J.P. Morgan par fitted Treasury curve*; bp



* For more details, see [The new and improved Treasury par curve model](#), 7/16/18

Source: J.P. Morgan

Exhibit 2: ...the biggest increases in dispersion have come in sectors which have securities that are eligible for delivery into Treasury futures contracts
Off-the-run Treasury curve RMSE by sector of the curve; bp

Maturity	Last	1m chg	5y avg	5y min	5y max	5y z-score
1-2y	1.5	0.3	1.8	0.7	4.4	-0.3
2-3y	3.0	1.4	1.6	0.6	3.2	1.9
3-5y	2.5	1.2	1.2	0.4	2.7	2.6
5-7y	2.7	0.5	1.1	0.4	3.1	4.3
7-10y	3.1	1.1	1.5	0.5	3.8	3.1
10-15y	2.7	0.0	1.8	0.2	4.8	0.8
>20y	3.4	1.8	1.6	0.4	3.5	2.6

Source: J.P. Morgan

Natalie Matejkova
(1-212) 834-7218
natalie.matejkova@jpmorgan.com

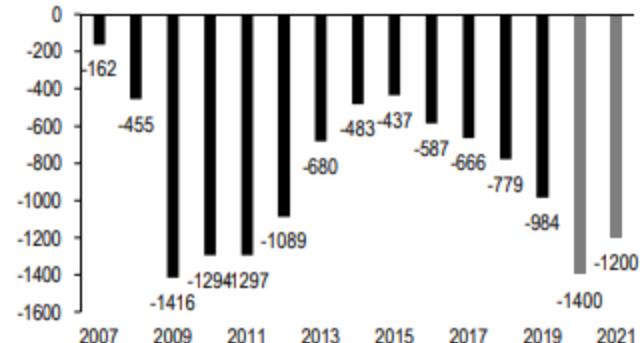
North America Fixed Income Strategy
US Treasury Market Daily
15 March 2020

J.P.Morgan

functioning and liquidity as quickly as possible. Therefore, while the New York Fed did not provide specific guidance regarding purchases beyond tomorrow, it could very well continue to purchase \$40bn/day of Treasuries until market functioning improves. To put this in perspective, the Fed bought Treasuries at a rate of \$45bn/month during QE3, so the scale of these purchases is unprecedented. To put this further in context, in the latest data we have from the New York Fed as of March 4th, the primary dealer community owned \$231bn in Treasuries. Inventory in all likelihood is higher now, but the Fed would quickly absorb the inventory of the dealer community in just a few weeks if it chose to continue at a pace of \$40bn/day.

Exhibit 1: We project a \$1.4tn deficit in FY20, though the risks are much larger...

Annual budget deficit by fiscal year*, \$bn

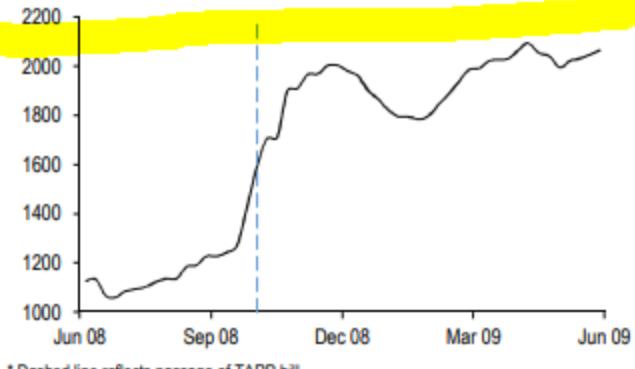


* FY20 and FY21 are J.P. Morgan forecasts

Source: J.P. Morgan

Exhibit 2: ...the last time Treasury financing needs increased sharply in 2008, T-bills were the initial shock absorber...

Stock of T-bills outstanding from June 2008-June 2009*, \$bn



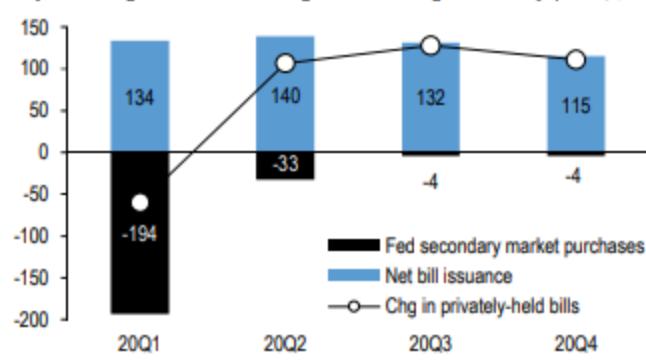
* Dashed line reflects passage of TARP bill

Source: US Treasury

Thus, we think this is a fair place to begin: should a fiscal package be passed in the coming days, we would anticipate sharp increases in T-bill issuance over the coming weeks. Coupled with a 3-month delay of the April 15th individual income tax filing deadline, this means that T-bill net issuance is likely to remain significantly positive for the remainder of 2020 as well. Even after adjusting for the Fed's ongoing purchases of T-bills, private holdings of T-bills are expected to increase more than \$100bn per quarter for the remainder of 2020 (**Exhibit 3**).

Exhibit 3: ...and we expect net T-bill issuance to remain sharply positive for the remainder of 2020

Projected change in T-bills outstanding and Fed holdings of T-bills by quarter, \$bn



Source: J.P. Morgan

Exhibit 4: In 2008, Treasury increased the frequency of auctions and added new products...

Changes to Treasury's auction calendar in 2008

Refunding	Changes to auction calendar
May-08	• Reintroduces 52-week bill
Aug-08	Will make adjustments as necessary; considering changes to 10- and 30-year calendar
Nov-08	• Introduces monthly 3-year notes • Second reopening of quarterly 10-year note • Quarterly new-issue 30-year bonds
Feb-09	• Introduces monthly 7-year notes • Regular reopening of 30-year bond
May-09	• Second reopening of 30-year bond
Aug-09	No change to calendar but Treasury considering replacing 20y TIPS with 30y TIPS
Nov-09	• Reintroduces 30Y TIPS, first auction in Feb • Discontinues 20y TIPS

Source: US Treasury J.P. Morgan

However, T-bills alone are not likely to fill these gaps. Indeed, Treasury took other actions during the financial crisis to increase its borrowing capacity (**Exhibit 4**). From late 2008 through early 2009, Treasury added a massive amount of borrowing capacity by increasing the frequency of 3-year auctions from quarterly to monthly, adding reopenings for 10-year notes and bonds, and introducing monthly 7-year note auctions. Currently, Treasury does not have the same luxury, as all of its products are now auctioned on a monthly basis, but the 20-year bond is waiting in the wings. Prior to this, we thought Treasury would lead with smaller sized \$10bn new issues and \$8bn reopenings, but now we project Treasury will lead with \$13bn new-issue auctions and \$11bn reopenings, and that these sizes will increase by \$1bn/month each quarter over the remainder of 2020 (**Exhibit 5**).

MBS

So what happens next?

There is a very real risk that if this MBS underperformance continues over the next few days, ever larger amounts of agency MBS will end up being put on fire-sale, in which case the chances of a funding accident for one or more leveraged entities will likely go up. This is probably what the equity holders of mortgage REITs were worrying about on Wednesday, when the stock prices of large agency MBS REITs dropped more than 40% during the day before recovering somewhat by day's close.

The question is: If no one else steps in to buy agency MBS, should the Fed prevent a situation in which hundreds of billions of dollars of agency MBS suddenly end up getting sold into a vacuum? The answer is not clear. On the one hand, the Fed could argue that it did its part by announcing its new MBS purchase program, and that its remit is not to help leveraged investors in any single asset class.

On the other, if the goal of the new purchases was (at least in part) to improve market functioning and restore liquidity to the agency MBS market, that has not worked. And a functioning agency MBS market is a pretty important component of a healthy housing market. As just one example, mortgage lenders depend heavily on the agency TBA market to hedge their pipeline. We are not worried so much about the price at which agency MBS clears (and what it means for the level of mortgage rates), but instead the chaos and lack of market liquidity that might ensue for an extended period of time in the event of an accident in the agency MBS space. For this reason, we are now calling for the Fed to increase its agency MBS purchases from \$200bn to \$500bn (see *A bigger bazooka: We look for the Fed to increase its LSAPs, 28 February 2020*). It is worth noting here that the Fed announced \$1.25 trillion in agency MBS purchases after the 2008 financial crisis. While we hesitate to draw direct parallels with that period, agency MBS markets seem similarly dislocated now.

US Agency MBS

Fed to restart net purchases of agency MBS

Federal Reserve will add a net \$200bn of agency RMBS to its portfolio

Yesterday, the Federal Reserve announced several measures to mitigate the effects of COVID-19 on the US economy, including an emergency cut of 100bp to the federal funds rate, the reinvestment of all paydowns on its MBS portfolio back into the agency MBS market, and a new quantitative easing program to purchase \$500bn of Treasury securities and \$200bn of agency MBS "over the coming months." The Fed also announced a 150bp cut to the primary rate charged on borrowings from the discount window, the elimination of bank reserve requirements, and a reduction in the pricing and an extension of the maturity on US dollar liquidity swap lines in coordination with other central banks.

The dramatic widening in MBS spreads may have convinced the Fed to add MBS to its QE program

While some economists, including our own, expected the Fed to cut its policy rate back to the zero lower bound (Figure 1) and to expand its net purchases of Treasuries in this week's FOMC meeting (see [The Fed steps up in a Sunday night surprise](#), March 15, 2020), the decision to restart net purchases of agency MBS may have come as a surprise to some market participants, particularly since the Fed has been very vocal over the past few years about returning its SOMA holdings to a Treasury-only portfolio. The \$200bn of net MBS purchases would increase the size of the Fed's MBS portfolio to approximately \$1.57trn from \$1.37trn (Figure 2).

Figure 1: Back to the zero lower bound

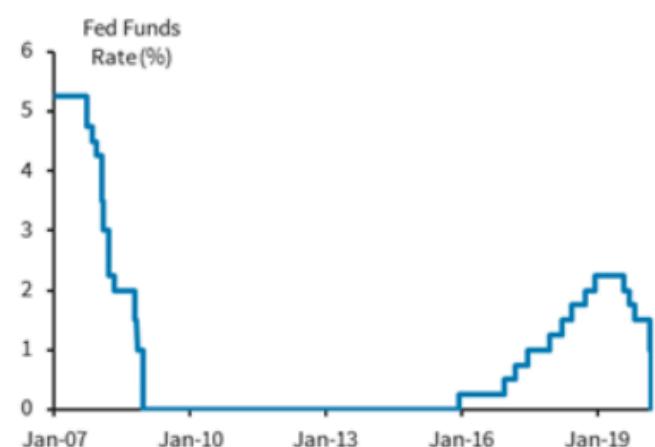
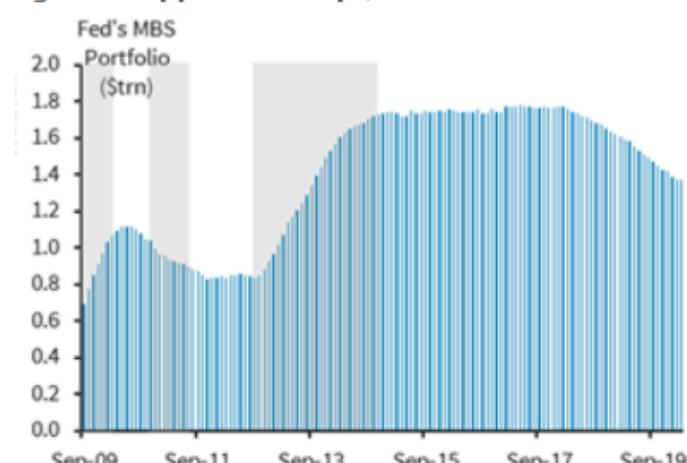


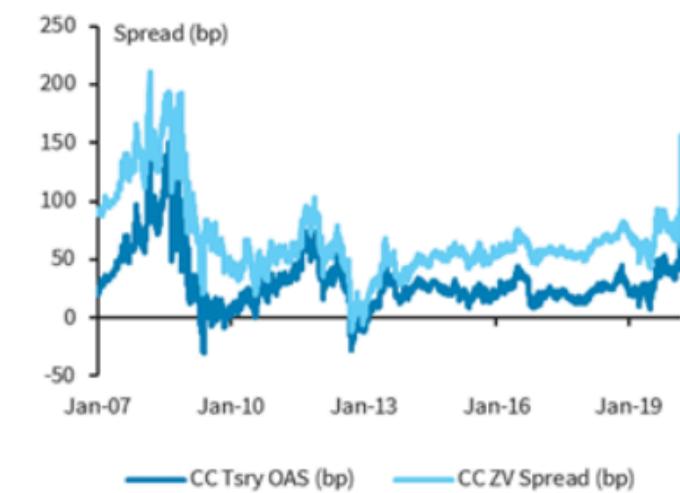
Figure 2: The Fed's MBS portfolio could grow again to approximately \$1.57trn



However, we believe that the recent dislocation in the MBS market may have convinced the Fed to alter its stance on agency MBS. Mortgage spreads have widened dramatically in the past few weeks, with current coupon MBS 70-80bp wider since February 24 on both an OAS and a nominal basis (Figure 3). At this point, MBS spreads are at their widest levels since 2008.

In addition to the sharp widening in MBS spreads, primary-secondary spreads have also surged over the past few weeks as a result of lender capacity constraints. We estimate that primary-secondary spreads now exceed 180bp, the widest they have ever been (Figure 4). As a result, mortgage rates have remained relatively stable over the past few weeks despite the sharp rally in Treasury yields, preventing many homeowners from taking advantage of the historic low in interest rates (Figure 5).

Figure 3: Current-coupon MBS spreads have widened significantly



Source: Barclays Research

Figure 4: Primary-secondary spreads have jumped in the past few weeks



Source: Freddie Mac, Bloomberg, Barclays Research

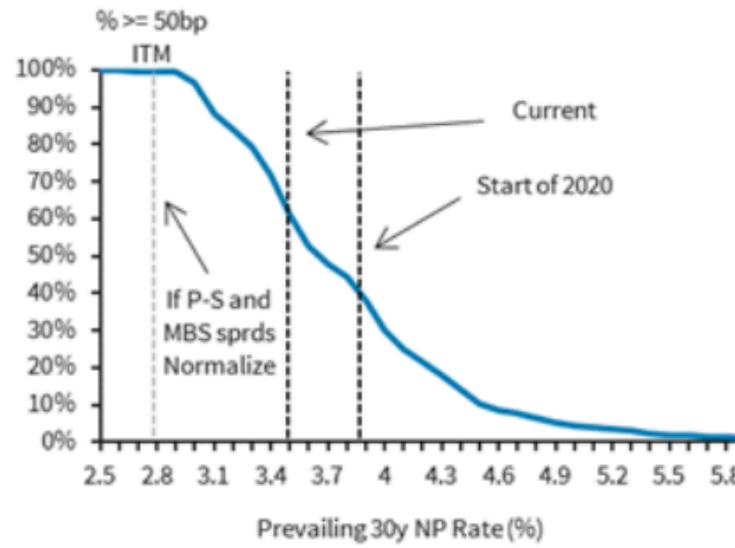
We believe that the Fed's actions yesterday were intended to help narrow the spread between 30y mortgage rates and Treasury yields, thereby allowing a larger number of homeowners to generate more savings by refinancing into lower rates. While we estimate that over 60% of 30y conventional MBS borrowers were in the refinance window as of last week, if mortgages re-trace some of their recent widening and primary-secondary spreads eventually normalize back to 2019 levels, virtually all US homeowners could be in the refinance window (Figure 6).

Figure 5: Mortgage rates have not fallen nearly as much as the rally in Treasury yields would suggest



Source: Freddie Mac, Barclays Research

Figure 6: All US homeowners could be in the refinance window if mortgage and P-S spreads eventually normalize



Source: Fannie Mae, Freddie Mac, Barclays Research

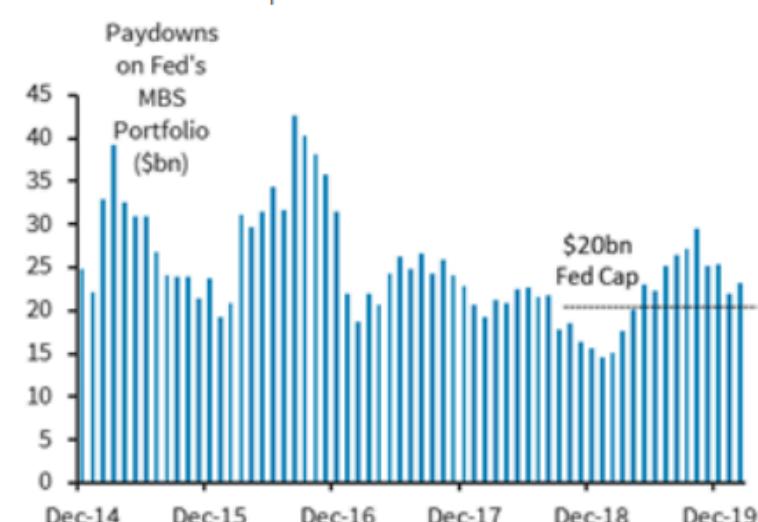
The Fed's actions should be a positive for agency RMBS

Despite the likely surge in MBS speeds over the coming months, we believe yesterday's announcement by the Fed should be a positive for the mortgage basis. The reinvestment of all agency MBS paydowns alone will result in an additional \$20bn of MBS purchases from the Fed each month, since paydowns on its portfolio have exceeded the \$20bn cap for some time now and appear likely to exceed \$20bn for the foreseeable future (Figure 7).

The Fed's actions should be a positive for agency RMBS

Despite the likely surge in MBS speeds over the coming months, we believe yesterday's announcement by the Fed should be a positive for the mortgage basis. The reinvestment of all agency MBS paydowns alone will result in an additional \$20bn of MBS purchases from the Fed each month, since paydowns on its portfolio have exceeded the \$20bn cap for some time now and appear likely to exceed \$20bn for the foreseeable future (Figure 7).

Figure 7: Paydowns on the Fed's MBS portfolio have exceeded \$20bn a month for some time



Source: Federal Reserve, Barclays Research

Net MBS purchases by the Fed could total \$50-60bn each month for up to four months

In a statement yesterday, the Fed announced that it would be purchasing \$80bn of agency MBS starting March 16, 2020 through April 13, 2020, of which \$23bn would be principal reinvestments from agency MBS and debenture paydowns. This implies that the Fed will be purchasing \$57bn net of agency MBS over the next month.

If we assume that its pace of monthly net MBS purchases remains mostly stable, then this would exceed the \$40bn of net MBS purchases each month under the Fed's QE3 program. Of course, this would also imply that the Fed would stop growing its MBS portfolio within four months, provided it kept to its \$200bn MBS purchase target. In comparison, the Fed was a net buyer of MBS for approximately two years (including the tapering period) under the QE3 program.

If we assume that its pace of monthly net MBS purchases remains mostly stable, then this would exceed the \$40bn of net MBS purchases each month under the Fed's QE3 program. Of course, this would also imply that the Fed would stop growing its MBS portfolio within four months, provided it kept to its \$200bn MBS purchase target. In comparison, the Fed was a net buyer of MBS for approximately two years (including the tapering period) under the QE3 program.

Nevertheless, in prior periods when the Fed announced a new QE program, mortgage spreads almost always tightened (Figure 8). Indeed, in November 2008, when the QE announcement came as a surprise to much of the market, current coupon MBS spreads tightened 50bp.

Figure 8: Previous QE programs and MBS performance on the date of the announcements

Date	Size of Asset Purchases	△ CCOAS on Day of Announcement
11/25/2008	\$500bn of agency RMBS, \$100bn in agency debentures "over several quarters"	-50
3/18/2009	Up to another \$750bn of agency RMBS, \$100bn of agency debentures through the end of the year, \$300bn of Treasury securities over the next six months	14
11/3/2010	\$600bn of Treasury securities through Q2 11	-8
9/13/2012	\$40bn of agency MBS each month (no end date specified)	-14
12/12/2020	\$45bn of Treasury securities each month (no end date specified)	-1
3/15/2020	\$200bn of agency RMBS, \$500bn of Treasury securities "over the coming months"	N/A

Source: Federal Reserve, Barclays Research

Net supply of MBS to private-market investors in 2020 will fall significantly with the Fed's actions

We estimate that the Fed's MBS reinvestments and net purchases ultimately will reduce net supply of MBS to private-market investors by approximately \$395bn, eliminating the vast majority of net MBS supply this year (Figure 9). Indeed, we believe that there will be negative net supply of MBS available for private-market investors through the rest of 2020, given the size of the Fed's MBS purchases over the next few months. Of course, this assumes that our MBS net issuance estimates are correct. However, while the recent rally in rates could spur additional home purchases and cash-out refinances, the effect of the coronavirus may also act as an offset to home-buying activity. As such, we are keeping our 2020 net issuance forecasts unchanged at \$200bn for now.

Figure 9: The Fed's MBS purchases may eliminate net MBS supply for private-market investors through the rest of the year

Previous Net Supply Estimates (\$bn)	Rest of Year with Fed		
	Jan + Feb 2020	Run-Off	Full-Year 2020
MBS Net Issuance	63	137	200
Fed Supply	37	195	232
Total MBS Net Supply	100	332	432

New Net Supply Estimates (\$bn)	Rest of Year With Fed		
	Jan + Feb 2020	QE4 and Full Reinvestments	Full-Year 2020
Net Issuance	63	137	200
Fed Supply	37	-200	-163
Total	100	-63	37

Source: Federal Reserve, Barclays Research

We retain our overweight position on the mortgage basis

We maintain our overweight position on the mortgage basis via FNCL 3.5s, though we continue to expect more spread volatility in the sector. While we believe that yesterday's announcement from the Fed should be a positive for mortgages, investor sentiment is difficult to forecast, and we do not want to underestimate the potential for a further "flight-to-quality" bid for US Treasuries. That said, we believe that investors who can stomach the volatility over the near-term will eventually be rewarded, given where MBS spreads are today.

BTP ULTRA-LIQUIDITY



Interest Rates Research | Instant Insights

16 March 2020

Cagdas Aksu	+44 (0) 20 7773 5788	cagdas.aksu@barclays.com	Barclays, UK	Completed: 16-Mar-20, 17:43 GMT
Hitendra Rohra	+44 (0) 20 7773 4817	hitendra.rohra@barclays.com	Barclays, UK	Released: 16-Mar-20, 17:43 GMT
Max Kitson	+44 (0) 20 3555 2386	max.kitson@barclays.com	Barclays, UK	

European Rates Research

Opportunities in EUR rates post ECB/EU announcements

We think there are key market relevant take-aways from the ECB/EU announcements at the end of last week, which offer good risk/reward trades in the EUR rates market. We recommend outright short 30y BTPs, short Bund ASW outright/conditionally, and 10s30s EUR swap curve steepeners in linear space but also via buying 10s/30s CMS cap spread vs selling floors.

In terms of policy announcements, the end of last week was busy with the ECB, EU and member states, in particular Germany, all announcing various measures to limit negative economic and financial market effects of the COVID-19 outbreak. On Thursday, the ECB announced an easing package that is composed of new liquidity operations (LTROs), sweetened TLTROs targeting struggling SMEs and additional QE stimulus. On Friday, the EU Commission and member states including Germany followed up with additional measures.

Effectively, the announced measures imply that meaningful fiscal easing is on the way at a euro area level. Compared to pre-COVID-19 budgets, our economists estimate that the additional fiscal impulse could be around 1.5% of GDP (see [Full-on rescue mode](#), 13 March 2020). In particular, the comments from the German Finance Minister and the Chancellor indicate that Germany, with the large scale fiscal easing announced, could be moving away from a balanced budget approach. In addition, Germany is offering a major federal guarantee programme for loans to SMEs/corporations available via KfW. Last but not least, the European Commission has said it is willing to use maximum flexibility in the bloc's fiscal rules which would allow member states to overshoot deficit and debt targets established before the COVID-19 crisis.

EUR rates market take-aways

Higher risk premium at the long end of EUR/core EGB curves. All else equal, gradually more meaningful fiscal easing at an EU and member state level, especially in Germany, is likely to result in higher fiscal/issuance/inflation risk premium at the longer end of the curve. A 1.5% of GDP worsening in deficits at a euro area level could potentially mean a €200-250bn increase in net issuance hitting the EGB market over the next year or two.

Higher deficit and credit risk premium in German swap spreads. German deficits are likely to worsen materially due to a weaker economic growth outlook as well as new discretionary fiscal easing. These together with the potentially notable credit risk that the German government is willing to take on its balance sheet via corporate guarantees should be a significant German ASW tightener over the medium term in longer maturities, all else equal.

Higher credit risk premium in sovereign spreads. The EU Commission is ready to accept much looser deficits and higher debt levels at a euro area level. While in core countries such as Germany and the Netherlands debt-to-gdp levels are low (c.60% and c.52%, respectively), in most of the semi-core and peripheral countries debt levels are very high to start with (eg. Italy, Portugal, Spain and France are at 135%, 122%, 98% and 98% respectively). Therefore, the market might not be as forgiving as the EU commission to the worsening in fundamentals of the member states and risk premium in sovereign spreads may rise. This is especially the case if credit risk on the balance sheet of governments rise due to the contingent liabilities from guarantees on loans to the corporate sector affected by COVID-19. Additionally, with the worsening in fundamentals, yet another source of risk premium for sovereigns can be rating downgrades, which isn't on the radar of the market yet.

Last week's QE announcement and its execution could be tested by the market. A bolder ECB intervention could potentially stop further sharp EGB spread widening from happening. Even if we assume President Lagarde's comment last week that "*it isn't ECB's job to close spreads*" was unintended and misinterpreted by the market, there is likely to be some credibility damage. This may take time and action to repair. In addition, if spreads start to widen notably reflecting weakening fundamentals, the ECB's enhanced QE programme announced last week may unlikely be enough to stem the tide, even if we assume flexibility. For instance, in our baseline we estimate the ECB would be buying c.€3bn per month in BTPs out of the new €33bn per month purchases. We believe this number could potentially double in an optimistic scenario (ie. to €6bn BTP purchases per month) if the ECB frontloaded its purchases, bought public sector more heavily than it does currently and deviated temporarily from capital key allocations in favour of Italy by 3/5pp. Even then, €6bn per month would likely still not be high enough to contain spreads in a serious widening scenario, especially if the market knows this pace/and capital key deviations cannot be sustained.

Good risk/reward trade ideas

Short 30y BTPs outright. At current levels, 30y BTP yields are only c.60bp higher from their lows. Given the conclusions above, we think either the credit or the risk-free rate or both components of ultra long-end Italian yields are low. As argued, ECB support is not in "bazooka" shape yet and risk of notable worsening in fundamentals such as debt levels and potential rating downgrades is real. Ultimately, if Italian spreads continue to widen, we don't think 30y Bund yields will rally much in flight-to-quality form, and if spreads remain well-behaved then ultra long-end core yields may rise sooner or later reflecting higher fiscal/issuance/inflation risk premium. We believe risk/reward is asymmetrically higher in 30y BTP yields. Therefore, we recommend short 30y BTP yields outright (entry: 2.65%).

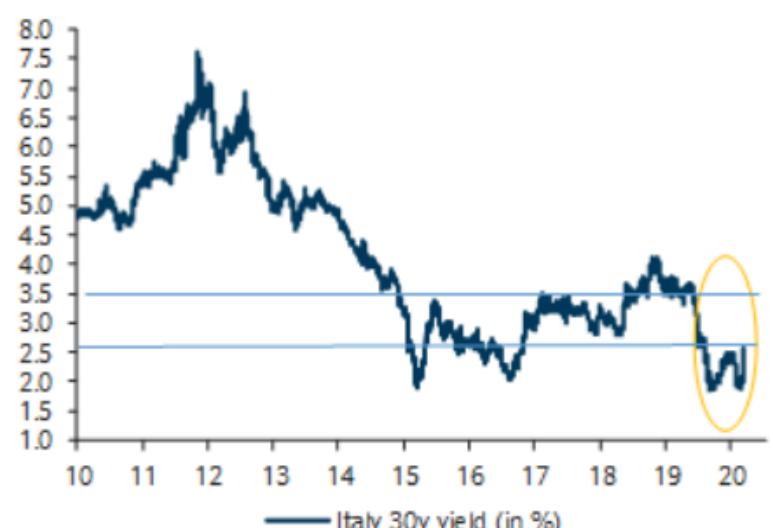
Short Bund ASW outright and in conditional terms. The medium-to-long term driver of swap spreads (ASWs) are typically forward-looking deficit expectations. Given the worsening in Germany's deficit outlook, we potentially see 10y Bund ASW vs EONIA tightening 15/20bp over the medium term. In addition, Germany is taking more credit risk on its balance sheet through corporate guarantees and it is also not inconceivable that some form of "debt mutualisation" risk on a broader scale increases for Germany. Both of these are also ASW tighteners. We saw this story before in 2008: initially ASWs widened on flight-to-safety and then, they collapse on worsening fiscal and fundamental prospects. We believe we are very close to that point and therefore recommend short Bund ASW vs EONIA (entry: EONIA-25bp).

For investors, who are worried about further flight-to-safety type ASW widening, we also like the ASW tighteners in conditional space. We recommend positioning for this by buying RXM0 puts by selling matched maturity payers (22 May 20 expiry payers on 9y swap, €170mn notional of swaptions vs 1000 RX put contracts). RX option implied vols are richer than swaption vols, implying that an upfront premium is required to initiate the trade – of about 60cts or 4bp in terms of RX DV01 (at mid-levels). However, we find the higher RX option implied vol levels to be justified, given that realised volatility of underlying Bund yields is even higher when compared with realised vols of corresponding swaps.

Pay 10s/30s EUR swap curve. We find the long end EUR swap curve fundamentally 30-35bp too flat versus various forms of long-end bond risk premium. In addition, we find that it already saw a capitulation last week similar to that of 2008. In our view, the new more meaningful euro area and German fiscal easing is likely to lead to somewhat higher fiscal/issuance/inflation risk premium at the longer part of the EUR curve and help the curve to resteeepen over time. We already initiated this trade on 12 March (entry: -2bp; current: -3bp). For further details analysis on the trade, see [A bearish trade with a sizeable cushion](#), 12 March 2020).

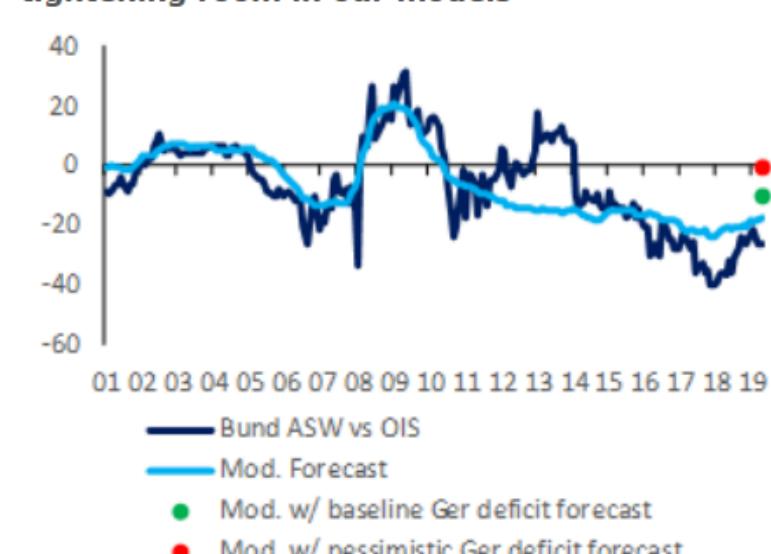
Buy 6m expiry CMS (10-30y) cap spreads funded by selling low-strike floors. In line with our long end EUR curve steepening view in linear space, we now also recommend initiating steepeners through CMS curve options. Specifically, we suggest buying 6m expiry CMS (10-30y) cap spreads struck at ATM+5 (0.06%) vs ATM+25 (0.26%), funded by selling floors struck at ATM-20 (-0.19%). At mid-levels, the trade can be initiated at zero cost (subject to bid-offer). On expiry, the trade loses if 10s/30s is below -0.19%, a level only reached briefly in the peak of the GFC. On the other hand, the trade profits if 10s/30s curve is steeper than 0.06% on expiry, earning a maximum of 20bp if the curve is steeper than 0.26%. Considering the 10s/30s curve was over 40bp in February, the curve has sizeable room to steepen. From a vol perspective the trade is short CMS curve vol, which is attractive as 6m expiry CMS 10-30y curve vol has risen sharply, from about 18bp/y in early March to almost c.58bp/y. Some stabilization in the 10s30s curve level could therefore see implied vols come off sharply.

We think both credit and/or risk free rate components of 30y BTP yield is low



Source: Bloomberg, Barclays Research

Bund ASW vs EONIA has another 15/20bp tightening room in our models



Source: Consensus Economics, Bloomberg, Barclays Research

CURVE TRADES- NOT LINEAR

We find 10s/30s EUR swap curve very flat vs fundamentals and historic spiral-like episodes...



Source: Barclays Research

...and we also like the steepening exposure in option space via buying 10s/30s CMS cap spread vs selling floors

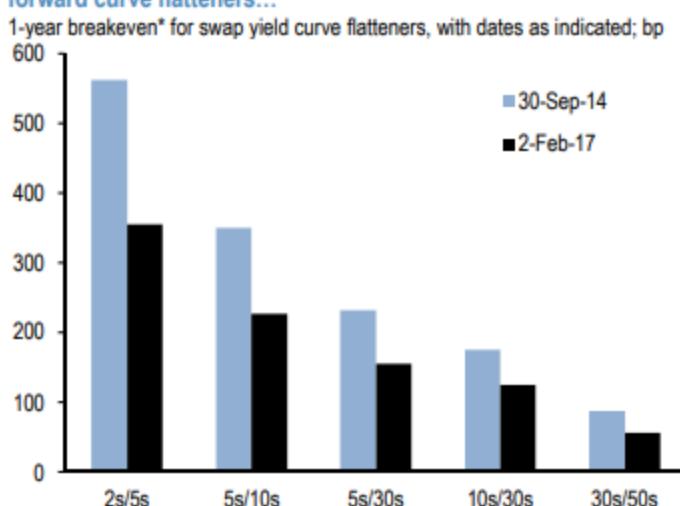


Source: Barclays Research

Introduction

When seeking out exposure to convexity in interest rate markets, the tendency is to focus on options, either explicitly (e.g., swaptions or options on Treasury futures) or embedded in other products (e.g., mortgages and callable bonds). **However, though often overlooked, the yield curve in principle provides another mechanism for sourcing gamma risk.** This arises from convexity differentials between swaps of differing maturity, which introduces options-type payoffs under large moves in rates. For example, consider a 5s/30s flattener exposure under a large and sustained parallel shift in the curve: as rates rise, receive-fixed positions in the longer tenor (which is losing money) will lose dollar duration more quickly than the pay-fixed position in the shorter leg (which is making money), resulting in a positive P/L—and vice versa in a rally. **In this way, flattening exposures on the curve have a positively convex payoff under large enough moves in rates.**

Exhibit 1: The flatness and stability of the long end makes this sector much more appealing for constructing convex payoffs via forward curve flatteners...



* Minimum parallel shift in the swap yield curve to break even on a 1-year forward flattener held to spot—i.e., to offset the carry cost.

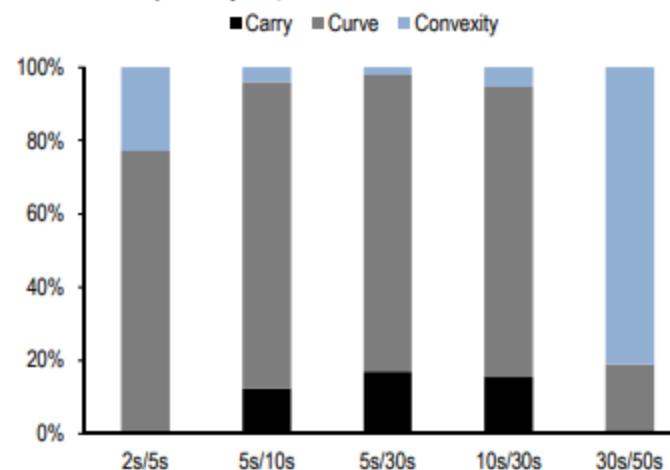
Source: J.P. Morgan

Even so, at the risk of sounding glib, there is no free lunch. **Similar to the premium paid for a long options position, flatteners typically carry negatively.** As a result, though the payoff profile of gamma-adjusted curve positions are similarly shaped, the much lower carry costs at the long end make breakeven moves in rates much more achievable. For example, in **Exhibit 1**, we consider the parallel shifts required to breakeven for a number of curve pairs spanning a wide range of tenors. The results demonstrate that P/L on 10s/30s and

especially 30s/50s flatteners are much more likely to be profitable absent volatility in the curve itself. Further, these breakevens in general have come down as carry has been extracted from USD rates in the years since the taper tantrum of 2013. That said, since the curve itself can be volatile, it is also important to consider the relative contribution of changes in slope, carry, and convexity to the P/L on these trades over a longer horizon. **The results confirm that gamma exposure is best sourced in the very long end, where shifts in rates are more frequently parallel and carry costs lower, leading to the vast majority of the variance in P/L on flatteners being attributable to convexity returns (Exhibit 2).**

Exhibit 2: ...and partly as a result a much higher fraction of the variance in P/L for 30s/50s trades is explained by convexity effects than shorter maturity curve exposures

Fraction of the variance in P/L* for curve trades by pair held over a 1-year horizon over the past ten years; %



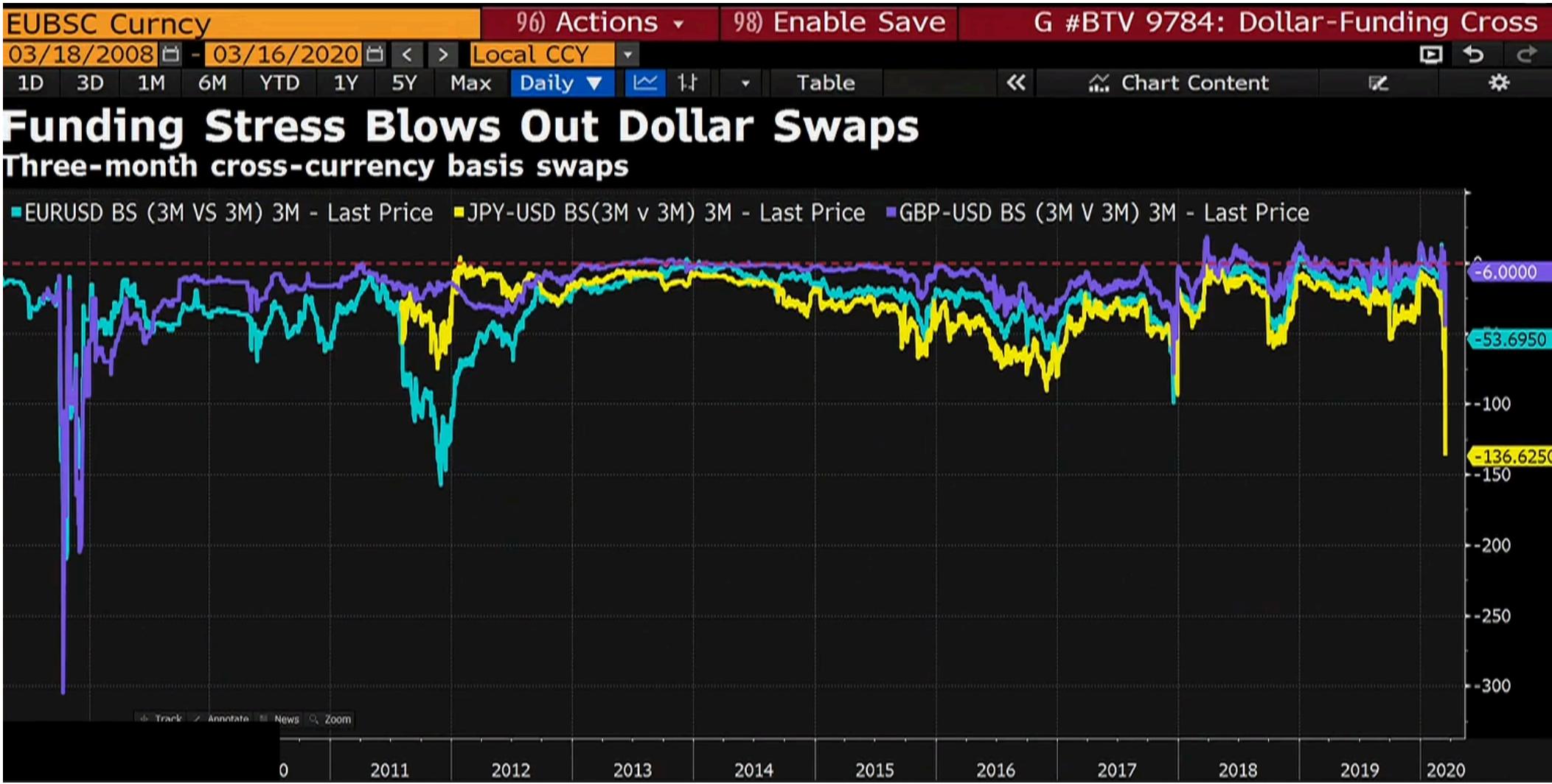
* P/L calculated for 1-year forward flatteners initiated daily and held to spot. Carry is based on the ex-ante difference between spot and forward, curve is the change in the spot curve over the trade horizon, and convexity is the remainder versus total trade P/L.

Source: J.P. Morgan

Given this backdrop, the question then becomes one of relative value. In other words, we require a framework for deciding whether long-end flatteners are a cheap or rich source of gamma compared to other instruments—particularly options. **In this piece we introduce a methodology for doing so, and specifically compare long-end flatteners to swaption straddles to decide which is the better source of long gamma exposure.**

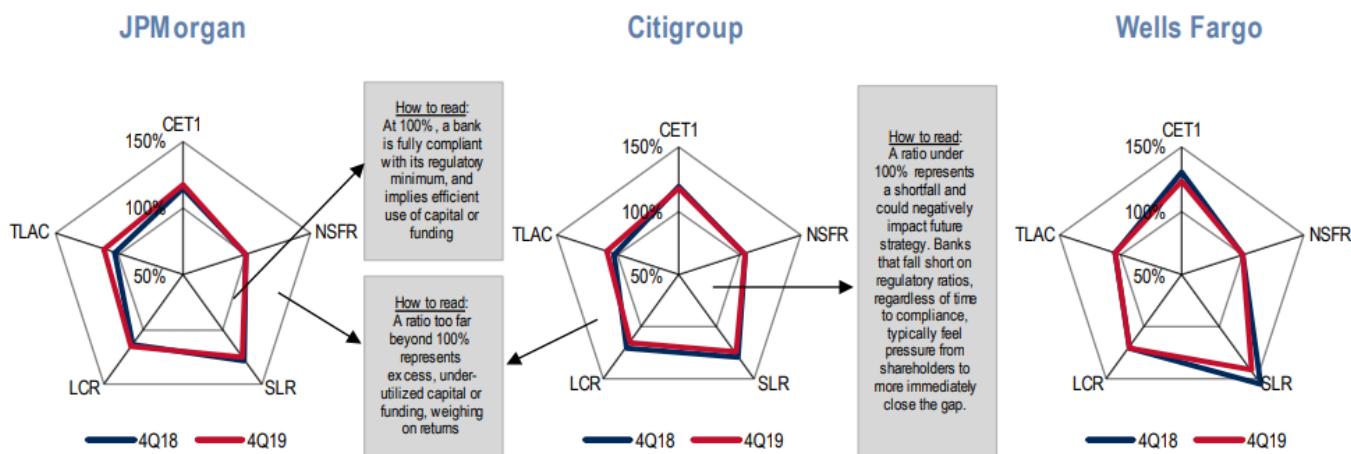
A relative value framework

The first step in evaluating relative value is estimating the probability of the range of potential outcomes. To do so, we start with the payoff profile of a given curve



2 Exhibit 1: Capital and liquidity adequacy among US GSIBs

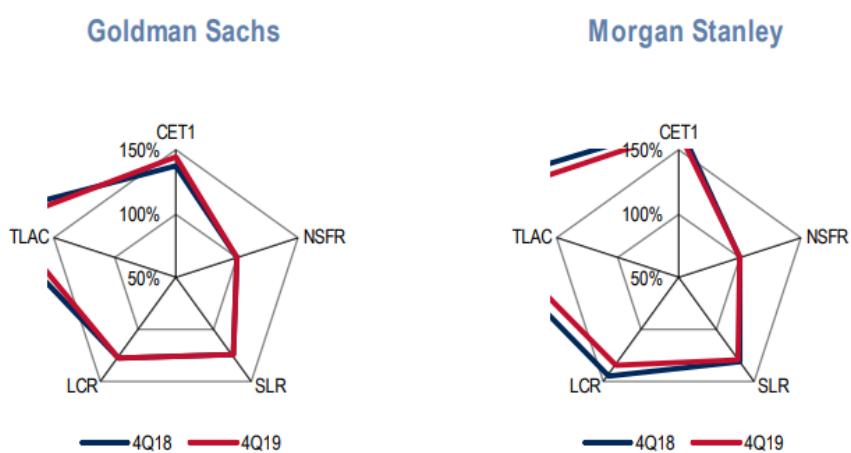
U.S. Mega Cap Banks



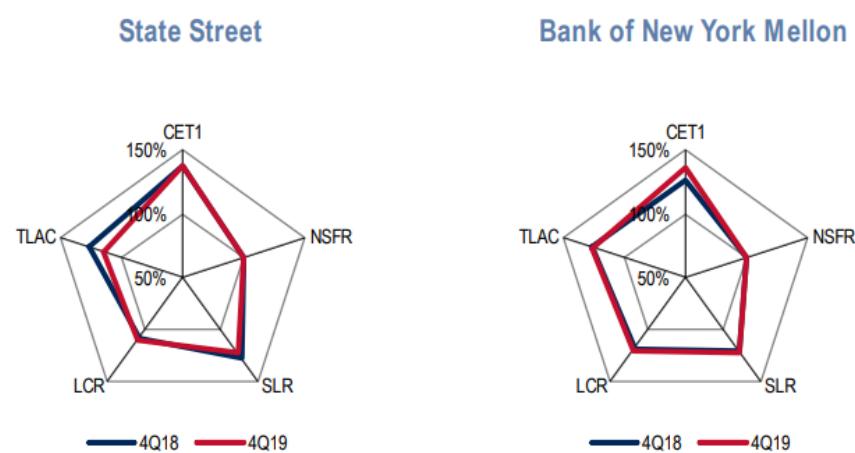
US Banks and Brokers | 16 March 2020

BofA GLOBAL RESEARCH

U.S. Brokers



U.S. Trust Banks



Source: BofA Global Research, company data

Note: firms only disclose meeting minimum NSFR requirement; assume 100% for each firm

Remdesivir Clinical Program in Focus

- Remdesivir (RDV) trial read-outs remain the highest profile clinical catalyst for COVID-19
- Our view is that:
 1. Impact likely greater to broader market than GILD, given commercialization challenges
 2. If RDV is efficacious, we expect case reports will continue to emerge ahead of China read-out
 3. Impact of catalyst could be diminished if new cases slow or repurposed drugs show efficacy
 4. Uncertainty over supply, but scenarios in which drug is approved by May / June

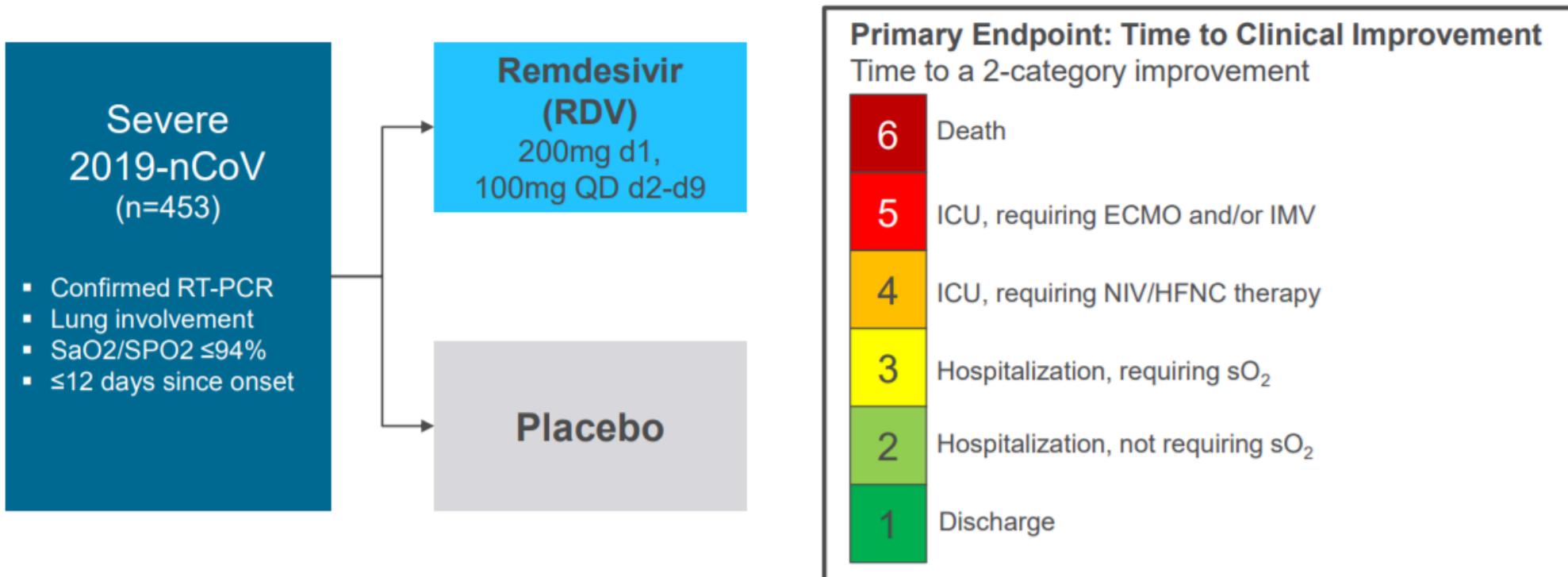
	Population	Size	Design	Endpoint	Timeline
“China Studies”	Mild / Mod	308	RDV (10d) vs. Placebo	Time to Clin. Recov.	April 2020
	Severe	452	RDV (10d) vs. Placebo	6-point Ordinal	April 2020
NIH Study	Severe	394	RDV (10d) vs. Placebo	7-point Ordinal	TBD
“Gilead Studies”	Moderate	600	RDV (5d or 10d) + SOC vs. SOC	Discharge Rate	May 2020e
	Severe	400	RDV (5d or 10d) + SOC	Normalization of fever and O2 saturation	May 2020e
Compassionate Use	<i>Data from compassionate use programs expected to support any regulatory filing</i>				

Source: clinicaltrials.gov



How We Think About Remdesivir China Study Read-Out?

- No antiviral drug has demonstrated substantial clinical efficacy in hospitalized influenza patients
- However, reasons to believe remdesivir may be able to demonstrate clinical benefit...
 - COVID-19 higher mortality rate vs. hospitalized influenza cases (18-45% in Wuhan retrospective analysis¹ vs. 3-4% in FLU-IVIG study)
 - Host of secondary endpoints provide other avenues to show a benefit
- ...while, ordinal-based endpoint likely acceptable to FDA (based on its influenza guidance)



IMV = Invasive mechanical ventilation; non-invasive mechanical ventilation; HFNC = High-flow nasal cannula

1 Zhou et al.. Lancet. Mar 08. 2020

Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1

"Here, we investigate the stability of viable HCoV-19 on surfaces and in aerosols in comparison with SARS-CoV-1. Overall, stability is very similar between HCoV-19 and SARS-CoV-1. We found that viable virus could be detected in aerosols up to 3 hours post aerosolization, up to 4 hours on copper, up to 24 hours on cardboard and up to 2-3 days on plastic and stainless steel. HCoV-19 and SARS-CoV-1 exhibited similar half-lives in aerosols, with median estimates around 2.7 hours. Both viruses show relatively long viability on stainless steel and polypropylene compared to copper or cardboard: the median half-life estimate for HCoV-19 is around 13 hours on steel and around 16 hours on polypropylene. Our results indicate that aerosol and fomite transmission of HCoV-19 is plausible, as the virus can remain viable in aerosols for multiple hours and on surfaces up to days. "

<https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v1.full.pdf>

<https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v2>

32 **Abstract**

33 HCoV-19 (SARS-2) has caused >88,000 reported illnesses with a current case-fatality ratio of ~2%. Here,
34 we investigate the stability of viable HCoV-19 on surfaces and in aerosols in comparison with SARS-
35 CoV-1. Overall, stability is very similar between HCoV-19 and SARS-CoV-1. We found that viable virus
36 could be detected in aerosols up to 3 hours post aerosolization, up to 4 hours on copper, up to 24 hours on
37 cardboard and up to 2-3 days on plastic and stainless steel. HCoV-19 and SARS-CoV-1 exhibited similar
38 half-lives in aerosols, with median estimates around 2.7 hours. Both viruses show relatively long viability
39 on stainless steel and polypropylene compared to copper or cardboard: the median half-life estimate for
40 HCoV-19 is around 13 hours on steel and around 16 hours on polypropylene. Our results indicate that
41 aerosol and fomite transmission of HCoV-19 is plausible, as the virus can remain viable in aerosols for
42 multiple hours and on surfaces up to days.

246 150 lines per panel: 50 lines from each plotted replicate. Dotted line shows Limit of Detection (LOD),
247 $10^{0.5}$ TCID₅₀/mL. B: Violin plots showing posterior distribution for half-life of viable virus. Dot shows
248 the posterior median estimate and black line shows a 95% credible interval.

249

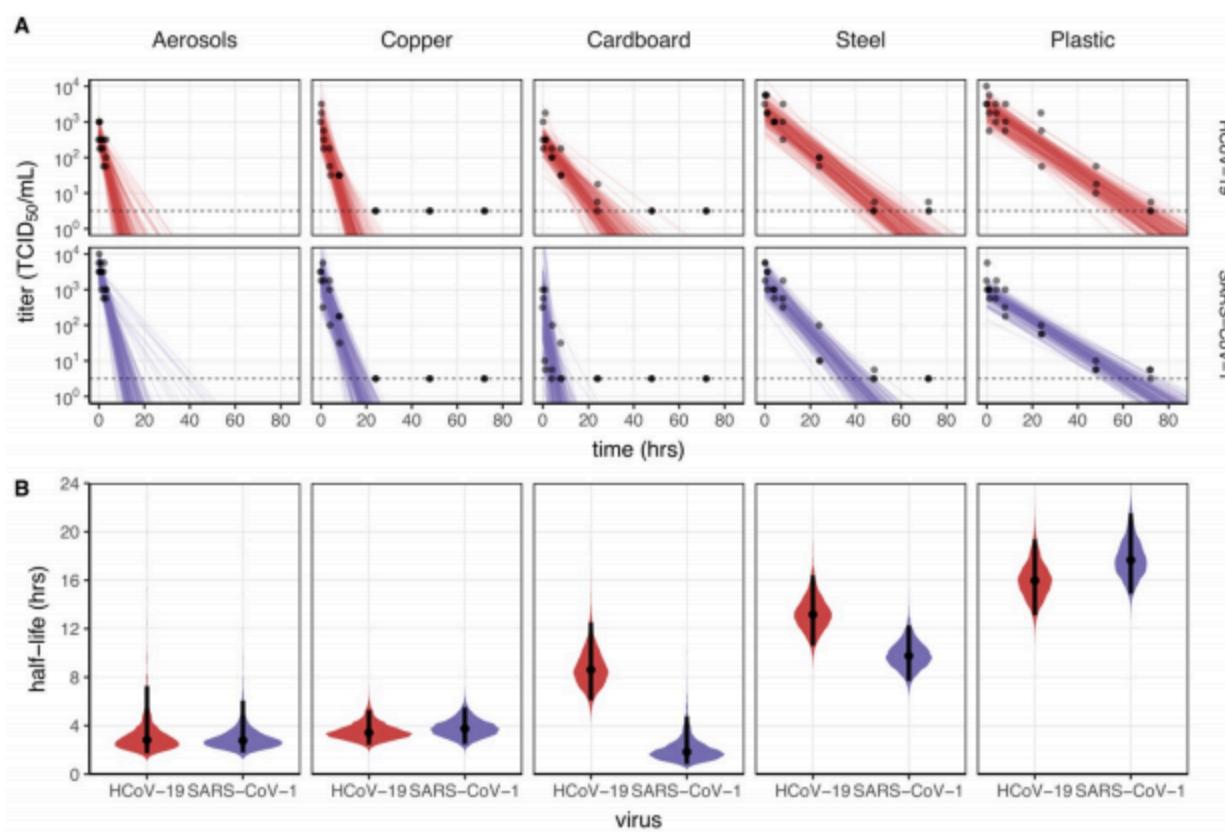
250 Table 1. Posterior median estimates and 95% credible intervals (2.5%–97.5% quantile range) for half-
251 lives of HCoV-19 and SARS-CoV in aerosols and on various surfaces, as well as a median estimate and
252 95% credible interval for the difference between the two half-lives (HCoV-19 – SARS-CoV).

253

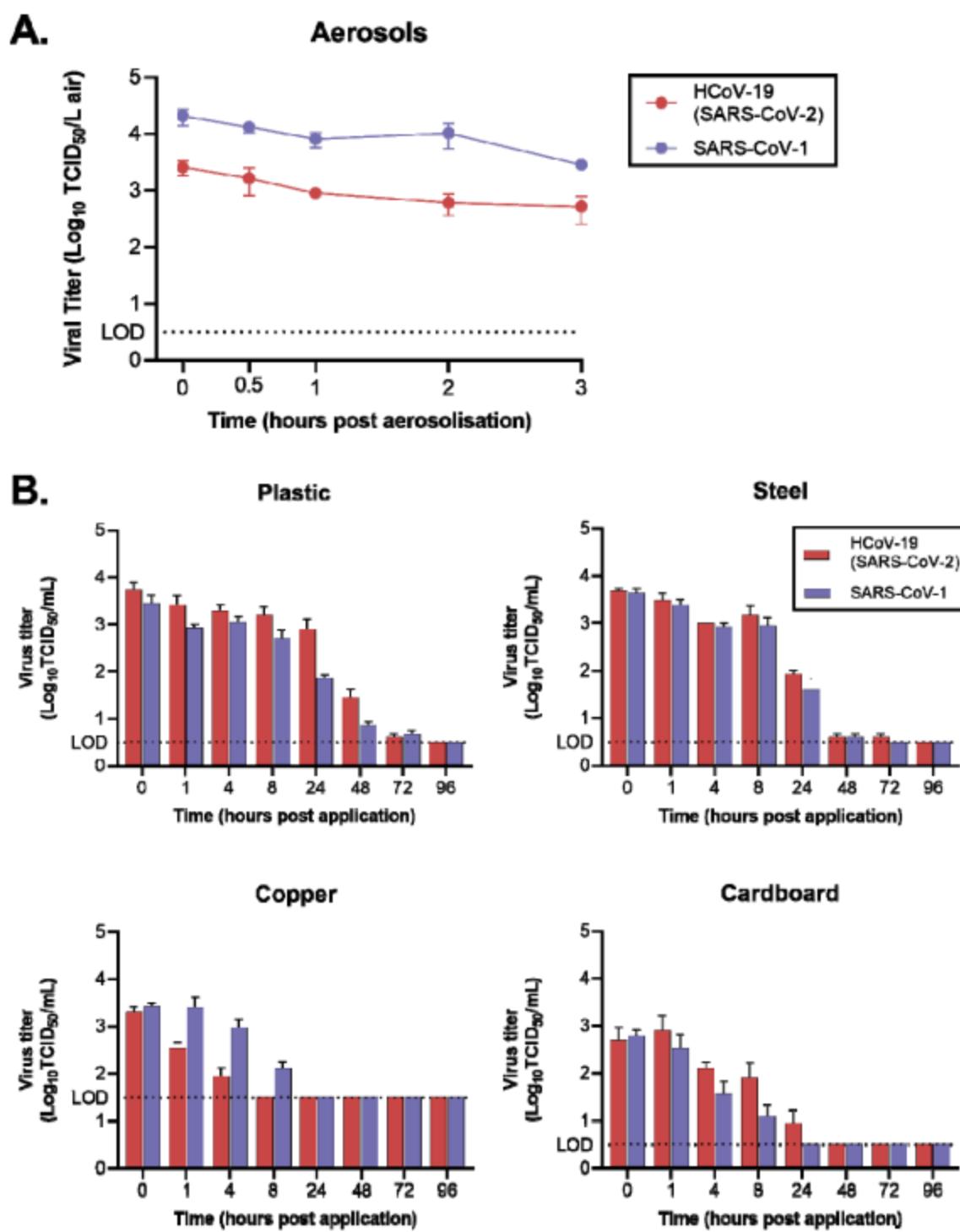
Material	HCoV-19			SARS-CoV-1			HCoV-19 – SARS-CoV-1		
	median	2.5%	97.5%	median	2.5%	97.5%	median	2.5%	97.5%
Aerosols	2.74	1.65	7.24	2.74	1.81	5.45	-0.00418	-2.72	4.45
Copper	3.4	2.4	5.11	3.76	2.43	5.43	-0.321	-2.31	1.78
Cardboard	8.45	5.95	12.4	1.74	0.827	4.42	6.6	3.07	10.7
Steel	13.1	10.5	16.1	9.77	7.69	12.3	3.36	-0.173	7.12
Plastic	15.9	13	19.2	17.7	14.8	21.5	-1.79	-6.31	2.51

254

232 maintained over 180 minutes and samples were collected at 0-, 30-, 60-, 120- and 180-minutes post
233 aerosolization. Viable virus titer per liter of air is shown in TCID₅₀/L air. B) 50 μ L of 10⁵ TCID₅₀/mL of
234 SARS-CoV and HCoV-19 was applied on plastic, steel, copper and cardboard surfaces. At 1, 4, 8, 24, 48,
235 72, and 96 hours samples were obtained for viability assessment. All samples were quantified by end-
236 point titration on Vero E6 cells. Plots show the mean and standard error across three replicates. Dotted
237 line shows Limit of Detection (LOD), 10^{0.5} TCID₅₀/mL for plastic, steel and cardboard and 10^{1.5}
238 TCID₅₀/mL for copper.



239
240 Figure 2. Estimated exponential decay rates and corresponding half-lives for HCoV-19 and SARS-CoV-
241 1. Experimental conditions are ordered by posterior median half-life for HCoV-19. A: Regression plots
242 showing predicted decay of virus titer over time; titer plotted on a logarithmic scale. Points show
243 measured titers and are slightly jittered along the time axis to avoid overplotting. Lines are random draws
244 from the joint posterior distribution of the exponential decay rate (negative of the slope) and intercept
245 (initial virus titer), thus visualizing the range of possible decay patterns for each experimental condition.



229

230 Figure 1. Viability of SARS-CoV and HCoV-19 in aerosols and on different surfaces. A) SARS-CoV and

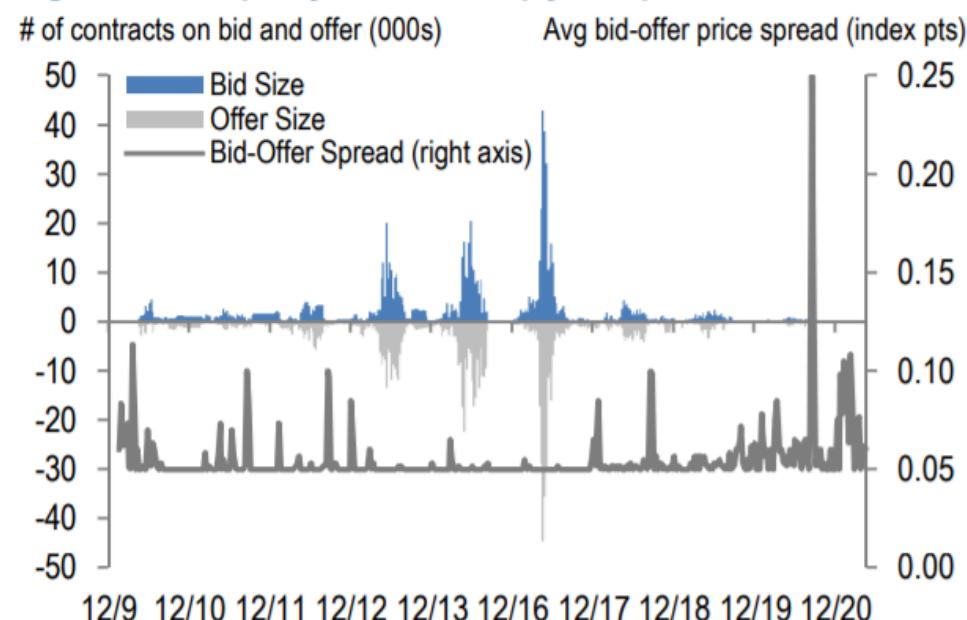
231 HCoV-19 were aerosolized in a rotating drum maintained at 21-23°C and 65% RH. Aerosols were

EQUITY ROLLS & EXOTICS

The S&P 500 roll traded at a volume-weighted average ~43bps rich to Eurodollar FV and VWAP roll spread of 3.40, both significantly higher than their starting points. The VWAP roll cost ultimately exhibited its typical December seasonality (despite starting out surprisingly cheap), trading ~30bps richer than the prior two rolls (see Figure 43 [here](#)). The roll spread exhibited a strong positive time-weighted trend into expiry, in-line with our model's prediction though with an even steeper slope (Figure 3).

This quarter we saw a **sharp decrease in roll liquidity**, likely driven in large part by reduced dealer market making activity due to year-end GSIB dynamics (see the Special Topic of our [Roll Outlook](#) for details). The average intraday volume sitting on the best bid and offer declined by over 50% vs. September, and was lower even than in Dec'18, when we were in the midst of a market crash (Figure 4).

Figure 4: Roll liquidity declined sharply this quarter



Source: J.P. Morgan Equity Derivatives Strategy.

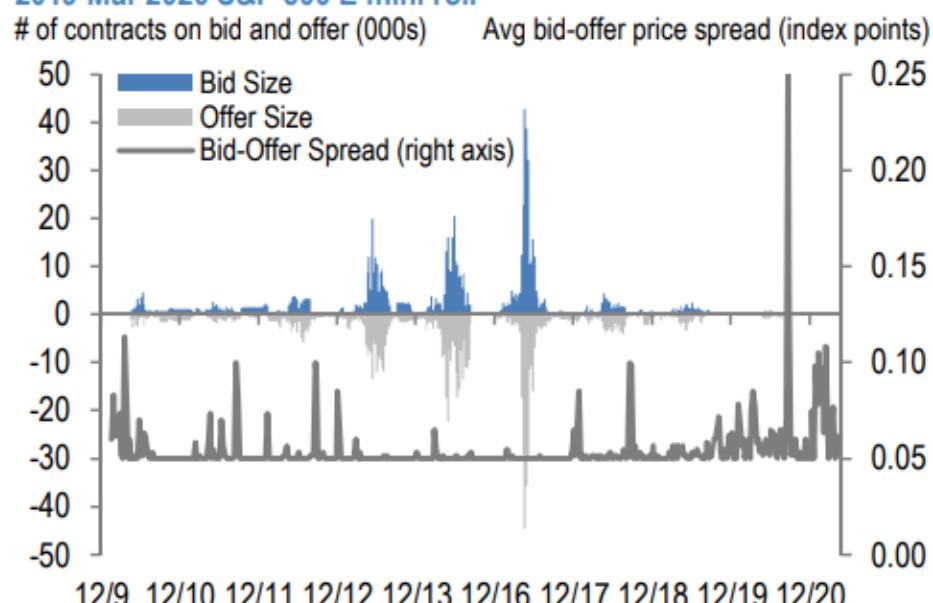
Bram Kaplan, CFA
(1-212) 272-1215
bram.kaplan@jpmorgan.com

Global Quantitative & Derivatives Strategy
09 March 2020

J.P.Morgan

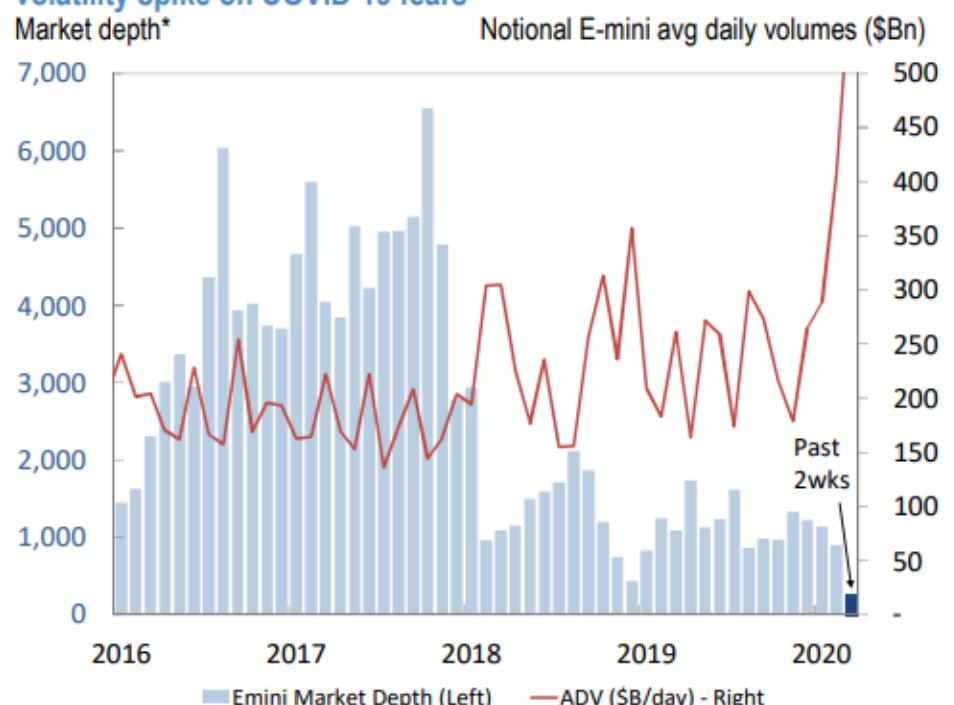
Last quarter we saw a sharp decrease in roll liquidity, likely driven in large part by reduced dealer market making activity due to year-end GSIB dynamics (see the Special Topic of our [Roll Outlook](#) for details). The average intraday volume sitting on the best bid and offer declined by over 50% vs. the prior quarter, and was lower even than in Dec'18 when we were in the midst of a market crash (Figure 17). Meanwhile, outright futures liquidity/market depth plunged to record lows during/following the sharp market sell-off the week of Feb 24th (Figure 18).

Figure 17: Intraday best bid and offer size and spread for the Dec 2019-Mar 2020 S&P 500 E-mini roll



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg.

Figure 18: Market depth decreased to record lows during the recent volatility spike on COVID-19 fears



Source: J.P. Morgan Equity Derivatives Strategy, CME, Bloomberg. * Market depth measured as average # of S&P 500 E-mini contracts within 1 index point of the top of the book

term structure, which experienced its strongest inversion since 2009 at the short end, and strongest inversion ever at the back end (Figure 13).

Figure 12: The VIX spiked to its highest level since the 2008/9 financial crisis, and exceeded 60 for only the 2nd time in the past 30 years

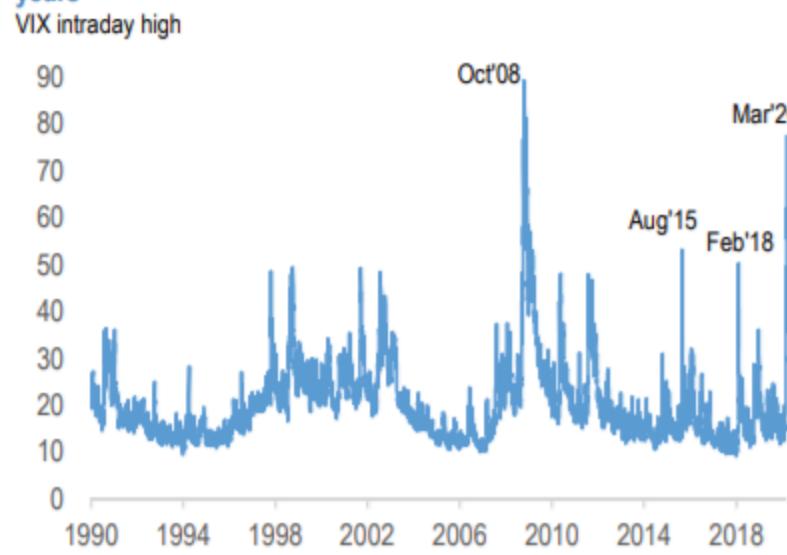
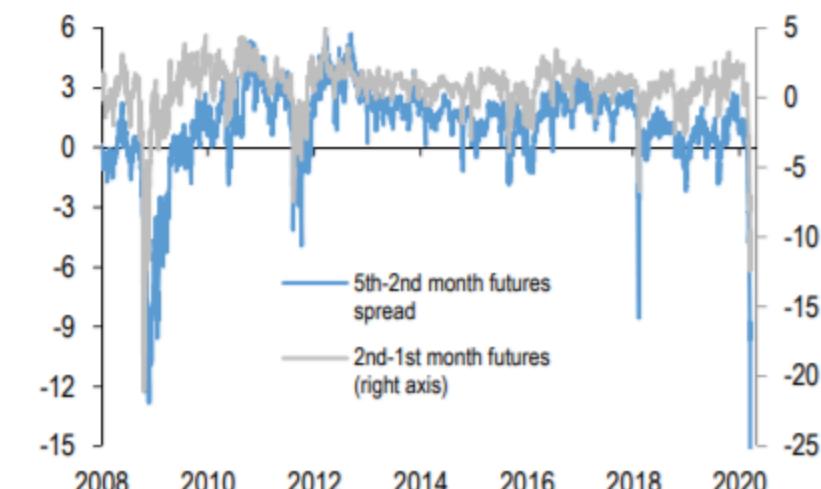


Figure 13: The VIX futures term structure experienced its strongest inversion since 2009



While VIX ETP investors were significantly long going into the COVID-19 crisis, the positioning slate has been largely wiped clean as ETP investors took profits and significantly reduced exposure on the VIX spike. Since the virus spread began accelerating outside of China (after Feb 21st), investors have withdrawn \$3Bn from long and levered funds, causing the net exposure of VIX ETPs to fall by ~2/3 (Figure 14).

Figure 14: VIX ETP holders have taken profits on long/levered products, taking net exposure down by ~2/3 since the end of Jan



<https://www.bloomberg.com/news/articles/2020-03-16/korean-exotic-notes-to-face-losses-as-europe-bank-shares-plunge?srnd=fx-center>

<https://www.bloomberg.com/news/articles/2020-03-12/market-plunge-means-korean-exotic-notes-face-margin-call-risks>

Autocalls hit peak vega, where hedging costs mount

Eurostoxx and Nikkei losses flip structured product dealers into painful short vol territory



Helen Bartholomew

Chris Davis

16 Mar 2020

Jitters are growing among structured product issuers as the stock indexes underlying popular autocallable bonds plunge through a shadowy inflection point known as peak vega, where hedging costs surge and losses can mount.

This fabled territory, where issuers of the products see their volatility sensitivity flip from long to short, has already been surpassed on the Eurostoxx 50 and Japan's Nikkei 225. In previous stress periods, this has forced dealers to buy volatility in unison, inflating the price and causing heavy mark-to-market losses.

"We're through peak vega now on the Eurostoxx," says one equity derivatives strategist at a European house. "The impact on dealers depends how books are positioned, but it could end up being painful for some."

Global equity markets have plummeted in response to tumbling oil prices and

growing concern over the spreading coronavirus. The Eurostoxx 50, Nikkei 225 and S&P 500 each shed more than a quarter of their value in the three weeks since February 21.

For autocall issuers, this is dangerous territory. "These are not easy days," says a source at one European structured products house.

Structured products history is littered with hedging horror stories as sensitivity to parameters such as volatility, dividends, correlation and convexity can whip around when stocks fall. In 2015, Asian exotics desks were hammered **with \$300 million in losses** when the HSCEI shed 40% over five months.

Three years earlier, banks lost and estimated **\$500 million on Uridashi bonds** as the Nikkei 225 zig-zagged. In December 2018, Natixis took a **€260 million (\$288 million) hit** on its Korean autocall book after the Kospi index shed 15% in a month. The offending positions were subsequently **sold to rival banks** including Bank of America, BNP Paribas and Citi.

Given the protracted nature and scale of the latest selloff, dealers say this could be another dark period for structured products desks.

"The dynamics of autocallables can be challenging, but it depends on the timing of the selloff," says a structuring head at a US house. "The first leg is not the most painful one, but when you have a few more legs down it can be a different story. What's more painful is when spot gets closer to knock-in put barrier levels."

Beyond the barriers

Taking the basic form of zero-coupon bonds with upside and downside barriers, autocalls have become the dominant retail structure for these low-rate times, delivering above-market coupons while spot between the two barriers. The structure knocks out when spot hits the upper barrier, returning principal and an improved coupon to investors. The downside barrier is typically set 40% below the initial strike and triggers a knock-in put option, which eats into investor principal if breached.

Issuers of the instruments are long volatility. As spot falls and the chance of breaching the downside barrier increases, their sensitivity to volatility, or vega, increases. In this scenario, traders must sell puts to flatten their risk – a scenario which causes spot and vol to head down in tandem, upending the normal inverse correlation between the two.

As spot heads towards the barrier, an inflection point is reached: peak vega. Beyond this point, the issuer's vega exposure falls and dealers collectively switch to buying back volatility. The scramble for vega causes implied vol to jump, ultimately delivering losses to dealers that bought their hedges at the higher level.

Analysts say peak vega on the Eurostoxx 50 sits just below 3,000 - a level that was breached on March 10. By March 12, the blue-chip eurozone index had tumbled further to close at 2,545 – its lowest level since 2012.

The sudden switch in vega exposure is evident in a stark reversal in Eurostoxx spot/vol correlation. According to analysts at Bank of America, correlation between spot and two-year fixed strike vol on the index has fallen from 40% to -40% in recent weeks – its most negative level since 2012. The relationship hit zero in late February.

"Any further equity declines will likely see upward pressure on long-dated put vol from autocalls," say Bank of America analysts in a report published on March 10.

Peak vega on the Nikkei is estimated at around 18,000 to 20,000. The index fell below this range on March 13, ending the day at 17,431 – down by more than 6%. Compared to previous selloffs, hedging turbulence has so far been contained, some say, but this could change rapidly beyond the inflection point.

"Up until now, in this selloff, it has been relatively OK. Once you go below peak vega, dealers need to buy back vol," says one Tokyo-based analyst at a European dealer. "Once that happens at the same time – everyone else buying vol – you'll get potentially more risk in terms of vol upside."

If spot keeps falling and eventually hits the downside barriers, vega exposure

is wiped out altogether and delta exposure increases. Put simply, autocalls begin to behave as a delta-one instrument rather than a structured product. In a standard autocall, any spot fall below the barrier is only realised when the product matures. At this point, the buyer would receive the index value of the product.

Dealers' downside barriers are generally spread over a range, reflecting spot levels at the time of issuance. For Eurostoxx 50 issuance, analysts estimate this level sits between 1,800 and 2,300. For Nikkei products, it is around 12,000–15,000.

For example, if an investor entered an autocall with initial spot at 3,600 and a 60% put barrier, an index level of 2,160 at maturity would see the investor lose 40% of the initial investment. If the product matured with the index at 1,800, the investor would lose 50% of principal. Full principal would be returned as long as the index is above the 2,160 barrier at maturity.

For dealers, hedging costs could cut into first-quarter equity trading revenues, but some suggest it will be less painful than in past episodes. That's partly because a second-half 2019 and early 2020 rally in the Eurostoxx 50 helped clear out a glut of legacy instruments that had been **piling up on bank balance sheets**. The new crop – typically issued at spot levels of 3,600 and above – still has a cushion before investor capital is at risk.

"Had we gone down without going up first, we could be in a very dangerous place. But we've got a decent buffer following the 2019 rally," says a strategist at another European house.

Some indicators of stress across structured products desks have been relatively muted. For example, moves in **dividend derivatives**, which have previously acted as an indicator of problems on structured products desks, have performed in line with spot.

"The gap lower in pretty much all of the div curves has followed spot –

everything's down 25%. In as far as that's been a broader indicator of pain in autocallable books, you don't seem to see that footprint now," says the equity derivatives strategist.

Korea's equity-linked securities (ELS) market is typically a hot spot for autocall hedging disarray. Dominated by 'worst-of' baskets of two or three underlying indexes, the instruments reference the worst-performing one at any given time. This exposes dealers to shifts in correlation between the underlyings, making hedging more complex and costly in times of stress.

According to a source at a Korean securities house, hedging of single-index ELS has been relatively calm so far. Through 2019 issuance of ELS has been at average spot levels of 3,300 for the Eurostoxx 50, 10,000 for the HSCEI and 275 for the Kospi.

“With surging volatility and increasing correlation between underlyings, a few dealers will have suffered from more ‘cross gamma’ and trading costs

Source at a Korean securities house

“In spite of recent turmoil, dealers’ ELS hedging is stable in response,” says the source.

He warns hedging of worst-of baskets may have proved far more painful for dealers: “With surging volatility and increasing correlation between underlyings, a few dealers will have suffered from more ‘cross gamma’ and trading costs.”

Cross gamma is the rate of change in the delta of one exposure in response to a change in another underlying.

Other defences which may keep losses in check include greater product diversification, meaning products are less concentrated around given strikes.

In Asia, analysts say banks learned a lot from the 2015 crunch in Korean products.

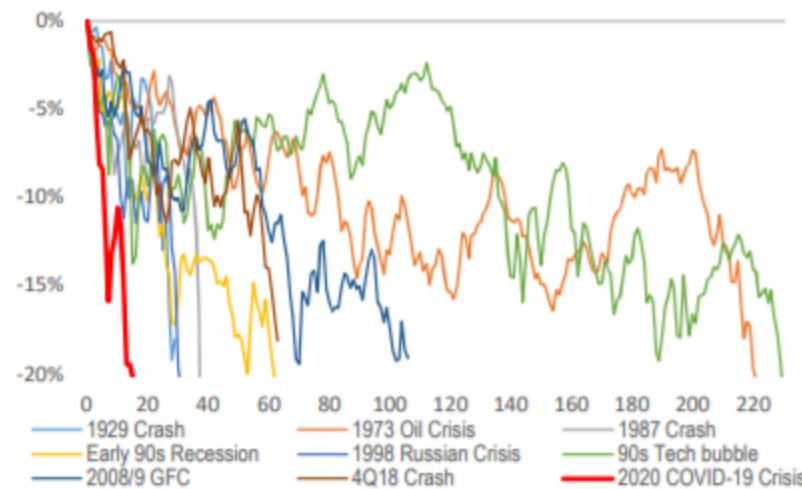
“Banks are more proactive and dynamic with hedging than in the past. It’s not as though you sit there and hit 3,000 and all of a sudden you need to re-hedge. Banks have learned lessons and are a bit more strategic in the way they do their hedging,” says the strategist at the second European house.

Commentary

The COVID-19 pandemic sparked the fastest reassessment of equity market fundamentals and risk in the last 30 years. The S&P 500 recorded its quickest bear market ever (i.e., 20% sell-off from peak¹), reaching this mark in just 15 trading days (Figure 1). This is twice as fast as the next quickest events – the 1929 crash (30 trading days) and 1998 Russian financial crisis (31 trading days). The sell-off also marked the highest short-dated realized volatility (Figure 2) and fastest rise in short-dated implied volatility since the 1987 crash, with the VIX rising by 60 points in just 3 weeks (vs. a maximum 48 point increase over the same time frame after Lehman's collapse in Oct'08²).

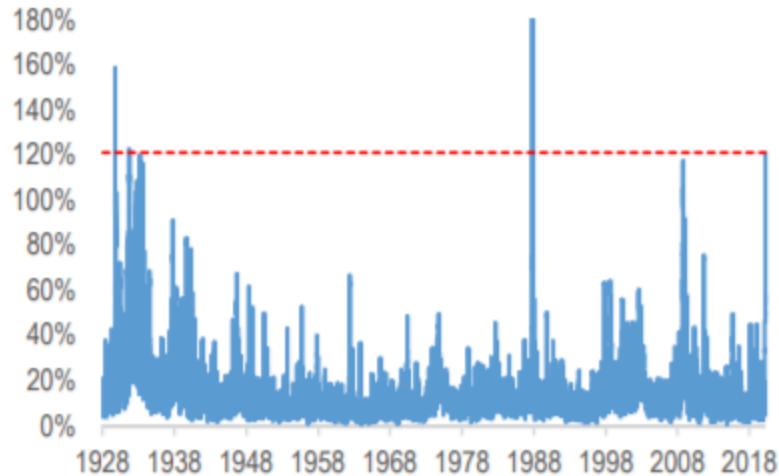
In light of this extreme event, below we review the damage across equity and derivatives markets. While every crisis is unique and the causes are very different this time, we provide comparisons to the 2008/9 GFC for context, as it was the only crisis in the past 3 decades of comparable severity.

Figure 1: The COVID-19 pandemic sparked the fastest S&P 500 bear market ever, reaching a 20% sell-off from the market peak in just 15 trading sessions



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg.

Figure 2: S&P 500 5-day realized volatility spiked to its highest since 1987



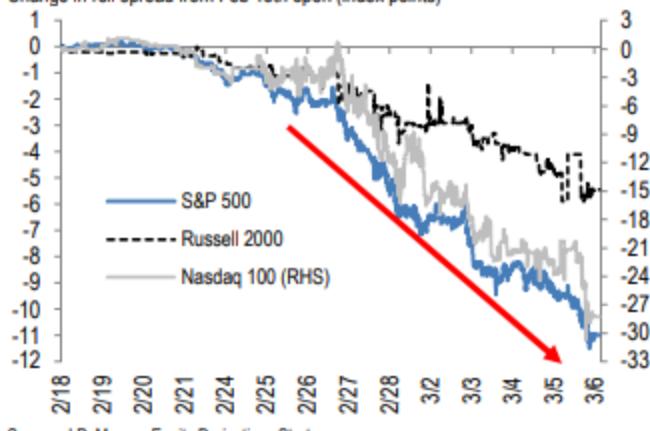
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg.

Liquidity and gamma hedging

S&P 500 futures market depth plunged ~90% since the start of the COVID-19 panic to record lows, as discussed in our [Futures Roll Outlook](#) (Figure 1). This collapse in liquidity leads flows to have an outsized price impact, and is a strong driver of the extreme market volatility and the speed of the market plunge over the past couple of weeks, particularly in conjunction with large short gamma hedging. The collapse in liquidity is much more pronounced than in 2008, due to the change in market microstructure we've discussed in past notes (e.g. [here](#), [here](#)). For example, the worst month in 2008 (Oct'08) experienced a much smaller 60% drop in futures market depth from the prior average, and futures market depth was 7x higher in Oct'08 than Mar'20 MTD on average (Figure 4).

Figure 1: Roll spreads have declined sharply the past 2 weeks

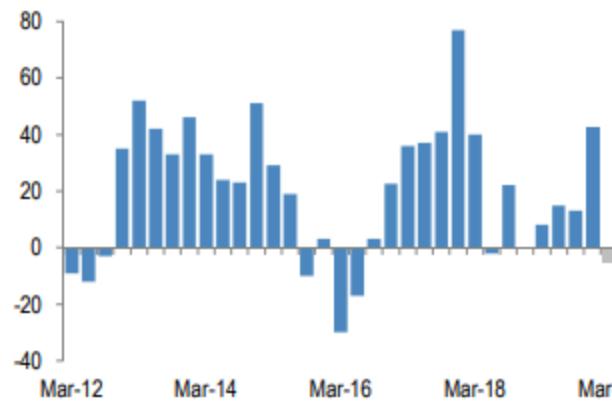
Change in roll spread from Feb 18th open (index points)



Source: J.P. Morgan Equity Derivatives Strategy.

Figure 2: The S&P 500 futures roll is trading cheap to FV for the first time in 2 years

S&P 500 futures volume weighted average roll cost in the quarter*
 (vs. 3M LIBOR, annualized)



Source: J.P. Morgan Equity Derivatives Strategy. * Mar-20 shows current roll cost as of March 5th, not VWAP

Poor market liquidity is a risk to the roll. Outright futures liquidity the past 2 weeks has been, in a word, terrible. Market depth on S&P 500 Emini futures plunged ~90% since the start of the COVID-19 panic to record lows (Figure 18), and means that flows have outsized price impact. Outright futures liquidity (which is generally provided by HFTs) doesn't necessarily correlate strongly with roll liquidity (which is mostly provided by dealers). However, the weak outright futures liquidity will likely keep market volatility elevated, and thus contribute to higher roll volatility and weaker roll liquidity this quarter.

The roll faces interest rate risk following the emergency Fed rate cut last week, given uncertainty around the size and timing of further easing. Last Tuesday the Fed implemented a surprise 50bp emergency rate cut, citing risks from the coronavirus to economic activity. Powell's press conference didn't offer many clues to what further moves would follow, but stated that the current policy stance is appropriate and they are prepared to use their tools and act appropriately. Following this action, our Economists pulled forward their (recently revised) call for the next cut of 25bps from the April to the March meeting ([here](#)). They note that when the Fed moves intermeeting they usually follow up in the same direction at the next scheduled meeting, often by the same magnitude. However, if the Fed were to choose to cut 50bp at the next meeting we think they would rather just cut all the way down to 0%, which is a downside risk to our view. The rates market also repriced the risk of further cuts following the Fed action, now estimating more than a 50bp further cut in March, and pricing in ~75bps of cuts by the April meeting. The LIBOR-OIS spread was also volatile recently as short-term rates attempted to reprice the new outlook for the Fed.

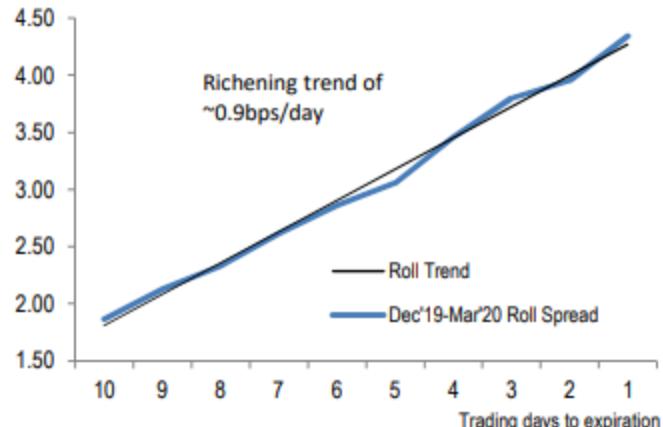
AVGO's March dividend presents risk for both the Nasdaq and S&P 500, but otherwise we see limited dividend risk for the upcoming US index rolls. The MSCI EAFE roll faces risk due to dividend concentration (see the Dividend sections of each respective contract for details).

Figure 3: S&P 500 3M financing spreads cheapened significantly on the recent market sell-off



Source: J.P. Morgan Equity Derivatives Strategy.

Figure 4: Last quarter's roll exhibited a strong positive trend



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg.

Roll Trend Model¹

This quarter, our roll trend model predicts a cheapening trend into expiry of **-0.4bps/day (~14bps in total over the 2 weeks into expiry)**. Within the model, positioning variables were mixed vs. last quarter: dealers' net futures positions became shorter over the past quarter (a ~7% shift as a % of OI), but the SPY ETF recorded significant inflows over the past couple of months. Risk aversion/sentiment and funding indicators deteriorated vs. last quarter, as the VIX averaged ~35 in the lead up to the roll (vs. ~13.5 last quarter), and Financials' CDS levels increased moderately.

Dec-Mar Roll Recap

Last quarter all of the US equity futures rolls richened strongly into expiry, in-line with [our prediction](#). Financing rates were elevated, but did not exhibit the same degree of stress as we saw in 2014 and 2017, as the lighter positioning and likely greater provision of balance sheet by buy-side investors and Canadian banks helped prevent a disorderly spike in funding. The S&P 500 roll traded at a volume-weighted average ~43bps rich to Eurodollar FV and VWAP roll spread of 3.40, both significantly higher than their starting points. The VWAP roll cost ultimately exhibited its typical December seasonality (despite starting out surprisingly cheap), trading ~30bps richer than the prior two rolls (see Figure 43 [here](#)). The roll spread exhibited a strong positive time-weighted trend into expiry, in-line with our model's prediction though with an even steeper slope (Figure 4).

Russell 2000 and Nasdaq 100 Rolls

The **Russell 2000 roll** is trading cheap to fair value, and at its cheapest roll cost in 2 years. Last quarter, the Russell 2000 roll richened strongly into expiry, and recorded its second richest roll cost on record. We believe Russell futures positioning deteriorated over the past quarter, and thus see the roll as biased to cheapen. However, similar to the S&P 500, we recommend largely rolling in-line with volumes and keeping active timing bets small given the high market and roll volatility.

CRUDE/COM

The pace of builds hinge on Saudi's resolve and oil demand weakness

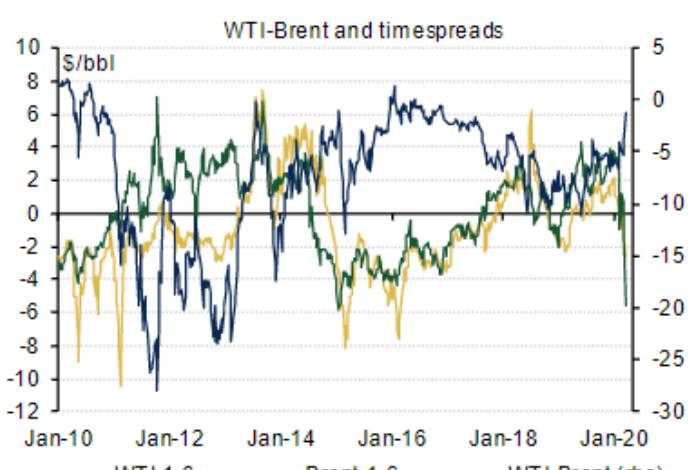
Given the uncertainty around changes in supply and demand, we provide several scenarios for inventory builds over the coming months. In our base case, we expect inventories to rise by 4mn b/d, or 364mn bbl in 2Q but see upside and downside risks to this view. In a severe case, the market could build inventories at a rate of 10mn b/d, boosting crude and product stocks by more than 900mn bbl next quarter ([Table 1](#)). While these scenarios don't suggest tank tops will be hit in 2Q, inventories are likely to continue to build in 3Q as the economic slowdown translates into weaker demand growth in 2H20. In our base case scenario, we see downside risks to prices from here and could see the contango in futures markets steepen (see [It takes two to supercontango](#)) ([Chart 11](#)). We foresee a large portion of inventories building in the US and could see WTI-Brent trading positive as inventories are pushed into the US. In a severe scenario, if the market struggles to find a home for surplus barrels then oil prices might have to trade down into the teens in order to shut in oil production.

Table 1: In a severe scenario, crude oil and refined product inventories build by more than 900mn bbl in 2Q20

	2Q surplus (mn b/d)	Total builds
Upside case	2	182
Base case	4	364
Downside case	7.5	683
Severe case	10	910

Source: BofA Global Research

Chart 11: We see further downside for WTI timespreads and could see WTI-Brent trade positive

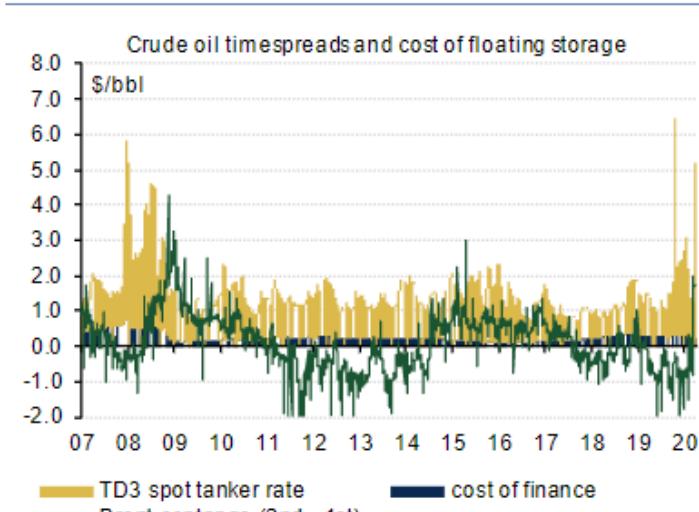


Source: Bloomberg

Price war elevates tanker utilization and floating storage would crush spreads

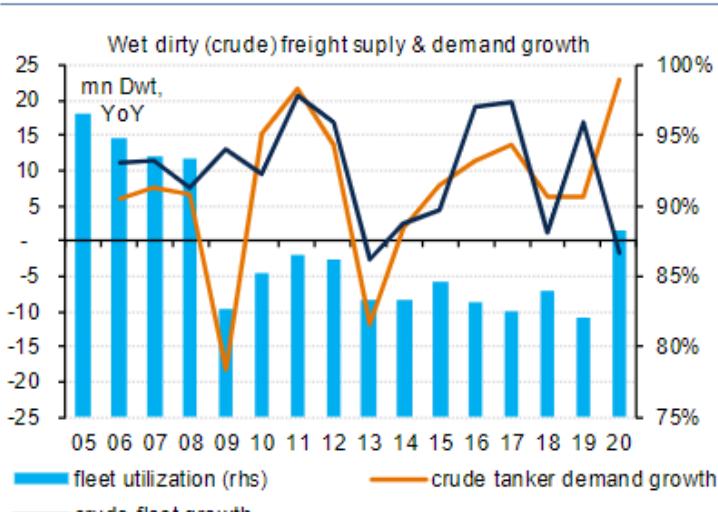
If we start to test the maximum operational capacity of land based crude storage facilities, we could go to floating storage. Floating storage is most economical on the largest vessels, the VLCCs, whose global fleet includes 800 vessels of on average 2 million barrel capacity each. The charter rate of these ships determine how wide timespreads go if we have to resort to floating storage. The Saudi announcement of ramping crude production to 12.3 mn b/d followed by news of VLCCs having been booked to support this effort, sent tanker rates flying in early March ([Chart 13](#)). The recent surge in OPEC+ production and thus seaborne exports is adding to an already tightening crude tanker market (see "[Freight: Wet over dry](#)"), and we now see crude tanker utilization rising to the highest level since the global financial crisis for as long as the price war continues ([Chart 12](#)). Should we need to resort to floating storage we could see Brent 1st to 2nd month timespreads, already elevated at close to \$2/bbl, blow out to levels higher than the \$4/bbl seen in late 2008.

Chart 12: The Saudi announcement of ramping crude and booking VLCCs to support this effort already sent tanker rates flying in early March



Source: Bloomberg, BofA Global Research estimates

Chart 13: We see crude tanker utilization rising to the highest level since the global financial crisis for as long as the price war continues



Source: Clarkson, BofA Global Research estimates

capacity was now enough output to entirely undercut the 7.7 million b/d of total shale output – an opportunity OPEC has not had since 2012. With Iran, Libya and Venezuela all offline there was no longer the risk that production increases would simply offset these losses. However, even without the demand shock, the production cuts from late 2016 have been a disruptive policy error, costing not only OPEC \$220 billion per year in lost market share, but also energy equity shareholders over a trillion dollars as it created an unsustainable future for the energy industry with inefficient companies continuing to operate (see Exhibit 6). Specifically, OPEC cut 4.4 million b/d (1.8 excluding Venezuela and Iran) which generated a 5.7 million b/d supply response, of which 5.0 million b/d was from shale.

With OPEC+ now pursuing a market share strategy, we believe that this will bring about the healthy consolidation and rationalization of the industry we had hoped for in 2014/15 when we first constructed the New Oil Order lower-for-longer thesis. Our thesis was interrupted in 2016-2018 by Chinese stimulus, OPEC production cuts and US fiscal policy. By 2019, the industry returns were so poor due to too many inefficient indebted producers that capital was already fleeing at \$65/bbl oil, a large part of why the international offering of Saudi Aramco struggled. Assuming this rationalization occurs over the next year (which was one of our top themes for 2020 even before this), the industry is likely to emerge in a much more healthy position with many of the zombie companies that were a dead weight on returns removed, even paving the way for an attractive international offering of Saudi Aramco.

Exhibit 6: OPEC's strategy has wiped \$1trn off of Western oil companies' market value



Source: Worldscope, Datastream, Goldman Sachs Global Investment Research

3. Lowering 2Q20 price Brent forecast to \$20/bbl from \$30/bbl

In the meantime, the oil market will have to contend with a record surplus driven by a peak c.8 million b/d decline in oil demand and a peak c.3 million b/d rise in oil supplies in the coming months. While we do not expect this to lead to a breach in storage capacity which still has over 1 billion barrels, it will likely lead to a breach in logistical capacity, meaning ships, pipelines, terminals and processing units. As the market hits these constraints spot prices are likely to separate from forward prices (as the cash-and-carry arb will cease to exist) plunging to levels to force production shut-ins, as more excess crude will simply not be able to be delivered into the system. As it becomes increasingly

Commodities in a Nutshell

Commodity	Outlook	3/6/12m forecasts
Energy		
ICE Brent Crude Oil	The Revenge of the New Oil Order appears increasingly swift and violent with a record large oil surplus now expected by April of at least c. 6 mb/d. The surge in low-cost production – with Saudi's surge now likely through May – is significant with the collapse in demand due to COVID-19 looking increasingly sharp. While the capex cuts of US shale producers of c. -35% have also been faster and larger than expected, we now expect that this response by high-cost producers will not be sufficiently fast, resulting in a similar inventory accumulation in the next six months than occurred over 18 months in 2014-16. While there exists on paper sufficient available storage capacity, the unprecedented velocity of this inventory accumulation will likely overwhelm, in our view, the logistics of filling global floating and onshore storage, forcing the shut-in of production from inland high-cost producers at prices near cash-costs of c. \$20/bbl, our 3-month Brent spot forecast. We continue to expect that Brent will underperform WTI as the US export incentive will need to shut, with the differential expected to be near parity. A flattening of the forward curve when prices reach cash-costs, as producers hedge for survival, would be a signal for the market bottom, as was the case in each previous bear market.	\$20/30/45/bbl
CME RBOB Gasoline	As we had touched upon in our January note , gasoline cracks were primed for a selloff given covid-19, very elevated positioning, and a tempered IMO impact . Bullish inventory dynamics since January due to large US FCC outages had supported prices but ultimately provided only temporary protection. A significant selloff occurred this week leaving European gasoline cracks essentially zero to negative through year end with the Atlantic arb wide open to pull in barrels to USAC. While timespreads will likely experience further weakness, risks to cracks seem more symmetric at current levels and certainly versus distillate given a so far comparatively limited impact in the US relative to Europe and Asia. Nevertheless, cracks and margins need to incentivize a transformation of the larger current product surplus (than crude) into available crude storage at a time of globally plentiful refining capacity.	\$0.55/0.70/1.22/gal
NYMEX Heating Oil	Heating oil spreads have weakened even as cracks have rallied driven by the too rapid sell-off in crude prices. With the unprecedented demand destruction likely to impact the distillate pool most (jet, EU diesel cars, industrial activity including shale), we expect HO cracks to gradually underperform gasoline. We estimate global jet fuel demand is down over 20% (>1.2 mb/d) currently, with April likely to be even lower given rising travel bans. While net speculative length remains very low, ICE gasoil positioning suggests NYMEX can go lower. On the recovery, we also expect distillates to lag. On the demand side, jet fuel is likely to see a slow rebound as international travel concerns linger. In addition, this demand shock comes in the face of globally plentiful refining capacity which had been geared to produce too much distillates in anticipation of IMO2020 , further delaying the recovery in distillates once the impact of COVID-19 starts to fade.	\$0.73/0.99/1.38/gal
NYMEX Nat. Gas	We recently lowered our 2Q and 3Q NYMEX gas forecast to \$1.50 and \$1.75 from \$2.10 and 2.20, respectively, as we now have a base case that a shut-in of US LNG will be required to balance the oversupplied global market, likely triggering a price race to the bottom. However, the ongoing capex cut announcements by many oil producers following a steep decline in oil prices pose upside risk to our summer forecasts depending on how quickly and large the subsequent impact on associated gas production will be. In 2021, we expect these declines in production to grow larger, further tightening a balance that was already expected to be significantly tighter year-on-year. Accordingly, we recently raised our 2020/21 winter and 2021 summer price forecasts to \$3/\$2.75 from \$2.50/\$2.50 previously.	\$1.5/1.75/3.00/mm Btu
ICE TTF	TTF has moved 39% lower so far this winter to \$2.82/mmBtu currently, due to the oversupply in Northwest Europe, driven by strong LNG imports and an exceptionally warm winter. The oversupply has been exacerbated by the impact of the COVID-19 outbreak on demand and stronger-than-expected LNG supply from the US, which has prompted our recent downward revision to 2020-3Q20 prices to \$2.10 - \$2.40 , which implies the shut-in of US LNG exports. We maintain our \$4.70/mmBtu forecast for Cal21, as we expect a marginally tighter balance driven by lower LNG imports and lower Groningen production.	\$2.10/2.40/4.70/mmBtu
ICE JKM	JKM sold off 40% this winter to \$3.51/mmBtu currently, as the oversupply in global gas markets has been exacerbated by the impact of the virus outbreak on demand at the same time that global LNG supply has surprised to the upside. We expect the oversupply to continue this summer with our 2Q-3Q price forecast at \$2.40 - \$2.70, implying the shut-in of US LNG exports. Nevertheless, in 2021 we expect the global LNG market to tighten marginally sequentially, mainly driven by the slowdown in global LNG supply growth. We expect JKM to hold a slightly wider spread to TTF then with a 2020/21 winter and 2021 summer JKM forecast at \$5.80/mmBtu and \$5.50/mmBtu, respectively.	\$2.40/2.70/5.80/mmBtu
Industrial Metals		
LME Copper	With COVID-19 now spreading rapidly in ex-China and recessionary risks rising, we view the demand shock large enough to result in a sizable surplus for copper. We now expect a global surplus of 260 kt for 2020 vs the 140 kt deficit we expected before. This means the copper market will likely miss the window to get tight before the next supply wave of 2021-2023. In addition, we see material cost deflation from lower oil, power prices and weaker producer currencies. During bear markets, copper tends to hit the 90th percentile of the total cash cost curve which, after assuming 5% deflation this year, we peg at \$4,900/t. In our base case, we see a sharp hit to prices near term, but assume the world economy bounces back in Q3-Q4 and so pressure on copper is reversed. We change our 3/6/12m targets to \$4,900/\$5,600/\$6,000/t, from \$5,900/\$6,200/\$6,500/t.	\$4,900/5,600/6,000/mt

Commodity	Outlook	3/6/12m forecasts
LME Aluminum	Aluminium has shown resilience compared to other industrial metals in recent weeks. That is likely because it was already much closer to cost support relative to other metals, at least in ex-China. SHFE, where smelter margins were much better, has actually underperformed prices at the LME. Nevertheless, margins are still much better than they were in late 2018, while the market is much looser and the demand picture is significantly worse. Aluminium is also likely to get some deflation from lower coal and alumina prices as Chinese refinery capacity comes back. At lower prices we may see some smelter closures in Europe or Australia coupled with delays in Chinese smelter ramp-ups, but these should not be material enough to save the market from a sizable surplus. As such, we downgrade our 3/6/12m aluminium price targets from \$1,700/\$1,650/\$1,675/t to \$1,575/\$1,600/\$1,700/t.	\$1,575/\$1,600/\$1,700/mt
LME Nickel	Going into this year, we were bullish nickel due to its positive exposure to EVs and the prospect of future deficits of battery grade nickel. However, we now project a 2% contraction in nickel demand ex-China and Indonesia vs 2.4% growth we had expected before. This implies a weakening in the global balance of 40 kt, taking our expected 2020 surplus to 90 kt. This large surplus and uncertain macro environment means that investment and hedging activity, which was a key bridge between a bright EV future and spot prices, is likely to moderate. Nickel stocks are likely to continue to go higher further depressing sentiment. We revise our nickel 3/6/12m targets to \$10,000/\$11,500/\$13,000/t, from \$13,500/\$14,500/\$15,500/t.	\$10,000/\$11,500/\$13,000
LME Zinc	Zinc prices have been tumbling since April 2019 on a boom in zinc mine supply, a boost to smelter margins, and a bust in zinc demand. The market finally moved to a surplus in Jan this year, later than expected, due to production disruptions. The switch was driven by a ramp-up in mine supply and elevated smelter margins and further exacerbated by the demand shock and transportation disruptions due to the COVID-19 outbreak. As a result, China's social stocks of zinc climbed quickly to 380 kt by early Mar, the highest level in three years. We now project an even more sizeable surplus in China and the rest of the world given our economists' sharp revisions to global GDP growth and reduce our 3/6/12m zinc price targets to \$1,760/\$1,850/\$2,000/t.	\$1,760/\$1,850/\$2,000/mt
Bulk Commodities		
Thermal Coal	The weakness in the oil market weighed on coal prices last Monday, though the 1–2% price decline in API2 and Newcastle (6000 kcal) front month contracts was much smaller in scale. However, we see downside risks to both API2 and Newcastle pricing (at \$48.5/t and \$66.2/t respectively, as of March 16th). In Europe, the resilient API2 pricing last Monday was likely due to the existing heavy short positioning in European coal and some short covering. However, the previous cost support to API2 pricing is eroding, given that the depreciation in producer currencies and the declines in dry bulk freights have shifted the CIF ARA cost curve lower. Further, the spread of COVID-19 in Europe has cast uncertainty over demand and adds to the downside risks. In Asia, Newcastle prices also face downside risks due to the virus impact and policy curtailments of coal plant utilization. In South Korea, both weak power generation (-3.4% ytd yoy till February) and environmental policy to halt coal plants have contributed to significantly lower coal imports (-20% yoy in January); in Japan, our channel check suggests increased potential for coal-to-gas substitution this year in light of the continued gas surplus and low LNG prices. Meanwhile, the recovery in China's coal production has been faster than the recovery of coal demand so far, with high coastal plant stocks dampening China's interest in seaborne coal.	Newcastle (6000 kcal): \$62/\$7/\$8/t
Precious Metals		
COMEX Gold	Since the equity market rout began at the end of February, gold failed to perform as a safe haven, falling 5.4% vs the 27% decline in equities. Gold has particularly struggled in the past few days with prices down 10% from a regional peak of \$1,682/toz. The main driver behind this plunge was a run for cash that generated a meaningful liquidation of net speculative positions, which were at elevated levels. Gold was also hurt by the fall in oil price as it brought Russia's CB purchases to a halt and could possibly trigger some selling. The decline of Russian CB purchases from 160 tonnes last year to zero due to lower oil prices alone is estimated to decrease equilibrium price by \$40/toz. We didn't anticipate such severe liquidity issues or such a demand shock from lower oil prices. This means that in the near term, the gold price is likely to remain volatile. With time, however, liquidity-related selling will likely ease and fear-driven demand should start to dominate. In the short term, the key question is how much net speculative length has already been cut, which we should see in Friday's trader's commitment report. On a longer horizon, we maintain our bullish outlook on gold as a larger shock to the global economy will likely lead to greater risk aversion. Therefore, we downgrade our 3/6 month forecast to \$1,600/toz and \$1,650/toz from \$1,700 and \$1,750, but keep 12 months at \$1,800/toz.	\$1600/\$1650/\$1800/toz
COMEX Silver	Silver was hit even more than gold, falling 12.5% in a single day. For silver, such a sharp correction reveals that the investment flows it enjoyed in 2019 were much more speculative vs defensive like in the case of gold. Silver investment purchases were driven by a historically high gold-silver ratio and bets that it will mean revert eventually. In an environment where liquidity and uncertainty is as high as it is now, these "hot" flows tend to reverse quickly, leading to violent corrections, as we saw March 16. As such, we do not expect an immediate bounce in silver prices. We reduce our 3/6/12m forecasts from \$18.5/\$18.8/\$19/toz to \$13.5/\$14/\$15/toz.	\$13.5/\$14/\$15/toz
Agriculture		
CBOT Corn	Even before the collapse in oil prices, corn fundamentals were mixed ahead of the US planting season. While industrial demand was supported by strong US ethanol production (up 17.3% yoy in Jan/Feb according to the EIA), US exports remained stubbornly weak (accumulated export mytd down 46% yoy) as competitors Argentina and Ukraine saw increases in exports and expected yields in 2020. The corn outlook has, however, now deteriorated materially, with the oil price move toward our \$20/bbl target for 2Q set to hurt ethanol economics and production and	€340/350/400/bu

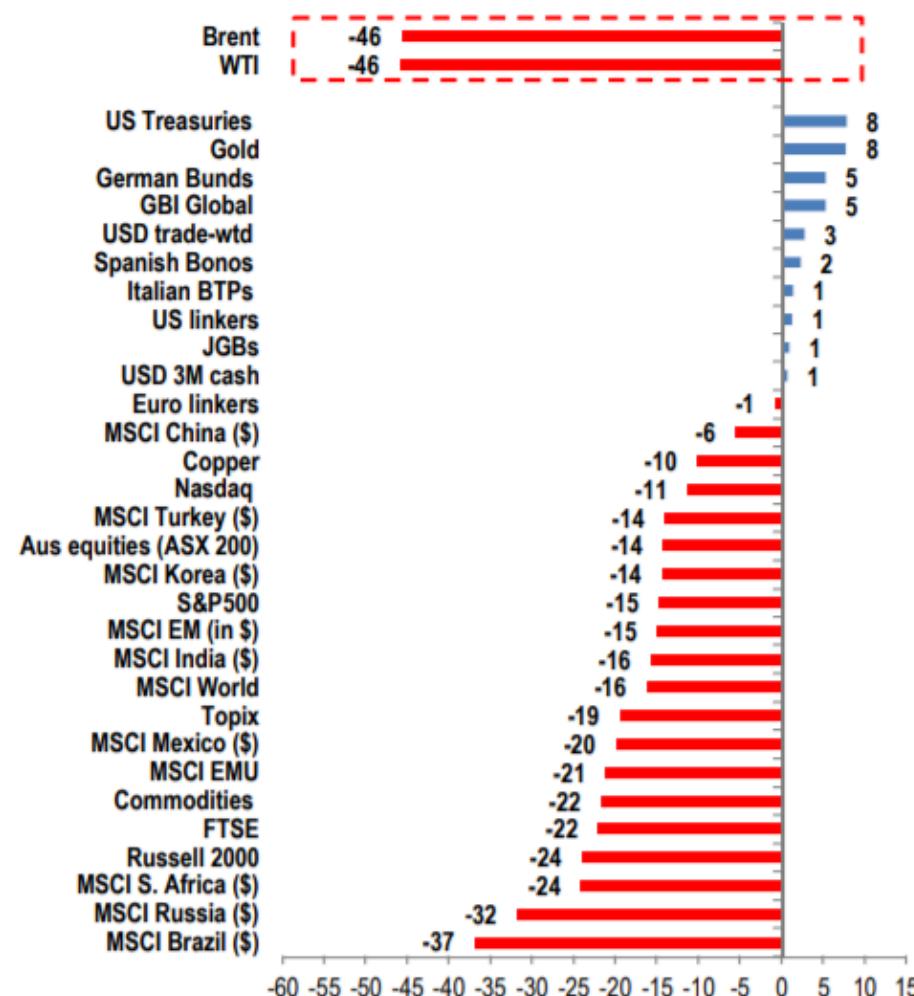
Commodity	Outlook	3/6/12m forecasts
	with ethanol stocks already at a record 24.9mn bbl. Further, the forward curve has seen a structural repricing as a result of the deflationary impact of lower oil prices, with 2021 contracts falling by 3.5% last week. In addition, protein demand declines related to weaker US GDP and restaurant traffic are likely headwinds to feed demand in coming months, with a particular focus on upcoming cattle feedlot placements and broiler egg sets in the near term. From a weather perspective, we are unlikely to see a repeat of last year's disruption to US planting, however, with NOAA predicting a 61% chance of ENSO-neutral conditions to persist throughout summer, typically associated with more favourable planting and growing conditions. While we see prices remaining low for the rest of the year, we see nearby prices facing more downside from reduced feed demand and ethanol demand, leading us to cut our forecasts to c\$340/\$350/\$400/bu over the 3/6/12m horizon.	
CBOT Soybean	While Chinese soybean imports remained elevated at the start of the year, they have since fallen after the COVID-19 disruption to Chinese shipping. US exports are likely to be further challenged as Brazilian exports to China ramp up as their bumper harvest reaches ports and get further boosted by a sharply weaker BRL (falling 17.9% to 5.00 since the start of 2020). Yet, we see offsetting supportive developments as dryness in Southern Brazil is of particular concern at this time, threatening close to 30% of the unharvested crop. While hopes have been pinned on Chinese phase-one purchases of US grains for feed, COVID-19 disruptions to hog farmers have stalled Chinese restocking of their hog herd, dampening soybeans phase-one related export outlook. We nonetheless see China honouring their phase one commitments, albeit on a delayed timeline, leaving exports up sharply in 3-4Q20 as China's economy rebalances after the COVID-19 disruption. Net, despite the headwinds of a sharply weaker BRL and limited Brazilian storage or crush capacity, we expect the more positive demand picture to help soybean prices outperform corn prices and see near-term downside limited to \$8.25/bu over the next 3 months, with our 6- and 12-mo forecasts of \$8.50 and \$8.90/bu.	\$8.25/\$8.50/\$8.90 /bu
CBOT Wheat	While global wheat trade has not lost pace during the COVID-19 outbreak (wheat tenders are up 16.4% yoy in Asia and the Middle East), shifting export competitiveness in global wheat is creating increased uncertainty for US exports going forward. Lower production outlooks for traditional competitors like Canada, Australia and Argentina should help the US capture market share in the face of growing global demand. Yet, increased export competition from Russia, Ukraine and India has reversed recent gains in US competitiveness. Milder weather in Russia this year increased winter wheat plantings, boosting the production and export outlook. On the demand side, wheat remains the least cyclical grain given its consumption as a basic staple with the expanding locust swarms from the Horn of Africa also decimating local crops and helping support seaborne trade. From a weather perspective, the drier ENSO-neutral weather shift could further reduce expected yields of the 2020 summer crop. On balance, we see the recent sell-off in wheat prices as overdone and forecast prices on a 3/6/12mo horizon at \$5.15/\$5.25/\$5.30 bu.	\$5.15/\$5.25/\$5.30 /bu
NYBOT Cotton	After rising at the start of the year – as China worked toward meeting its phase one commitments – US cotton exports have sequentially declined since the start of the COVID-19 outbreak, falling 50% since Jan 15th. Indeed, with the virus spreading beyond China, supply-side disruption to the textile industry in Vietnam presents a tail risk to US exports for 2Q-3Q20, as the country was the lone bright spot in US exports. Adding further downward pressure to cotton is the virus-related weaker global growth outlook, with our economists downgrading growth expectations for 2020 from 3.4% to 2%, with the risk of a recession increasing. Further, increased Indian acreage (up to a record 13.3mn ha) presents downside risks to an already oversupplied global cotton market. On balance, we see downside pressure to cotton in the short term, especially as lower oil prices reduce input costs. Net, we see COVID-19 disruptions to global growth alongside increased Indian acreage outweighing locust risks to Pakistan's cotton harvest as swarms from Iran build in the south-eastern part of the country. Our new forecasts are c57/60/68/lb over the 3/6/12m horizon.	c57/60/68/lb
NYBOT Coffee	High-quality coffee supply remains tight despite average Brazilian weather, as Central American countries continue to see declines in production and exports, leading to higher physical premiums and falling on-exchange stocks. Despite these supportive supply developments, weakness in the BRL, with 17.9% depreciation, nonetheless put downward pressure on prices over the last 45 days. Despite this input cost deflation, Arabica remains underpinned by tighter supplies of quality coffee, which has helped to boost premiums in physical markets and Arabica futures outperformed the soft complex this month. While the outlook for Brazilian weather remains generally favourable, continued declines in soil moisture in the Southern Mato Grosso region of Brazil remains a risk for bean development prior to the summer harvest. Despite these supply supports, we believe the market focus will be on the near-term demand risks as COVID-19 spreads across the Western world, with attendance at coffee venues in China down dramatically during the quarantine. Net, we see short-term downside risks to prices, with adverse weather creating supply tightness in the Brazilian harvest boosting prices at the start of 2021. Our new forecasts are now c100/c115/c125/lb.	c100/c115/c125/lb
NYBOT Cocoa	Cocoa prices have had a volatile start to the year, as fears of supply shortages due to adverse weather conditions dovetailed with the creation of an 'OPEC+ like cocoa cartel' between the top West Africa producers. Strong Harmattan winds have swept into Cote d'Ivoire from the Sahara, depositing sand on cocoa leaves and lowering soil moisture during the key pod development stage, driving prices toward \$2,900/t. The rally came to a halt after disappointing grind stats in Europe and the US (down 2.1% and 5.9%, respectively) and the COVID-19 concerns causing a sharp sell-off down below our forecast of \$2,700/t. In the medium term, we see continued strength in cocoa prices from continued growth in Asian demand (grinds up 9% in 4Q20 on greater grind capacity) and drier weather forecast in West Africa curtailing the April-May harvest, pushing our 6/12m forecasts to \$2,700/t. However, in the near term, growth in port deliveries to the Ivory Coast and uncertainty over the size of any demand shock due to COVID-19 imply continued price volatility in the near term, keeping our 3m price forecast at \$2,600/t.	\$2600/2700/2700/ mt
NYBOT Sugar	Sugar initially bucked the bear-trend in early February as the USDA's WASDE lowered US sugar production estimates for the 2019/20 season down 10% and 9% for beets and cane, respectively. In addition, Thai production has	c12/10/8.5/lb

Oil as an asset class

The shock to oil prices from COVID-19 and the collapse of the OPEC+ supply deal in early Mar'20 has seen oil prices drop almost 50% in the YTD. In the last week alone, oil is down 20% with the Brent suffering the largest 1-day percentage decline (on Mar 9), since the first Gulf War (17 Jan, 1991).

Exhibit 6: Oil suffers carnage as OPEC+ deal collapses

YTD 2020 returns by asset class (%)



Source: J. P. Morgan Commodities Research, As on Mar 12, 2020

Jan Mar May Jul Sep Nov Jan Mar May Jul Sep Nov Jan

Brent

WTI

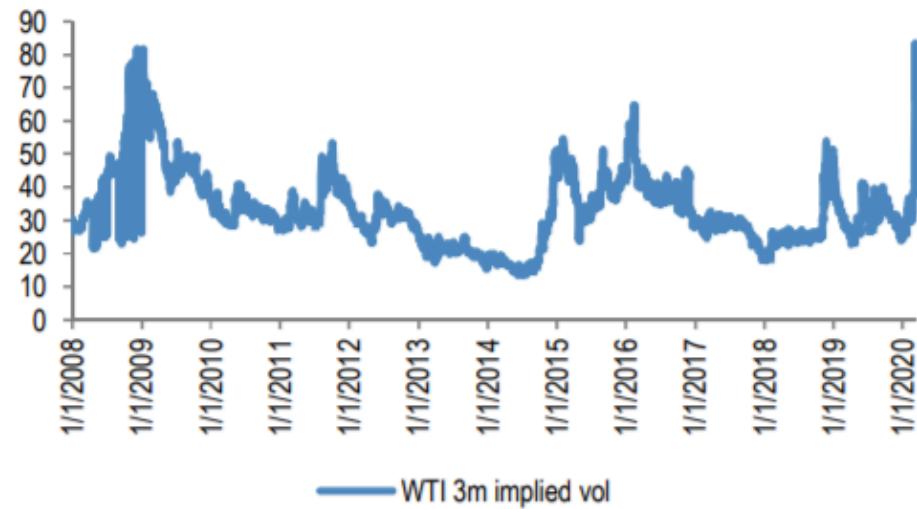
Source: ICE, J.P. Morgan Commodities Research

Note: Brent price changes are monthly averages on y/y basis

Oil has been one of the worst performing asset classes YTD as investors flock to safe havens such as gold and treasuries/bonds, while fundamentals worsen sharply amid an OPEC price war. With the prospect of the US FED cutting interest rates to zero and the yield curve almost inverting suggesting broad-based weakness for the economy, the macro outlook continues to look negative. This is aggravated by the fact oil is caught in the midst of a severe demand and supply shock, both of which have an uncertain future.

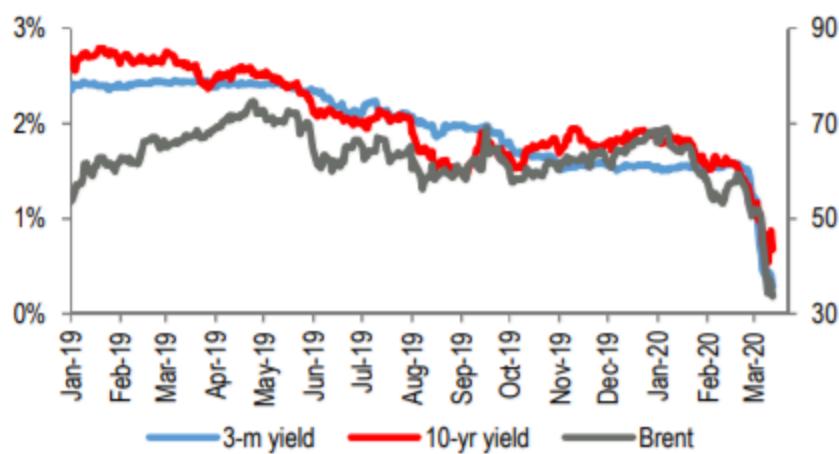
Exhibit 8: WTI 3m implied volatility highest since GFC

% y/y



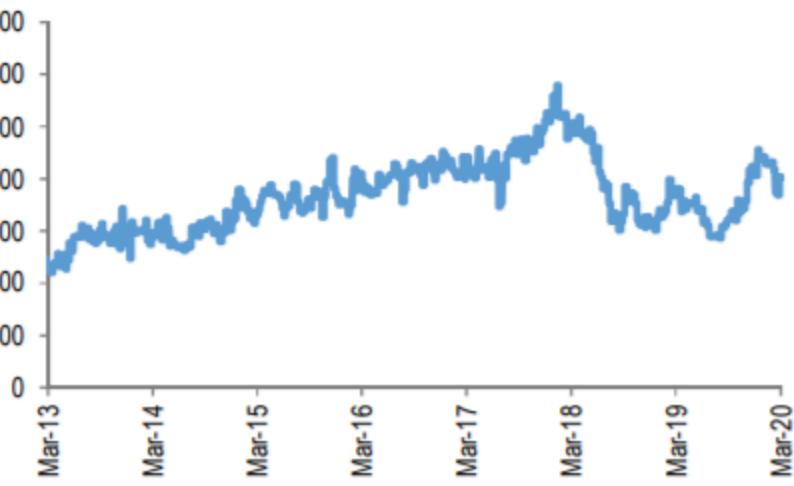
Source: J. P. Morgan Commodities Research (*As of Mar 12, 2020)

Exhibit 9 US Treasury 10-yr yield, 3m-yield vs Brent price
% (LHS), \$/bbl (RHS)



Source: ICE, NYMEX, J.P. Morgan Commodities Research (As of Mar 12, 2020)

Exhibit 10: Average long positions per non-commercial trader lots

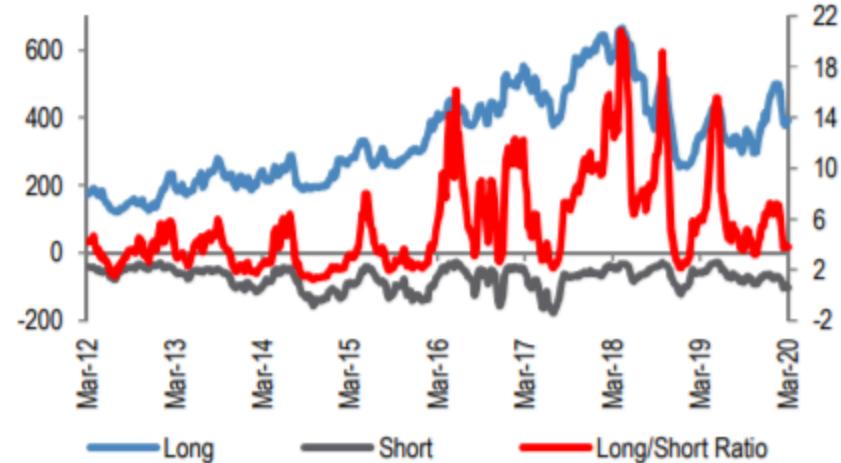


Source: CFTC, ICE, J.P. Morgan Commodities Research (As of Mar 04, 2019)

Note: non-commercial trader positions includes managed money and other reportables

CFTC data shows total combined net length in Brent and WTI is about 288k contracts (vs >420k in Jan'20), with the long to short ratio down at 3.8 (vs 6.8 in Jan'20).

Exhibit 11: Crude positioning (managed money F&O)
'000 contracts (LHS), Long/Short (RHS)



Source: J. P. Morgan Commodities Research (As of Mar 03, 2019)

Investor positioning and fund flows

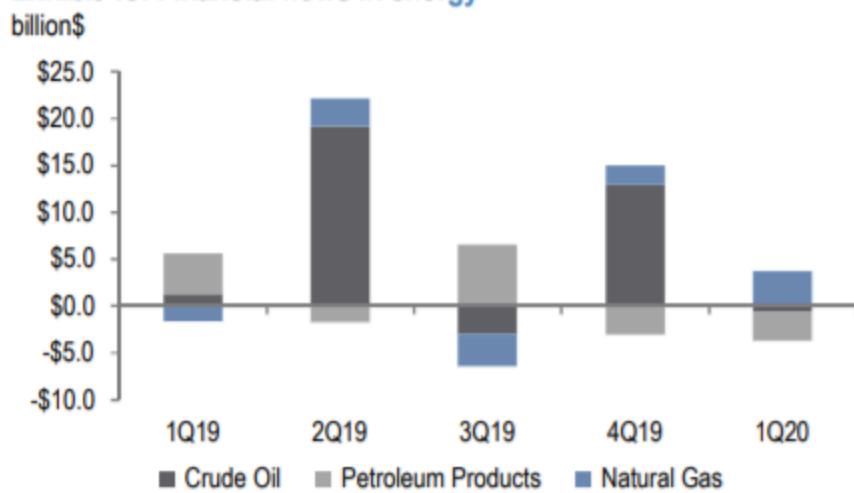
We have highlighted on numerous occasions in recent notes the role investor positioning could play in the market. The managed money long/short ratio has declined sharply and we think this could continue for the foreseeable future until the crisis abates.

The failure to agree deeper cuts at the Mar'20 OPEC+ meeting was compounded by the decision not to extend existing supply curtailments, due to expire by 31 Mar'20. Although this was highlighted as one possible scenario in our recent note ([COVID-19 clouds extent of demand destruction as OPEC mulls further cuts](#)), it was viewed as a low-probability event, with an implicit understanding OPEC would maintain the agreement at any cost.

The dissolution of the supply deal has now removed the floor to oil prices. This could see up to 2.1 mbd of oil supplies (from existing OPEC+ curtailments) eventually return to the market during a time of severe

Brent and WTI have seen diverging financial flows which could possibly explain some of the tightening in the Brent-WTI spread recently. We expect flows to turn negative for both crude and products as the price war and rhetoric between OPEC and Russia results in heightened volatility in the foreseeable future.

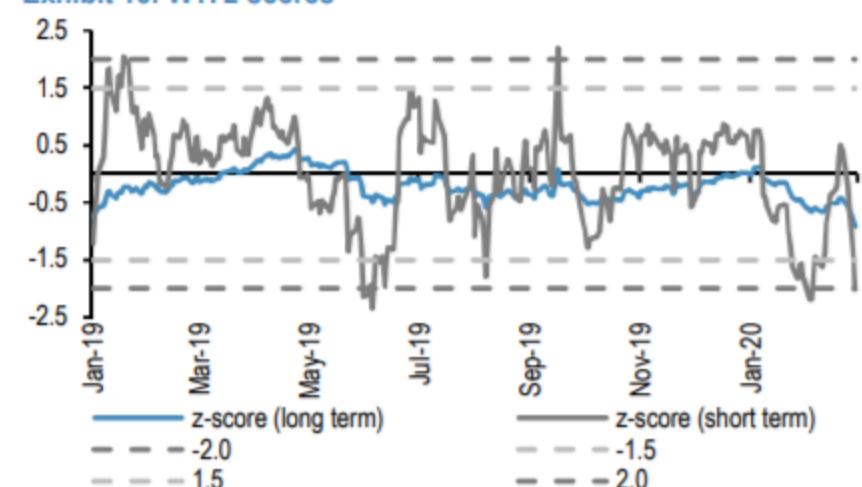
Exhibit 13: Financial flows in energy



Source: J. P. Morgan Commodities Research (*1Q20 till Mar 06, 2020)

The short term z-score (lookback period: 105 days) and long term z-score (lookback period: 504 days) for Brent and WTI have firmly switched to negative territory since the fourth and second week of Jan'20 respectively. The signal remains very sensitive to daily information concerning the COVID-19 outbreak, the deteriorating macro, and OPEC/Russia price war.

Exhibit 15: WTI z-scores



Source: J.P. Morgan Commodities Research

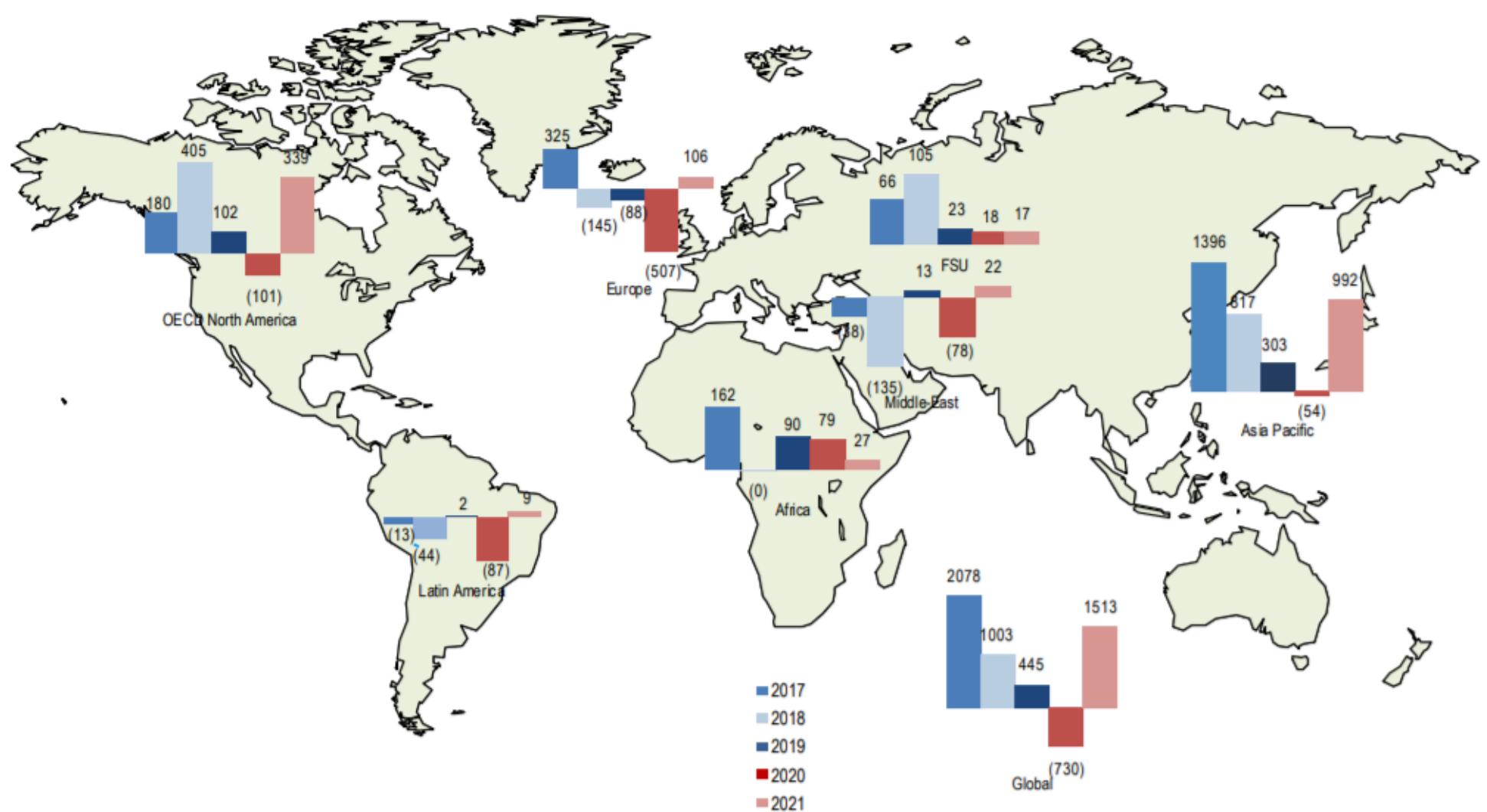
Note: When the z-score (indicator of momentum) reaches 0, known as switch point, it often triggers a change in signal from buy-to-sell or vice-versa by stochastic trend/price following trading models. This can drive heightened price volatility in the underlying commodity price when there is a large presence of CTA/trend following models. When momentum reaches extreme levels either maximum positive or maximum negative, a neutral signal is often sent, to stop or slow the buying or selling. This often drives profit taking or an exit of positions. Lookback period (long term: 504days, short term: 105days)

Based on the aforementioned arguments we still consider there to be downside risks to oil prices.

Exhibit 41: Demand growth y/y by region

kbd y/y

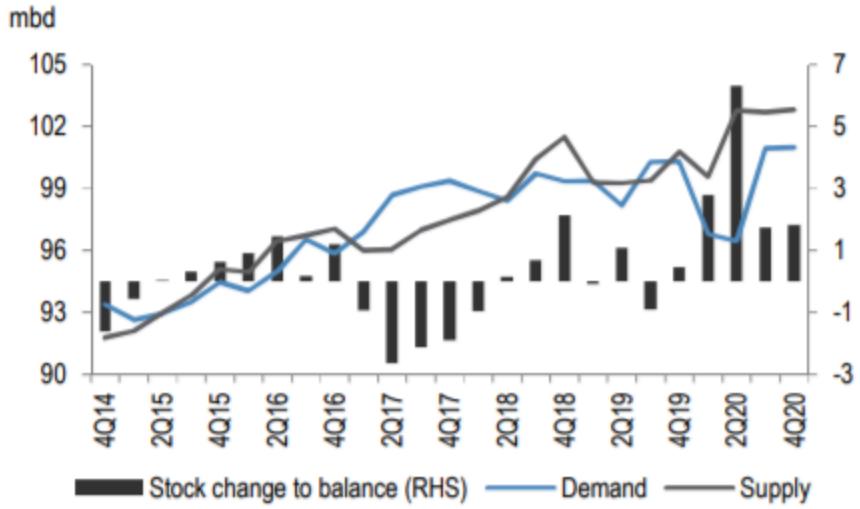
Regional Demand Growth



Source: J. P. Morgan Commodities Research

y/y in 2020 due to a pick-up in SPR purchases by the US. This is a sizable change to our previous forecasts which themselves have continued to be negatively revised during the evolving health crisis. **On the supply side, we have raised 2020 oil supply to 102 mbd, while lowering 2021 supplies to 101.8 mbd.** Based on our latest balances, we forecast a stock change to balance of +3.2 mbd and +1.7 mbd in 2020 and 2021 respectively. The sizeable market surplus expected is a function largely of the expected demand destruction and the collapse of the OPEC+ output deal. Given the situation continues to develop there remains notable uncertainty around both supply and demand in the foreseeable future. We cannot rule out the possibility of a new OPEC+ deal that could curb excess supplies in the short to medium term, but equally note considerable volatility around the extent and duration of the demand destruction from COVID-19 and trajectory of future recovery. As a result, our oil balances are subject to change in the very short term and we will continue to monitor the situation closely.

Exhibit 16: Global oil balances – as of Mar'20



Source: J. P. Morgan Commodities Research

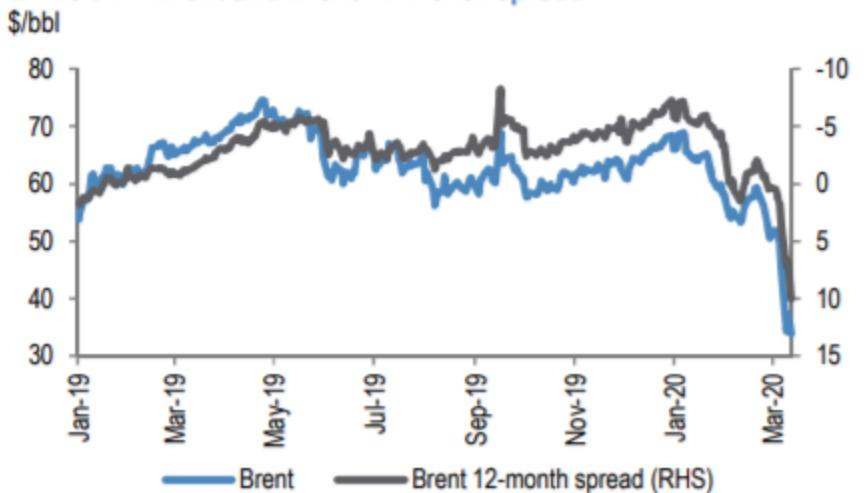
Oil price forecast: we revise down our oil price forecast for 2020 and 2021 on a large prolonged supply overhang

On account of large material changes to our oil balances we have revised down our oil annual and quarterly price forecasts. We have marked-to-market our 1Q20 price forecast by \$9 due to the escalation in COVID-19 and its

supply dear, the oil market is expected to remain in surplus during 2021, keeping oil prices within the mid-\$30 range, with Brent forecast to average \$35/bbl according . For WTI, we estimate a further narrowing of the spread relative to Brent, resulting in an implied average of \$33/bbl in 2020 and 2021.

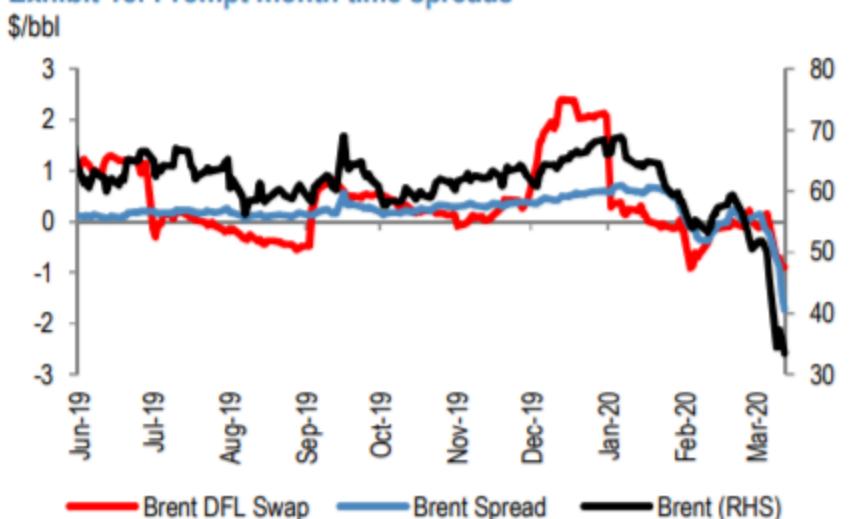
Curve structure: Both Brent and WTI forward curves have inverted forming a contango structure, reflecting severe oversupply in the market. This has now made it profitable for firms to store oil for future consumption. The prompt front month time spreads have turned negative and we expect the contango to continue to steepen until the size of the fundamental supply-demand imbalance is discovered, pressuring time spreads.

Exhibit 17: Brent and Brent 12-month spread



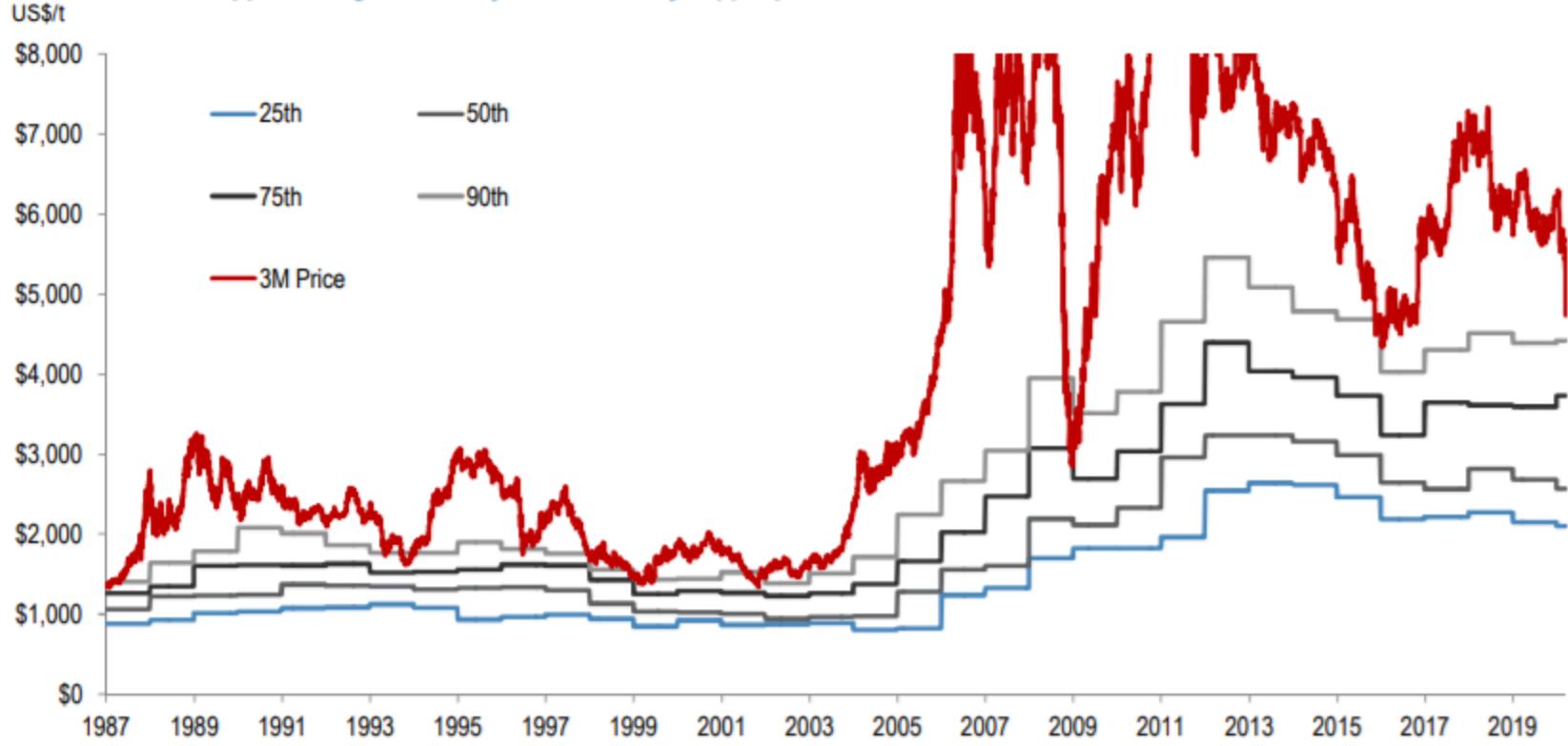
Source: J.P. Morgan Commodities Research, (As on Mar 12, 2020)

Exhibit 18: Prompt month time spreads



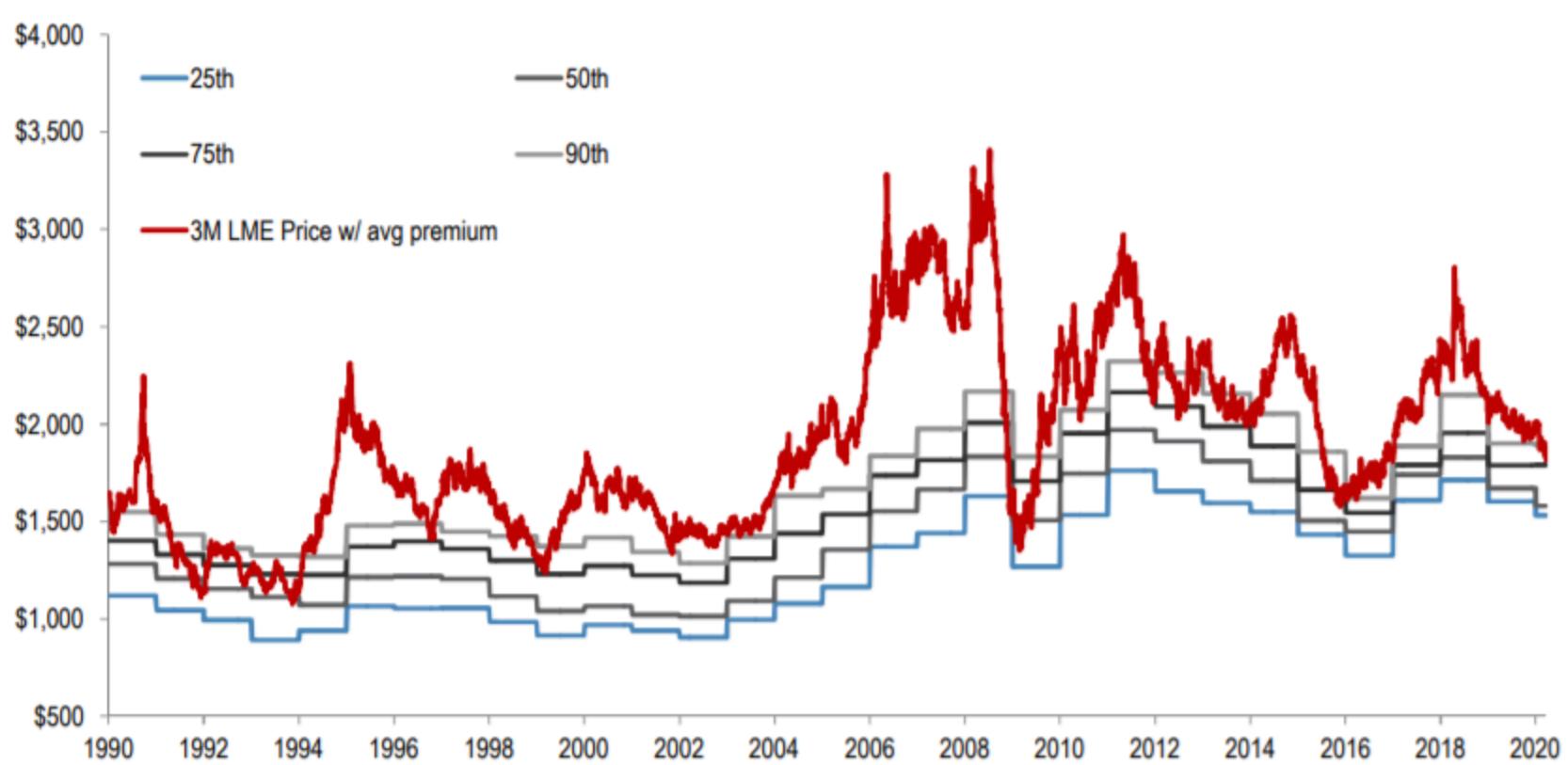
Source: J.P. Morgan Commodities Research (As on Mar 09, 2020)

Exhibit 3: Global copper mining C1 costs by %-tile and daily copper price



Source: Source: Wood Mackenzie, LME, J.P. Morgan.

Exhibit 4: Global primary aluminum smelting C1 costs by %-tile and daily all-in aluminum price



Source: Wood Mackenzie, LME, Metal Bulletin, CRU, J.P. Morgan. Note: average premium is US MW premium from 1990-1999 and then an equal weighting of US MW, Rotterdam duty-paid, and Japanese inqot premiums from 1999-current.

MISC

Cross-asset: Correlation matrix

Exhibit 12: Cross-asset correlation matrix

Upper half of matrix: current 1-year correlation (black shading = more/less than 0.50/-0.50); lower half of matrix: percentile since 2001 (dark grey shading indicates above 75th percentile, orange shading indicates below 25th percentile); correlations are calculated on weekly, local currency returns.

	S&P 500	STOXX 600	MXAPJ	TOPIX	MSCI EM	US 10 yr	Germany 10 yr	Japan 10 yr	UK 10 yr	EUR/USD	USD/JPY	AUD/USD	iBoxx US IG	iBoxx EUR IG	BAML US HY	BAML EUR HY	EM Credit (\$)	WTI Crude Oil	Copper	Gold	VIX
Current 1y correlation of weekly returns																					
S&P 500		0.89	0.81	0.83	0.81	-0.36	-0.28	-0.09	-0.14	0.08	0.38	0.61	0.32	0.52	0.79	0.76	0.60	0.68	0.46	0.34	-0.88
	0.90		0.85	0.93	0.85	-0.29	-0.14	0.08	-0.09	0.06	0.31	0.67	0.53	0.70	0.93	0.93	0.71	0.80	0.43	0.35	-0.73
	0.94	0.97		0.84	0.99	-0.30	-0.28	-0.06	-0.18	0.19	0.25	0.77	0.42	0.52	0.81	0.79	0.61	0.66	0.61	0.31	-0.67
	1.00	1.00	0.94		0.84	-0.37	-0.25	-0.04	-0.15	0.04	0.32	0.62	0.42	0.60	0.86	0.87	0.62	0.69	0.38	0.23	-0.70
	0.90	0.95	1.00	1.00		-0.30	-0.27	-0.04	-0.18	0.19	0.24	0.76	0.42	0.54	0.82	0.79	0.63	0.68	0.59	0.33	-0.68
STOXX 600	0.47	0.68	0.31	0.36	0.39		0.88	0.67	0.81	0.38	-0.73	0.04	0.62	0.32	-0.09	-0.11	0.26	-0.11	-0.51	0.49	0.52
	0.52	0.72	0.43	0.57	0.51	0.99		0.79	0.87	0.17	-0.64	-0.02	0.64	0.51	0.03	0.04	0.31	-0.03	-0.47	0.42	0.48
	0.72	0.94	0.65	0.90	0.66	0.96	1.00		0.65	0.25	-0.45	0.09	0.68	0.60	0.27	0.26	0.46	0.17	-0.29	0.44	0.31
	0.84	0.93	0.60	0.91	0.66	0.71	0.64	0.96		0.18	-0.60	0.06	0.61	0.45	0.07	0.05	0.37	0.00	-0.39	0.45	0.34
	0.43	0.64	0.34	0.60	0.34	0.85	0.79	0.89	0.70		-0.48	0.60	0.42	0.20	0.23	0.18	0.43	0.23	0.08	0.54	0.09
MXAPJ	0.61	0.45	0.71	0.34	0.69	0.03	0.06	0.12	0.06	0.31		-0.14	-0.47	-0.24	0.06	0.08	-0.21	0.04	0.44	-0.36	-0.58
	0.78	0.81	0.76	0.93	0.78	0.63	0.64	0.75	0.73	0.60	0.57		0.59	0.53	0.72	0.68	0.67	0.61	0.45	0.54	-0.47
	1.00	1.00	0.99	1.00	0.99	0.08	0.37	0.97	0.33	0.93	0.34	1.00		0.87	0.71	0.70	0.80	0.58	-0.08	0.67	-0.04
	1.00	1.00	0.99	1.00	1.00	0.17	0.22	0.98	0.28	0.81	0.34	0.99	1.00		0.82	0.83	0.80	0.65	-0.01	0.59	-0.25
	0.99	1.00	1.00	1.00	1.00	0.54	0.67	0.98	0.76	0.61	0.42	0.99	1.00	1.00		0.98	0.82	0.84	0.34	0.50	-0.56
TOPIX	0.99	1.00	1.00	1.00	1.00	0.65	0.77	0.99	0.82	0.69	0.37	0.96	1.00	1.00	1.00		0.80	0.81	0.30	0.45	-0.54
	0.88	0.94	0.70	0.94	0.61	0.59	0.70	0.97	0.77	0.87	0.27	0.90	1.00	1.00	1.00	1.00		0.65	0.14	0.65	-0.35
	0.99	1.00	1.00	1.00	0.99	0.54	0.71	1.00	0.75	0.60	0.54	0.95	1.00	1.00	1.00	1.00		0.39	0.42	-0.47	
	0.72	0.63	0.85	0.79	0.82	0.04	0.06	0.07	0.06	0.21	0.89	0.57	0.46	0.61	0.67	0.70	0.36	0.70		-0.02	-0.48
	0.92	0.95	0.63	0.95	0.64	0.89	0.91	0.97	0.94	0.73	0.53	0.71	0.99	1.00	1.00	1.00	1.00	0.89	0.14		-0.17
MSCI EM	0.08	0.41	0.15	0.03	0.17	0.84	0.80	0.86	0.63	0.72	0.06	0.22	0.18	0.08	0.28	0.15	0.42	0.10	0.10	0.12	
	0.90		0.85	0.93	0.85	-0.29	-0.14	0.08	-0.09	0.06	0.31	0.67	0.53	0.70	0.93	0.93	0.71	0.80	0.43	0.35	-0.73
	0.94	0.97		0.84	0.99	-0.30	-0.28	-0.06	-0.18	0.19	0.25	0.77	0.42	0.52	0.81	0.79	0.61	0.66	0.61	0.31	-0.67
	1.00	1.00	0.94		0.84	-0.37	-0.25	-0.04	-0.15	0.04	0.32	0.62	0.42	0.60	0.86	0.87	0.62	0.69	0.38	0.23	-0.70
	0.90	0.95	1.00	1.00		-0.30	-0.27	-0.04	-0.18	0.19	0.24	0.76	0.42	0.54	0.82	0.79	0.63	0.68	0.59	0.33	-0.68
US 10 yr	0.47	0.68	0.31	0.36	0.39		0.88	0.67	0.81	0.38	-0.73	0.04	0.62	0.32	-0.09	-0.11	0.26	-0.11	-0.51	0.49	0.52
	0.52	0.72	0.43	0.57	0.51	0.99		0.79	0.87	0.17	-0.64	-0.02	0.64	0.51	0.03	0.04	0.31	-0.03	-0.47	0.42	0.48
	0.72	0.94	0.65	0.90	0.66	0.96	1.00		0.65	0.25	-0.45	0.09	0.68	0.60	0.27	0.26	0.46	0.17	-0.29	0.44	0.31
	0.84	0.93	0.60	0.91	0.66	0.71	0.64	0.96		0.18	-0.60	0.06	0.61	0.45	0.07	0.05	0.37	0.00	-0.39	0.45	0.34
	0.43	0.64	0.34	0.60	0.34	0.85	0.79	0.89	0.70		-0.48	0.60	0.42	0.20	0.23	0.18	0.43	0.23	0.08	0.54	0.09
Germany 10 yr	0.61	0.45	0.71	0.34	0.69	0.03	0.06	0.12	0.06	0.31		-0.14	-0.47	-0.24	0.06	0.08	-0.21	0.04	0.44	-0.36	-0.58
	0.78	0.81	0.76	0.93	0.78	0.63	0.64	0.75	0.73	0.60	0.57		0.59	0.53	0.72	0.68	0.67	0.61	0.45	0.54	-0.47
	1.00	1.00	0.99	1.00	0.99	0.08	0.37	0.97	0.33	0.93	0.34	1.00		0.87	0.71	0.70	0.80	0.58	-0.08	0.67	-0.04
	1.00	1.00	0.99	1.00	1.00	0.17	0.22	0.98	0.28	0.81	0.34	0.99	1.00		0.82	0.83	0.80	0.65	-0.01	0.59	-0.25
	0.99	1.00	1.00	1.00	1.00	0.54	0.67	0.98	0.76	0.61	0.42	0.99	1.00	1.00		0.98	0.82	0.84	0.34	0.50	-0.56
Japan 10 yr	0.99	1.00	1.00	1.00	1.00	0.65	0.77	0.99	0.82	0.69	0.37	0.96	1.00	1.00	1.00		0.80	0.81	0.30	0.45	-0.54
	0.88	0.94	0.70	0.94	0.61	0.59	0.70	0.97	0.77	0.87	0.27	0.90	1.00	1.00	1.00	1.00		0.65	0.14	0.65	-0.35
	0.99	1.00	1.00	1.00	0.99	0.54	0.71	1.00	0.75	0.60	0.54	0.95	1.00	1.00	1.00	1.00		0.39	0.42	-0.47	
	0.72	0.63	0.85	0.79	0.82	0.04	0.06	0.07	0.06	0.21	0.89	0.57	0.46	0.61	0.67	0.70	0.36	0.70		-0.02	-0.48
	0.92	0.95	0.63	0.95	0.64	0.89	0.91	0.97	0.94	0.73	0.53	0.71	0.99	1.00	1.00	1.00	1.00	0.89	0.14		-0.17
UK 10 yr	0.08	0.41	0.15	0.03	0.17	0.84	0.80	0.86	0.63	0.72	0.06	0.22	0.18	0.08	0.28	0.15	0.42	0.10	0.10	0.12	
	0.90		0.85	0.93	0.85	-0.29	-0.14	0.08	-0.09	0.06	0.31	0.67	0.53	0.70	0.93	0.93	0.71	0.80	0.43	0.35	-0.73
	0.94	0.97		0.84	0.99	-0.30	-0.28	-0.06	-0.18	0.19	0.25	0.77	0.42	0.52	0.81	0.79	0.61	0.66	0.61	0.31	-0.67
	1.00	1.00	0.94		0.84	-0.37	-0.25	-0.04	-0.15	0.04	0.32	0.62	0.42	0.60	0.86	0.87	0.62	0.69	0.38	0.23	-0.70
	0.90	0.95	1.00	1.00		-0.30	-0.27	-0.04	-0.18	0.19	0.24	0.76	0.42	0.54	0.82	0.79	0.63	0.68	0.59	0.33	-0.68
EUR/USD	0.43	0.64	0.34	0.60	0.34	0.85	0.79	0.89	0.70		-0.48	0.60	0.42	0.20	0.23	0.18	0.43	0.23	0.08	0.54	0.09
	0.61	0.45	0.71	0.34	0.69	0.03	0.06	0.12	0.06	0.31		-0.14	-0.47	-0.24	0.06	0.08	-0.21	0.04	0.44	-0.36	-0.58
	0.78	0.81	0.76	0.93	0.78	0.63	0.64	0.75	0.73	0.60	0.57		0.59	0.53	0.72	0.68	0.67	0.61	0.45	0.54	-0.47
	1.00	1.00	0.99	1.00	0.99	0.08	0.37	0.97	0.33	0.93	0.34	1.00		0.87	0.71	0.70	0.80	0.58	-0.08	0.67	-0.04
	1.00	1.00	0.99	1.00	1.00	0.17	0.22	0.98	0.28	0.81	0.34	0.99	1.00		0.82	0.83	0.80	0.65	-0.01	0.59	-0.25
USD/JPY	0.61	0.45	0.71	0.34	0.69	0.03	0.06	0.12	0.06	0.31		-0.14	-0.47	-0.24	0.06	0.08	-0.21	0.04	0.44	-0.36	-0.58
	0.78	0.81	0.76	0.93	0.78	0.63	0.64	0.75	0.73	0.60	0.57		0.59	0.53	0.72	0.68	0.67	0.61	0.45	0.54	-0.47
	1.00	1.00	0.99	1.00	0.99	0.08	0.37	0.97	0.33	0.93	0.34	1.00		0.87	0.71	0.70	0.80	0.58	-0.08	0.67	-0.04
	1.00	1.00	0.99	1.00	1.00	0.17	0.22	0.98	0.28	0.81	0.34	0.99	1.00		0.82	0.83	0.80	0.65	-0.01	0.59	-0.25
	0.99	1.00	1.00	1.00	1.00	0.54	0.67	0.98	0.76	0.61	0.42	0.99	1.00	1.00		0.98	0.82	0.84	0.34	0.50	-0.56
AUD/USD	0.88	0.94	0.70	0.94	0.61	0.59	0.70	0.97	0.77	0.87	0.27	0.90	1.00	1.00	1.00	1.00		0.65	0.14	0.65	-0.35
	0.99	1.00	1.00	1.00	0.99	0.54	0.71	1.00	0.75	0.60	0.54	0.95	1.00	1.00	1.00	1.00		0.39	0.42	-0.47	
	0.72	0.63	0.85	0.79	0.82	0.04	0.06	0.07	0.06	0.21	0.89	0.57	0.46	0.61	0.67	0.70	0.36	0.70		-0.02	-0.48
	0.92	0.95	0.63	0.95	0.64	0.89	0.91														

Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

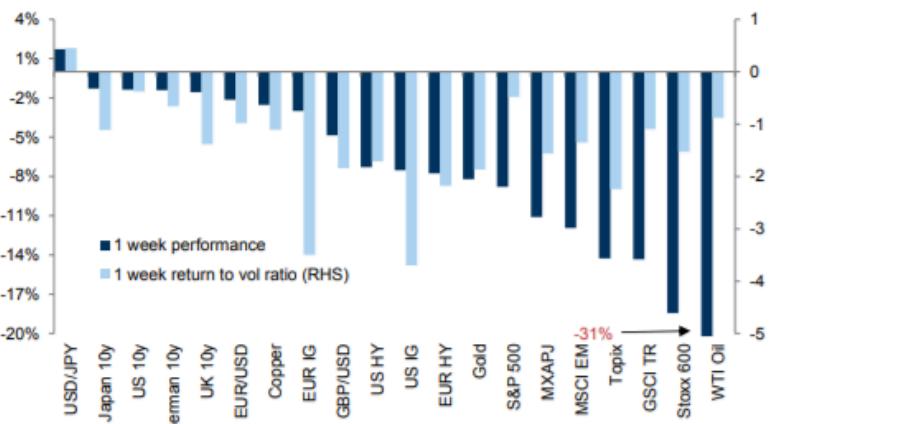
16 March 2020

6

Cross-asset: Weekly and YTD performance, absolute and risk-adjusted

Exhibit 5: Local currency total returns and return to vol ratios over the past week

EXHIBIT 3. Local currency total returns and return to vol ratios

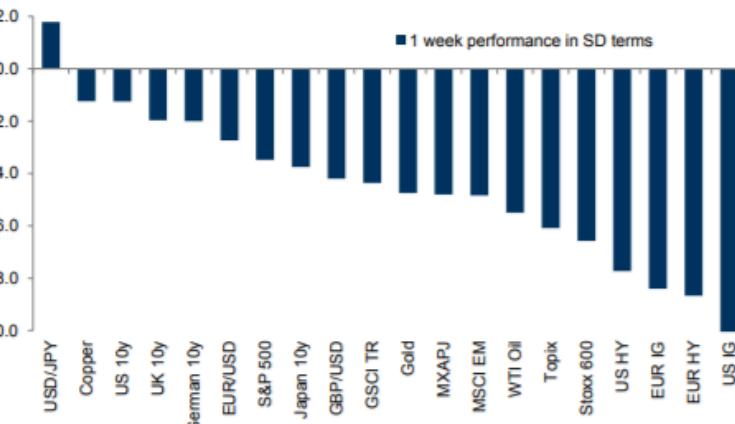


Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

—

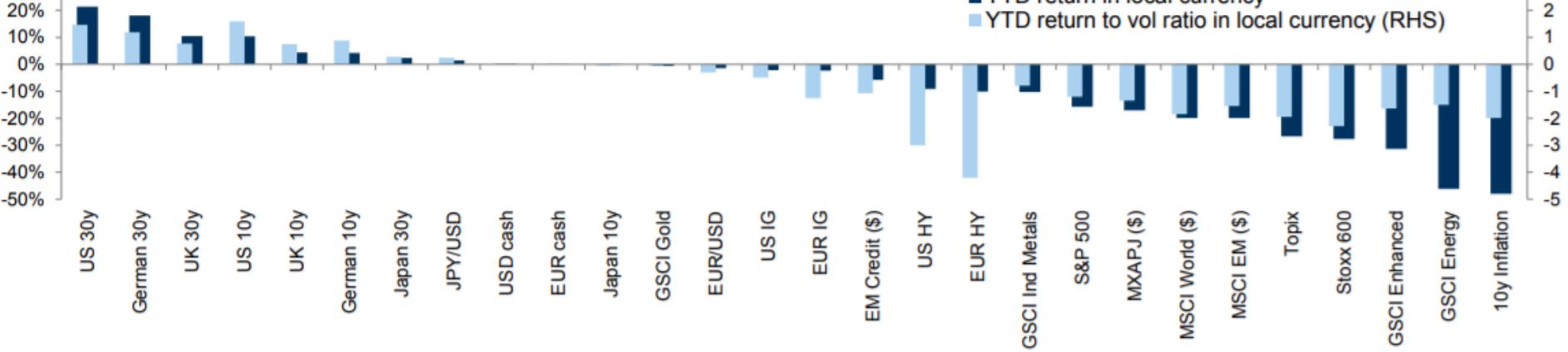


1 week performance in rolling 12m standard deviation terms



Last twelve months

30% =



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Cross-asset: Valuation and risk premia

Exhibit 13: Cross-asset valuation table

A higher percentile means more expensive relative to 10y history

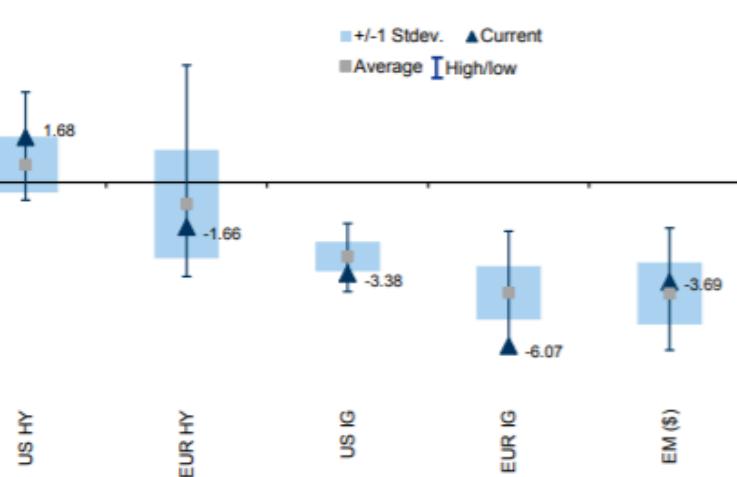
Valuation metric	Equity					Government bonds					Credit					FX	
	S&P 500	Stoxx 600	MXAPJ	Topix	MSCI EM	US 10y	German 10y	Japan 10y	UK 10y	US IG	US HY	EUR IG	EUR HY	EM (\$)	EUR/USD	USD/JPY	
Current:	15.3x	10.9x	11.7x	10.3x	10.4x	167bp	147bp	52bp	166bp	236bp	731bp	188bp	634bp	475bp	-0.20 €/\$	11.6 \$/¥	
Expensiveness (last 10y percentile):	43%	21%	28%	0%	25%	100%	99%	77%	100%	2%	5%	15%	17%	0%	7%	48%	
3M change:	-2.7x	-3.9x	-2.3x	-3.9x	-2.3x	91bp	35bp	2bp	44bp	115bp	360bp	81bp	310bp	149bp	-0.02 €/\$	-2.7 \$/¥	
Average:	15.2x	13.1x	12.3x	13.5x	11.1x	17bp	6bp	14bp	13bp	156bp	495bp	152bp	480bp	340bp	-0.03 €/\$	3.5 \$/¥	
95th:	18.1x	15.4x	13.7x	15.3x	12.6x	82bp	123bp	65bp	133bp	218bp	730bp	272bp	848bp	426bp	0.18 €/\$	23.0 \$/¥	
5th:	11.8x	9.7x	10.5x	11.3x	9.4x	-78bp	-137bp	-45bp	-128bp	117bp	347bp	102bp	279bp	249bp	-0.21 €/\$	-22.0 \$/¥	

Note: Sudoku is our fair value macro model for bond yields; GSDEER is our fair value macro model for exchange rates. US IG spread is from iBoxx. EM (\$) is JPM EMBI.

Source: Datastream, I/B/E/S, iBoxx, Goldman Sachs Global Investment Research

Exhibit 14: Credit spread minus equity risk premium estimates across markets

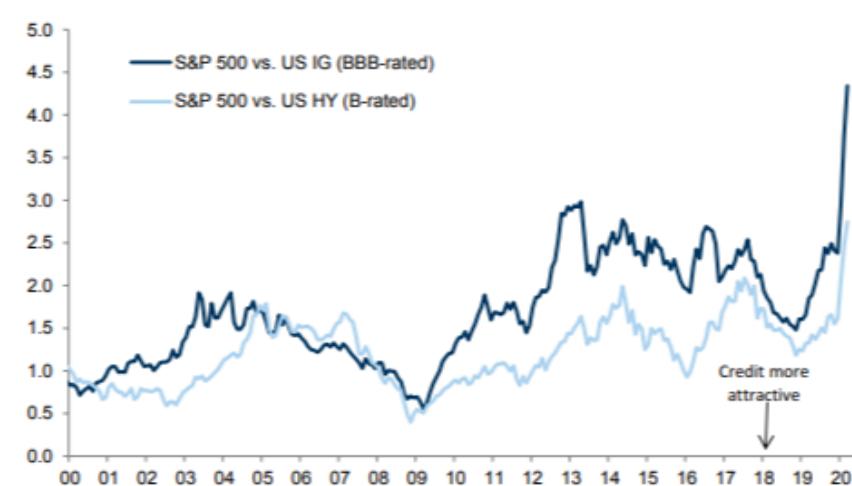
Equity risk premia based on 1-stage DDM using local 10-year yields and LT GDP consensus estimates. Using past 10 years of data.



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 15: US equity expected returns vs. credit risk premia (plus risk free rates)

S&P 500 vs. US IG, S&P 500 vs. US HY



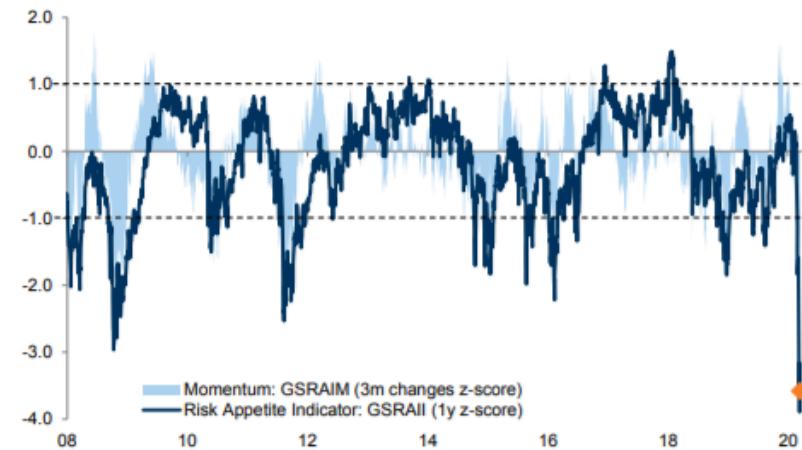
Source: Datastream, Goldman Sachs Global Investment Research

16 March 2020

Cross-asset: Risk appetite indicator

Exhibit 16: Risk appetite indicator level and momentum factors

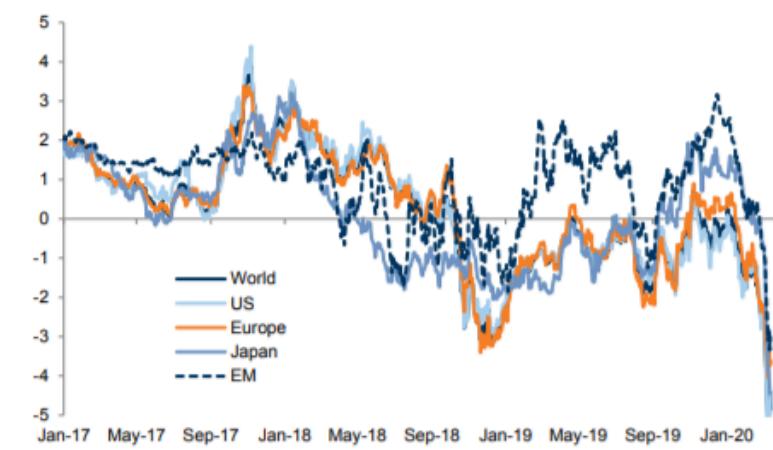
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

Exhibit 18: Cyclicals vs. defensives 1-year rolling z-score across regions

See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

Exhibit 17: Risk appetite indicators for different asset classes

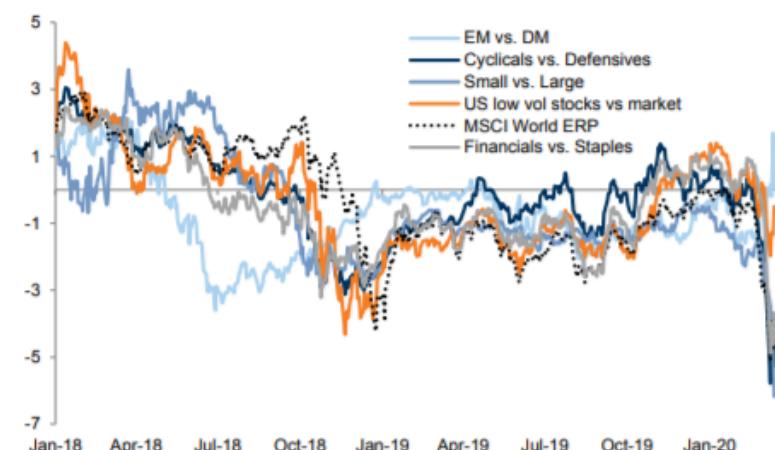
See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

Exhibit 19: Sub-components of equity risk appetite indicator

See July 2016 GOAL for construction details



Source: Goldman Sachs Global Investment Research

GS Risk Appetite Indicator: Principal component analysis

Exhibit 20: GS RAI principal component
See April 2019 GOAL for construction details



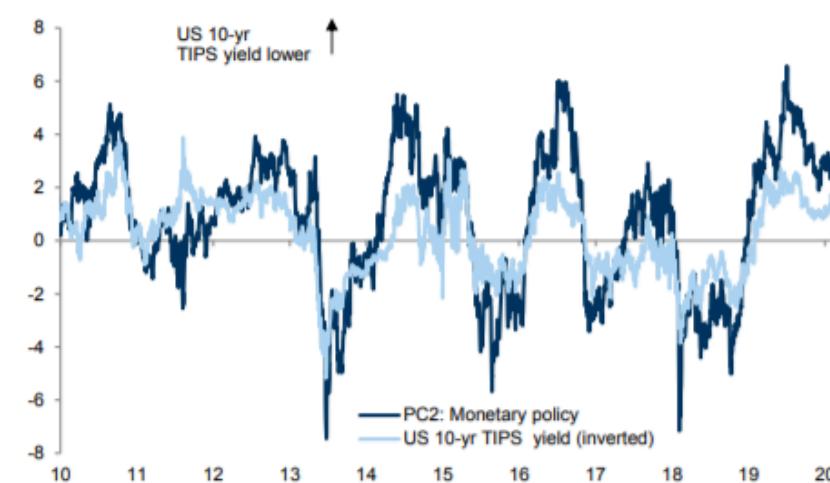
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 21: PC1: Global growth factor vs. Global CAI innovations



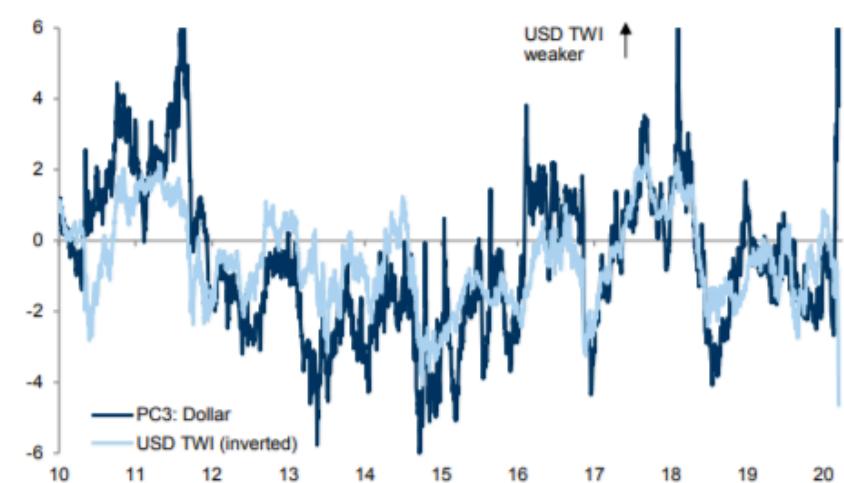
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 22: PC2: Monetary policy factor vs. US 10-year TIPS yield



Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 23: PC3: Dollar factor vs. USD TWI



Source: Datastream, Goldman Sachs Global Investment Research

16 March 2020

Credit: Spreads and risk premia

Exhibit 66: Credit spread forecasts

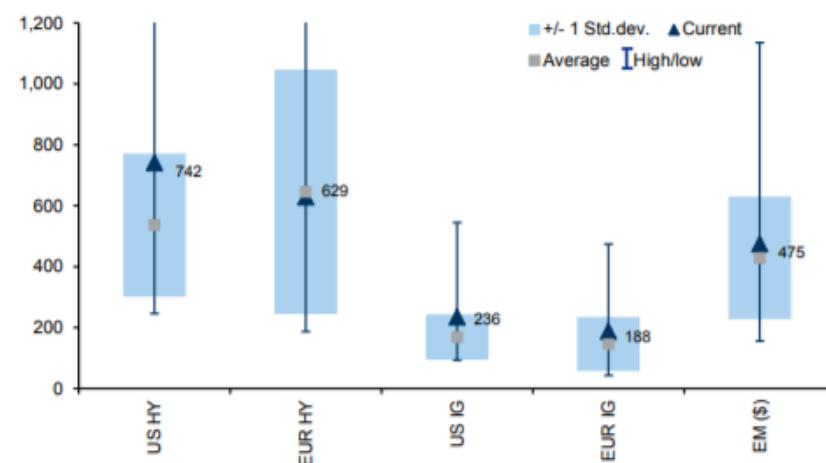
Yieldbook Citi US IG, iBoxx EUR IG, BAML US HY and EUR HY

Sector	Updated through March 12, 2020				
	Current	2020Q2	2020Q3	2020Q4	2021Q1
USD Spreads					
IG	209	190	185	160	135
IG Fin	195	175	170	145	125
IG Non-Fin	220	205	200	175	145
High Yield	726	725	715	515	475
EUR Spreads					
IG	186	185	178	155	130
IG Fin	201	195	185	162	135
IG Non-Fin	178	170	168	150	127
High Yield	629	650	630	550	485

Source: BAML, Haver Analytics, iBoxx, Yieldbook Citi, Goldman Sachs Global Investment Research

Exhibit 68: Current credit spreads relative to their historical ranges

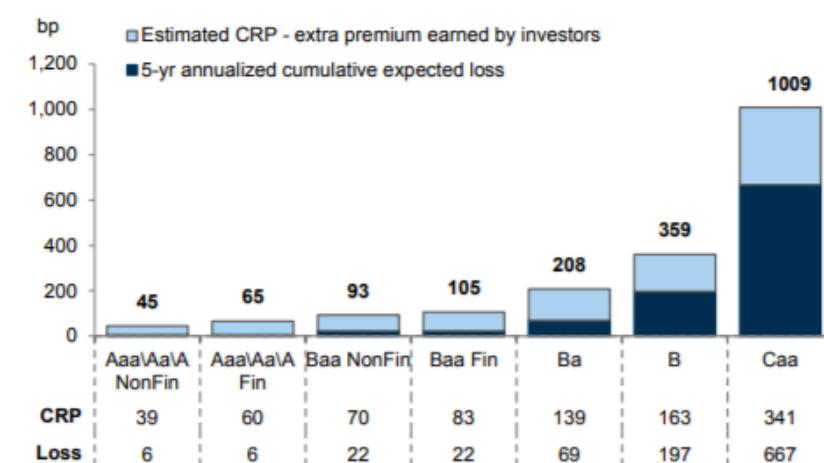
Credit spreads (US HY and IG since 1985, EUR IG since 1997, EUR HY and EM since 1998)



Source: Haver Analytics, iBoxx, Goldman Sachs Global Investment Research

Exhibit 67: GS credit risk premium (CRP) estimates

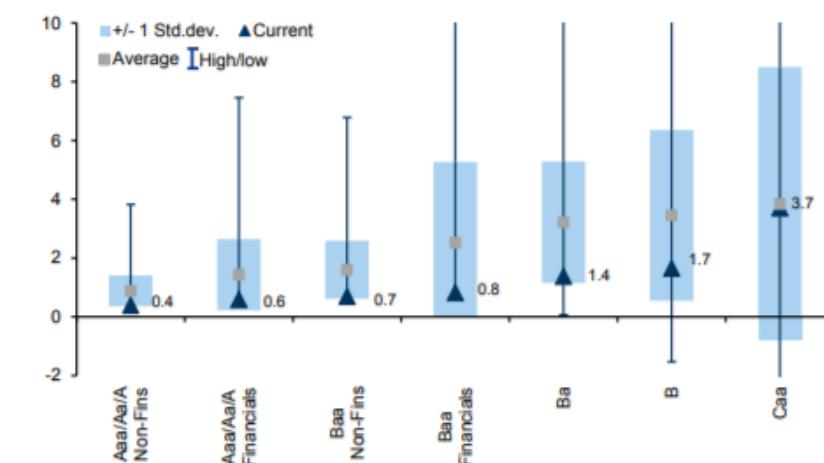
5-year spread decomposition into our estimates of expected losses and CRP (bp). Updated through November 13, 2019



Source: BAML, Haver Analytics, iBoxx, Moody's, Goldman Sachs Global Investment Research

Exhibit 69: Credit risk premia estimates relative to their historical estimate ranges

Ba, B, Caa data since 1997, all else since 1999

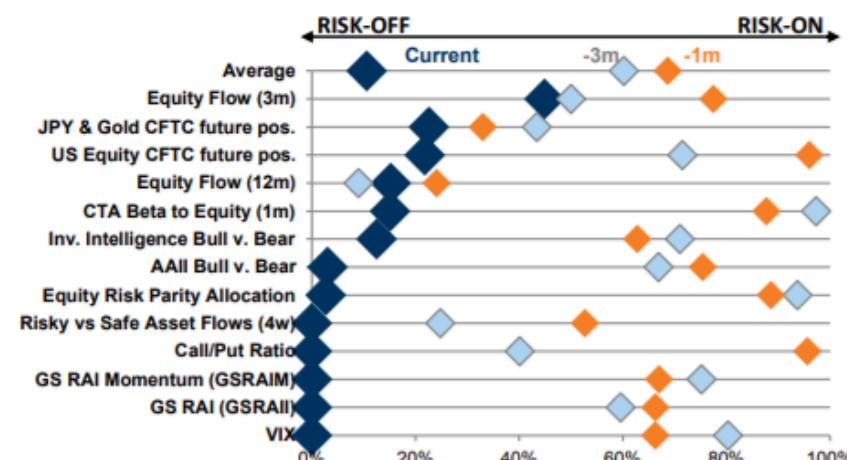


Source: BAML, Haver Analytics, iBoxx, Moody's, Goldman Sachs Global Investment Research

Cross-asset: Sentiment and Positioning

Exhibit 24: Percentile of sentiment indicators

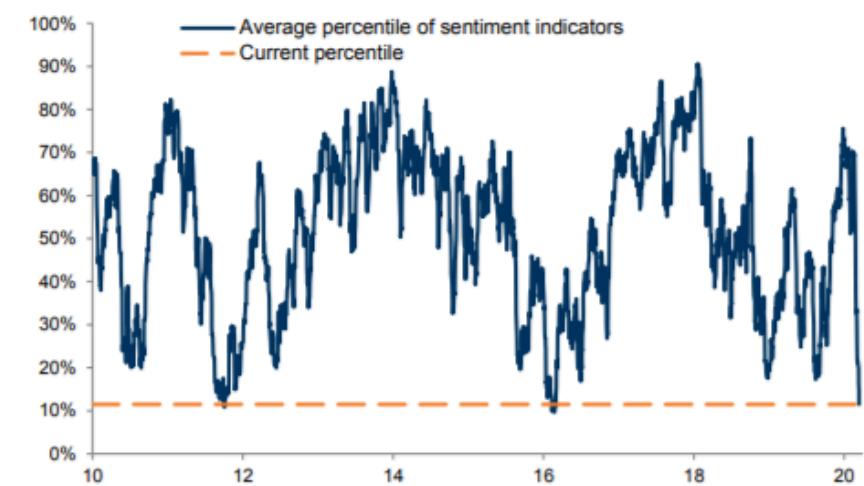
Data since 2010



Source: Datastream, EPFR, Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 25: Average percentile of sentiment indicators

Data since 2010



Source: Datastream, EPFR, Haver Analytics, Goldman Sachs Global Investment Research

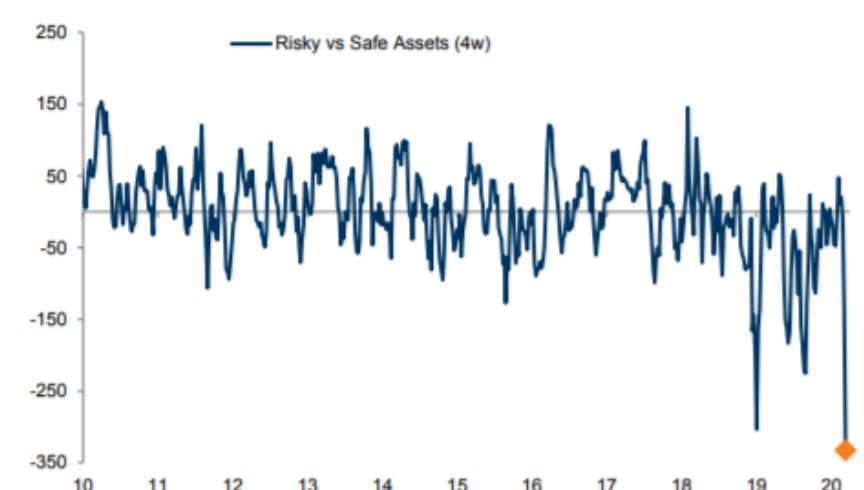
Exhibit 26: Cumulative flows across assets



Source: Datastream, EPFR, Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 27: Risky vs. safe assets flows

4 weeks rolling flows, USD bn



Source: Datastream, EPFR, Haver Analytics, Goldman Sachs Global Investment Research

16 March 2020

G10 OTHER



Calming Signs?

JGB volatility edging lower after reaching 4-year high



Interest Rates Research | Instant Insights

19 March 2020

Shinji Ebihara

+81 3 4530 1523

shinji.ebihara@barclays.com

BSJL, Japan

Completed: 19-Mar-20, 05:39 GMT

Released: 19-Mar-20, 05:39 GMT

Japan Rates Strategy Game changer

The CB fund supply and asset buying component of recently announced policy packages has started to have an effect, with the liquidity component of the risk premium coming down, as evident from the decline in USD funding costs. This was likely the game changer, in our view, and major central banks continue to indicate a constructive stance toward further easing.

The risk-reward of trades targeting a pullback in liquidity premiums arguably remains high. We continue to recommend 7s15s30s butterfly longs (long the cheap 15y sector), a trade idea we initiated this week, in addition to 7s10s flatteners and 5s7s10s butterfly shorts (short the still rich futures sector). Long positions in BEI and superlong ASW, which have recently underperformed sharply, are also attractive, in our view.

Liquidity premiums coming down with some markets normalizing on the fund supply and asset buying of major central banks

With the governments of major economies hammering out a coordinated response, including large-scale stimulus measures, to suppress downside economic risk stemming from the COVID-19 outbreak, and the world's central banks, led by the Fed and the BoJ, aggressively easing monetary policy, some markets have started to normalize with a decline in liquidity premiums. For example, USD basis swaps, which indicate the strength of USD funding demand, are still showing some intraday volatility, but negative spreads are tightening as a trend with the USD fund-supplying operations of major central banks, lowering the cost of USD funding (Figure 1). In JPY rates, where relative value relationships broke down as liquidity premiums increased amid risk-off flows, we are starting to see a correction, albeit to varying degrees, of the JGB curve distortions, sharply tighter swap spreads (underperformance of JGBs relative to swaps) and deeply negative breakeven inflation.

Aggressive monetary easing by major central banks proves a game changer, trades targeting pullback in liquidity premium become attractive

Aggressive monetary easing by major central banks proves a game changer, trades targeting pullback in liquidity premium become attractive

As volatility remains elevated and Japanese investors could still cash out of securities regardless of relative values in order to reduce risk before the accounting term ends on 31 March, it is difficult to completely dismiss the risk that liquidity premiums will turn up again and impede the normalization process. Also, as evident from the bear-steepening of yield curves in US and European bond markets and the widening of EGB spreads, aggressive fiscal action could fuel a different type of risk premium, ie, a fiscal policy risk premium. Given the uncertain outlook, we believe the risk-reward of outright positions is still low at this stage.

That said, the CB fund supply and asset buying component of recently announced policy packages has arguably started to have a gradual effect, with at least the liquidity component of the risk premium coming down. In our view, this was likely a game changer. Given that central banks continue to show an "all out" stance toward further fund supplies and asset purchases, we believe the risk-reward of trades targeting a pullback in liquidity premiums remains high.

Figure 1: 3m basis swaps



Figure 2: JGB Butterfly spreads



Decline in liquidity premiums brings moves to profit from market distortions

In terms of JGB curve distortions, a correction is underway in the richened futures (7y) sector and the cheapened 15y sector. The 7y sector richened sharply as risk-off flows spurred demand for the futures sector, which has the greatest liquidity, resulting in a deeply concave JGB curve shape out to the 7y sector. Meanwhile, the 15y sector cheapened with the addition of a liquidity premium due to its off-the-run status as risk reduction strengthened and risk premiums rose. However, the 7y sector started to cheapen from last week with the correction accelerating into this week, while the 15y sector has begun to see a correction of its earlier cheapness (Figure 2).

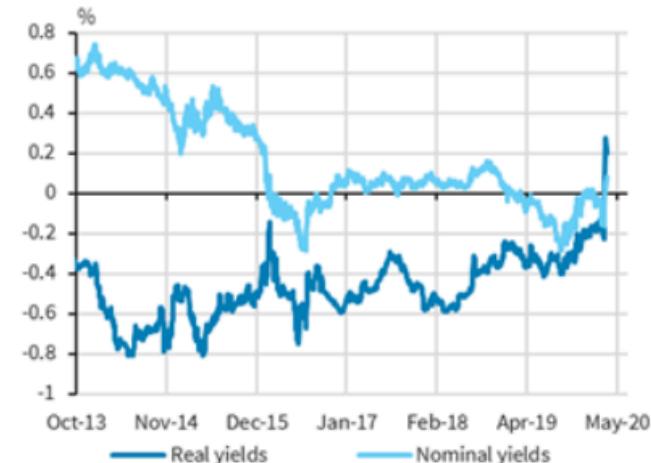
Superlong swap spreads tightened massively through last weekend as receiving demand in the superlong end strengthened steadily, causing market liquidity to drop sharply and swap rates to dive into negative territory across all sectors out to the 40y on an LCH basis. In the process, 20y swap spreads exceeded 6m JPY LIBOR + 30bp, a level unseen since the global financial crisis of 2008. Now, however, with LCH-based swap rates rallying sharply upward, led by the superlong sector, swap spreads have started to widen (JGBs outperforming swaps), returning to a trading level that might be expected under normal market conditions (Figure 3).

Similarly, relatively illiquid JGBi (relative to nominal bonds) began to show a liquidity premium, pushing breakeven inflation deeply into negative territory with a surge in JGBi yields to around 0.3%. However, just as BEI began to fall more gradually, Reuters reported on 17 March that the MoF was looking to reduce JGBi issuance and increase buybacks, then the BoJ announced on 18 March that it increased its JGBi buying operations. In response, the liquidity premium has come down from the earlier spike (Figure 4).

Figure 3: JGB yields, swap rates and swap spreads (20y)



Figure 4: Nominal bond yields, JGBi yields and BEI (10y)



Trade recommendation update: Yield curve trades targeting correction of 7y richness/15y cheapness, long positions in BEI and superlong ASW

Assuming the bold monetary easing by the world's central banks proves to be a game changer that sustains the decline in liquidity premiums and market normalization, it still looks attractive to position for a return to more normal levels in the relative values distorted by the rise in liquidity premiums. Based on our quantitative analysis of the risk-return relationship between sectors (Figure 5), we continue to recommend 7s15s30s butterfly longs (long the cheap 15y sector), a trade idea we initiated this week, in addition to 7s10s flatteners and 5s7s10s butterfly shorts (short the 7y sector, which still appears rich despite the continuing correction this week; see [Japan Rates Strategy: Trade idea- Aggressive policy response of major economies a potential game changer, looking for liquidity premiums to tighten, 15y cheapness to correct, 16 March 2020](#))

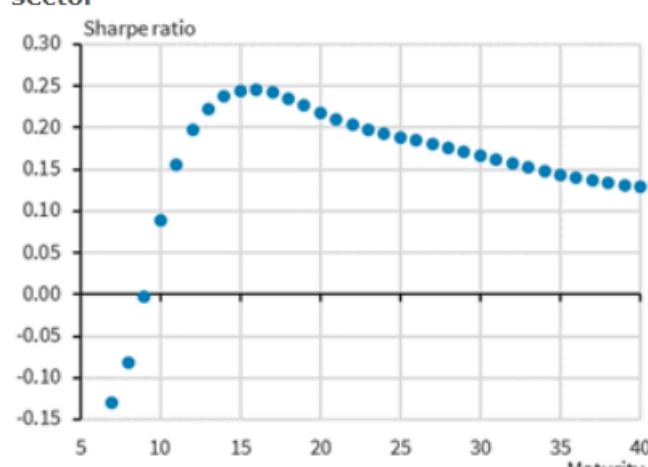
As for BEI and superlong swap spreads, we have been recommending long positions in both (long BEI and asset swaps), but these have underperformed our initial expectations with the recent abrupt changes in the market. That said, assuming liquidity premiums come down further, we believe building/accumulating long positions in both is still attractive as an investment recommendation. In terms of BEI long positions, the MoF's measures to improve supply and demand and the BoJ's increase in buying operations should contribute to a further decline in liquidity premiums (for our latest views on JGBi, see [Japan Rates Strategy: JGBi market update - Preparing for a pullback in risk premiums](#), 18 March 2020).

One factor supporting a long position in superlong swap spreads is the attractiveness of ASW yield levels. With the decline in 6m JPY LIBOR taking a breather and rates becoming less negative, swap spreads remain at tight levels, so ASW absolute yields (6m LIBOR+a) are still positive despite pulling back from extreme highs (Figure 6). At a time when balances subject to negative rates remain elevated, JGB redemptions in the week ahead are expected to reach historical peaks with demand to reinvest the proceeds likely to strengthen (Figure 7). We believe funds will likely flow into superlong ASW for the high returns. As trades targeting a pullback in risk premiums, long positions in superlong ASW, in addition to the above-mentioned JGB relative value trades and BEI longs, are worth considering, in our view.

Trade recommendation close: Selling short/medium-term ASW, using options to hedge against BoJ rate cuts

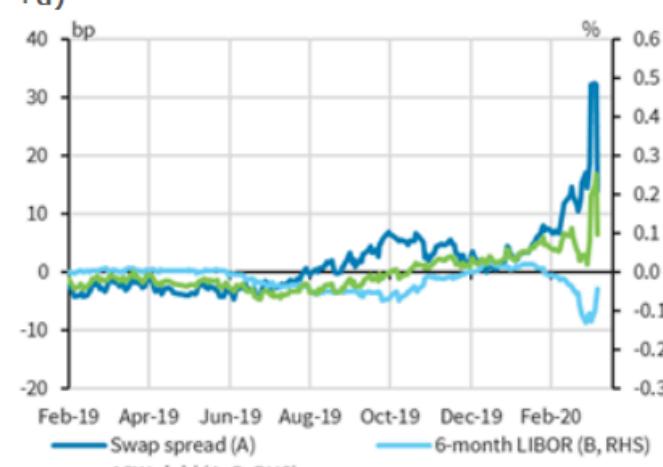
At this Monday's MPM, the BoJ decided to enhance funds supply and actively purchase assets, largely in line with our expectations. At the same time, it refrained from NIRP deepening despite holding the MPM ahead of schedule in the face of the tightest financial conditions since 2016 (Figure 8), underscoring the high hurdle to further rate cuts. With NIRP-deepening expectations fading from the market and 6m LIBOR turning up, we close our swap spread tightener recommendation in the short/medium-term sector as well as our recommendation to buy JPY 1y2y 1 x 2 receiver spreads as a hedge against NIRP deepening. We also close our long 6m2y receiver swaption recommendation with the option expiry.

Figure 5: JGB risk-return (Sharpe ratio) by sector



Source: Barclays Research

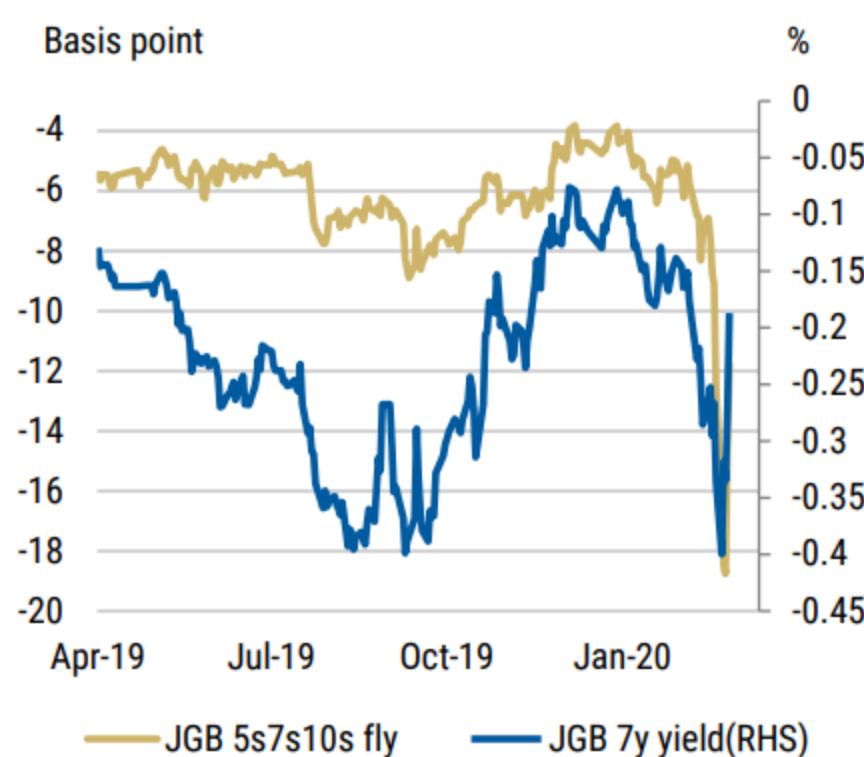
Figure 6: 20y ASW yield levels (6m JPY LIBOR +a)



Localized behavior of futures and recent widening of the calendar spread

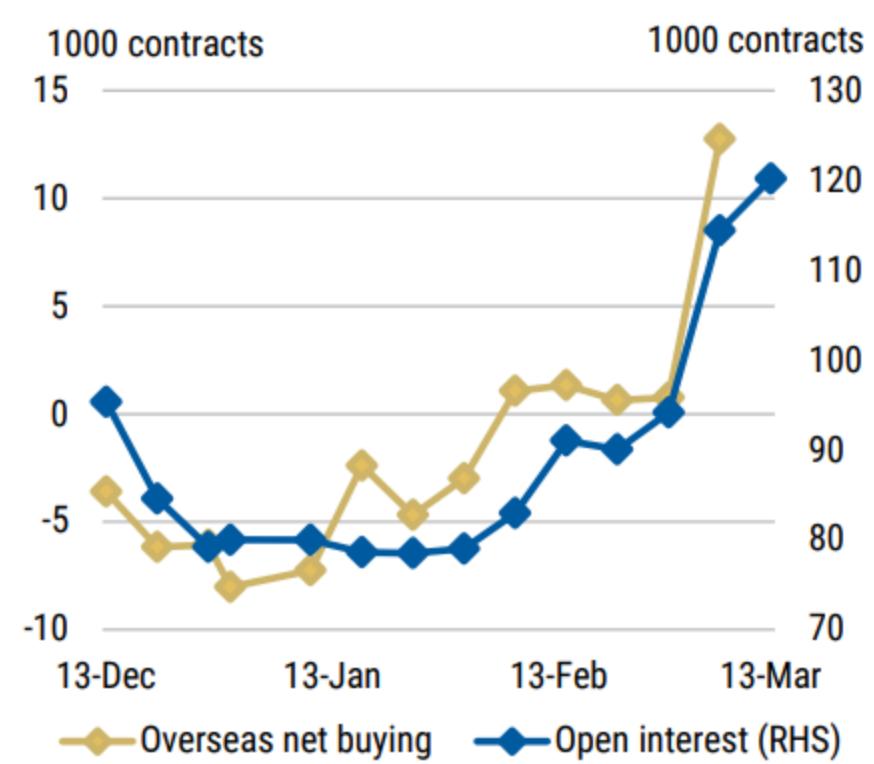
The futures sector offers one example of highly localized behavior, with the March contract significantly outperforming on the curve as coronavirus-related anxiety continues to build (see [Exhibit 30](#)).

Exhibit 30: JGB 5s7s10s 50:50 fly



Source: Morgan Stanley Research

Exhibit 31: Open Interest of JGB futures vs Overseas net purchases of JGB futures (cumulative since Dec roll)



Source: Morgan Stanley Research, Japan Exchange Group

Morgan Stanley | RESEARCH

IDEA

As discussed in our "Help Wanted, Apply, ASAP" report, long positioning by CTAs is likely to have been a major driver. Indeed, CTAs appear to have gone long JGB futures to the tune of more than 10,000 contracts in the first week of March as "flight to quality" flows drove the UST market sharply higher (see [Exhibit 31](#)). Our impression is that dealers and relative value investors have been taking the short side of these trades.

The rollover to the next (in this case June) contract appears to have been unusually slow this time around, with many investors perhaps hesitating as a consequence of the calendar spread having become so illiquid (see [Exhibit 32](#)).

With liquidity failing to improve even as the final trading day drew closer, CTAs unable to receive cash JGBs as settlement seemingly started to lay on long-roll (sell March / buy June) trades, thereby causing the calendar spread to widen (see [Exhibit 33](#)).

The CTD spread also shows JB347—the cheapest-to-deliver issue for the June contract—to be locally rich. In addition to long-roll trades among CTAs, relative value investors and dealers who had already rolled over into June-short positions may have found themselves suddenly needing to cover as CTAs started buying in such an illiquid market, thereby causing the June contract to ricken even further.

We do not necessarily expect this richness to be corrected until CTAs start liquidating their long positions, but relative value anomalies are unlikely to persist indefinitely given that the eventual return of liquidity should be sufficient to catalyze arbitraging flows.

Exhibit 32: Open Interest history

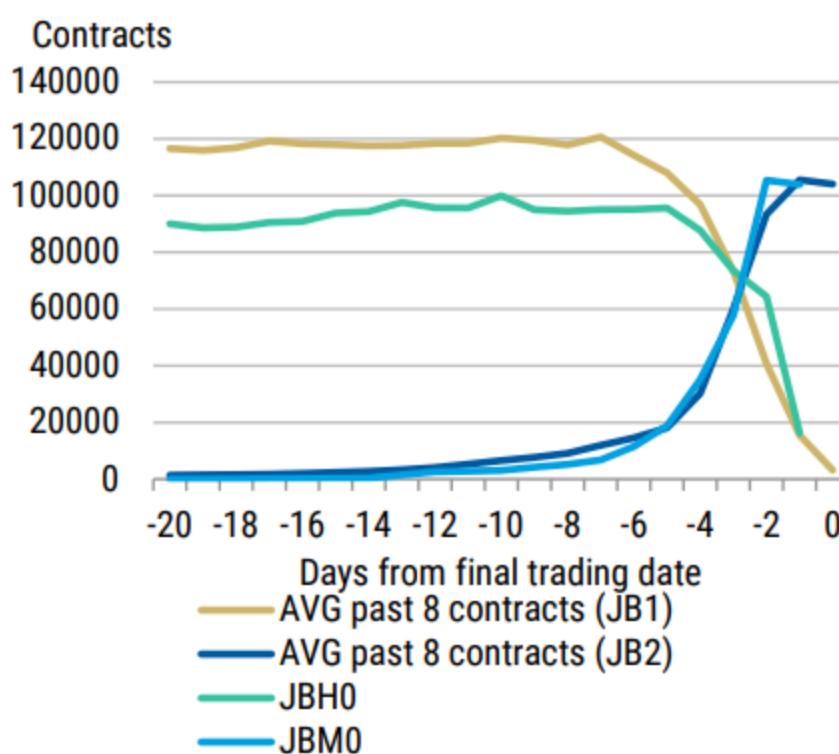
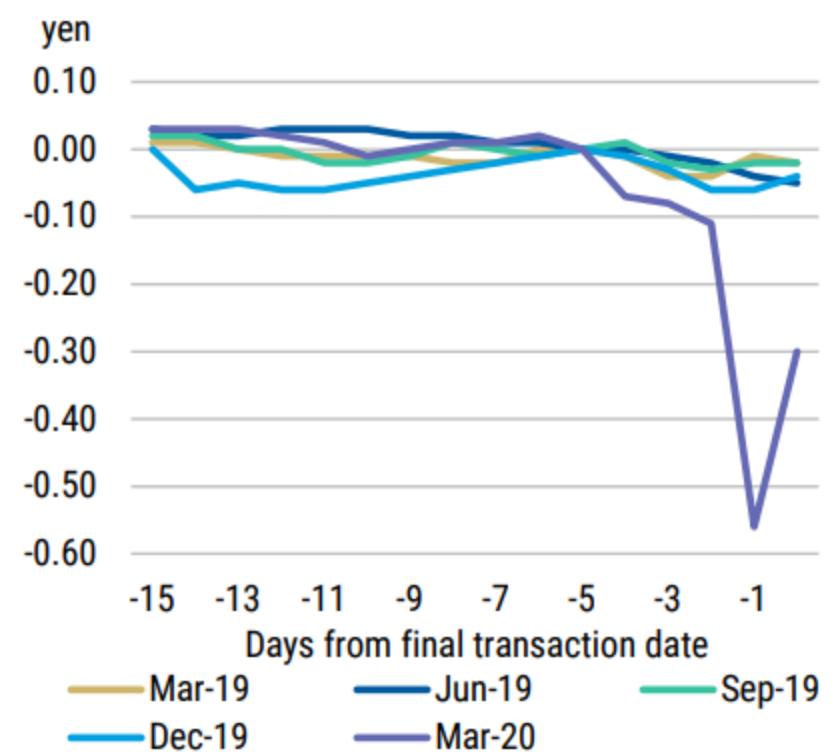


Exhibit 33: Calendar spread history



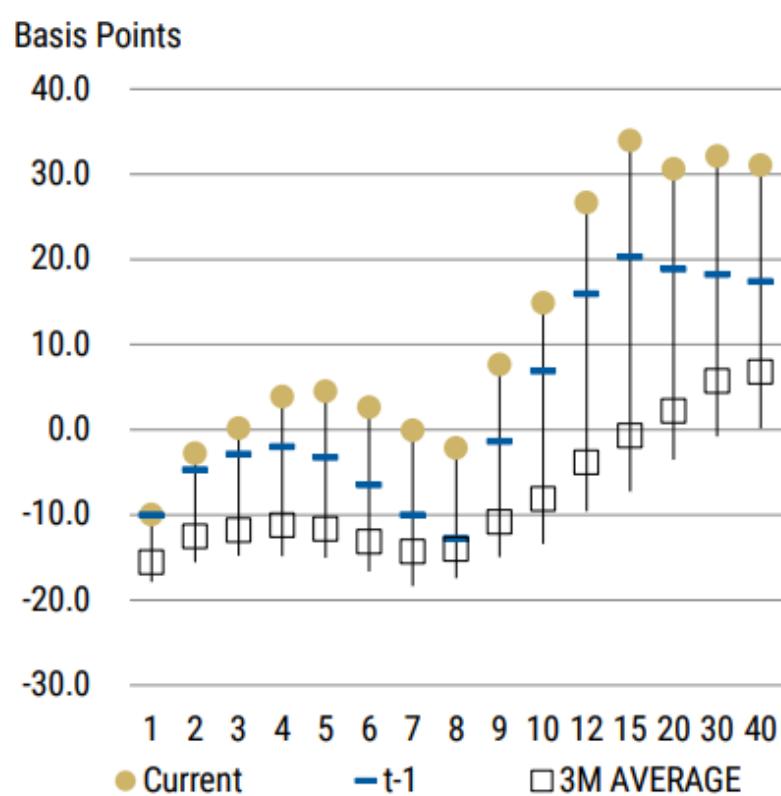
ASW curve

ASW cheapening shows no sign of running out of steam despite levels already being cheaper than the fair values discussed in our "Back To The Vol-Drums" report. Only the futures (7y) sector is rich on the curve as a consequence of the aforementioned demand from CTAs, with cheapness of other sectors having now reached quite extreme proportions (see [Exhibit 34](#)).

One possible explanation is that domestic investors have grown reluctant to trade JGBs with yield levels so low and volatility so high, with the net upshot being that dealer inventories end up increasing with each new auction.

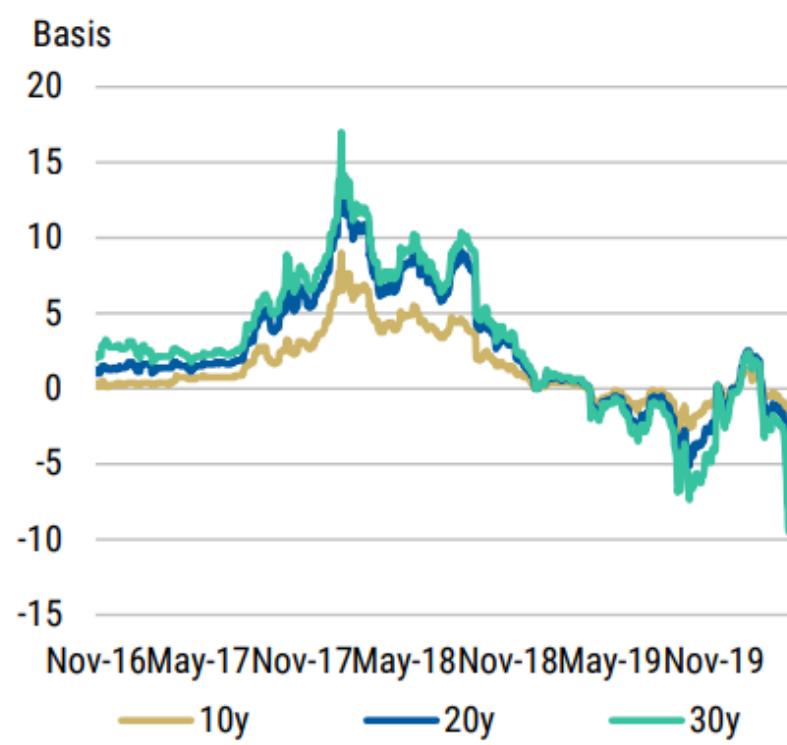
Maintaining inventories is obviously an unattractive option with markets so volatile and risk tolerance levels depressed, which leaves dealers as a major source of selling pressure in the secondary market. The situation has also been exacerbated by the aforementioned voracious demand for JGB futures among CTAs, which has rendered futures virtually worthless as a hedging tool. Nor are swaps the answer from a hedging perspective, with recent widening of the (negative) JSCC-LCH basis indicative of extremely strong JPY swaps receiving demand among foreigners (see [Exhibit 35](#)).

Exhibit 34: JGB ASW curve



Source: Morgan Stanley Research, Bloomberg

Exhibit 35: JSCC-LCH basis spread



Source: Morgan Stanley Research, Bloomberg

At the short end of the curve, banks and other investors see very little prospect of the BoJ cutting its policy rate and thus little incentive to buy short- to medium-term JGBs at yields below -10bp. Hedge funds are meanwhile (for cash efficiency reasons) more likely to use swaps than JGBs when positioning for a BoJ rate cut. This difference in perceptions vis-à-vis the probability of a BoJ rate cut—when combined with the aforementioned decline in dealers' risk tolerance levels—appears to have been a key driver of short-end ASW cheapening.

Dealers are liable to be even more reluctant to take risks in the super-long JGB sector, where duration risk is obviously high and the BoJ continues to absorb only a relatively low percentage of interest rate risk. Moreover, elevated volatility obviously makes it all the more difficult for dealers to go long into an auction.

Some life insurers looking to reduce their asset-liability duration mismatches may meanwhile be favoring swaps over JGBs (once again for reasons of cash efficiency). They may have strong incentive to cover duration mismatches particularly now that both lower risk assets valuation and lower JGB yields forced them to cut the market risks or enhance the capitals.

2

Morgan Stanley | RESEARCH

IDEA

History has also shown that foreigners often use JPY swaps to express "risk off" views. Strong foreign demand for super-long JPY swaps is also evident from recent widening of the JSCC-LCH basis. With domestic investors taking a wait-and-see approach to JGBs while both domestic and foreign players use swaps to cover their duration needs, the utility of swaps as a hedge for JGB-long positions has been reduced quite considerably, thereby leaving dealers with little option but to simply sell off their inventory in a manner that causes asset swaps to cheapen even further.

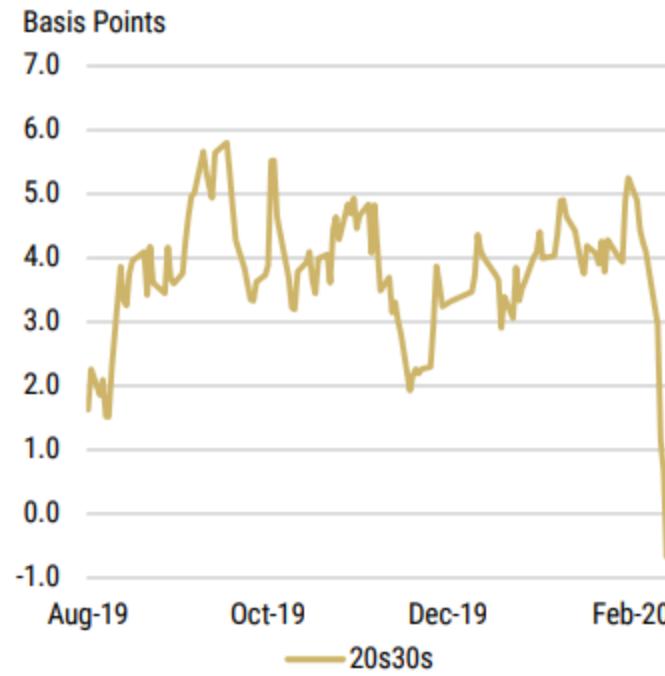
This selling pressure has been particularly pronounced <30y sector where absolute-level buyers are lacking (whereas life insurers and other investors continue to be attracted by the relatively high yields offered beyond the 30y sector), with the 20s30s ASW box spread having tightened as a result (see [Exhibit 36](#)).

History has also shown that foreigners often use JPY swaps to express "risk off" views. Strong foreign demand for super-long JPY swaps is also evident from recent widening of the JSCC-LCH basis. With domestic investors taking a wait-and-see approach to JGBs while both domestic and foreign players use swaps to cover their duration needs, the utility of swaps as a hedge for JGB-long positions has been reduced quite considerably, thereby leaving dealers with little option but to simply sell off their inventory in a manner that causes asset swaps to cheapen even further.

This selling pressure has been particularly pronounced <30y sector where absolute-level buyers are lacking (whereas life insurers and other investors continue to be attracted by the relatively high yields offered beyond the 30y sector), with the 20s30s ASW box spread having tightened as a result (see [Exhibit 36](#)).

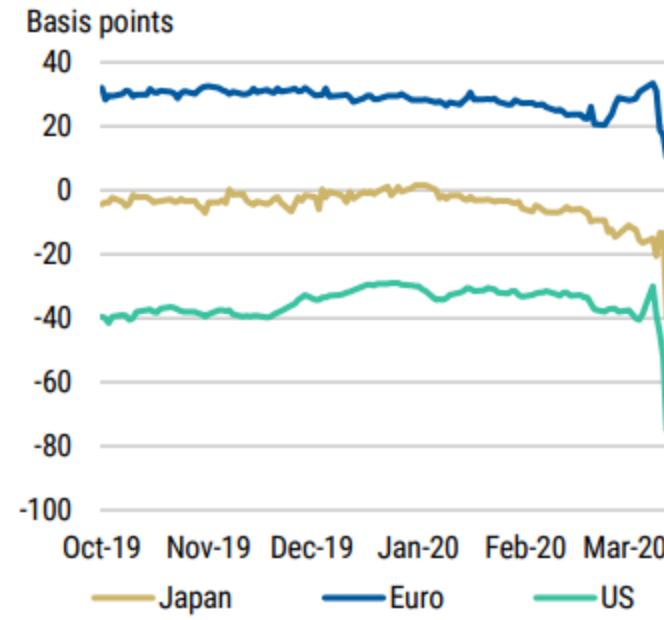
ASW cheapening has not been confined to Japan, with super-long swap spreads widening globally as demand for sovereign bonds declines while derivatives are actively used to cover duration needs (see [Exhibit 37](#)) amid the low interest rate world. We see only limited potential for ASW cheapness to be corrected until and unless (1) "risk on" sentiment drives up interest rates sufficiently to attract real money investors back to sovereigns or (2) an increase in central bank purchases causes supply/demand to improve in the sovereign bond market.

Exhibit 36: 20s30s ASW box spread



Source: Morgan Stanley Research, Bloomberg

Exhibit 37: Global 30y swap spread



Source: Morgan Stanley Research, Bloomberg

Japan Rates Strategy: Trade idea

Aggressive policy response of major economies a potential game changer, looking for liquidity premiums to tighten, 15y cheapness to correct

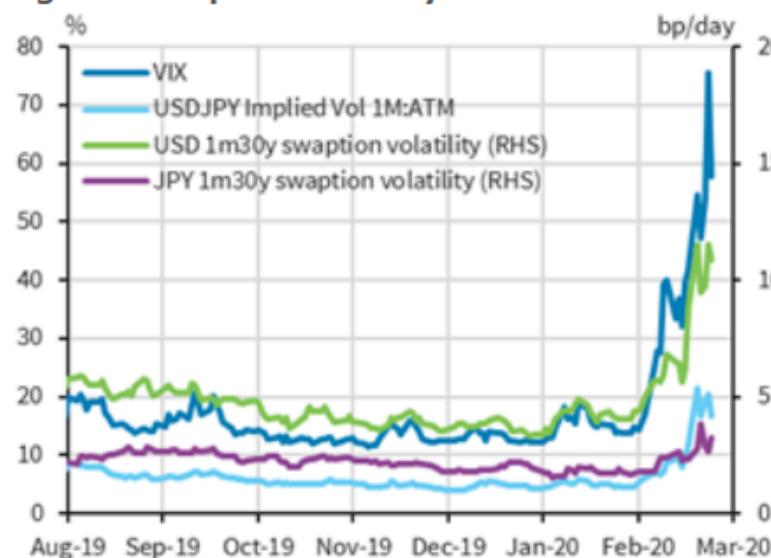
The governments of major economies hammered out a coordinated policy response last weekend and now major central banks, led by the Fed and the BoJ, have turned to bold monetary easing to suppress the spike in risk premiums. Over the medium/long term, we believe such policies could be a game changer and lead to normalization in the global financial markets. With recent market movements triggering widespread mis-pricings, we like starting conservatively with a tactic of targeting a correction of distortions between sectors on the JGB curve.

One way to target a tightening of risk premiums might be through trades anticipating a correction of the cheapness in the 15y sector, which shows a large liquidity premium as an off-the-run issue. The 15y sector appears more attractive as an investment given the strong pricing of a rise in yields more than in other sectors and the sharp improvement in risk-reward on the JGB curve. As evident from recent movements in the 7y sector, it could be difficult for the extremely distorted yield curve shape to persist. We initiate a recommendation to take long 7s15s30s butterfly positions, which can be built with positive carry.

Coordinated policy response of governments/CBs of major economies as a potential game changer

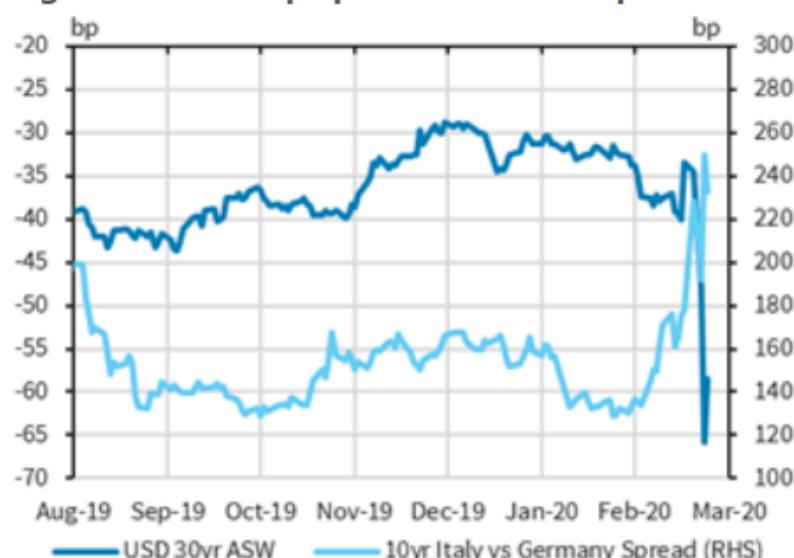
The governments of major economies, including Japan, the euro area and the US, have come together and hammered out policy measures, including fiscal stimulus, in order to prevent an economic downturn stemming from COVID-19. In response, overseas markets saw implied volatilities pull back from an earlier spike at the end of last week, while EGB spreads and US swap spreads reflecting dealer balance sheet constraints and risk premiums respectively turned up (Figures 1 and 2). At the same time, major central banks are taking bold easing measures in tandem. On 16 March, the Fed delivered an emergency 100bp rate cut and an increase in bond purchases during early Tokyo hours, then the BoJ held an MPM later in the day (instead of on 18-19 March as originally planned) and announced funds-supply enhancements and flexible increases to its buying of risk assets (commercial paper, corporate bonds, equity-linked ETFs and J-REITs). Of course, with market liquidity still extremely low and volatility/spreads remaining sharply more elevated than usual, there could still be further risk reduction in a rush to convert securities into cash. Over the medium/long term, however, we believe this package of fiscal and monetary actions should suppress the earlier spike in risk premiums and spur normalization in the global financial markets. In our view, these policy measures are likely to prove a game changer for the global financial markets.

Figure 1: Implied volatility across asset markets



Source: Bloomberg, Barclays Research

Figure 2: US swap spreads and EGB spreads



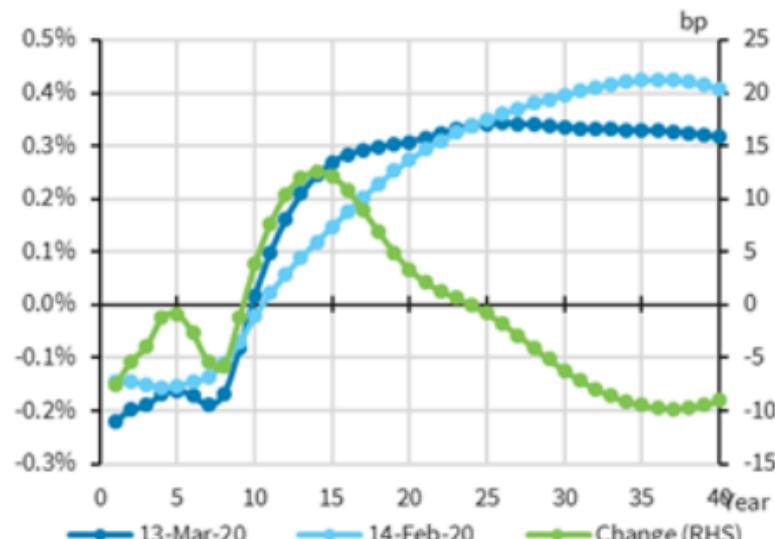
Source: Bloomberg, Barclays Research

15y sector cheapens, 7s15s30s butterfly spread reaches highest level in seven years

15y sector cheapens, 7s15s30s butterfly spread reaches highest level in seven years

If the markets start to reverse the moves seen to date and head toward normalization, the broken-down relative value relationships among assets might be expected to revert to a more normal balance. In the JPY rates market, this would include superlong swap spreads and breakeven inflation (BEI), but in terms of relative value on the JGB curve, we would expect a correction of the 15y sector that has cheapened sharply over the past month. Figure 3 compares the JGB curve at the end of last week with the JGB curve one month ago. As shown here, yields have fallen in the 7-8y and 25y+ sectors, while rising more than 10bp in the 15y sector. Although the 7-8y sector further corrected its richness toward the end of last week, butterfly spreads with the 15y sector in the body have continued to widen rapidly. Meanwhile, butterfly spreads with 7y and 30y sectors in the body have remained at low levels below the recent trading range, resulting in a noticeable cheapening of the 15y sector on the curve (Figure 4).

Figure 3: JGB curves and changes (14 February to 13 March)



Source: Barclays Research

Figure 4: JGB butterfly spreads over long run



Source: Barclays Research

15y sector (compared with other sectors) strongly prices in future rise in yields

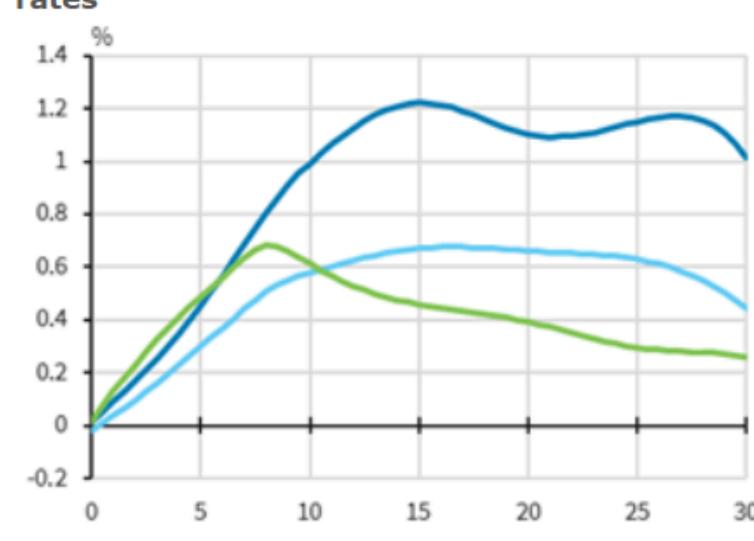
Forward rates clearly show just how much the 15y sector has cheapened on the JGB curve. As shown in Figure 5, 1y forward 10y and 5y forward 10y rates have risen to near 0.1% and 0.5%, respectively, their highest levels since the start of 2019. With short/medium-term yields continuing to price in NIRP deepening, the 10-15y sector has returned to levels seen before the BoJ strengthened its easing bias. And with the yield curve flattening sharply in the 20y+ sector, 20y forward 10y rates (forward 10y rates longer than 10 years forward) have fallen sharply with the term structure of forward rates becoming inverted (Figure 6). By contrast, forward 10y rates out to 5 years forward have continued to rise, exceeding the averages since the introduction of yield curve controls (YCC). Compared with forward 10y rates, maturities out to the 15y sector of the JGB curve appear more attractive as an investment.

Figure 5: Forward 10yr JGB rates



Source: Barclays Research

Figure 6: Term structure of forward 10yr JGB rates



Source: Barclays Research

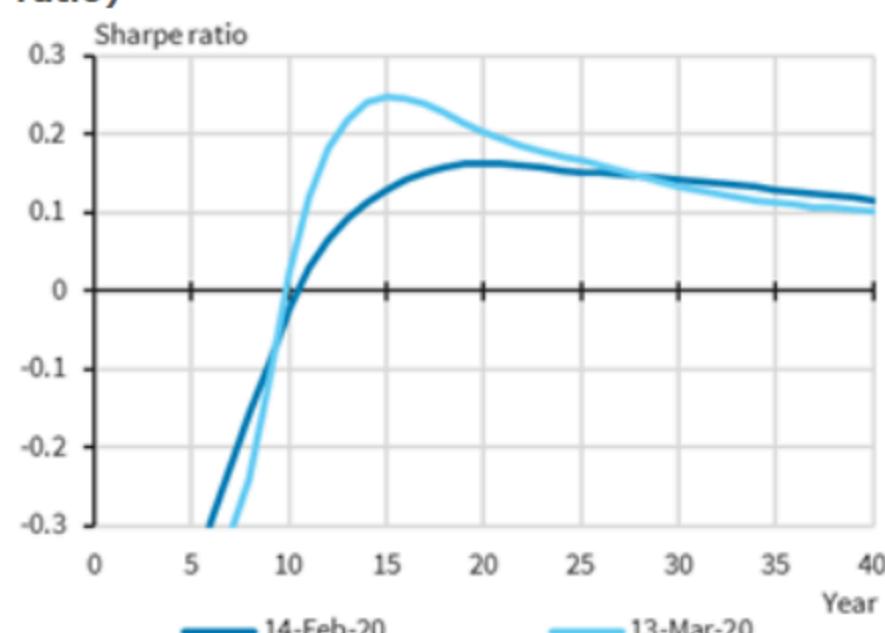
We recommend long positions in the 15y sector, which offer increased risk-reward, and 7s15s30s butterfly longs, which can be built with positive carry

Our quantitative analysis of risk-reward relationships on the JGB curve also indicates that the 15y sector has cheapened. Figure 7 shows the Sharpe ratio (= risk/return) in each sector with returns (convexity-adjusted returns) adjusted for risk exposure (volatility x duration). Although the 20y sector has long offered the greatest investment efficiency (cheapest valuation) on the JGB curve, this relationship is starting to change with the 15y sector becoming the cheapest. Based on this change in the yield curve shape, it has arguably become more attractive to build long positions in the 15y sector.

This cheapening of the 15y sector has been driven by moves to reduce risk exposure to low-liquidity off-the-run issues with the sharp dropoff in market liquidity. However, as noted above, in addition to the coordinated policy response of governments in major economies, including fiscal expenditure, major central banks have turned to bold monetary easing to suppress the spike in risk premiums. If this policy package turns out to be a game changer with global financial markets heading toward normalization, the liquidity risk premiums on off-the-run issues might be expected to head lower with the 15y sector correcting its cheapness. If relative value analysis on cheapness/richness works again with a recovery in market functions, it could become possible to once again target corrections in mis-pricings between assets such as swap spreads and BEI. However, at this stage, with market movements are still showing instability, it might be best to start conservatively with tactics targeting a correction of distortions between sectors of the JGB curve.

The carry when building 7s15s30s butterfly longs has improved sharply (by around 2.4bp for a holding period of three months, in our estimates) due to the cheapening of the 15y sector and the richening of 7y and 30y sectors. We continue to recommend 5s7s10s butterfly shorts and 7s10s flatteners, which can be built with positive carry, as positions targeting a correction of the JGB curve distortion out to the 7y sector. These trades have outperformed with a correction of 7y richness, demonstrating that it is difficult for an extremely distorted yield curve shape to persist. In addition, we initiate a recommendation to take long positions in 7s15s30s butterfly longs (buying 15s, selling 7s and 30s), which can be built with positive carry, as a relative value trade targeting a correction in the JGB curve cheapness/richness from a broader perspective.

Figure 7: JGB risk-return relationship (Sharpe ratio)



Source: Barclays Research

Figure 8: Carry and rolldown for 7s15s30s butterfly longs (3m holding period)



Source: Barclays Research

Arindam Sandilya
 (65) 6882-7759
 arindam.x.sandilya@jpmorgan.com

We expect FX spot gyrations to continue, but suspect that partial breakdown in safe haven correlations may be indicating that the global backdrop is messy but not necessarily as dire as the market sentiment suggests. We prefer owning 3m3m fwd vols which are (at mids) 2 sigma too low vs the ATM vols (Exhibit 3). 1vol b/o on 3m3m FVA (more than twice the historicals) is an impediment.

Performance of the long 3m3m FVA exhibits positive correlation with vol levels while offering a contained time decay during bearish trends for vols. Specifically the Exhibit 4 backtest shows 3m3m USD/JPY FVAs performing efficiently during major yen vol rallies (shaded episodes) and retaining P/L even as ATM vol starts to normalize lower.

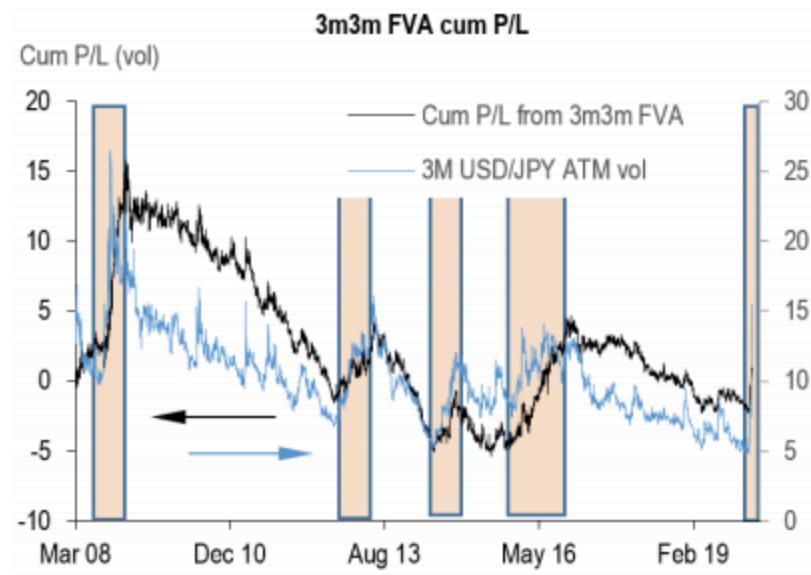
USDJPY vanilla call calendars

Earlier this week yen vol curve has inverted the most since GFC and retraced 70% of the 2008 peak (Exhibit 5) while widening of the risk reversals (in relative terms to ATM vols) has even exceeded the GFC levels. That dislocation has started to reverse.

Our yen analysts see USD/JPY above 100. If not for liquidity constrains a contained yen upside could be efficiently expressed via defensive USD/JPY OTM put calendars that utilize the once in a generation skew-vol setup. We opt for fading the curve inversion via vanillas on the weak side of the riskies to avoid left tail exposure. The -1M/+2M and -2M/+4M call calendars are the sweet spot showing the most attractive tradeoff between payout and static carry characteristics.

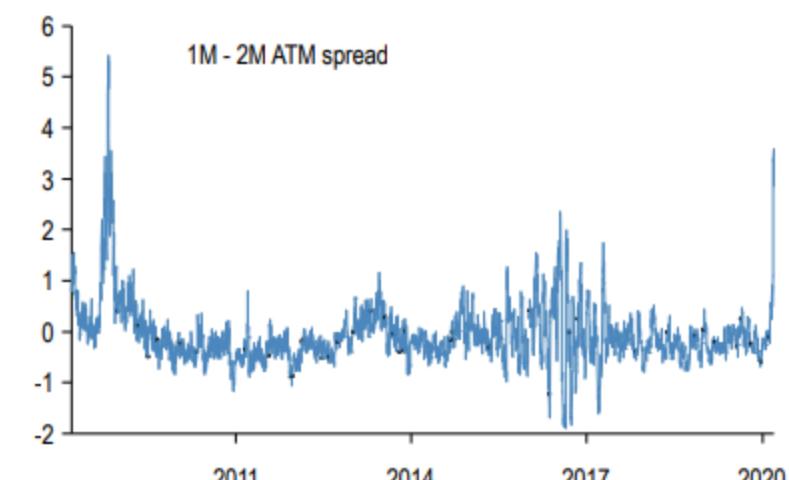
Conducting terminal payoff analysis across various spot and vol scenarios in Exhibit 6 we track net P/L at expiry of front tenor leg (i.e. aged calendar) across the space of +/-6% spot and +/-4 vol outcomes. The payoff grid shows the -2M/+4M USD/JPY 30D calendar to have well defined downside and positive P/L in most scenarios. Consider:

Exhibit 4. 3m3m USD/JPY FVAs performed efficiently during major yen vol rallies (shaded) and retained P/L even as ATM vol started to revert lower.



Source: J.P. Morgan, Bloomberg

Exhibit 5. The largest USD/JPY vol curve inversion since GFC is starting to reverse.



Source: J.P. Morgan

Exhibit 6. Aged -2M/+4M USD/JPY 30D calendar (at the time of the front tenor expiry) results in positive P/L in most scenarios.

Sell Schatz vs swaps

- ◆ Euro area rates valuations may have gone too far, too fast. The best risk-reward is at the front end: short Schatz vs EURIBOR swaps
- ◆ The front-end is mispricing ECB's tiering impact as the safe haven status of Schatz may erode over time
- ◆ Swap spreads are priced for an imminent financial shock while what we see in the Euro area is more an economic shock

Subhrajit Banerjee, CFA
 Fixed Income Strategist
 HSBC Bank plc
 subhrajit.banerjee@hsbcib.com
 +44 20 7991 6851

Table 2. Position for tighter short-dated swap spreads

Trade	Time horizon	Entry (date)	Target	Stop	3m C+R	Rationale	Risk
Sell BKO 0 3/22 Rec 2Y EUR IRS	3mths	55bp (13 Mar 2020)	38bp	56bp	+5bp	Market mispricing shock and ECB response	A sharp financial shock

Source: HSBC, Bloomberg

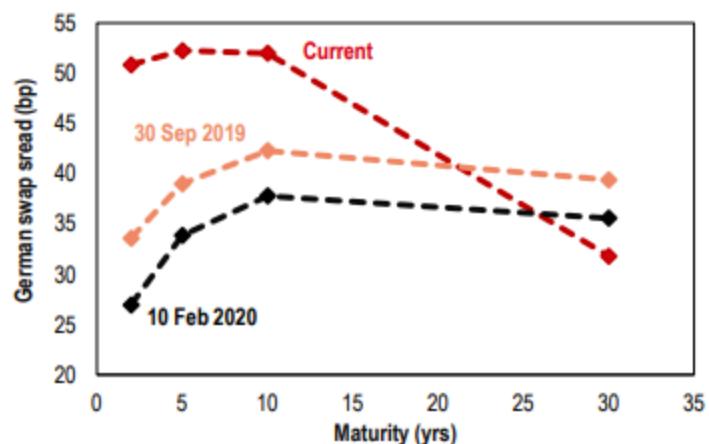
Turning against the tide

We see better risk-reward to short Schatz to express rich cash valuations

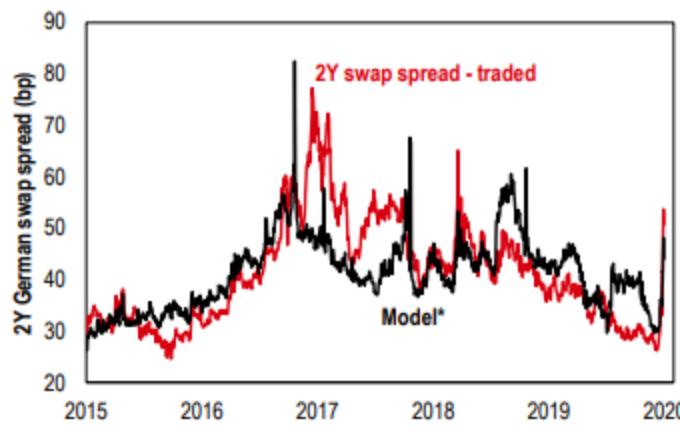
We favour selling 2Y Schatz on ASW (versus EURIBOR). Given the sharp risk-off moves over the last few days, investors may be tempted to oppose some of the historical dislocations that can be seen in the Euro fixed income market. Swap spreads have seen one of the strongest weekly widening moves since the European debt crisis (Figure 1). At the same time, long-dated rate forwards have fallen sharply, almost in tandem with the sharp tightening of Euro area breakeven spreads. The latter is a classic market response to a sudden, but potentially long-lasting, demand shock. Increased uncertainty in the oil market has further un-anchored investors' long-term inflation expectations. We do not disagree with the price action seen on long-dated forwards, both on the swap and EGB curves. In fact in [DM Rates Ideas](#), page 7, 14 February 2020, we entered a flattener on the Dutch 10-30Y curve on the view that Euro area curves were too steep for the global macro backdrop and vs their DM peers. In this publication we extend the target on the trade after having reached the initial target level.

Implied volatility has also picked up recently but there does not seem to be anything unusual about this. Short-dated swaptions (gamma) have shot higher, in tandem with increased realised volatility, while longer-dated options (vega) remained fairly anchored given the existence of EUR2trn (roughly 17% of euro-area GDP) of excess liquidity. What we find excessive is the unwarranted widening of swap spreads, especially at the short-end of the curve (Figure 2).

Figure 1. Swap spread widening was focussed at the front end...Figure 2. ... and it looks to be excessive now



Source: HSBC, Bloomberg



Source: HSBC, Bloomberg * Model using German repo-OIS spread, 3M EURUSD OIS xccy, EUR senior-sub senior bank CDS spread differential, QAT+BTP-2*Bund spread.

Disentangling shock premia

Markets seem to be pricing both economic and financial shocks at the same time

It is hard to find value in outright duration on any part of the Bund curve. Granted, owing to the structural shortage of safe assets in the Euro area, Bunds command a special status vs their other DM equivalents. But when funding costs are around 30bp higher than short-dated Bunds then questions need to be asked about the sustainability of such valuations. Even for 10- or 30Y Bunds the valuations are on the rich side of fair even adjusting for the increased recessionary fears along with the prospect of further monetary easing.

At the current juncture of heightened geopolitical and macro uncertainty where systemically important central banks are busier outside their scheduled meeting dates, we think the better risk-reward is to short Bunds at the front-end. No doubt Germany has one of the largest fiscal spaces both within the euro-area and vs its DM peers, which all else equal may argue for moving the shorts on the long-end. But amidst the strong disinflationary pressure any fiscal expansion may only arrest the free fall of Bund yields and perhaps not reverse it.

What does the model say?

Fair value analysis suggests Schatz spread may have widened too much

Short-dated swap spreads are the best performer on the entire Bund spread curve. This seems excessive to us as such moves tend to happen when there are financial and/or political shocks in the euro-area. Periods such as the European debt crisis (2011), French elections (2017) and Italian political uncertainty (2018) have been the classic cases for Schatz spread widening. We think the market has misinterpreted the current economic shock as a financial one. Having said that, there has been widening in financial CDS spreads – especially at the lower end of the rating spectrum. We incorporated all the likely variables that tend to guide Schatz spread in a multi-regression model and find the spread to be 6bp too wide.

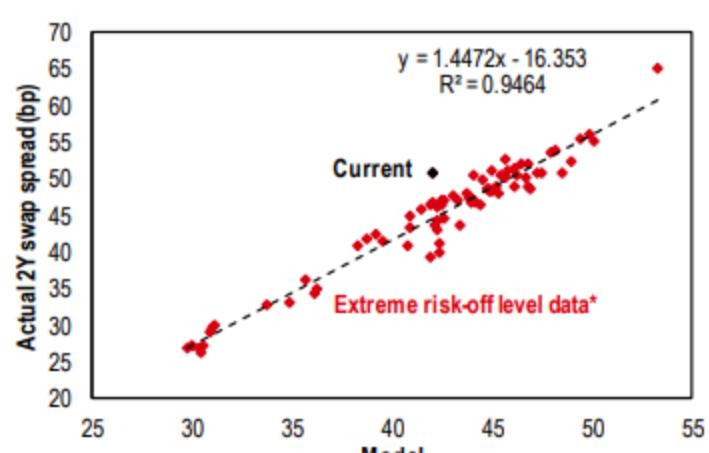
Additionally, markets seem to be again underestimating the meaningful impact the ECB's tiering could have on Schatz yields. The central bank's willingness to lend its balance sheet (a safe asset) at 0bp for a large portion of excess liquidity (EUR 900bn) during these crisis periods can structurally undermine the safe-haven status of Schatz. We were running Schatz spread tighteners back in mid 2019 (see [DM Rates Ideas: Battling into the tail](#), 31 May 2019) when markets were mispricing tiering impact (to be delivered in September 2019) and we think we are at a similar juncture currently.

ECB tiering may impact Schatz more than swaps

An interesting observation in the recent past is the initial signs of normalisation of TARGET2 imbalances between Germany and other peripheral nations, despite the onset of QE since October 2019. Although it is hard to track inter-country bank loans on a frequent basis, a slow normalisation of T2 balances could be a sign of this. If this is true then it should also erode Schatz's special status in the euro-area over time as money supply stuck within the German banking system, and chasing short-dated Bunds, may find alternative better yielding assets. The main risk to the trade is if there is a sharp banking sector led financial shock in the euro-area which could again put widening pressure on Schatz spreads.

Closed trades: We have taken profit on our 2-10Y German flatteners along with closing several other running trades. The full list can be seen in Table 9.

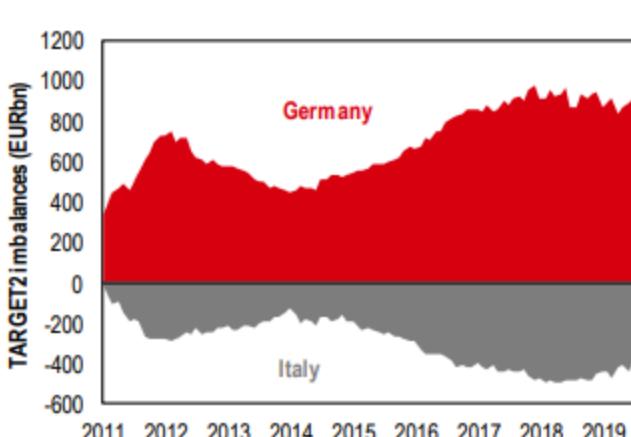
Figure 1. Spread looks too wide on crisis-only framework



Source: HSBC, Bloomberg

*Extreme risk-off data includes levels from 2011, 2018 and Feb/Mar 2020

Figure 2. Nascent signs of TARGET2 imbalances normalising



Source: HSBC, Bloomberg

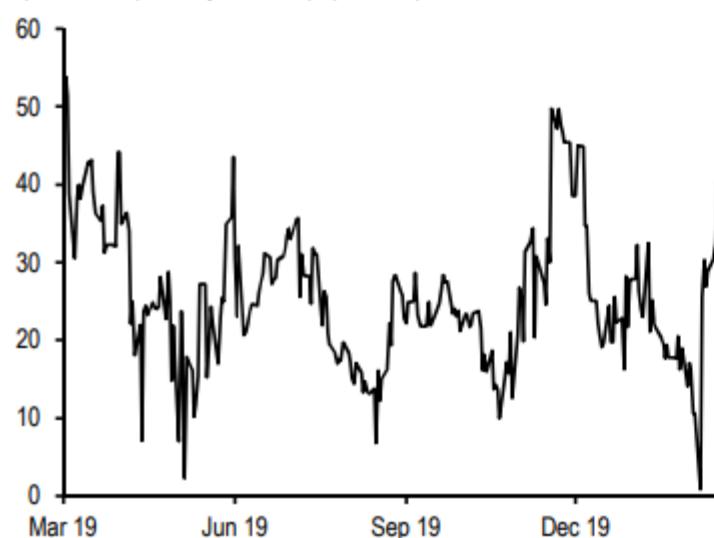
Recent developments in AUD front end funding markets

- Front end funding spreads in AUD have pushed wider in the past week or so; this move has been most extreme in repo vs. OIS
- Going forward, we have little issue with the level and shape of the forward FRA/OIS curve, but see BBSW/OIS as most at risk from operational risk or alternatively, ADI's limited access to offshore capital markets
- While the RBA is injecting additional liquidity into the repo market at present and term deposits at the RBA will likely be run down as fiscal stimulus is implemented, there are other factors working in the opposite direction
- Absent 1) higher ACGB yields; and/or 2) lower AUD; and/or 3) greater RBA intervention in the repo market, we have low conviction that repo vs. OIS spreads can contract significantly
- Elevated repo vs. OIS spreads would be somewhat problematic for the RBA's desire to implement yield curve control for shorter-dated ACGBs

What's happened and why?

Our colleagues in US interest rate strategy have written extensively about the recent moves in USD front end funding spreads (see [here](#) and [here](#)). As often happens, AUD funding spreads have not been immune to some sharp moves in recent weeks; as **Figures 1 and 2** show, the spread between repo and maturity matched OIS has jumped by almost 40bp in the past fortnight, and 3M BSSW/OIS has moved wider too, albeit by a much lower magnitude on net.

Figure 1: Repo rates have spiked higher this week
Repo vs. OIS (maturity matched) spread; Bp



Source: J.P. Morgan

Figure 2: And spot FRA/OIS has tracked wider too
3M BBSW vs. OIS; Bp



Source: J.P. Morgan

The discrepancy between movement in 3M BBSW/OIS and repo/OIS spreads is not overly intuitive (collateralized vs. non-collateralised), but also not unfamiliar. Similar dynamics were observed at various points in 2018. We think there are particular reasons why the repo vs. OIS spread has moved further than FRA.

First, anecdotal evidence suggests that the supply of bonds on dealer balance sheets is rising, as the sharp decline in yields in the past week or so prompts profit taking on long positions in ACGBs and as leveraged accounts exit cash bonds vs. futures basis trades. Alternatively, the under-performance of ACGBs on a cross market basis vs. USTs may have also prompted some rapid position adjustment. Either way, this removes cash from the system as bank treasuries fund bond books on market-making desks, rather than offer cash into the broader repo market.

Second, our observations suggest that leveraged investors are currently behaving as price takers in the repo market at present, looking to term out their funding of long ACGB positions.

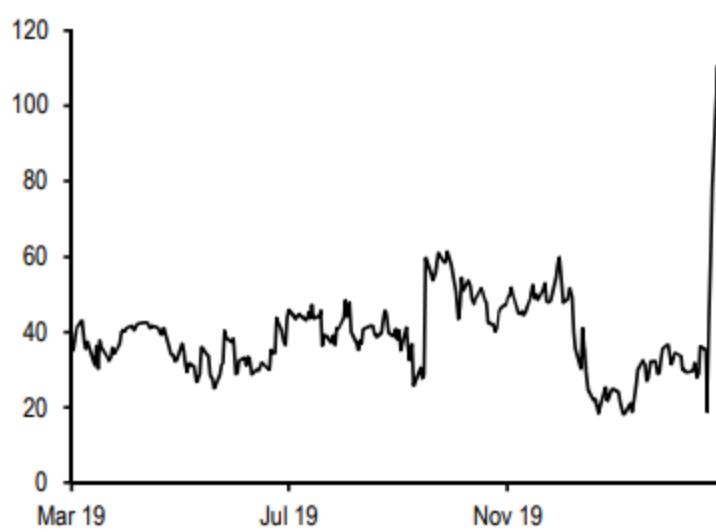
Third, the market may be expecting the net supply of bonds to rise, given forthcoming announcements on the government's fiscal response to the COVID-19 outbreak.

Fourth, the RBA's shift in thinking on how it would implement unconventional monetary policy (see [here](#)) means that all else equal, there will now be more bonds "in the market" than dealers and investors had perhaps anticipated. It also means that the market no longer has the ability to rely on the positive externalities of an asset purchase program to cap widening in front end funding spreads.

Finally, the sharp movement in the AUD/JPY 3M cross currency basis swap (**Figure 3**) has likely reinvigorated demand for ACGB vs. JGB collateral swap trades.

Figure 3: The AUD/JPY 3M cross currency basis swap has spiked higher this week, reinvigorating demand for ACGB vs. JGB collateral swap trades

AUD/JPY 3M cross currency basis swap; Bp



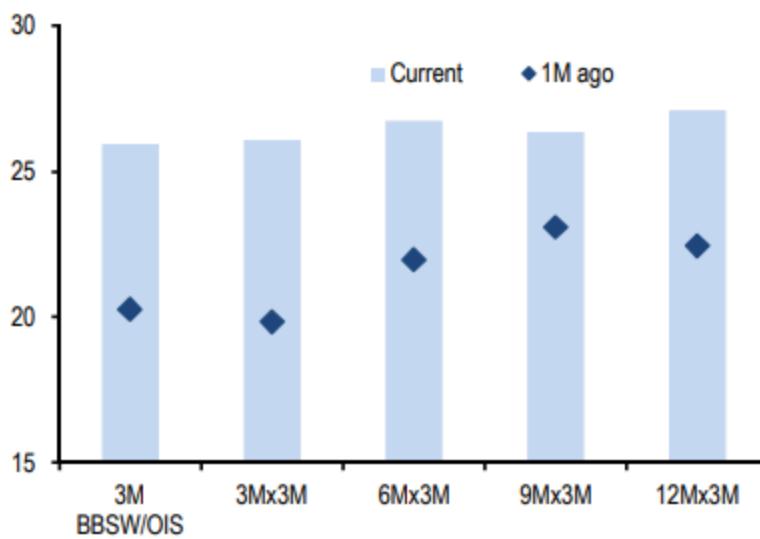
Source: J.P. Morgan

Where to from here for front end funding spreads?

Our sense is that FRA/OIS spreads are likely to be reasonably well behaved; while the forward curve has shifted higher in the past month, there is not much additional steepness in the curve relative to 1M ago (**Figure 4**). And because the OIS curve has now largely fully priced the final rate cut from the RBA (and some chance that the overnight cash rate trades below 0.25%), there is limited scope for AUD OIS to out-perform 3M bank bills on a rapid re-pricing of monetary policy expectations.

Figure 4: The FRA/OIS forward curve looks flat

AUD FRA/OIS forward curve, selected tenors; Bp



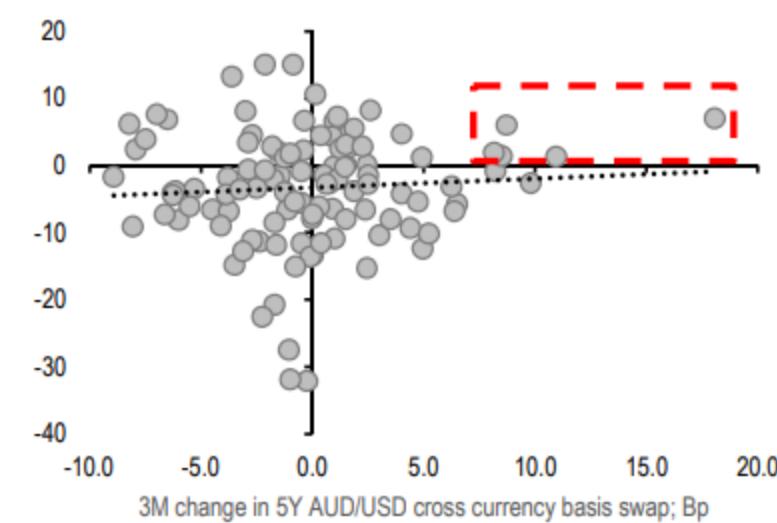
Source: J.P. Morgan

However, we would note that one risk to FRA/OIS spreads stems from operational risk. As our US colleagues have noted (see [here](#)), this is a type of risk that brings with it new challenges. In already challenging liquidity conditions, it likely won't take much of an operational issue to deliver to increased transaction costs and altered perceptions of credit risk. Our colleagues in US interest rate strategy wrote about this using the example of centralized counterparties and the CME/LCH basis, but locally, one could apply the analogy to a domestic market maker or ADI.

An alternative risk for 3M BBSW is the inability for banks to fund in offshore capital markets when credit growth is lifting. If so, this could see banks use shorter-dated funding instruments more intensively. If we use 3M changes in the AUD/USD 5Y cross currency basis swap as an indication of stressed offshore capital markets, then it is hard to discern too much correlation between stressed funding markets and changes in short term bank paper on issue. Still, as **Figure 5** illustrates, large moves in the cross currency basis swap do seem to induce increases in short term bank issuance, but this move needs to be greater than 8bp over a quarter.

This document is being provided for the exclusive use of

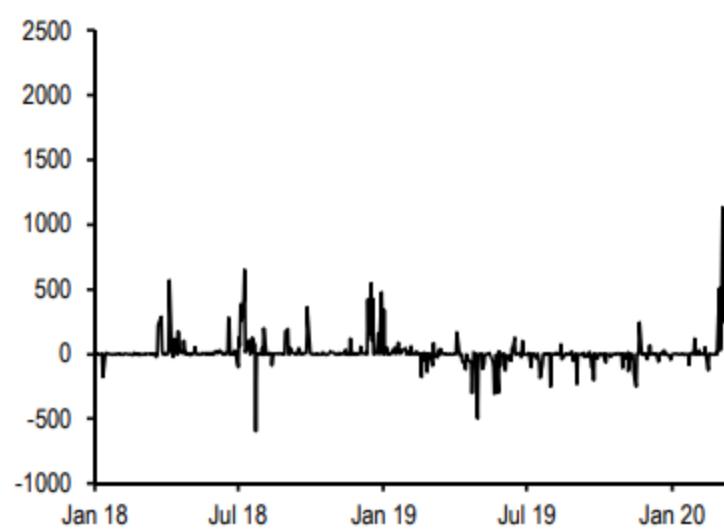
Figure 5: Change in the 5Y cross currency basis swap and short term bank debt
1Q change in short term bank debt outstanding; AUDbn



Source: J.P. Morgan

The outlook for repo vs. OIS spreads is more nuanced. On a positive note, the RBA noted in the statement accompanying the March rate cut that “*Australia's financial markets are operating effectively and the Bank will ensure that the Australian financial system has sufficient liquidity.*” Already, we have seen the RBA provide additional cash in daily repurchase operations – **Figure 6** shows the difference between the RBA’s intended size of its daily open market operations, and the actual amount dealt that day. The chart shows clearly that the RBA has dealt sizably more than initially intended in recent days, suggesting that there has been a greater demand for Exchange Settlement funds (that is, ADI reserves at the RBA) than initially anticipated perhaps due to higher precautionary demand. Other spikes in this series (such as through 2018) have tended to occur around quarter-end funding stresses but are much lower in magnitude.

Figure 6: The RBA has been injecting more cash into the repo market than intended in recent sessions
Difference between intended daily OMO and actual; \$Am



Source: J.P. Morgan and RBA

Although the central bank stands ready to ensure sufficient liquidity, some of the factors pressuring repo rates higher are unlikely to disappear anytime soon. For example, **net bond supply will rise** as the government enacts fiscal stimulus in coming days. We suspect the market may worry about the prospect of more bond supply in the event there are limited signs of a growth rebound in 2H20. That this happens at a time when the RBA has clearly shifted its thinking on the implementation of unconventional monetary policy is not overly helpful for repo (higher supply on net).

Demand for repo as a consequence of collateral swap trades is unlikely to ease unless 1) repo rates move higher, making the trades uneconomic; or **2)** the AUD/JPY 3M cross currency basis corrects lower. The latter would require lower demand for USD as risk aversion recedes, a greater supply of USD (via enhanced Fed

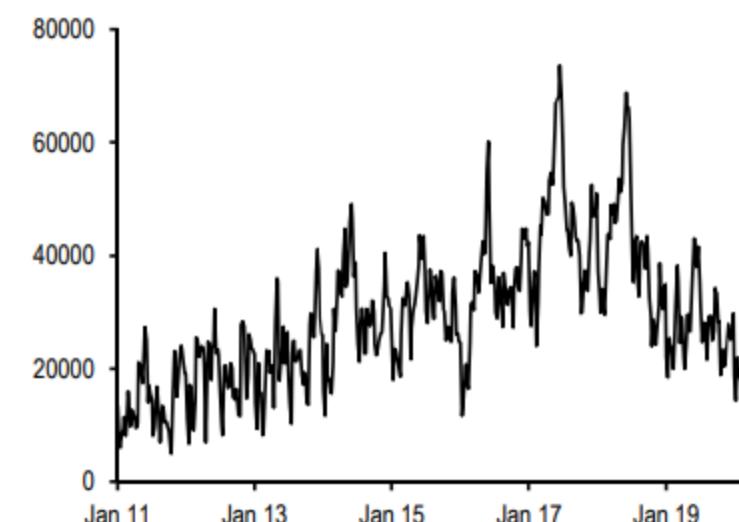
liquidity injections) or a sense that position liquidation in received AUD/USD cross currency positions had run its course.

Higher yields (or a lower AUD) which spur end user (that is, not financed) demand for ACGBs could also ease tight funding in the repo market. But while ACGBs have under-performed USTs in recent weeks, we would argue they are not yet at levels that we would regard as cheap given where we see the Fed and RBA taking their respective policy rates. As we wrote in last week's *Antipodean Strategist*, if the Fed and RBA reach their respective ELBs, then the 10Y ACGB-UST spread would not become cheap until it reaches +25bp or higher. So it is possible that dealers struggle to reduce inventory in coming weeks.

Another issue for the repo is the relative dynamics between credit growth and deposit growth. With credit growth now rising and fiscal policy loosening, there should be less demand for bonds from bank accrual books (to make room for loans), which potentially adds to dealer inventory, at the margin.

Still, **loosening of fiscal constraints** (fewer term deposits on the RBA's balance sheet) should work in the opposite direction for funding spreads. We wrote often in 2018 (see [here](#)) that when RBA liabilities increase, this tends to be due to increasing government deposits (short-run accumulation of tax receipts and delay of payments), which represents a drainage on bank deposits, and therefore slows the rate of deposit growth relative to credit growth. In effect, this is a source of funding that is temporarily withheld from the broader financial system, and which will result in higher short-term borrowing needs for banks. **Figure 7** illustrates that currently, these deposits are close to average levels over the past (almost) decade. So if near term stimulus is funded by running down deposits (rather than by additional bond issuance), then this could be at least short term positive for spreads

Figure 7: Deposit liabilities on the RBA balance sheet are lower now, relative to 2018
RBA deposit liabilities, \$Am



Source: RBA and J.P. Morgan

Funding spreads and unconventional monetary policy

One related issue is how elevated funding costs will impact the RBA's potential use of unconventional monetary policy. Assuming the RBA elect to use some form of yield curve control, there would seem to be a broad inconsistency of targeting 3Y yields at 5bp over cash (for example), when repo vs. OIS is trading at +40bp. Perhaps this suggests that the RBA's chosen form of unconventional monetary policy may need to involve some quantity of ACGB purchases in order to activate some of the positive externalities for funding markets associated with higher excess reserves at the RBA. Alternatively, the Bank may need to be more activist in the repo market, so that holding shorter-dated ACGBs is not a negative carry trade.

Conclusion

Unsurprisingly, AUD front end funding spreads have exhibited considerable volatility in recent weeks. For FRA/OIS spreads, we believe that the main risk to wider spreads stems from operational risk more than market risk, and potentially an inability to access offshore funding markets.

document is being provided for the exclusive use of

The outlook for repo vs. OIS spreads is perhaps more nuanced. On the one hand, fiscal stimulus (lower term deposits at the RBA) and increased central bank liquidity provision should help cap spreads. But on the other, large dealer inventory of ACGBs, the prospect of greater net supply of ACGBs and rising credit growth could work in the other direction. Renewed interest in collateral swap trades could also add to demand for repo at time when cash is scarce.

Summary of main findings

"For the euro area as a whole, the impact of lower interest rates on net interest income was positive for the NFC and government sectors, while it was negative for the financial sector. For the household sector, the impact was broadly neutral." (ECB Bulletin, 5/2017, "Lower interest rates and sectoral changes in interest income").

"In addition, persistently low interest rates put pressure on the financial position of insurers and pension funds and provoke a search for yield. When financial institutions reallocate their funds to higher-yielding but riskier and less liquid assets, they become more vulnerable to potential market shocks (DNB press release: "Prolonged low interest rates are the main risk to financial stability", 15 October 2019).

- **Stricter discounting regimes ahead:** While pension regulation remains at national level, there is an increased push by the European Commission to standardise reporting and regulation via its advisory body EIOPA. We estimate the DV01 of European defined benefit liability at 6bn/bp. A realistic scenario of an increase in the EIOPA curve **LLP to 30y increases liabilities by EUR300bn** across the eurozone, **and DV01 by 1.7bn/bp**. The UFR will continue to drift down, in our view and, depending on the methodology, may increase liabilities by EUR60bn across the eurozone over the next three to four years. The DNB has already announced a shift to UFR 2021 which will lower the UFR and increase the LLP from 20y to 30y. We estimate this increases liabilities by EUR95bn and liability DV01 by EUR668mln/bp.
- **Funding ratios already too low:** In the Netherlands, we estimate the average funding ratio for defined benefit plans across the country at 97% (as of February 2020). We do not have sufficient data to estimate the funding ratio in other countries, but our informed guess is that it will not be very different from the Netherlands ratio when viewed by DNB2019 discounting standards. The rate of return (IRR) required on German IORP assets is challenging at 1.55%, and may mask the same problems that are evident in the Netherlands.
- **Long duration outperformed equity:** Asset allocation has been relatively stable, with bond allocation at 50% across the eurozone (Figure 3, page 7). However, total returns on long 30-year sovereign bonds have significantly exceeded total returns on Euro Stoxx 600 (see chart opposite). As pension liabilities are discounted on long-dated risk free proxies, it follows that liability growth has exceeded asset growth. Falling interest rates and curve flattening are significant risks to pension balance sheets, given the asset portfolio mix.
- **Pressure to de-risk:** Given the persistently low long-end rates, and underperformance of European equities, under-reserved pension funds may face regulatory pressure to increase allocation to risk free rates. With long-dated equity and rates volatility near all time lows, one possible solution to add leverage and maintain exposure is to switch from risky assets to long-dated calls or call spreads on rates and equities.

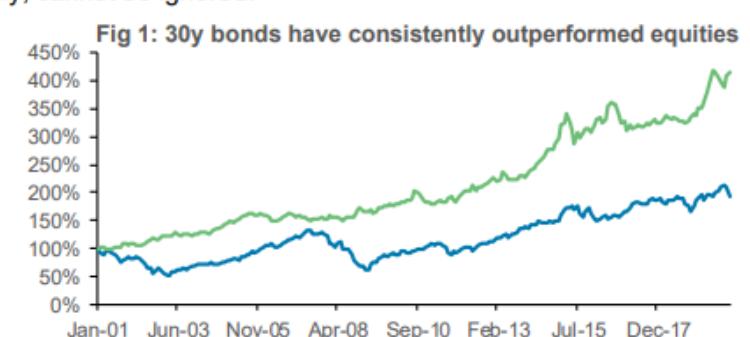
Kaushik Banerjee, Head of Global Macro Research | Marco Meijer, G10 Rates Strategist, Europe | Sumati Semavone-Jain, G10 Rates Strategist, Europe | BNP Paribas London Branch

▪ **Tough start to 2020:** Dutch pension funds had a tough start in 2020. The fall in yields combined with a fall in equity is likely to have had a negative impact on cover ratios. We estimate that, between year-end 2019 and end-February, total liabilities may have risen by 7.7%, while assets only managed a small improvement: a +4.0% rise from lower bond yields was offset by a 3.5% fall due to lower equities. This brings the estimated cover ratio to 97.0% as of February 2020, a seven-point fall since year-end 2019.

▪ **Odd incentives:** For pension funds with cover ratios less than 100%, there is no static or dynamic solution that will meet guarantees, in our view. The only solutions are:

- i. Reduce guarantees => Cut pension benefits.
- ii. Defer guarantees => Extend retirement age.
- iii. Increase allocation to risky assets, but there is no certainty that this will pay off (it has not in the past). If it doesn't, one may go back to i or ii or exercise sponsor and pensions guarantees.

▪ **Watch the politicians:** There is a risk that governments maybe compelled to overrule regulators and try to buy time by softening discounting regimes. The introduction of DC-like elements in the Netherlands seems a real possibility, and could be a game-changer for hedging needs. The risks, while hard to quantify, cannot be ignored.



Sources: Bloomberg, BNP Paribas. Past results are not indicative of future performance, which may be better or worse than prior results

MARKETS 360 | DEEP DIVE 13/03/2020 2

Pension liabilities: A tale of discount curves

Cashflow projections - Dutch DB pension funds make up nearly 50% of total eurozone DB schemes. The 2017 and 2019 EIOPA stress test reports have provided us with aggregated liability projections for the entire eurozone. The top chart shows modelled projections by year, as well as the present value of these cashflows, when discounted at the current EIOPA UFR curve (see [here](#) for EIOPA's technical documentation of its UFR methodology).

The 2017 report also provided a breakdown at country level, based on the sample that represented about 55% of all IORP assets in the eurozone. Dutch DB pension funds make up nearly 50% of total eurozone DB schemes (ex.UK).

The German weighted average life of 27 years is much longer than the European average of 23.5 years and 22 years for the Netherlands. In Germany, while many DB pension schemes don't fall under the IORP banner, we expect DB liability profile to be very similar to IORPs'. The memberships of these corporate and self-employed schemes typically mirror IORP pension funds. While the asset mix may differ, we think it is fair to extrapolate the liability exposures from IORP schemes to other types of German pension arrangements. In Germany, 'only' 64% of liabilities is under 30 years, 29% between 30 year and 50 and 7% beyond that.

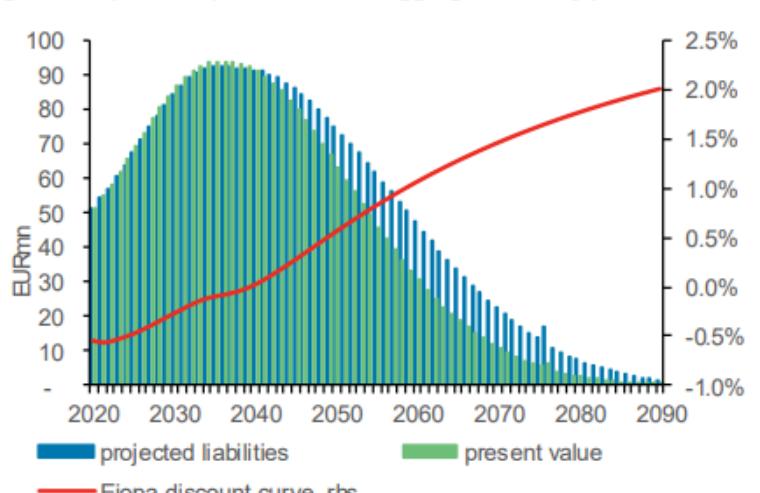
Discount curves vary. The 6-month Euribor swap curve forms the basis of practically all DB pension fund liability discounting curves, although Germany varies the most by the addition of a credit spread and the use of a flat rate to discount. For UFR curves, there are four additional parameters that lead to different variants, as described by national regulators:

- **'Last Liquid Point' (LLP)** - after which the swap curve is no longer used;
- **'Ultimate Forward Rate'** (UFR) to which forward rates converge from the LLP;
- **Convergence speed**, or '*a*' that determines how fast the curve converges from the LLP to the UFR, using the Smith-Wilson extrapolation.
- **Credit Adjustment (CA)**, which EIOPA subtracts from the Euribor swap curve to better reflect a risk free curve. This is currently set at 10bp. In the Netherlands, no CA is applied.

The lower chart shows substantial variations between liability discount curves:

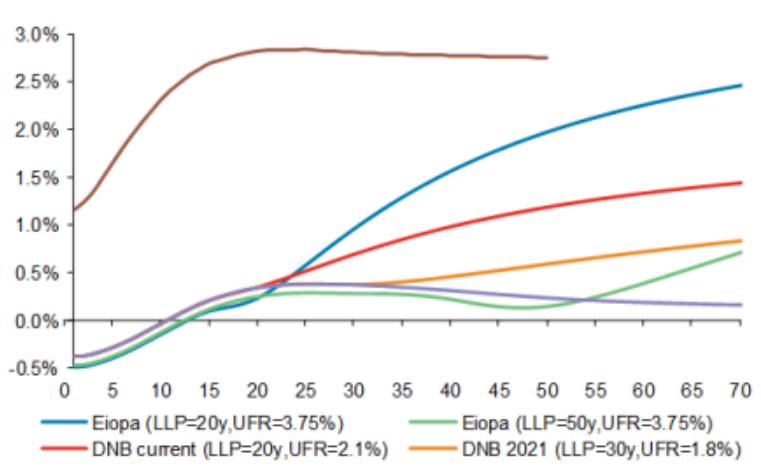
- the current EIOPA curve with a LLP of 20 years (blue line) and one of the proposed EIOPA curves with a LLP of 50 years (green line)
- the current DNB curve (red line) and the one that will apply from 2021 onwards (orange line)
- the German IORP average rate discount curve (brown line).

Fig. 1: European DB pension funds' aggregate liability profile



Sources: EIOPA, BNP Paribas calculations. Excludes UK

Fig. 2: Liability discount curves, current* and proposed



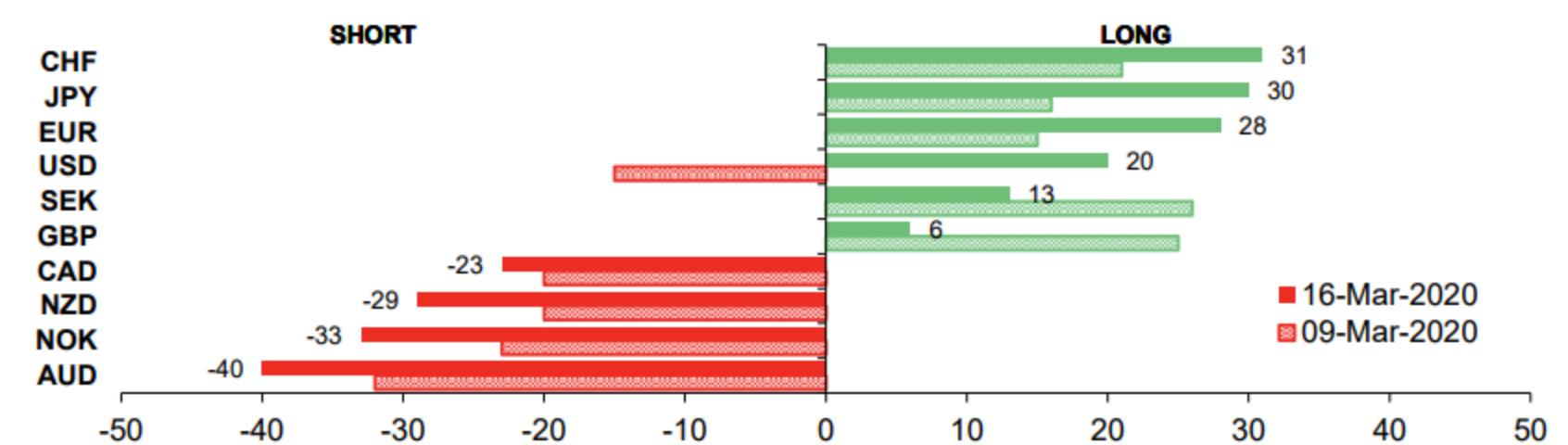
* As of 13/02/2020
Sources: EIOPA, DNB, Bundesbank, Bloomberg



MACRO QUANT STRATEGY | G10 FX

- FX investors build USD longs with a score of +20 (-/+ 50 scale) as a result of all components with the exception of the IMM component turning bullish on the USD.
- The market builds JPY longs with a score of +31 as the IMM and Risk Reversal components extend longs. This represents the longest JPY positioning scores since 4 September 2019.
- GBP longs unwind to a score of +6 driven by the Buy Sell Pressure and Trending Indicator components building shorts.
- The market turns more bullish on EUR with a score of +28. All components, with the exception of our proxy for real money investors, hold EUR longs.

Fig. 1: BNP Paribas FX positioning analysis – overall positioning*



*The positioning scores above are reported as a percentile based on the prior five years of data. These percentiles are rescaled to give a value between -50 and +50. Values above 40 and below -40 represent extreme positions.

To interpret a score of -27, for example, add 50 to give 23. This tells us that 23% of observations over the past five years have been below the current observation.

Client Exposure	IMM	Risk Reversals	BNPP Trending Indicator	Buy Sell Pressure	
8	-22	37	47	30	USD
16	20	46	50	10	EUR
29	29	49	42	0	JPY
-13	44	41	-30	-11	GBP
23	35	-2	50	50	CHF
-20	5	-50	-29	-22	CAD
-21	-40	-50	-50	-40	AUD
-19	-27	-50	-36	-12	NZD
-16	-	-26	-50	-39	NOK
-13	-	32	42	-11	SEK

All sources: BNP Paribas

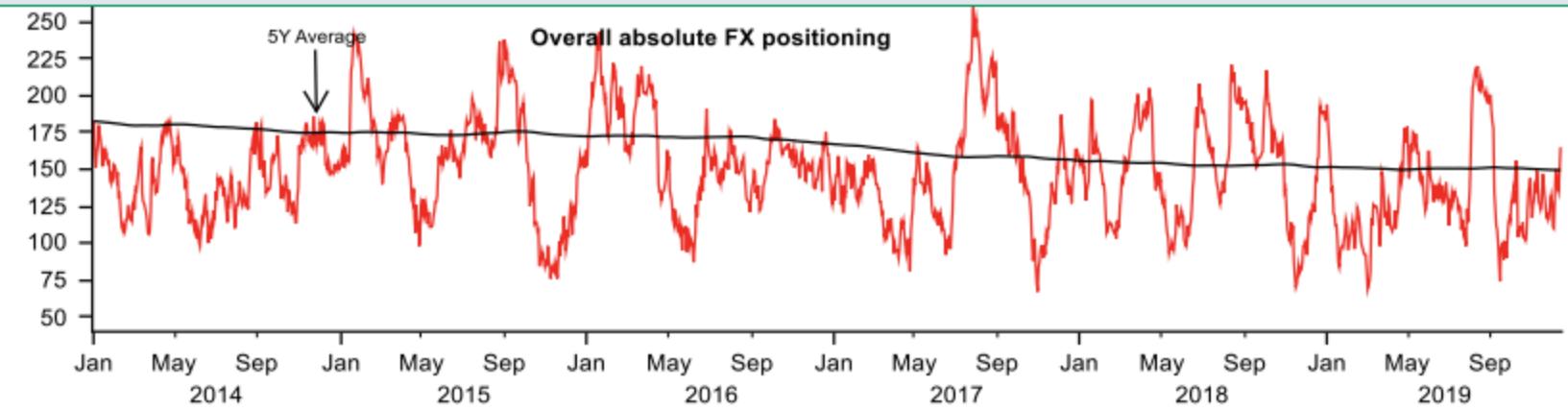
- **Client exposure** – Internal sales desks' estimate of FX investor exposure.
 - **IMM** – The commitment of traders (COT) is a widely used proxy for US-based hedge-fund/CTA activity.
 - **Risk reversals** – Risk reversals indicate the relative price of calls relative to puts, and thus incorporate a "market sentiment" option.
 - **BNPP trending indicator** – A technical measure of the strength of a currency's momentum.
 - **Buy sell pressure** – An indicator of price momentum and direction that utilises tick data, aggressor information and price movements.
- The overall currency score is then calculated as the equally-weighted average of the components

Michael Sneyd, CFA, Head of Macro Quantitative & Derivatives Strategy | Alex Jekov, FX Strategist | Kris Gjini, Macro Quant Strategist | BNP Paribas London Branch

Please refer to important information at the end of the report

MARKETS 360

Fig. 2: Absolute total G10 positioning



Three-year plot of G10 currency positioning scores

Fig. 3: USD overall positioning

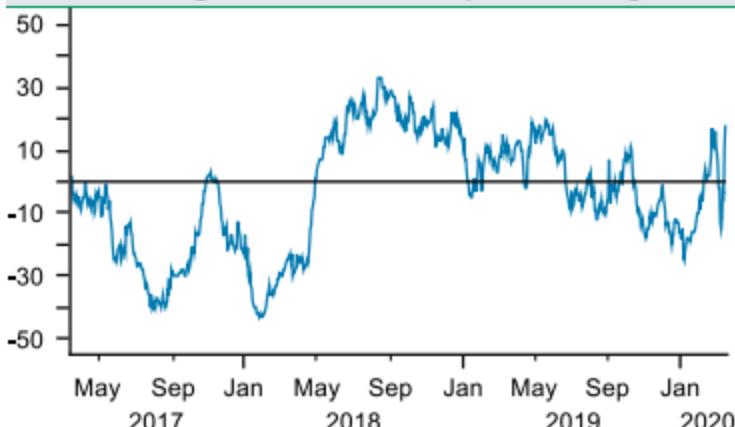


Fig. 4: GBP overall positioning

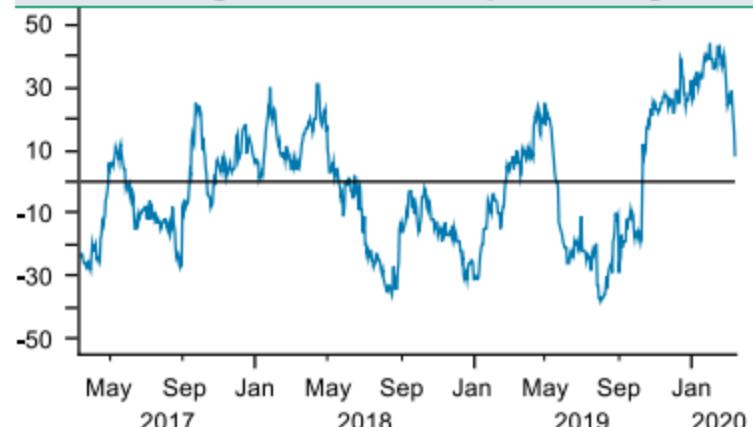


Fig. 5: EUR overall positioning

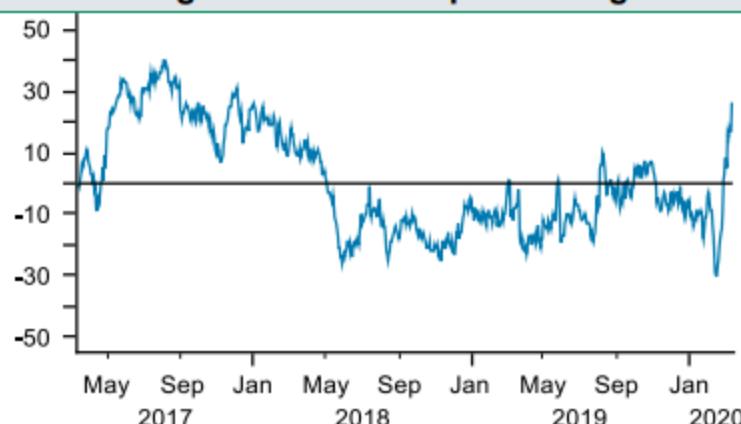
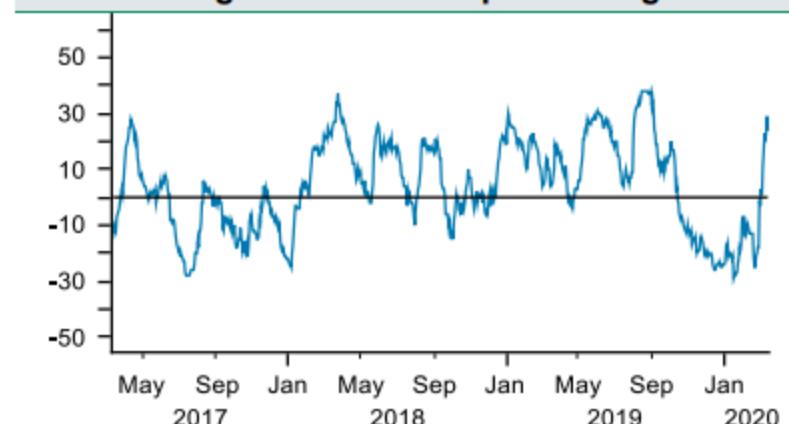


Fig. 6: JPY overall positioning



6m plot of G10 currency positioning – individual scores

Fig. 13: USD positioning components



Fig. 14: GBP positioning components

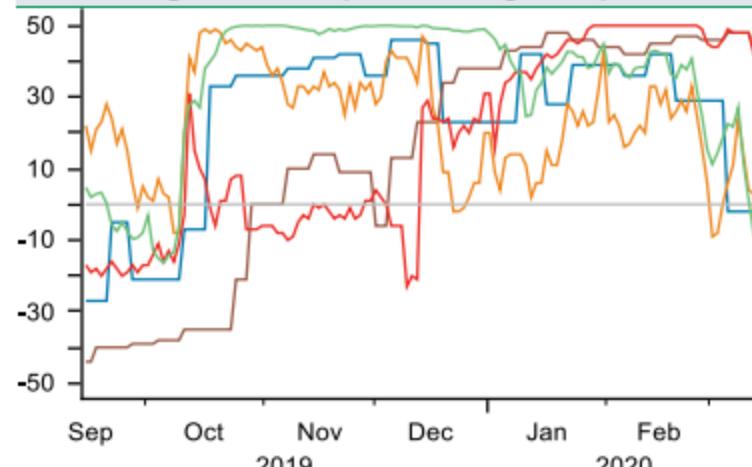


Fig. 15: EUR positioning components

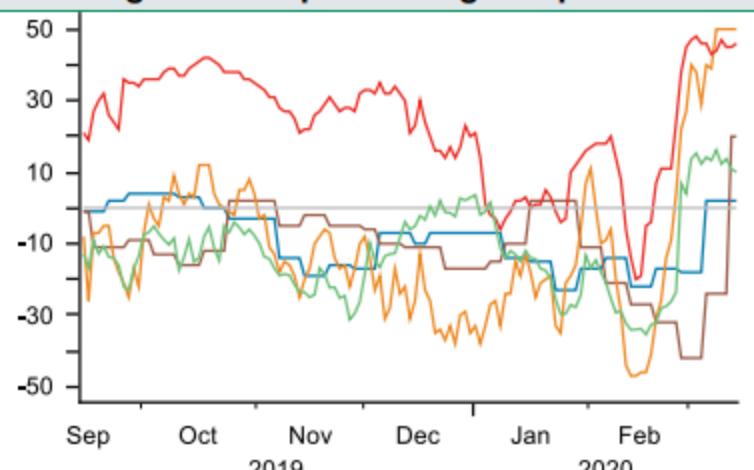
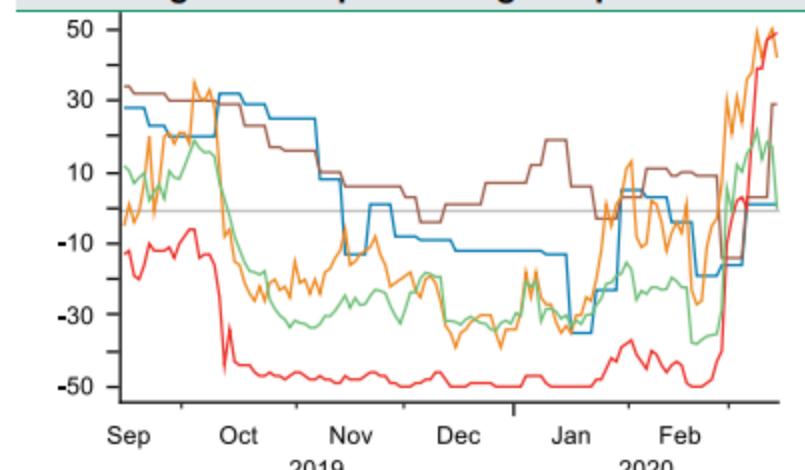
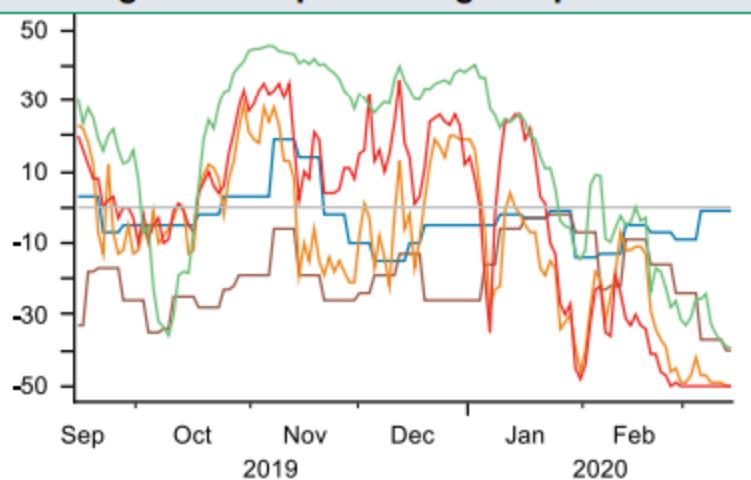


Fig. 16: JPY positioning components



All chart sources: BNP Paribas

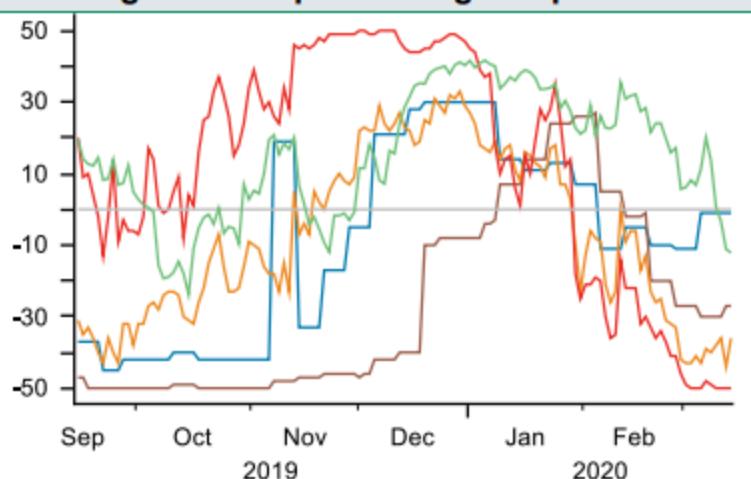
All chart sources: BNP Paribas

Fig. 17: AUD positioning components

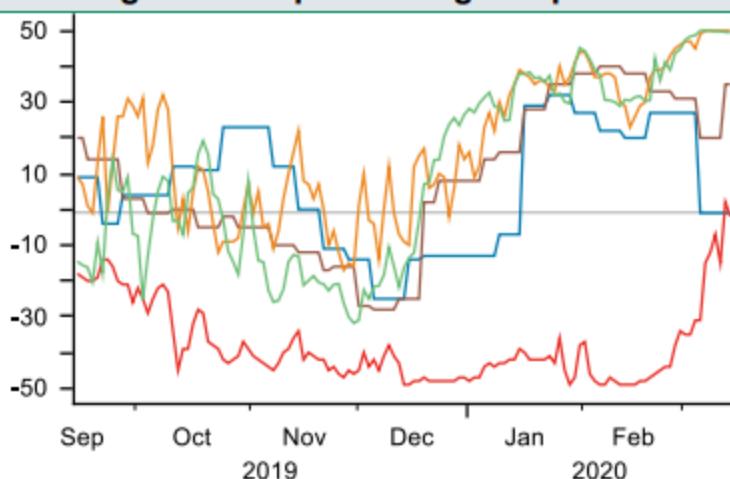
Buy Sell Pressure BNPP Trending Indicator Fund Position Tracker
Risk Reversals IMM Client Survey

Fig. 18: CAD positioning components

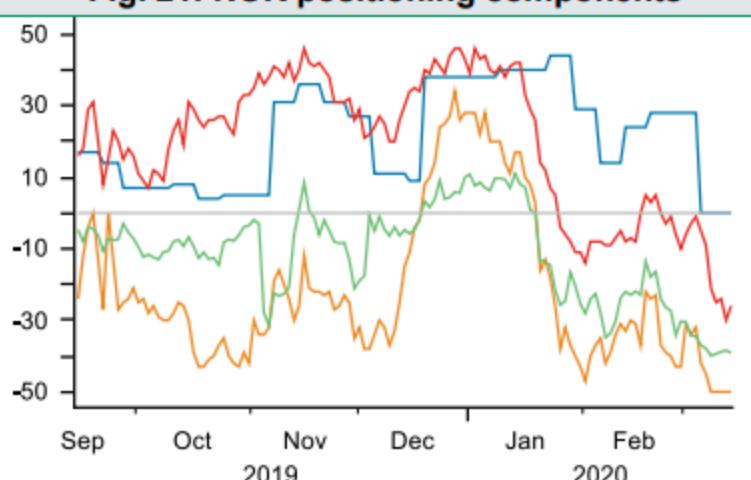
Buy Sell Pressure BNPP Trending Indicator Fund Position Tracker
Risk Reversals IMM Client Survey

Fig. 19: NZD positioning components

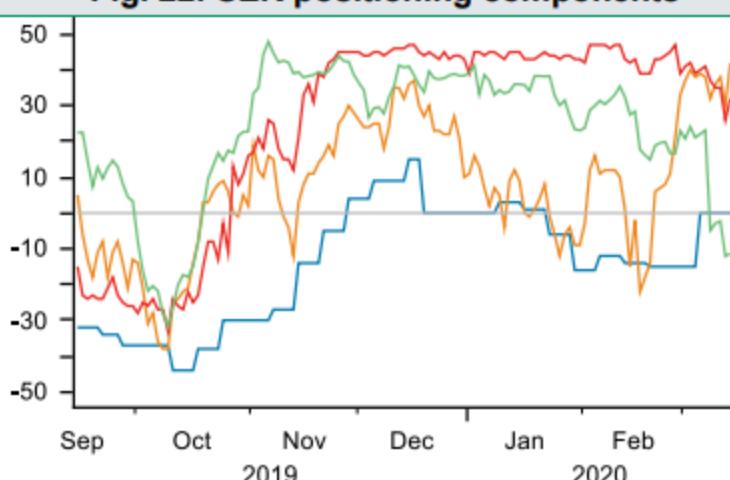
Buy Sell Pressure BNPP Trending Indicator Fund Position Tracker
Risk Reversals IMM Client Survey

Fig. 20: CHF positioning components

Buy Sell Pressure BNPP Trending Indicator Fund Position Tracker
Risk Reversals IMM Client Survey

Fig. 21: NOK positioning components

Buy Sell Pressure BNPP Trending Indicator Client Survey
Risk Reversals Fund Position Tracker

Fig. 22: SEK positioning components

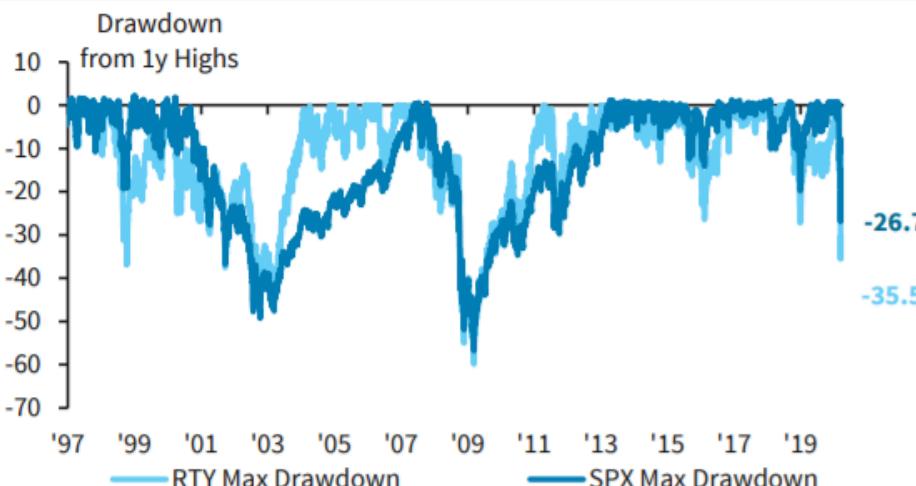
Buy Sell Pressure BNPP Trending Indicator Client Survey
Risk Reversals Fund Position Tracker

All chart sources: BNP Paribas

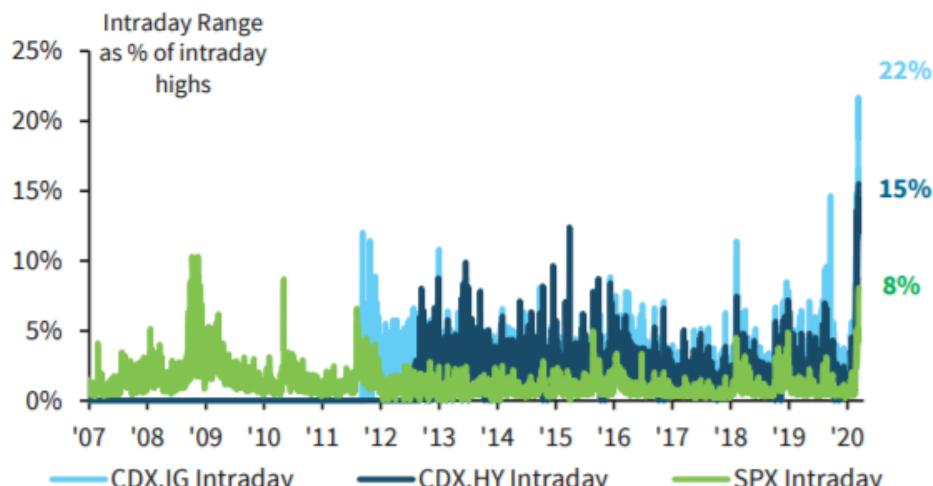
CREDIT

The sell-off has been faster and deeper than any other since the crisis, with unprecedented intraday volatility. Credit has lagged equities beta-adjusted

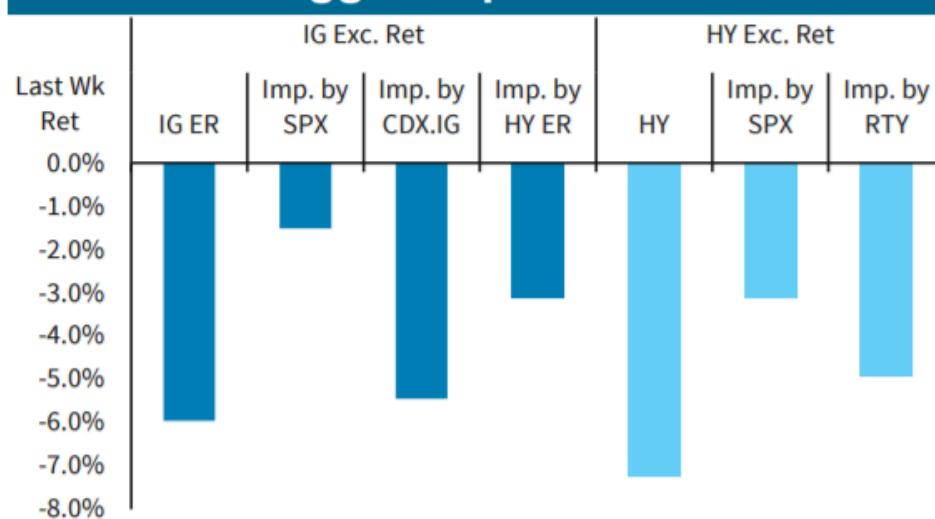
Sell-offs in Perspective: Faster and Deeper



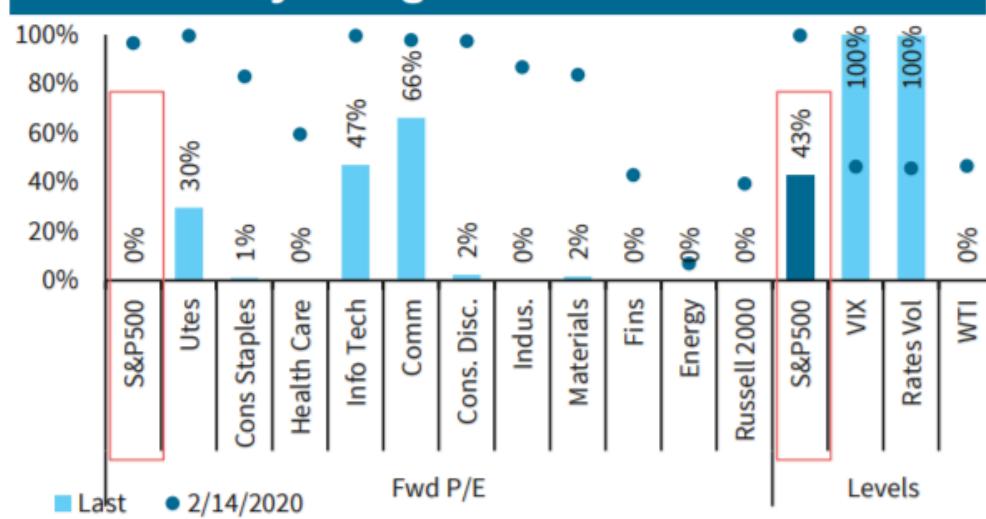
Unparalleled Intraday Volatility



Credit Lagged Equities Last Week



%tile of 5y Range – Fwd P/E vs Levels*



Note: for the bottom left chart, beta calculated using monthly returns, 5y window. *: for the bottom right chart, the sector name stands for the subsector within S&P500. For Communication sector, not accounted for the reshuffle in 2018. Source for all charts: Bloomberg, Barclays Research



4



CDX volumes roar upward on coronavirus panic

Louie Woodall

Abdool Fawzee Bhollah

Ben St. Clair

18 Mar 2020

Credit default index (CDX) traders swamped the market in high-yield and investment-grade contracts as the coronavirus crisis deepened, with weekly traded volumes quadruple multi-year averages.

Weekly notional traded volumes in CDX HY (high-yield) contracts were \$99.9 billion, \$79.1 billion and \$87.9 billion for the weeks ending March 1, 8 and 15, respectively, according to [Depository Trust & Clearing Corporation \(DTCC\)](#) data. This compares to an average weekly volume of just \$22.5 billion for the preceding 112 weeks going back to the start of 2018. In the week ending March 1, 4,556 contracts changed hands, the most in that period.

CDX IG (investment-grade) traded volumes also rocketed, hitting \$224.5 billion in the week ending March 15, \$210 billion in the week ending March 8, and \$237.5 billion in the week ending March 1. In comparison, the average weekly volume for CDX IG from 2018 to the end of February 2020 was \$49.9 billion. In the week ending March 15, 3,991 contracts traded, the most in that period.

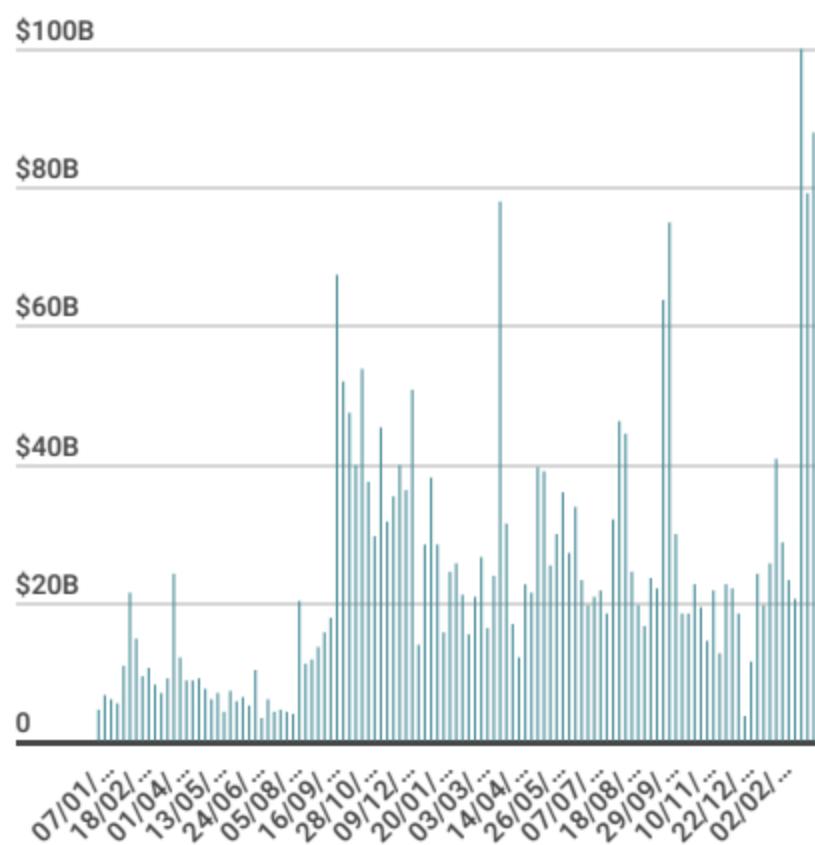


FIGURE 1

Main: Investors sold \$1.3bn in on-the-run, \$3.4bn across series, in a week where Main was 27bp wider

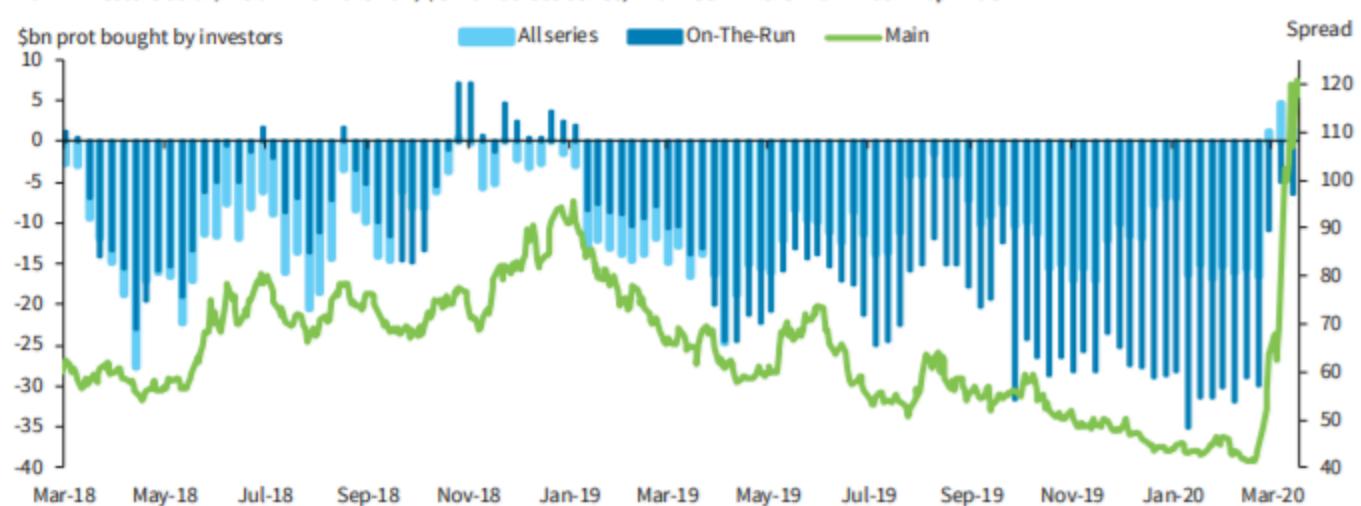


FIGURE 2

Cross: Investors bought \$625mn in on-the-run, \$650mn across series

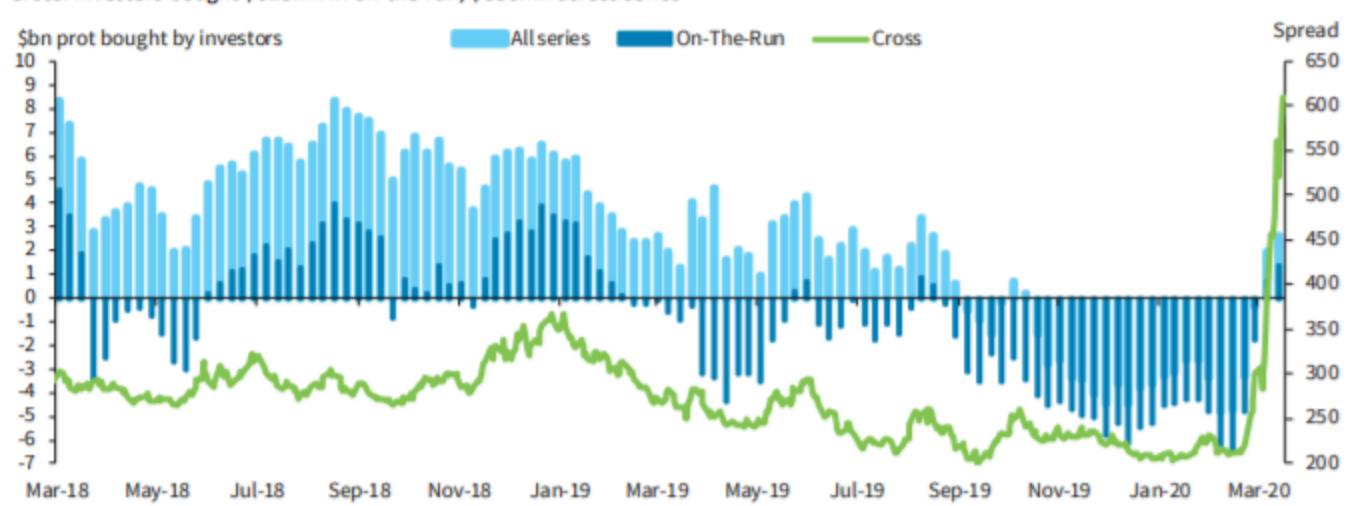


FIGURE 3

SenFin: Investors bought \$2.7bn in on-the-run, \$2.7bn across series



Source for all charts and tables on this page: DTCC, Barclays Research



Historical CMBS AAA Corrections (T + spread)

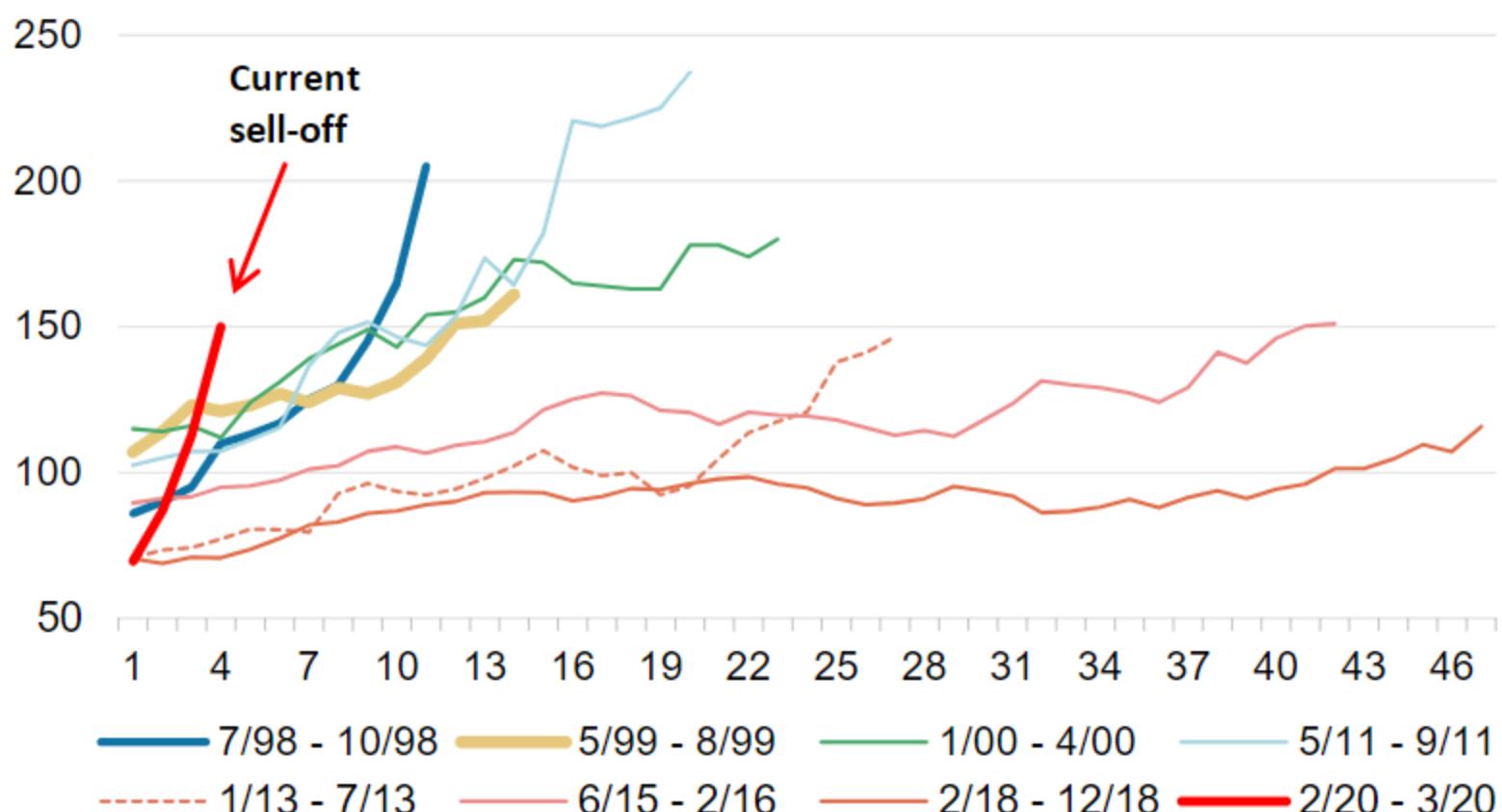
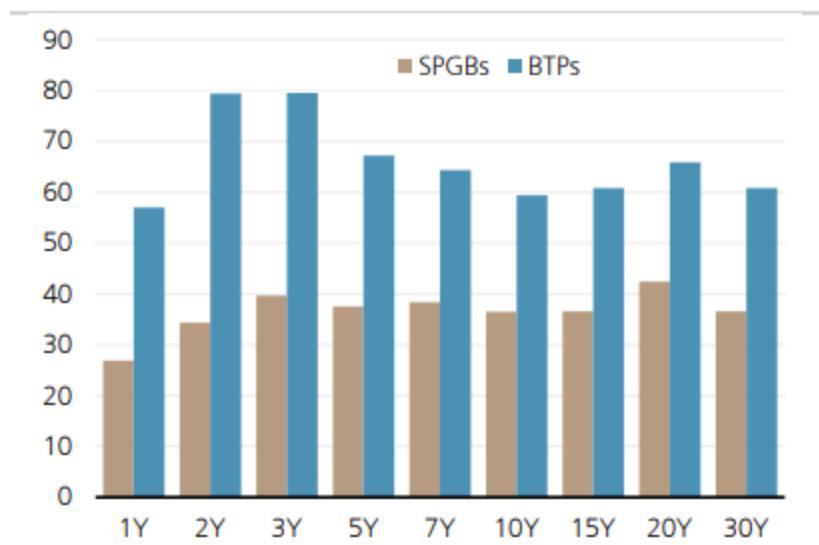
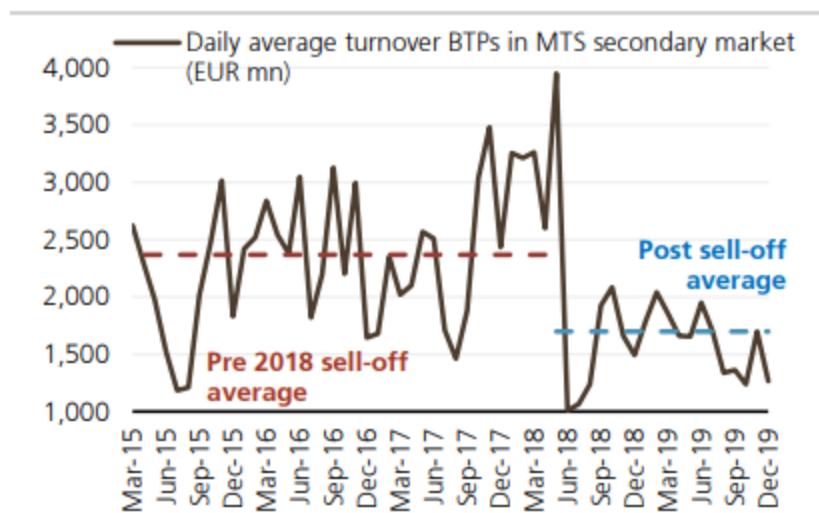


Figure 1: Peripheral spreads vs Germany have widened in the last 2 weeks



Source: UBS, Bloomberg [2-weeks bp change in spreads vs German bonds]

Figure 3: Italy's turnover has fallen to recover from 2018 crash



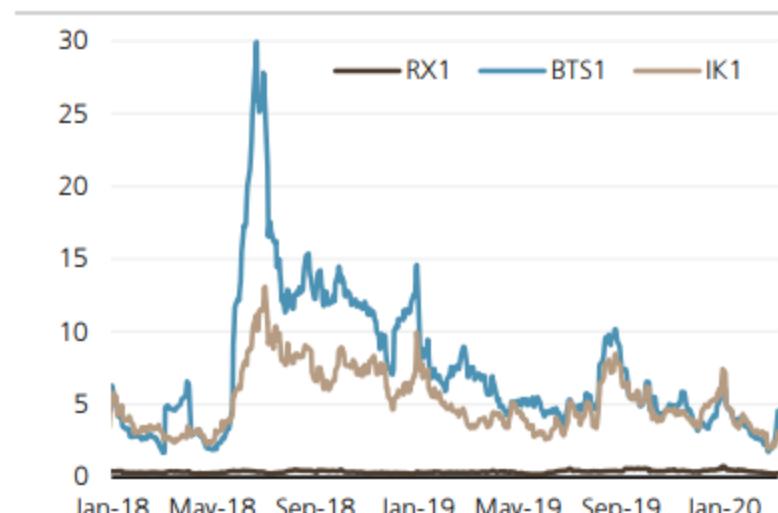
Source: UBS, Italian Tesoro

Figure 2: Domestic banks in Spain can be much more of a cushion for the sovereign debt market than Italian ones



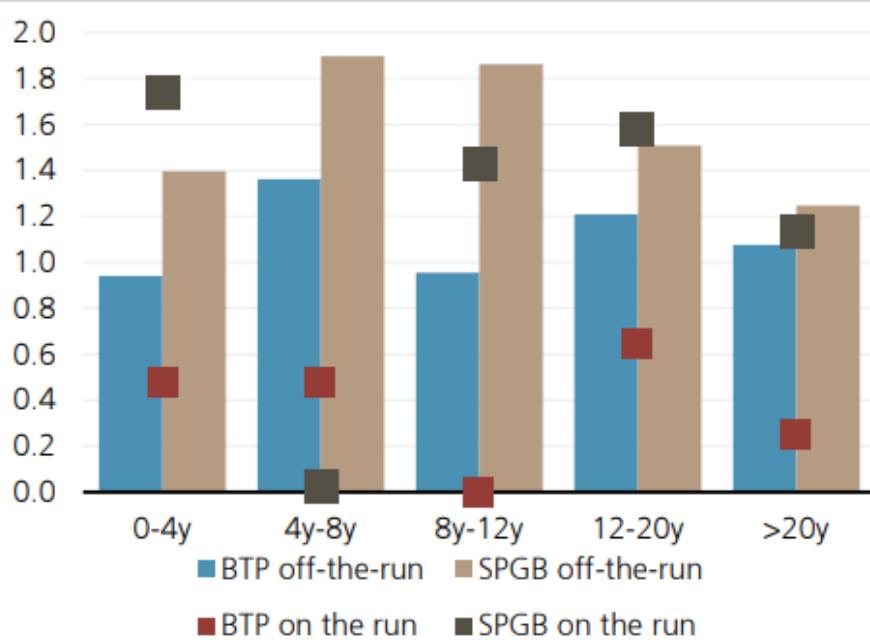
Source: UBS, Spanish and Italian Treasuries

Figure 4: Price sensitivities in the futures market remain relatively modest



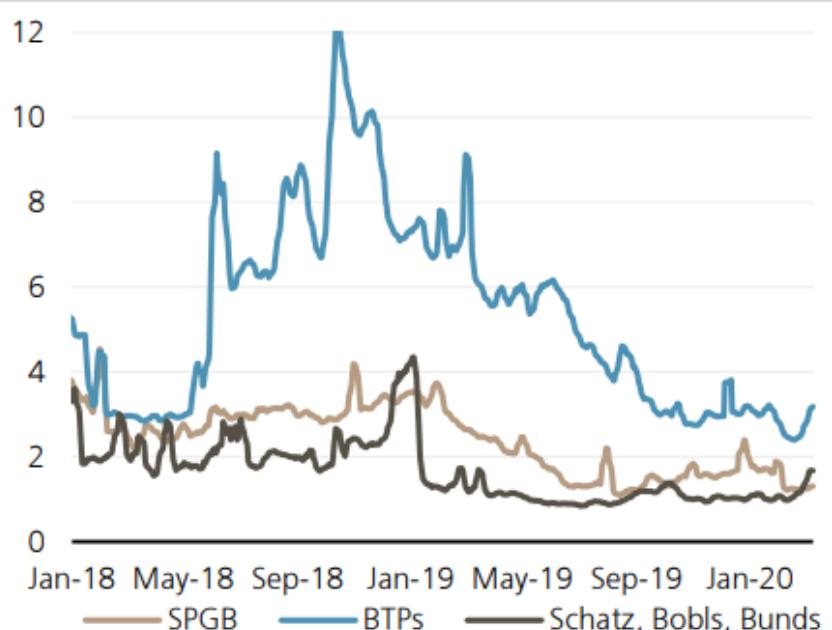
Source: UBS, Bloomberg [1m MA of the ratio between yield moves into volumes traded in RX1, BTS1 and IK1 – moves per 100K contracts in gross volumes]

Figure 5: Bid-Ask spreads have widened with investors favouring on-the-run bonds in Italy



Source: UBS, Bloomberg [3-m Zscore of Bloomberg's ALLQ bid-ask spreads by sectors of the curve. On-the-run represent 3y, 5y, 10y, 15y and 30y benchmarks]

Figure 6: Bond dislocations remain modest

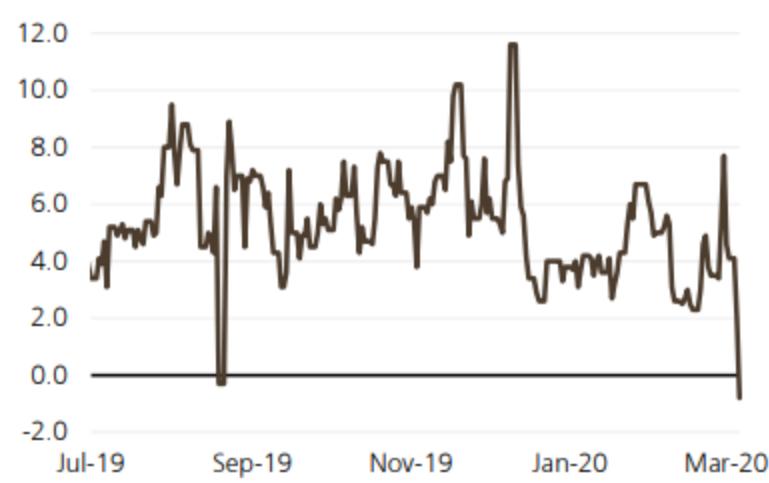


Source: UBS, Bloomberg [Average absolute residual of individual bonds vs splines, 5-days rolling window]

European Rates Strategy 11 March 2020

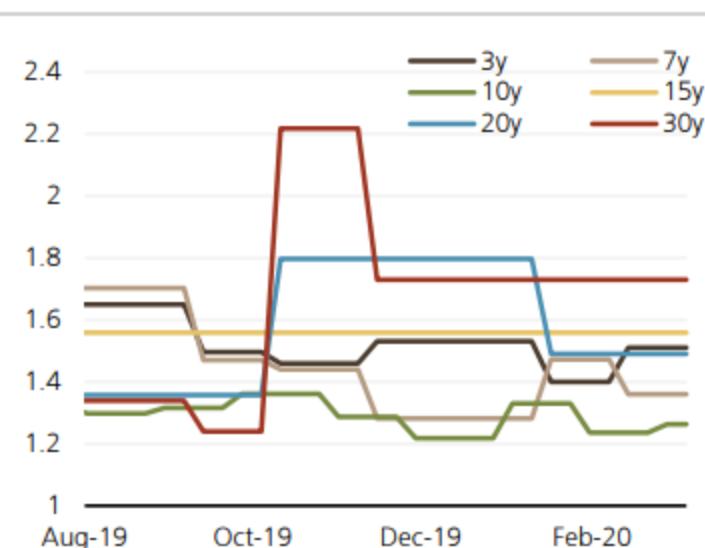
UBS 2

Figure 7: BTP 2.45% 10/23 vs BTPs 1.45% 09/22 and 1.45% 11/24



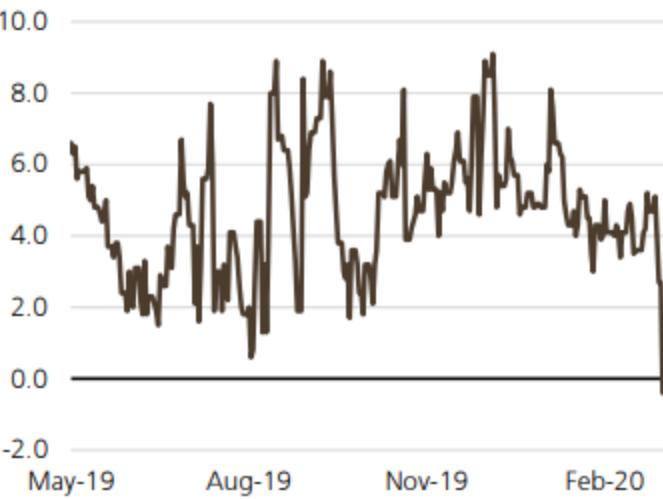
Source: UBS, Bloomberg

Figure 9: BTP BTC ratios remain modest in all tenors



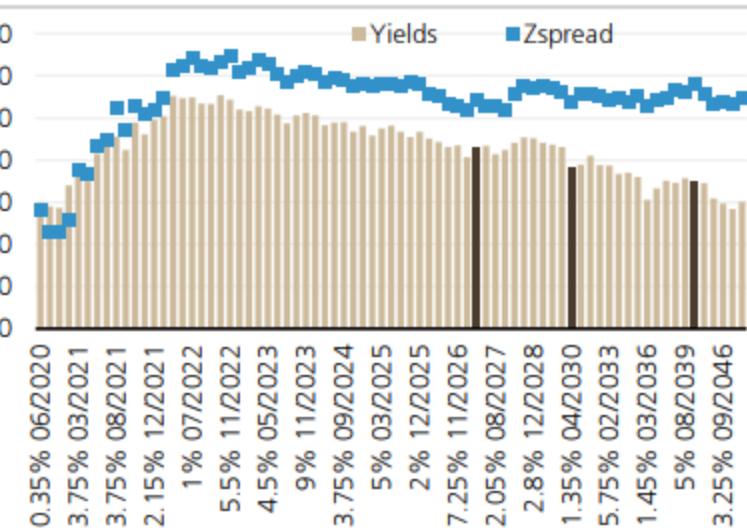
Source: UBS, Bloomberg

Figure 8: SPGB 4.65% 07/25 vs SPGBs 4.8% 01/24 and 5.9% 07/26

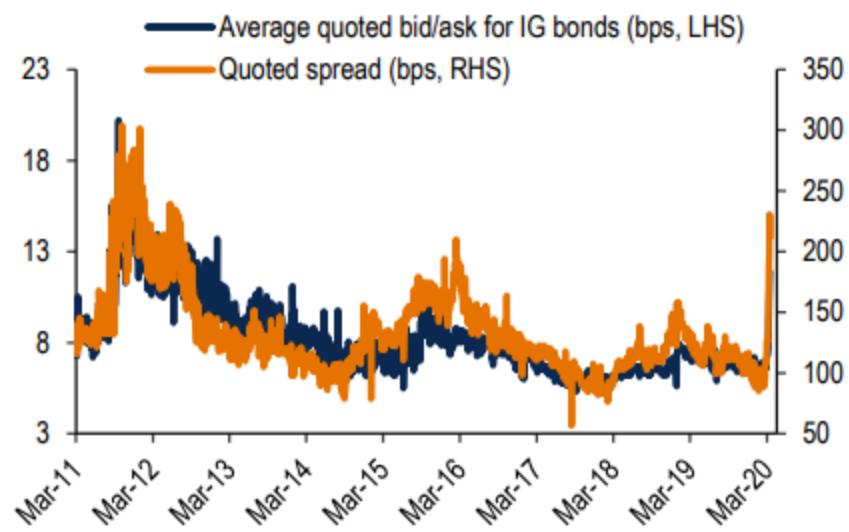


Source: UBS, Bloomberg

Figure 10: The BTPs to be sold tomorrow show no signs of concession

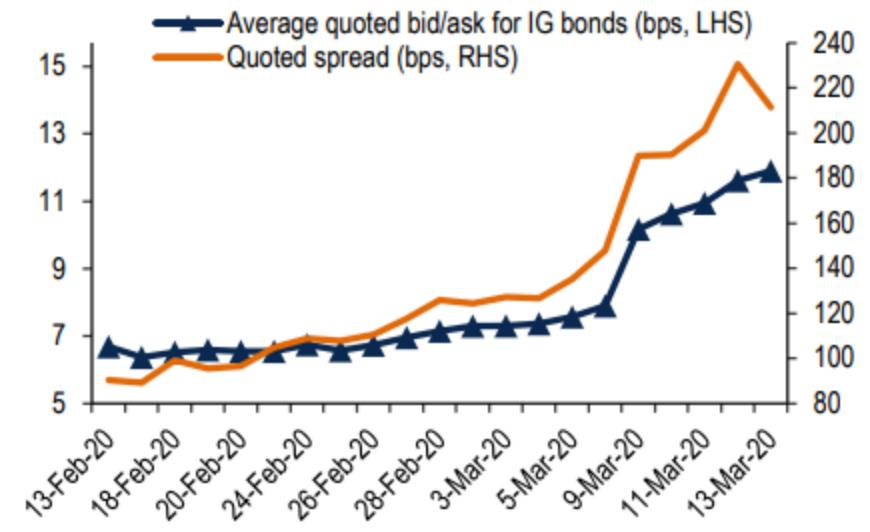


Source: UBS, Bloomberg [1-week bp move in yields. Black columns represent the bonds to be sold at tomorrow's BTP mid-month auction]

Figure 10: Quoted bid / ask vs. spreads: historical

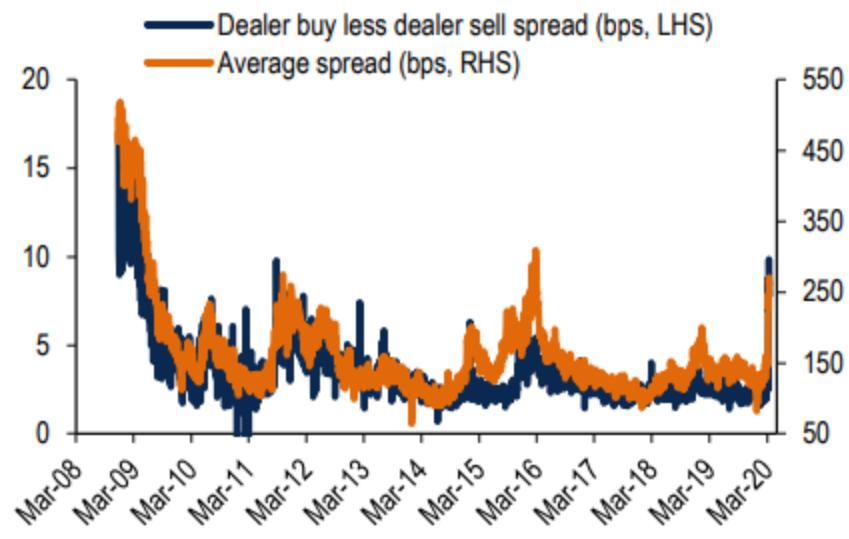
Note: for IG index bonds only.

Source: BofA Global Research

Figure 11: Quoted bid / ask vs. spreads: recent

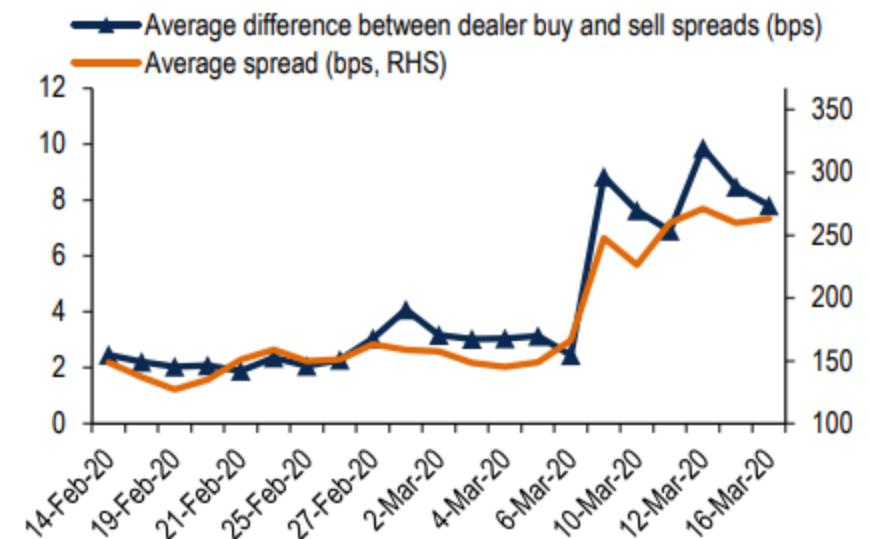
Note: for IG index bonds only.

Source: BofA Global Research

Figure 12: Average bid/ask based on TRACE: historical

Note: based on dealer-to-client buy and sell trades of at least \$1mn for IG index bonds.. Plotting daily average difference between dealer buy and dealer sell trade spreads for the same bond on the same day.

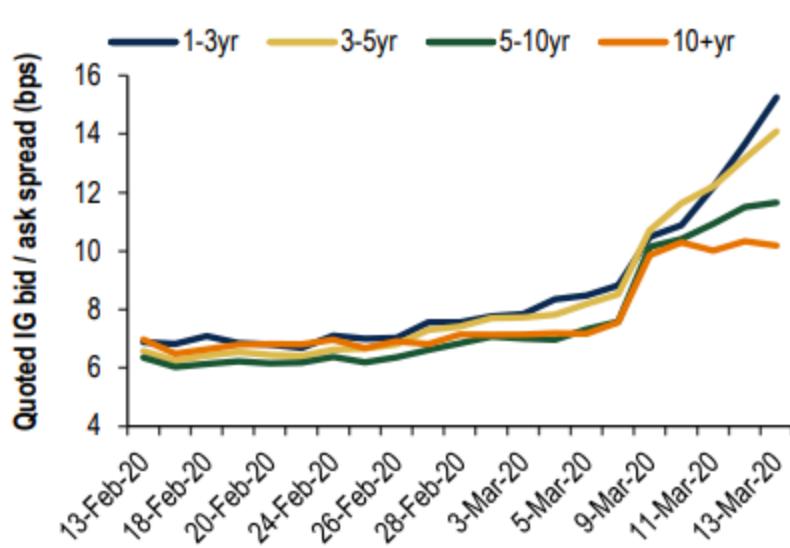
Source: BofA Global Research, TRACE.

Figure 13: Average bid/ask based on TRACE: recent

Note: based on dealer-to-client buy and sell trades of at least \$1mn for IG index bonds.. Plotting daily average difference between dealer buy and dealer sell trade spreads for the same bond on the same day.

Source: BofA Global Research, TRACE.

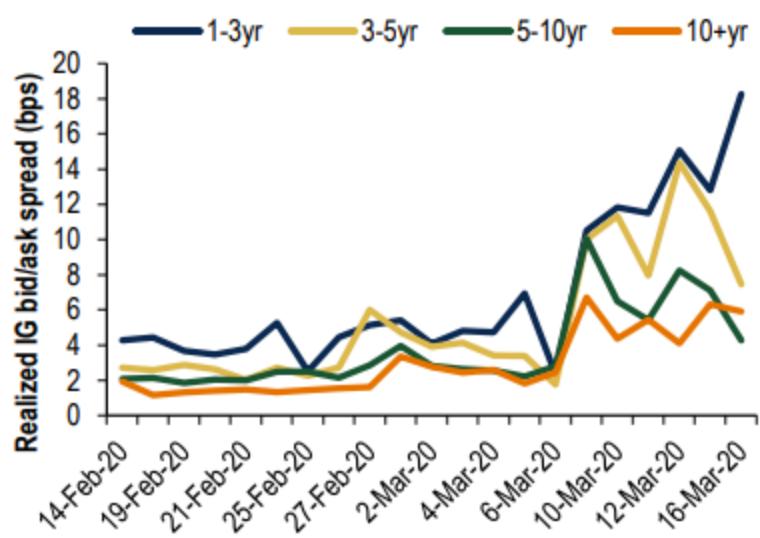
Figure 14: Quoted bid/ask spreads widened the most for front-end bonds



Note: for IG index bonds only.

Source: BofA Global Research

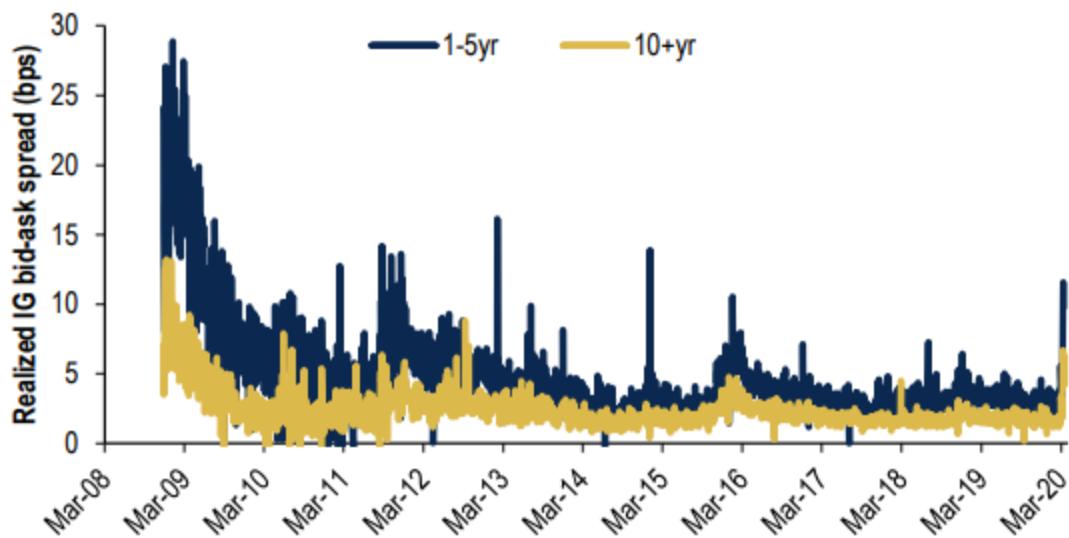
Figure 15: Realized bid/ask widened sharply today for 1-3bonds



Note: based on dealer-to-client buy and sell trades of at least \$1mn for IG index bonds. Plotting daily average difference between dealer buy and dealer sell trade spreads for the same bond on the same day.

Source: BofA Global Research, TRACE.

Figure 16: Realized bid/ask widened more in terms of stress for front-end bonds



Note: based on dealer-to-client buy and sell trades of at least \$1mn for IG index bonds. Plotting daily average difference between dealer buy and dealer sell trade spreads for the same bond on the same day.

Source: BofA Global Research, TRACE.

Capital regulations: ease GSIB surcharge calculations

Under the new stressed capital buffer (SCB) framework, no BHC (bank holding company) will be bound by leverage requirements; leverage requirements like the SLR (supplementary leverage ratio) would act as a backstop. As such, we think a recalibration of the US G-SIB (global systemically important bank) framework would be helpful. Under the US rule, exposures are multiplied by coefficients (e.g., trading and AFS securities have a 30% coefficient vs. 0.16% for notional OTC derivatives exposure, see Exhibit 1). These exposures add up to a score that corresponds with a G-SIB's surcharge, as of year-end exposures. As a result, many G-SIBs are constrained by the calculation, and have not wanted to incur shareholder wrath by voluntarily increasing exposures to the next surcharge bucket (an additional 50bp in capital requirements). Based on conversations with the banks, we think G-SIB recalibration has been entertained as a possibility by regulators. Therefore, we think easing G-SIB restrictions could be something regulators could do to ease credit flow, without impacting capital strength.

Continued on page 2...

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 5 to 7.

12111072

Timestamp: 16 March 2020 10:50PM EDT

BofA GLOBAL RESEARCH

Exhibit 1: US GSIB surcharge calculation (4Q19)

Systemic indicator	Coefficient	JPM	C	WFC	GS	MS	BK	STT
Total exposures	4.42%	153,499	112,675	100,680	61,070	51,530	16,893	11,373
Intra-financial assets	12.01%	35,416	23,715	22,989	28,871	24,792	9,402	4,351
Intra-financial liabilities	12.49%	4,932	30,768	22,178	9,193	5,781	31,427	22,173
Securites outstanding	9.06%	75,792	53,136	49,766	36,601	29,260	7,536	7,078
Interconnectedness	116,141	107,619	94,933	74,665	59,833	48,365	33,601	
Notional OTC derivs	0.16%	67,515	54,994	18,998	52,826	49,145	1,722	2,423
Trdg and AFS securities	30.17%	65,971	31,661	38,820	33,467	47,659	9,472	4,912
Level 3 assets	161.18%	21,828	12,793	39,160	38,141	22,333	0	4,440
Complexity	155,314	99,447	96,978	124,434	119,136	11,193	11,775	
Cross-jurisdictional claims	9.28%	60,488	89,054	15,871	38,937	30,974	10,515	7,439
Cross-jurisdictional liabilities	9.93%	61,028	92,943	9,380	31,634	30,177	16,971	11,300
Cross-jurisdictional activity	121,516	181,997	25,251	70,571	61,151	27,485	18,739	
S/T Wholesale Funding	114	103	51	188	288	175	115	
Total GSIB Score (bp)	661	604	369	518	580	279	191	
G-SIB Surcharge		3.5%	3.0%	2.0%	2.5%	3.0%	1.5%	1.0%

Source: BofA Global Research, company data

SLR recalibration could also help, but not the constraint

On the capital side, we think regulators need to temporarily carve out Treasuries and cash from the supplementary leverage ratio (SLR). This would have multiple benefits in our view. First, it would allow dealers to tap funding through the Fed's temporary open market repo ops, which were extended in both overnight and 2-week terms, but also were expanded with \$500bn in 1-mo and \$500bn in 3-mo term availability. As primary dealers access these funds, which are collateralized by Treasuries and MBS, dealer balance sheets grow and capitalization ratios fall (unless new capital is raised). If the Fed removes cash and Treasuries from SLR, then dealers could tap these facilities with much less constraint.

Dealers would be able to use the funds both for their own needs and for the needs of clients. Outside of the Fed's repo facility, dealer desks would be able to make markets more easily in Treasuries and potentially warehouse large Treasury positions (optionally funded through the Fed repo ops) that buy side investors need to offload.

Such a temporary relaxation in the leverage rules would allow funding to flow – intermediated by dealers – and would allow primary dealers to participate more fully in Treasury trading without balance sheet constraints to facilitate the exchange of risk between investors that is crucial during times of stress. Since Treasuries do not carry default risk, we do not see any increase in potential bank credit losses stemming from a carve out of Treasuries and cash from the SLR. In fact, the Treasury Department recommended such a carve out in 2017 for these reasons.

Volcker rule

Overall, we think there are potential tweaks that could be made to the Volcker rule around certain trading restrictions, but anything major would likely require Congress. In general, given the areas that the Volcker rule targeted vs. where there are current strains in the market, we think other areas of easing regulation would likely provide more benefit to the markets given the current liquidity issues.

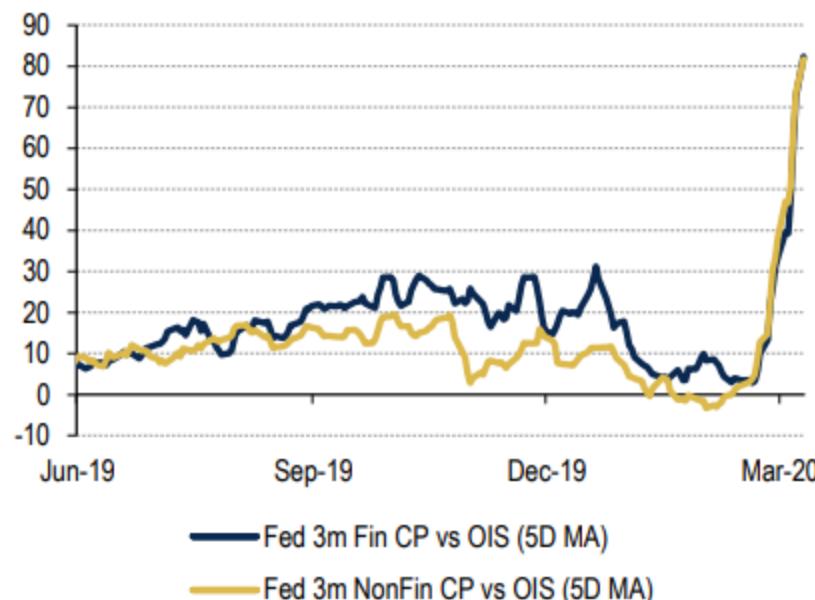
Liquidity regulations: ease living will, LCR

On the liquidity side, we think an easing of liquidity requirements would also be helpful. The lion's share of banks have cited resolution planning ("living will") requirements as the binding constraint for liquidity. These liquidity requirements are dictated by RLAP (Resolution Liquidity Adequacy Planning) and RLEN (Resolution Liquidity Execution Need). RLAP requires a BHC to project standalone liquidity needs for each major subsidiary over a 30-day minimum period. It also ensures that liquidity is "pre-positioned" in the subsidiary (which we read as a material liquidity tie-up) or otherwise available at the parent as HQLA to meet potential deficits. Importantly, under RLAP, BHCs need to assume that major subsidiaries will hoard the holdco's liquidity sources, and that a liquidity surplus from one sub cannot be transferred to meet a deficit at another sub. Resolution planning information is considered "confidential supervisory information," and therefore it is difficult for us to make pinpoint recommendations on

Can CP be pledged to the discount window? USD denominated, investment grade commercial paper (CP) can be pledged to the discount window. The margin for CP is similar to that for US Treasuries (Table 1).

When is data released? Discount window usage is released weekly as a part of the Fed's H.4.1 release (Chart 3).

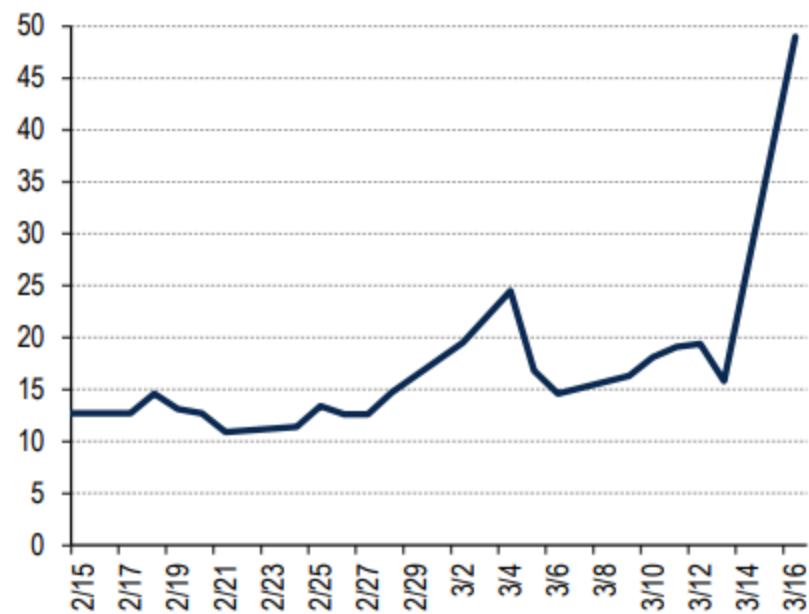
Chart 1: CP rates increasing vs OIS (bps)



Source: Bloomberg

Chart 2: GC repo vs ON RRP (bps)

March 16 GC repo is BofA 10AM avg GC rate for USTs <10Y



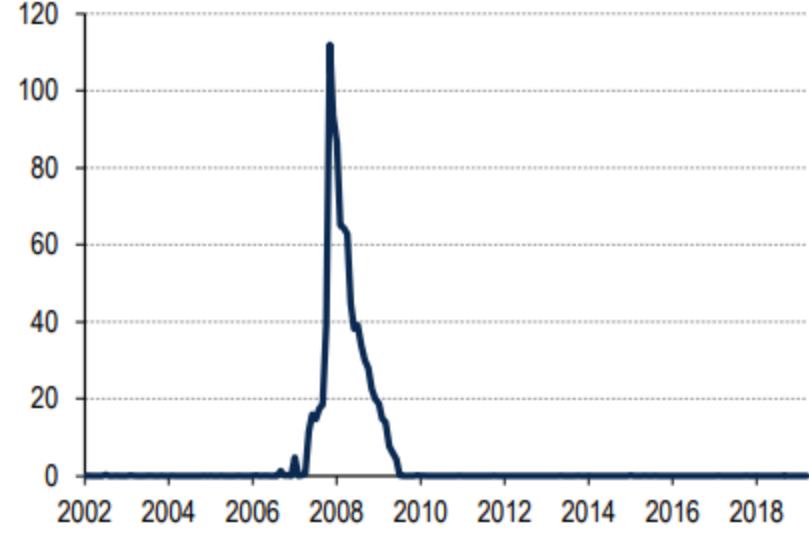
Source: Bloomberg

Table 1: Margins for Securities (% of market value)

Duration	0-1	>1-3	>3-5	>5-10	>10
USTs	99%	99%	98%	97%	95%
GSEs	98%	98%	97%	96%	94%
CDs	98%	98%	97%	96%	94%
CP, Banker's Acceptance, ABCP	98%	98%	97%		

Source: Federal Reserve

Chart 3: Discount window usage (\$bn)



Source: Federal Reserve

FORCED SELLERS?



We were able to act quickly when CLOs became forced sellers

Justin Slatky
Co-chief investment officer
Shenkman

once volatility subsided. "We were able to help structure and take advantage of the significant uptick in secured debt issuance in early 2019 to fund the backlog of M&A deals from Q4 2018."

Senior secured pays off in Europe

It was a similar story in Europe, where Capital Four managed to outperform in testing conditions. Officials at the firm say that they had allocated to senior secured positions, but that they were comfortable taking calculated risks on single names.

As 2019 wore on, geopolitical risks surfaced and credit funds had to give up some of the gains they'd made in Q1. At the heart of this were trade tensions between China

and the US, which escalated in May after US president Donald Trump said that the US would raise tariffs on Chinese goods. Throughout the rest of the year, credit

reacted to China-US trade talks, one of the consequences of which was a flight to safety that fuelled further dispersion.

The loan market was a victim of this trend, with Creditflux highlighting that, in October, 12% of the US loan universe was trading below 90 cents. During the December 2018 sell off, the proportion trading below 90 was 8%. In all, \$49.8 billion left retail US loan funds, according to a report by Evestment.

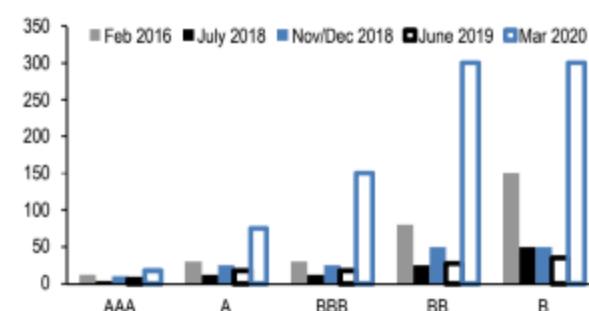
On top of this, loan downgrades were giving credit pickers a headache and causing CLO managers to pay greater attention to their triple C buckets. "Last year, a lot of bank loans were downgraded to triple-C and we were in a position to be able to act quickly when CLOs became

Top 30 credit hedge funds by 2019 returns			
Fund	Manager	Category	Return (%)
1 Cheyne Total Return Credit Fund December 2023	Cheyne	Corporate long-short	38.6
2 Carmignac Portfolio Unconstrained Credit	Carmignac	Corporate long-short	20.9
3 Selwood Credit Opportunity Fund II	Selwood	Corporate long-short	20.6
4 Cheyne Total Return Credit Fund June 2022	Cheyne	Corporate long-short	20.5
5 Blueglen European Credit Fund I-22	Blueglen	Credit multi-strategy	19.7
6 Advent Global Partners UCITS Fund	Advent	Ucits	16.7
7 Millstreet Credit Fund	Millstreet	Corporate long-short	15.9
8 Marathon Emerging Markets Bond Fund	Marathon	Emerging markets	15.5
9 BlackRock USD High Yield Fund	BlackRock	US high yield	15.1
10 BlackRock Global High Yield Fund	BlackRock	US high yield	15.0
11 Amundi Funds Bond Global Corporate	Amundi	Ucits	14.3
12 Advent Global Partners Fund	Advent	Credit multi-strategy	14.2
13 Angel Oak High Yield Opportunities Fund	Angel Oak	US high yield	14.0
14 Flat Rock Opportunity Fund	Flat Rock	CLOs	13.2
15 Makaseb Income Fund	Mashreq	Emerging markets	13.1
16 Alegra ABS 2	Alegra	CLOs	12.4
17 Duemme Sicav Euro Investments Plus	C-Quadrat	Ucits	12.0
18 Tikehau Subordonnées Financières	Tikehau	Corporate long-short	12.0
19 ChapelGate Credit Opportunity Fund	Orchard	Corporate long-short	11.8
20 Triple Opportunity Fixed Income Fund	Finanz Konzept	Corporate long-short	11.7
21 Cheyne Enhanced Global Credit Fund	Cheyne	Ucits	11.7
22 Selwood Credit Opportunity Fund I	Selwood	Corporate long-short	11.6
23 Capital Four European High Yield Fund	Capital Four	European high yield	11.5
24 Selwood Liquid Credit Strategy	Selwood Asset	Corporate long-short	11.2
25 Loomis Sayles Global Credit Fund	Loomis Sayles	Ucits	11.2
26 Spire Partners Credit Strategies Sub-Fund	Spire	Credit multi-strategy	11.0
27 III Credit Opportunities Fund	III Capital	Structured finance	10.8
28 Shenkman Opportunistic Credit Fund	Shenkman	Corporate distressed	10.7
29 Alegra ABS I	Alegra	CLOs	10.4
30 Mashreq Al Islami Income Fund	Mashreq	Emerging markets	10.2

Bid/ask: standardized and normalized

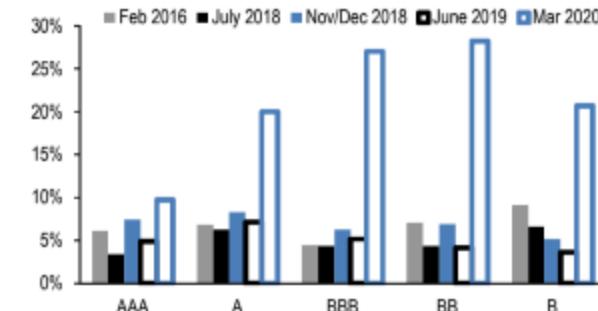
Given a fluctuating market, we refresh generic bid/ask spread observations for additional perspective on CLO market liquidity and trading friction. We caveat that these are indicative levels and there is a range of bid/ask spreads at each tranche level with the tiering and price discovery the market is experiencing. Exhibits 3 and 4 show the mid-point of bid/ask spread for each tranche and normalized bid/ask spread, as a percent of the spread itself. For example, the bid/ask spread of US CLO AAA bonds is generically 17.5bp, which is the mid-point of 10-25bp range and the normalized bid/ask spread is 10% based on current mid-tier AAA spread (180bp). As we move down the capital structure, the bid/ask spread and tiering both increase; for example, the mid bid/ask spread of US CLO BB bonds is 300bps, the mid-point of 200-400bps bid/ask spread. March 2020 is the widest across all tranches in our tracking of this indicative measure and even on a normalized basis, the bid/ask range on mezzanine bonds is high relative to IG tranches currently. As a broader comparison, we note indicative bid/ask spread of ABS Benchmark AAA is similarly ~10bp in the context of current levels.

Exhibit 3: Illustrative US CLO bid/ask spread (bp)



Source: J.P. Morgan. Bid/ask as of March 10th, 2020 close. We use the mid-point of a range of bid/ask spread for each tranche.

Exhibit 4: Illustrative normalized US CLO bid/ask spread



Source: J.P. Morgan. Bid/ask as of March 10th, 2020 close. We use the mid-point of a range of bid/ask spread for each tranche. Spread levels as of March 11th, 2020 close.

Trading Volume (BWIC)

The US CLO market has grown 2.5x to \$711bn since 2011, while BWIC percentage of market size fluctuated around 6% with a maximum 7.8% in 2013 and a minimum 3.5% in 2017. Year to date, there has been \$8.4bn BWICs so far and the estimated annual BWICs would be \$45bn on a proportional basis, all else equal, or roughly 6.3% of market size. On the other hand, the proportion of BWICs that Did Not Trade (DNT) increased to 25.5% on a YTD basis as the COVID-19 outbreak intensifies, and is ~3.4 sigmas above the average we have tracked since 2011 (Exhibit 7). Non-IG tranches typically have a higher percentage of DNTs. YTD IG (AAA-BBB) DNTs are 26% and non-IG (BB-B) DNTs are 57%. Higher DNTs may indicate that market participants are testing the markets, which makes sense as spreads are widening in the volatile market, bid/ask levels have increased, and price discovery continues. To observe a measure of market depth in CLOs and the impact of price action on liquidity, we observe AAA and BB secondary market activity and spread levels where we find DNT% of BWICs tend to move along with US secondary spreads (Exhibits 5- 6).

KEY THEMES AND VIEWS

Market view: this is the capitulation, risk-reward turns positive.

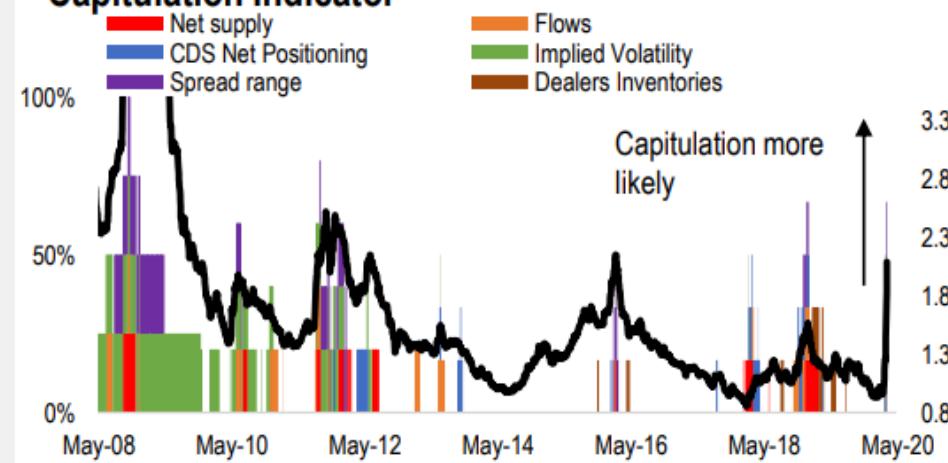
What's new: all major buying opportunities are preceded by capitulation events. These represent the cleansing of positioning required for a sustainable rally. These involve hedging, dealer de-risking, fund outflows, the seizure of the primary market, and indiscriminate selling.

Our view: We measure the degree of capitulation by tracking measures of these capitulation-flows in a Credit Capitulation Indicator calibrated to major market troughs. This sell-off has been all about hedging so far but now the outflows have happened as well. The risk/reward now starts to turn positive.

The Credit Capitulation Indicator features regularly on p11

Capitulation: this is now comparable to 2010, 2012, 2016, 2018

Capitulation Indicator



The nature of the crisis created dislocations not seen since '08

What's new: The nature and catalysts of the current crisis took the market by surprise and created extreme dislocations, such as the underperformance of Credit vs. Equity towards levels not seen since 2008 or 2010. While the crisis started about three weeks ago, the 1-month realised volatility of iTraxx Main and CDX IG has never been so elevated in the history of the Synthetic market.

Our view: the multi-year record cheap valuation of LQD US ETF (\$ IG Cash) vs. HYG US ETF (\$ HY Cash) (record compression), vs. CDX IG (record cheapness of the basis) and vs. IEAC LN ETF (record cheapness of \$ Cash vs. € Cash) represents for us the best opportunity in the Cash market. With uncertainties on growth, we see good upside in the LQD / HYG decompression trade.

AUTHORS

Viktor Hjort | BNP Paribas London Branch; Pierre-Yves Bretonniere | BNP Paribas London Branch

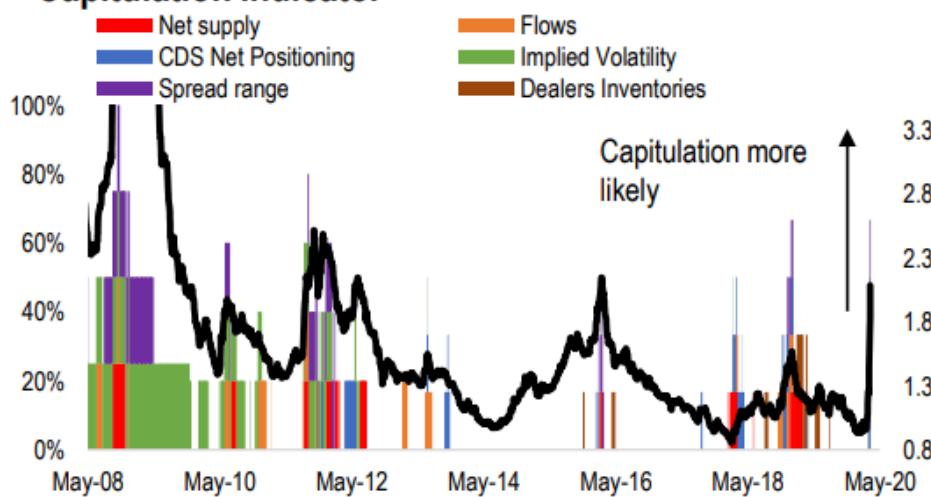
Record compression between \$ HY Cash and \$ IG Cash



CAPITULATION INDICATOR

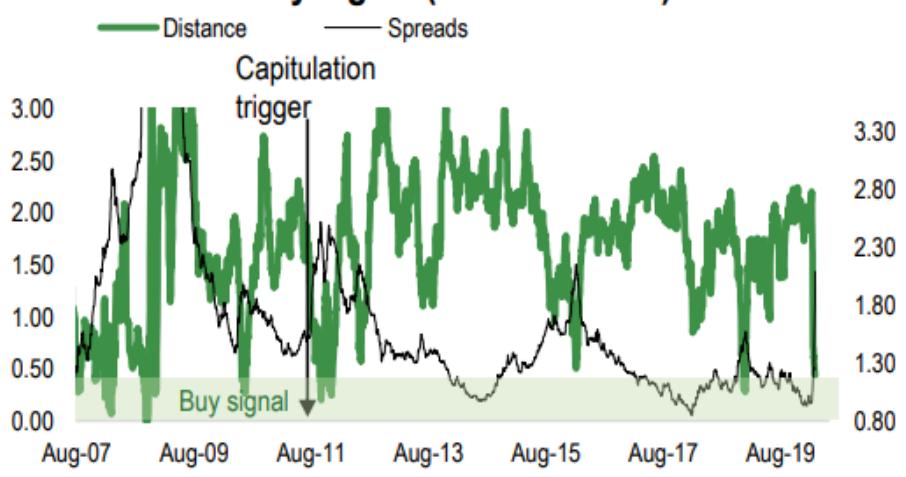
BNPP Credit Capitulation Indicator

Capitulation Indicator



Capitulation buy signal: <0.33 StDev

Distance from buy signal (# stdeviations)



The BNPP Credit Capitulation Indicator: hedging, dealer de-risking, fund outflows, broad-based selling, primary close

Capitulation trigger	Indicators	Direction	Triggered?	Current value	Trigger	WoW	Source:
New issuance drops	Net supply (3mma / 12mma)	Dropping	NO	0.0053	-0.61	-0.1567	Dealogic
Fund flows turn negative	Fund flows (4wma)	Negative	YES	-0.10%	-0.05%	-0.05%	EPFR
CDS index buying	CDS Buying (vs 12mma)	CDS buying	YES	18.82	12.50	1.52	DTCC
CDS Option buying	Implied Volatility (%)	Higher	YES	1.16	0.60	-0.40	Markit
Spread widening broadbased	Breadth (% bonds widening >40bps MoM)	Broadening	YES	0.82	0.15	0.82	Markit
Dealers reduce inventories	Dealer Inventories (1mma)	Reducing	NO	1.01	0.50	0.01	Bloomberg

Note: for details please see Approaching a Market Capitulation Event, 12 March, 2010



BNP PARIBAS

Viktor Hjort, Dominique Toublan, Paola Lamedica, Pierre-Yves Bretonniere

The bank for a changing world

CREDIT 360 | 11

US KEY THEMES AND VIEWS

US: HY mutual funds drawdowns reaching extreme levels

What's new: Outflows from HY mutual funds accelerated again this week with 2.6% of AUM for all HY mutual funds combined. Altogether, outflows from all HY mutual funds in the last 3m represent 4.3% of AUM, while 3m outflows from HY ETFs represent 10% of AUM.

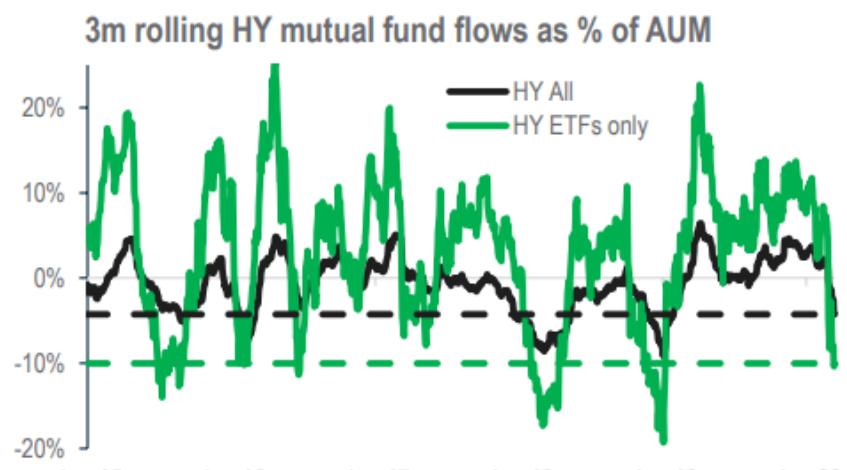
Our view: The recent mutual fund and CDX index flows indicate that some investors have started to sell what they can sell rather than what they want to sell. For instance, the chart on the rhs shows that the drawdowns in ETFs, i.e. some of the most liquid HY index instruments, are close to the largest levels reached in previous stress times. At the same time, outflows from HY mutual funds outside of ETFs have started to accelerate.

US: Some fixed income ETFs traded very cheap to NAV

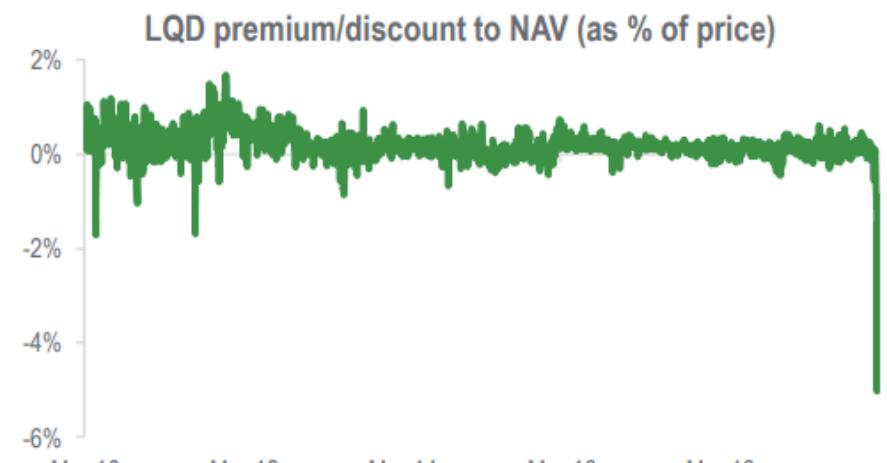
What's new: Some of the largest ETFs traded tens of bp below their underlying bonds/loans. For instance, the discounts to NAV reached 74bp for AGG, 57bp for LQD and 69bp for BKLN. These are by far the largest discounts ever experienced for these instruments. Note that HYG traded at a discount of "only" 28bp.

Our view: These large discounts signal that capitulation is close as investors exit or short these liquid FI instruments. For sure, there is some price discovery taking place, as some of the underlying bonds and loans are not very liquid. Nevertheless, tens of bp is a lot and TSY bonds, the most liquid FI instrument, represent 44% of AGG's underlying.

HY outflows: 10% of AUM for ETFs and 5% for all mutual funds



LQD materially underperformed its NAV and traded 5% cheap



AUTHORS

Dominique Toublan | BNP Paribas Securities Corp;



BNP PARIBAS

The bank for a changing world

CREDIT360 | 3

EU KEY THEMES AND VIEWS

ECB combines monetary with regulatory action ahead of Fiscal stimulus

What's new: On the regulatory front the ECB will 1. Allow banks to temporarily breach some of their requirements. 2. Bring forward the introduction of the P2R split which was initially scheduled to come into effect in January 2021. 3. Postpone the 2020 EBA stress test to 2021, on-site inspections for the Targeted Review of Internal Models impact and allow for selective NPL flexibility.

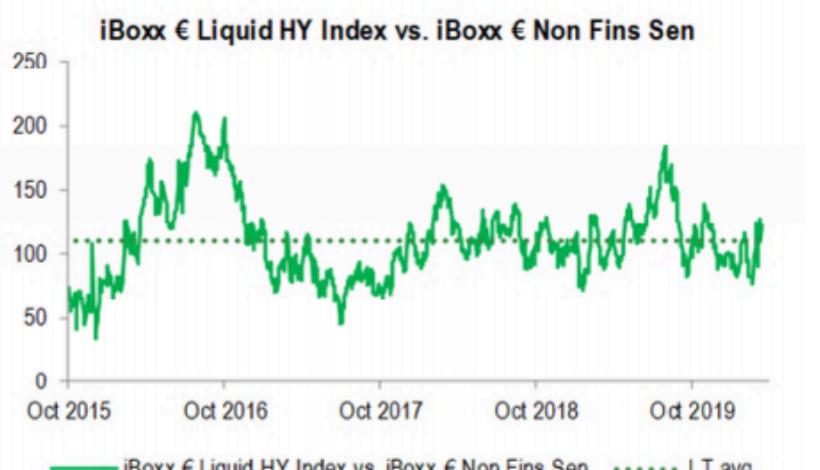
Our view: This package is an incredible relief to banks giving them tremendous firepower to support the economy and some breathing room to absorb upcoming shocks. Nonetheless, the fragmentation of capital 'buffer makers' remains an issue for banks in the Eurozone as capital breather has to be given at the expense of the buffer to discretionary payment restrictions. CCB has only been used by a handful of country in the Eurozone. As a result, the fear of the AT1 coupon skip has risen due to the permission of the ECB to breach CBR (Combined Buffer Requirement) unless CCB is reduced. Pillar 2R split is good news but will only be a relief for issuers with an excess in AT1 and T2.

ECB disappoints although emphasis on CSPP is positive

What's new: Markets were disappointed by last week's ECB meeting. Announced measures were underwhelming, while the strong emphasis on fiscal policies to address what the ECB perceives as a temporary shock, fell short of market's expectations.

Our view: One positive aspect was the ECB's decision to increase QE by €120bn (extra €13bn p.m.) between now and year-end and its explicit emphasis on Corporate bonds to meet the increased targets. So far the market has failed to put a premium on € Non-Financials and CSPP-eligible paper as extreme volatility overpowers relative value, however we expect the support of the ECB buying to become increasingly relevant as the fundamentals come back to the foreground.

€ Non-Fins/HY is yet to display significant decompression



AUTHORS

Nicolas Bonis | BNP Paribas London Branch; Yacine El-Mohri | BNP Paribas London Branch; Paola Lamedica | BNP Paribas London Branch;



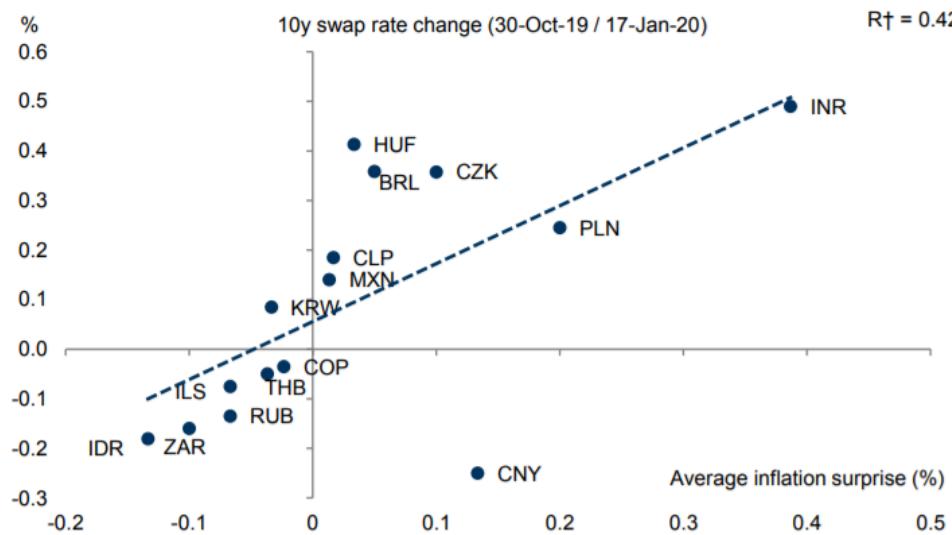
BNP PARIBAS

The bank for a changing world

CREDIT360 | 4

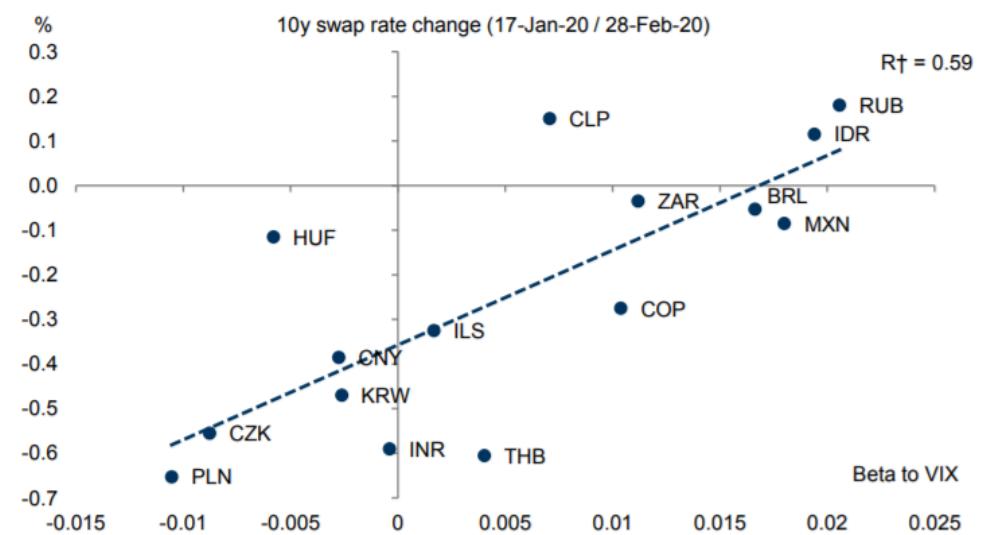
EM & FM

Exhibit 1: Whereas inflation dynamics were in the driving seat at the end of 2019 ...



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 2: ... exposure to broad market risk has now become the key driver of relative performance in EM rates



Source: Bloomberg, Goldman Sachs Global Investment Research

**Goldman
Sachs | Economics
Research**

21 March 2020 | 9:52AM SGT

EM Asia FX/Rates Views

Capital preservation amidst redemption fears

Asia local markets have been on the defensive over the past month. Fear of EM fund redemptions and tighter USD liquidity conditions have dominated markets this week. The broad strategy right now appears to be capital preservation in case more redemptions come. Unwinding high-yield LATAM and CEEMEA markets is difficult at this juncture, as liquidity is poor. Thus, investors have looked to EM Asia to liquidate assets. This explains why despite a slew of policy rate cuts across Asia, local government bond yields are generally higher across region. We have revised our FX forecasts. In terms of trajectory, we think USD/CNY will rise slightly further to 7.15 in 3M before easing back down to 7.05 and 6.90 in 6M and 12M. We think the most vulnerable markets in EM Asia are IDR, MYR and then KRW, while we think CNY and TWD will outperform.

China – CNY to outperform, as economy starts to recover, reduced outbound travel flows and PBoC's preference for CNY stability.

Taiwan – TWD to outperform, as repatriation flows offset equity outflows.

Hong Kong – We think HIBOR rates should ease as funding conditions improve.

South Korea – Despite BoK rate cuts, bond yields rose on local selling / liquidation; KRW to underperform on global growth concerns and equity outflows.

India – INR under pressure from capital outflows (around USD 11bn over the past month); we expect RBI to cut by 50bps by April 3rd MPC meeting.

Indonesia – IDR under pressure amid heavy bond outflows; we see risk of further sell-off near term, but highlight that it can rally back quickly once outflows subside.

Singapore – We expect MAS to deliver double-easing by flattening the SGD NEER slope to zero and re-centering the mid-point of the band.

Thailand – Bearish THB; neutral on bonds as foreign selling offset rate cuts.

Malaysia – Weaker growth, lower oil prices and bond outflows to weigh on MYR.

Philippines – Weaker growth, lower rates and capital outflows to weigh on PHP.

Danny Suwanapruni
+65-6889-1987 | danny.suwanapruni@gs.com
Goldman Sachs (Singapore) Pte

Hui Shan
+852-2978-6634 | hui.shan@gs.com
Goldman Sachs (Asia) L.L.C.

Prachi Mishra
+91(22)6616-9052 | prachi.mishra@gs.com
Goldman Sachs India SPL

Maggie Wei
+852-2978-0106 | maggie.wei@gs.com
Goldman Sachs (Asia) L.L.C.

Irene Choi
+82(2)3788-1722 | irene.choi@gs.com
Goldman Sachs (Asia) L.L.C., Seoul Branch

Helen Hu
+852-2978-6962 | helen.hu@gs.com
Goldman Sachs (Asia) L.L.C.

Andrew Tilton
+852-2978-1802 | andrew.tilton@gs.com
Goldman Sachs (Asia) L.L.C.

Taiwan – TWD to continue outperforming as repatriation flows offset heavy equity outflows. The CBC cut its policy rate by 25bps from 1.375% to 1.125% this week, the first cut of this size since 2009, which was larger than consensus expectations of a 12.5bp cut. Taiwan has seen USD 16bn of equity outflows this year, which is the largest in NJA (as South Korea saw USD 11bn of outflow). Nevertheless, USD/TWD lagged the move higher in USD/Asia, which we suspect is due to heavy repatriation flows. Taiwan's lifer's AUM is USD 990bn as of January 2020, of which 60% is in overseas assets. So during periods of risk aversion, we suspect that some Taiwanese funds are liquidating offshore asset and repatriating. To support this point, the CBC governor said that the large size of USD deposits (mainly from exporters) and recent profit-taking redemption of foreign currency bond ETFs could support TWD despite capital outflows. Moreover, Taiwan's current account remains large at USD 70bn per year or 10% of GDP, while the CBC has a strong preference to keep the currency stable. As such, we think TWD should outperform peers on sharp moves higher in USD/Asia.

Hong Kong – We think HIBOR rates should ease as funding conditions improve, while equity inflows should push USD/HKD lower. The virus outbreak has hit the Hong Kong economy hard, and we expect real GDP growth to be -7.5% yoy, compared with -2.9% yoy in Q4 last year. Over the past two weeks, 3M HIBOR rates rose by 26bps in line with the rise in LIBOR, as USD funding conditions tightened globally. With the recent flurry of facilities from the Fed to help ease funding stress in markets, we think there is scope for HIBOR rates to ease. Moreover, our equity strategists expect USD 35bn of Southbound Stock Connect flows into the Hong Kong stock market this year, which may push spot USD/HKD lower. If spot hits the lower bound of 7.75, then the HKMA will buy USDs and inject HKD liquidity into the market, which should exacerbate the move lower in HIBOR rates. As such, we maintain our pay SGD vs receive HKD 2Y IRS rates trade recommendation.

South Korea – Despite BoK cuts, KTB yields rose on bond redemptions; KRW underperforms on capital outflows. We have revised down our 2020 growth forecast for Korea to 0.3%, the lowest since the Global Financial Crisis. BOK cut rate by 50bp at an emergency meeting and have announced other market liquidity measures, such as allowing bank-issued bonds in repo transactions and MOEF relaxed rules on banks' forex

forward positions, which the government estimates could increase FX swap market liquidity by US\$5-10bn. Nevertheless, KTB yields have been rising as local securities houses have been actively selling local bonds to raise to cash. KRW underperformed NJA FX this week as risk appetite deteriorated, while equity outflows amounted to almost USD 8bn this past month. However, the KRW rebounded after the Fed announced swap lines with the BoK worth USD 60bn. Going forward, we expect USD/KRW to rise in line with USD/Asia as KRW is highly correlated to the global growth outlook and the equities remain vulnerable to outflows. We are neutral on bonds near term on risk of further fund liquidation, but yields should drift lower over the medium term, especially if the BoK cuts by another 25bp in Q2 to 0.5% in line with our expectations.

India – INR under pressure from capital outflows of around USD 11bn over the past month; we expect RBI to cut by 50bps by April 3rd. INR assets have come under pressure over the past few weeks. Domestically, concerns over the solvency of private lender YES bank have been at the forefront, which prompted worries of deposit runs and financial sector stability in India. Since then RBI took over Yes Bank, imposed a moratorium on deposits and withdrawals, which were lifted only on March 19th. Meanwhile, as the number of Covid-19 infections have begun to rise sharply, sentiment turned more negative. Capital outflows for equity and bonds amounted to around USD 11bn over this month so far. We have revised India GDP forecasts for FY21 down to 5.2% from 6.6% in Nov 2019, and expect RBI to reduce the policy rate by 50bp before or during scheduled MPC meeting on Apr 3. The risks to our growth forecasts are skewed to the downside, and on the side of further easing of monetary and fiscal policies. Going forward, we think INR will outperform IDR and PHP in Asia. The RBI has USD 490bn of reserves, and we think the risk of sustained capital flight is less compared to IDR, as foreign bond holdings in India is USD 23bn (or 2.9% of outstanding) compared to Indonesia's USD 64bn (or 35% of outstanding).

Indonesia – IDR under pressure amid heavy bond outflows; we see risk of further sell-off near term. The IDR market has underperformed NJA FX in the past two weeks. Net foreign bond selling has reached around USD 6bn this year. As we highlighted in [our previous report](#), we think BI has ample room to absorb bonds, where they bought IDR 112trn (or USD 7.2bn) this year. The DNDF market is a hedging tool, but it is not a substitute for USDs. With the focus of markets right now on the fear of fund redemptions, we see IDR as one of the most vulnerable currencies in EM Asia, given heavy foreign positioning in bonds. However, once the risk aversion subsides, we think IDR can snap back very quickly. During previous episodes of IDR weakness (in 2013 and 2018), the Fed was tightening policy compared to easing now. Valuations are not stretched with GS DEER fair value for USD/IDR at 14,600 and IDR spreads vs. UST are already at relatively attractive levels. BI cut policy rates by 25bp to 4.50% against expectations, and we expect BI will cut policy rates thrice more in 2020 (twice in Q2 and again in Q3) to 3.75%.

Singapore – We expect MAS to deliver double-easing by flattening the SGD NEER slope to zero and re-centering the mid-point of the band. We have revised our Singapore 2020 growth forecasts lower to -1.8% yoy. This led to a widening in our

Thailand – We remain bearish on THB; while bond curve steepens on foreign selling and fund redemptions. We have revised down our 2020 GDP growth forecast to -2.2% yoy and expect the BoT to cut to 0.5%. Despite the BoT cutting rates last month, 10Y bond yields have risen by almost 90bp over the past two weeks to 1.67%. Global EM bond fund managers are finding it difficult to liquidate high-yield markets and thus are liquidating THB bonds instead, which drove local bond yields higher. The BoT have conducted several buy-back auctions to stabilize the market. Meanwhile, on FX, USD/THB has risen in line with regional peers over the past month. Thailand's tourism sector (international and domestic) drives 20% to GDP, as given the restrictions on travel, we expect this to heavily weigh on the economy. We maintain our bearish outlook on the THB and neutral outlook on bonds.

Malaysia – Lock-down, weaker external demand, lower oil prices to weigh on MYR. We have revised down our full year growth forecast for Malaysia to 0.3% yoy from 2.0% previously (vs. 4.3% in 2019). We also trimmed our headline inflation forecast to -0.5% in 2020 from 1.9% previously, reflecting the sharp decline in global oil prices. Given negative output gap, subdued inflation, and more dovish external environment, we expect the BNM to cut policy by another 75bp this year. We are bearish on the MYR, driven by weaker growth and weaker external sector outlook, particularly by lower oil and palm oil prices. We are neutral on the bond market. Even though we expect BNM to cut rates, we risk increased risk of capital outflows as global EM funds exit MGS to raise capital.

Philippines – Weaker growth outlook, lower rates and capital outflows to weigh on PHP ahead. The PHP outperformed NJA peers this week. The explanation we heard from local investors is that USD demand declined ahead of the lockdown in Manila, while capital outflows so far have been relatively light. The BSP delivered a larger than expected 50bps cut to 3.25% (vs. consensus of a 25bp cut) and noted significant downside risks to aggregate demand from the enforcement of quarantine measures, disruptions to industries, negative impacts on tourism and foreign investments. We revised lower our 2020 GDP forecast to 4.0% and we expect the BSP to cut policy rates by another 75bp in 2020 (twice in Q2 and again in Q3) to a record low of 2.50%. We previously had a structurally bearish view on the PHP from expectations of a pick-up in infrastructure spending and capital imports, which is now likely to be delayed. Nevertheless, we are still bearish on the PHP, although the dominant factors driving PHP weakness should be the (likely) sharp deterioration in the economy, weak current account position, lower real rates and risk of capital outflows. As such, we maintain our long CNH vs short PHP trade recommendation.

Exhibit 4: Our views on relative performance of EM Asia FX and rates

Our views on relative performance of EM Asia FX and rates (1-2 month outlook)

	FX outlook*	Rates outlook**	Comments			
China	Neutral	Bullish	USD/CNY is relatively stable in line with PBoC's preference and reduced outbound tourism flows; flush liquidity is bond supportive.			
Korea	Bearish	Neutral	Growth concerns, equity outflows and domestic structural issues to weigh on KRW; BOK to cut rates once more in 2020 to 0.5%.			
Taiwan	Neutral	Neutral	Heavy equity outflows are being offset by repatriation flows; Taiwan lifer's AUM is USD 990bn, 60% of which is overseas.			
Hong Kong	Neutral	Bullish	We expect HIBOR rates to decline as funding conditions improve; spot to trend lower on stock connect southbound equity inflows.			
India	Neutral	Bullish	INR has been under pressure from equity and bond outflows; we expect RBI to cut by 50bps which should be bond positive.			
Singapore	Neutral	Neutral	We expect MAS to deliver double easing via flattening the slope of the SGD NEER to zero and re-center the mid-point lower.			
Thailand	Bearish	Neutral	THB under pressure from sharp reduction in tourists and broader impact on growth; we expect BoT to cut rates to 0.50%.			
Malaysia	Bearish	Neutral	Weaker growth from lock down, lower oil prices and heightened political uncertainty to weigh on the MYR.			
Indonesia	Bearish	Neutral	Fear of fund redemption to continue to weigh on IDR near-term; but we think IDR can rally back quickly after outflows subside.			
Philippines	Bearish	Neutral	Remain bearish on PHP as weaker growth, lower rates and risk of capital outflows weight on PHP.			

*Performance of spot and carry relative to Asian peers; ** Rates market outlook vs. current yield level (reference to 5Y swaps or bond yields)

Italics denote a change from our previous stance.

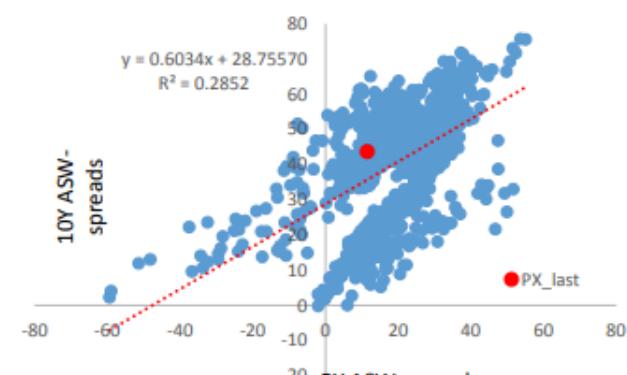
Source: Goldman Sachs Global Investment Research

Exhibit 5: Trade Ideas in EM Asia rates and FX

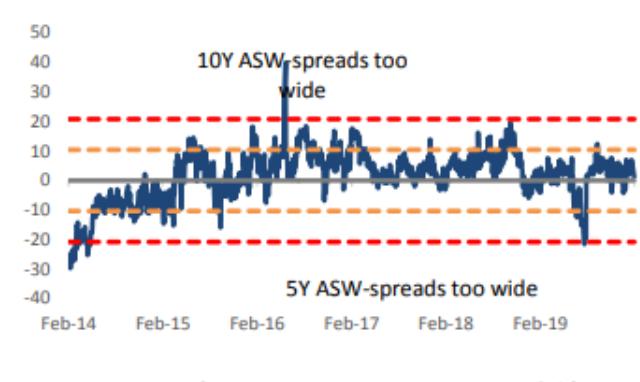
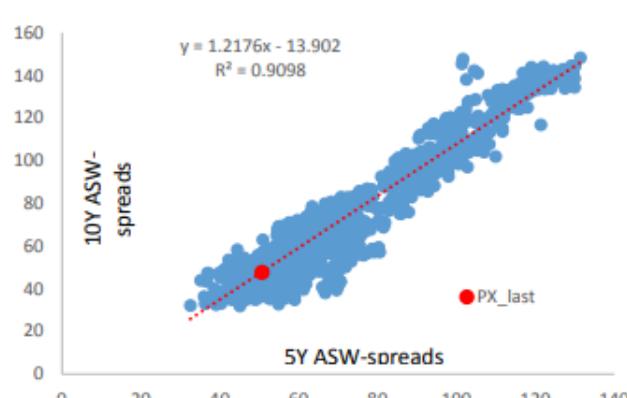
Open trades	Initiated	Current	Entry	Target	Stop	Total PnL (capital and carry, bp)
Pay SGD 2y vs. receive HKD 2y rates	9-Mar-20	-0.37%	-0.20%	0.50%	-0.55%	-0.17
Short THB vs. long INR	21-Feb-20	99.94	100.00	108.00	96.00	-0.06%
Long CNH vs. short PHP	10-Jan-20	7.30	7.32	7.70	7.10	-0.30%
Closed trades	Initiated	Closed	Entry	Closed	Total PnL (capital and carry, bp)	
Long INR 10y bonds	28-Feb-20	16-Mar-20	6.40%	6.25%	+15bp	
Receive KRW 2Y rate, 1y fwd	21-Nov-19	16-Mar-20	1.31%	1.05%	+26bp	
Long IDR vs. short TWD	21-Jun-19	28-Feb-20	100	102	+1.5%	
Long INR 5Y bond vs. pay 5Y swaps	24-May-19	18-Feb-20	125	110	100	
Receive THB 2Y IRS	21-Nov-19	5-Feb-20	1.22%	0.90%	32bp	
Pay INR 2Y OIS position	11-Nov-19	4-Feb-20	5.26%	5.20%	15bp	
Long INR vs. Short CNH	7-Jun-19	1-Nov-19	100.0	101.5	1.5%	
Long IDR vs. short KRW	1-Nov-19	19-Nov-19	100.0	100.0	0%	
Long USD vs. short KRW and TWD	2-Aug-19	13-Sep-19	100.0	98.5	-1.5%	
Long PHP vs. short SGD	2-Aug-19	26-Aug-19	100.0	98.7	-1.3%	
Receive 2Y CNY IRS vs. Pay KRW 2Y IRS	30-May-19	30-May-19	1.20	1.35	-15	
Short SGD vs. NEER basket	17-Jan-19	2-Aug-19	100	98	0.2%	
Long PHP vs. short KRW	8-Jun-19	2-Aug-19	100	103	3.0%	
Pay KRW 2Y IRS	2-May-19	30-May-19	1.71	1.60	-10	
Long IDR 5Y bond	21-Mar-19	9-May-19	7.14	7.5	-36	
Short KRW vs. TWI	15-Nov-18	26-Apr-19	100	103.9	+3.9%	
Long PHP vs. TWI	2-Nov-18	12-Mar-19	100	100.8	+0.8%	
Long SGD vs. short THB	18-Nov-18	18-Jan-19	23.9	23.2	-2.8%	
Long IDR 10Y bond	6-Nov-18	11-Dec-18	8.2	8.1	+8	
Pay HKD 2-yr, Rec THB 2-yr IRS (bp)	6-Sep-18	14-Nov-18	82	90	+8	
Long INR, IDR, KRW versus SGD, JPY	16-Nov-17	6-Jul-18	100	97.5	-2.5%	
THB 2/5Y IRS flattener (bp)	19-Apr-18	28-Jun-18	51	48	+3	
Long Indian 5-year bonds (%)	11-May-18	11-Jun-18	7.8	8.0	-15	
Pay HKD 2-yr, Rec SGD 2-yr IRS (bp)	2-Mar-18	25-May-18	10	33	+20	
Receive CNY 5Y IRS	20-Nov-17	18-Apr-18	4.0	3.5	+54	
Pay USD 2-yr, Rec SGD 2-yr IRS (bp)	27-Jun-17	6-Feb-18	33	55	+49	
Pay INR 2-yr IRS (%)	20-Nov-17	6-Feb-18	6.2	6.6	+35	
KRW IRS 2/10Y IRS steepener (bp)	17-Mar-17	2-Feb-18	33	41	+24	
THB 2/10Y IRS steepener (bp)	17-Mar-17	23-Jun-17	95	75	-20	
Long IDR 2Y NDS (%)	7-Mar-17	17-Mar-17	7.6	7.0	+60	

Source: Goldman Sachs Global Investment Research

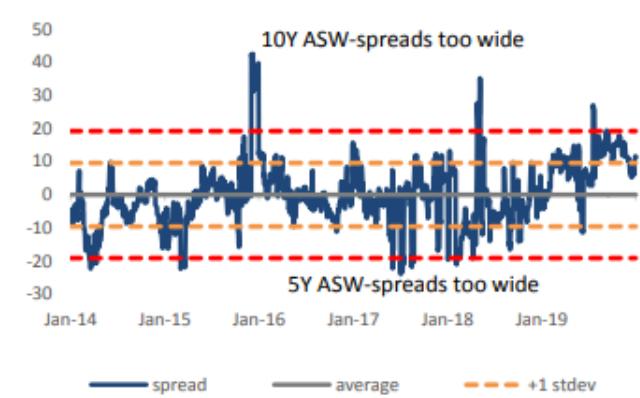
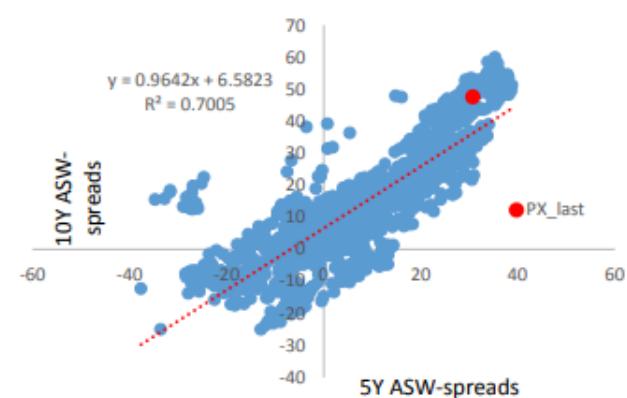
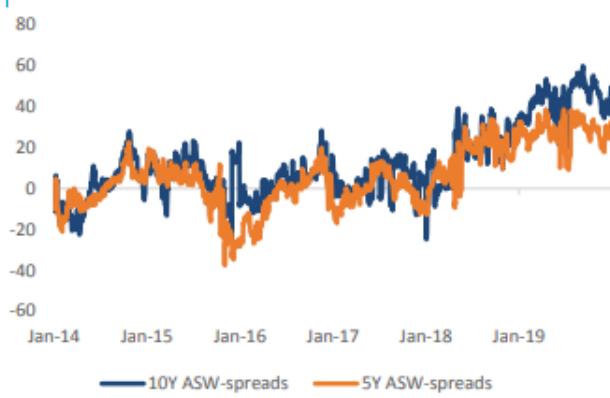
CEEMEA



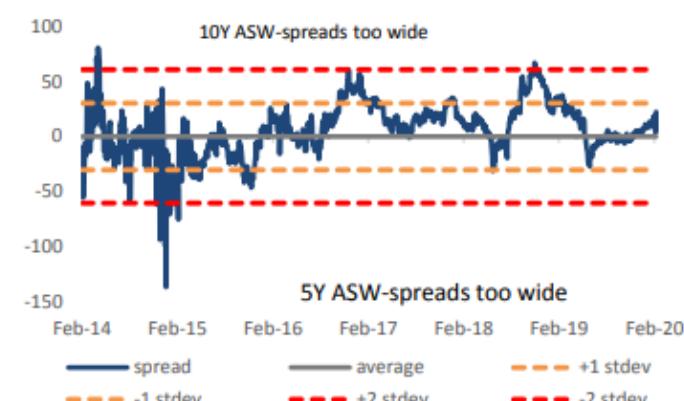
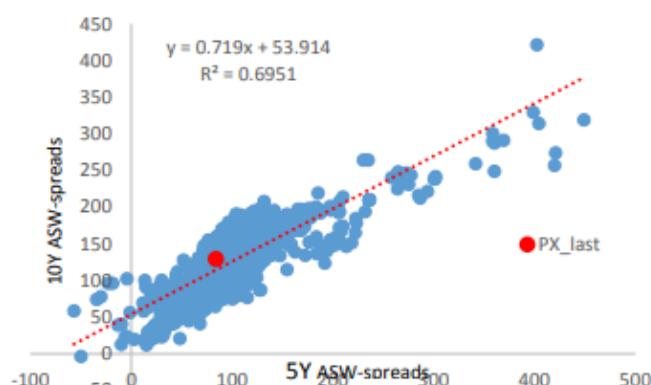
LatAm



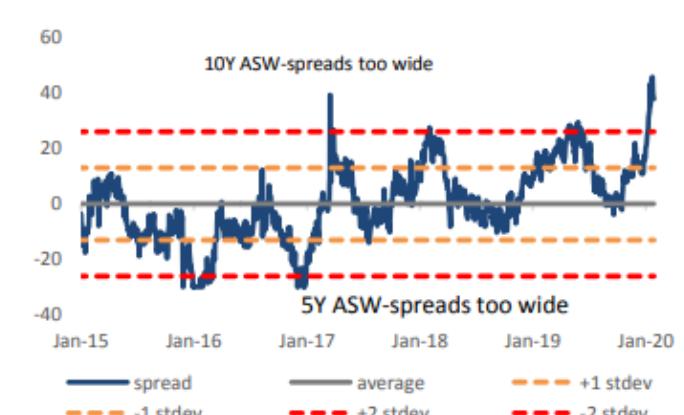
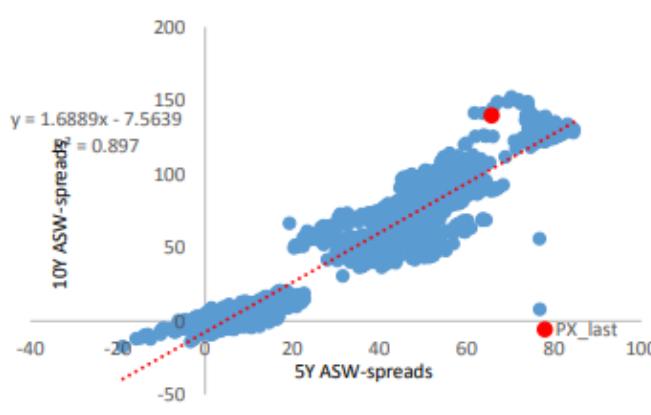
Asia



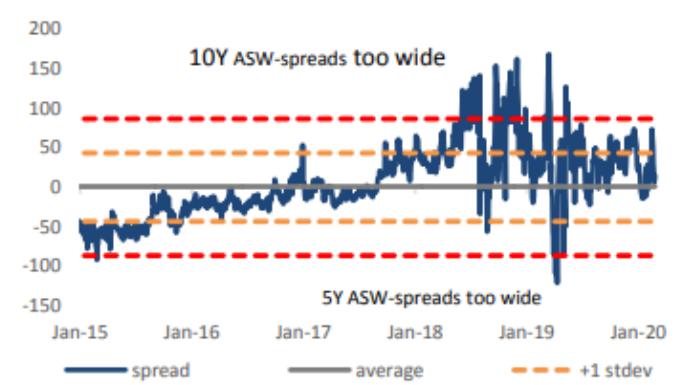
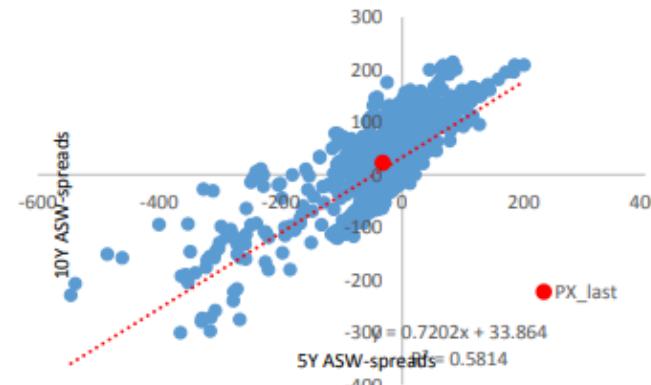
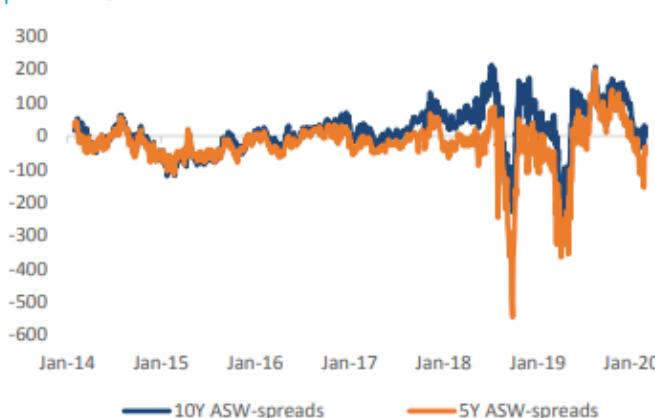
Russia



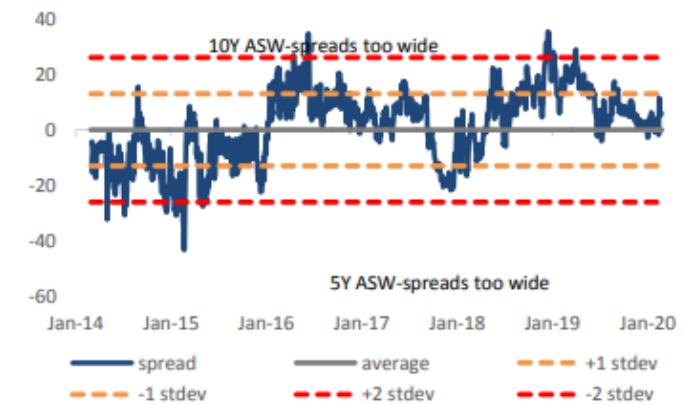
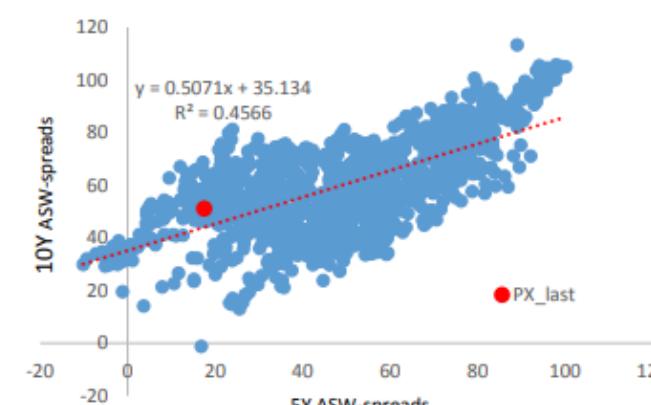
South Africa



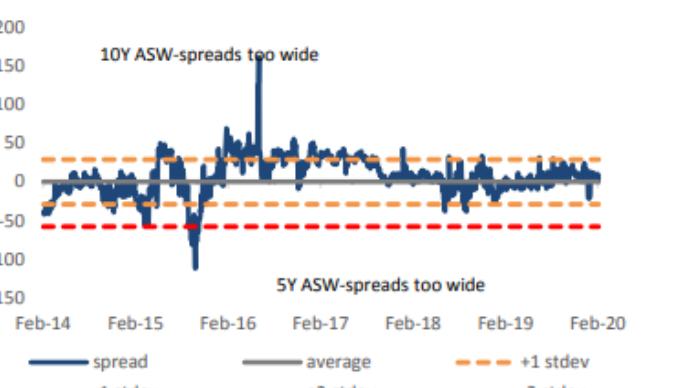
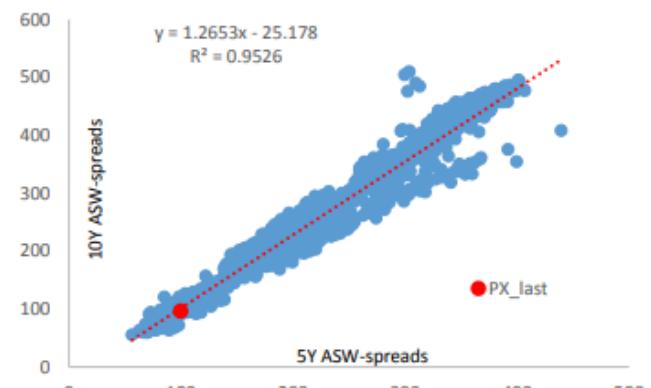
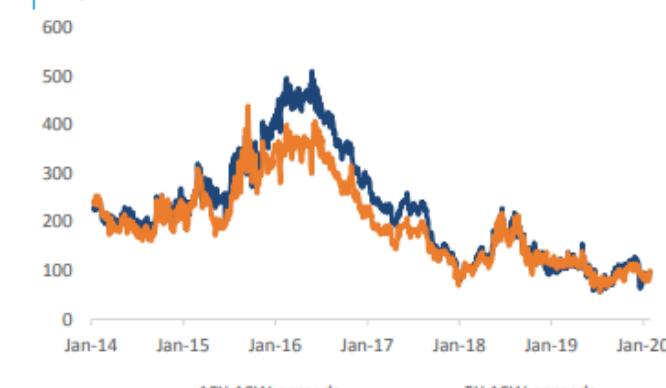
Turkey



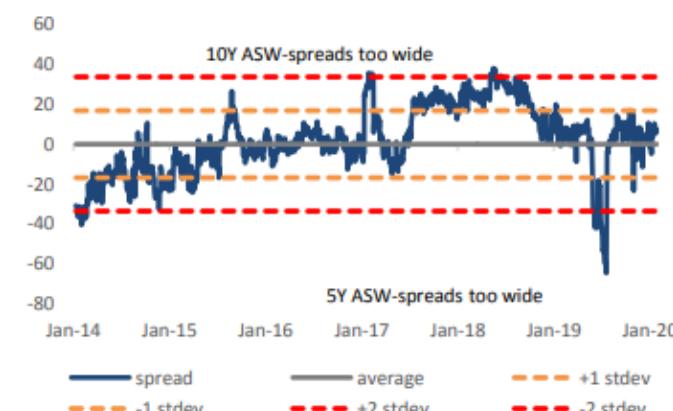
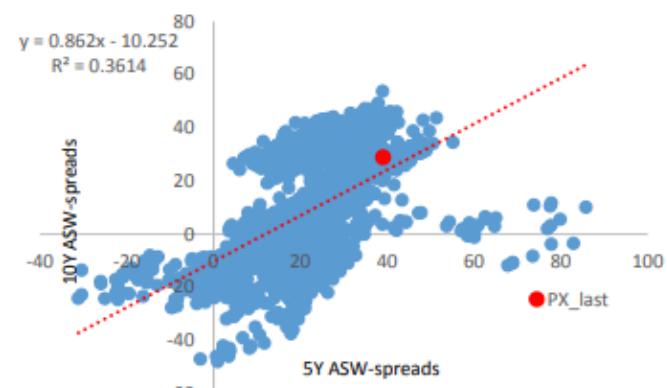
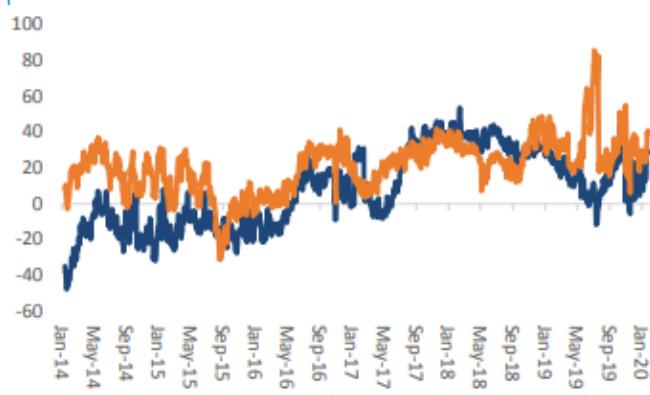
Hungary



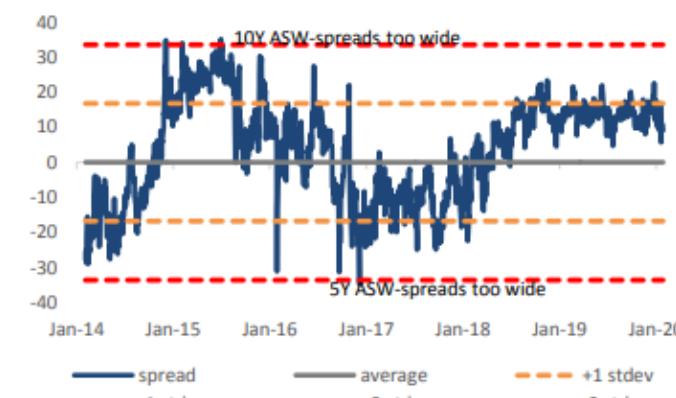
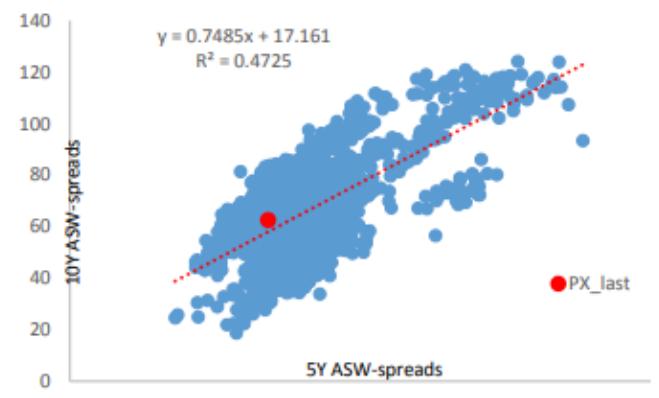
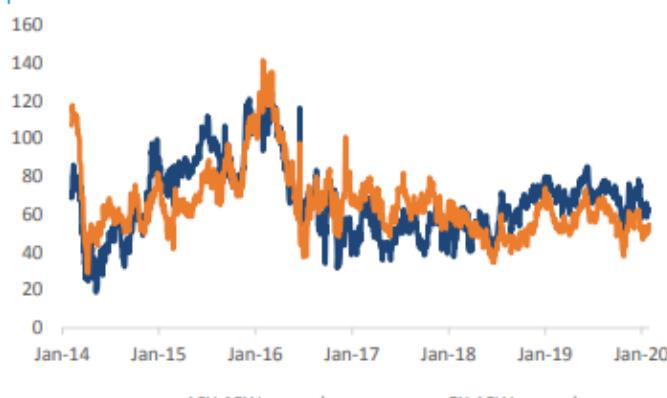
Brazil



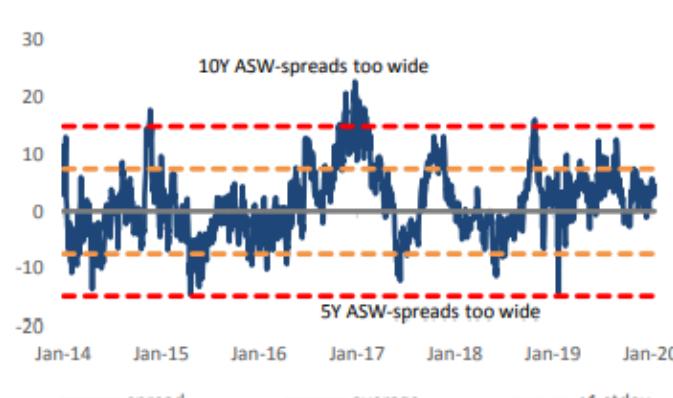
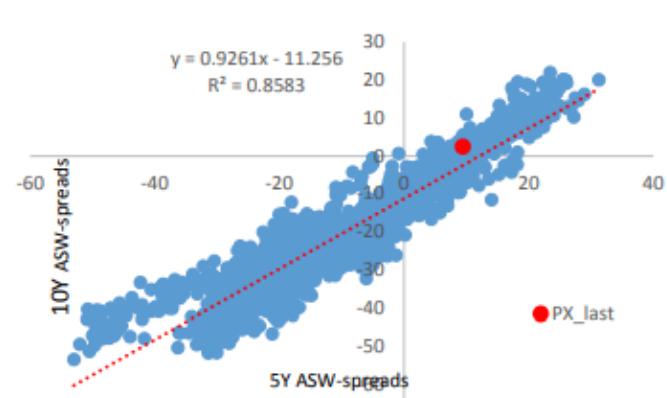
Chile



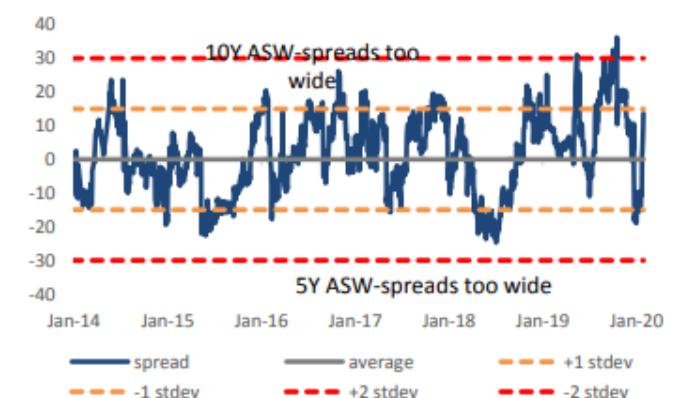
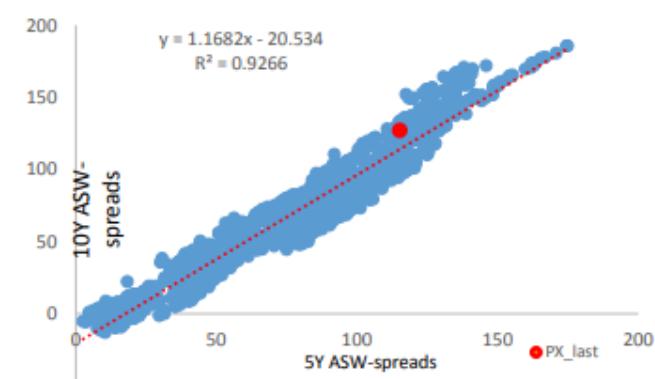
Colombia



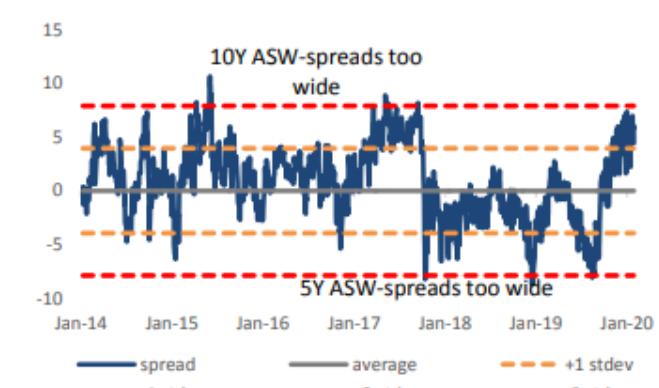
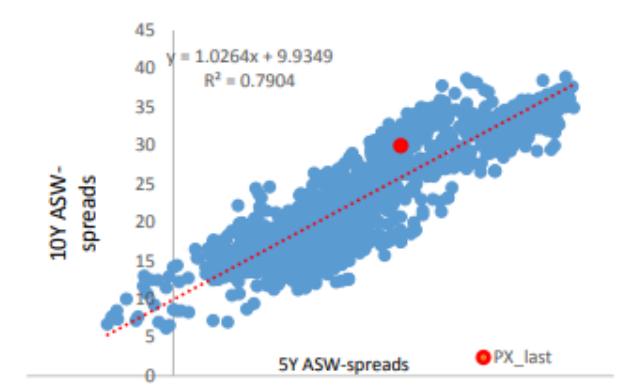
Mexico



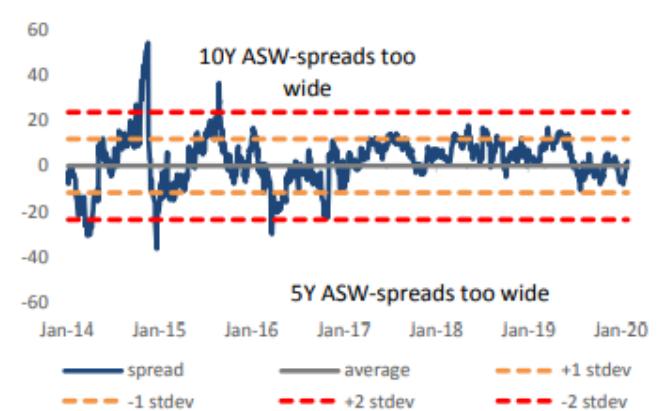
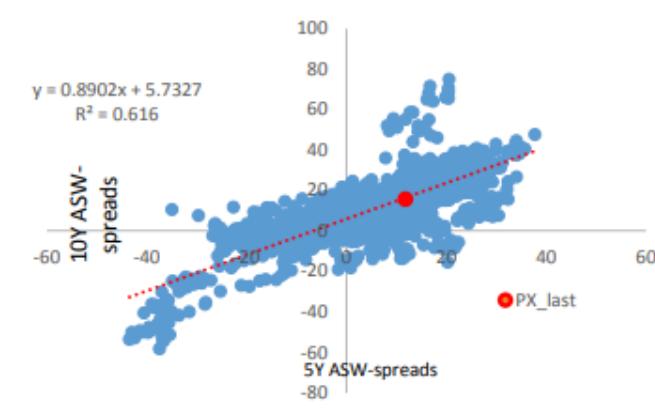
India



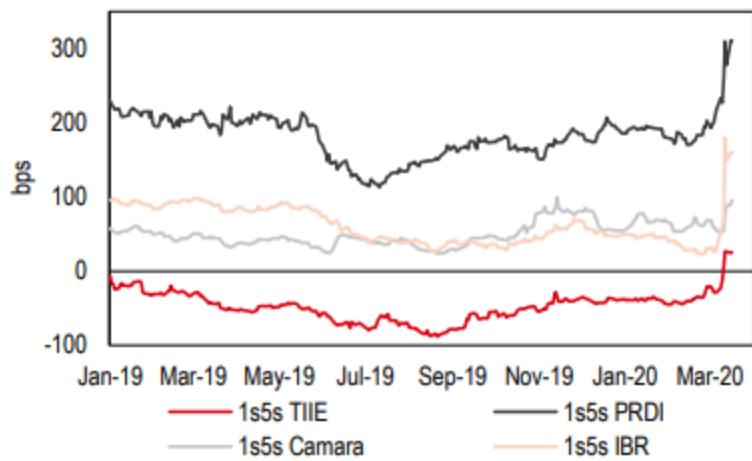
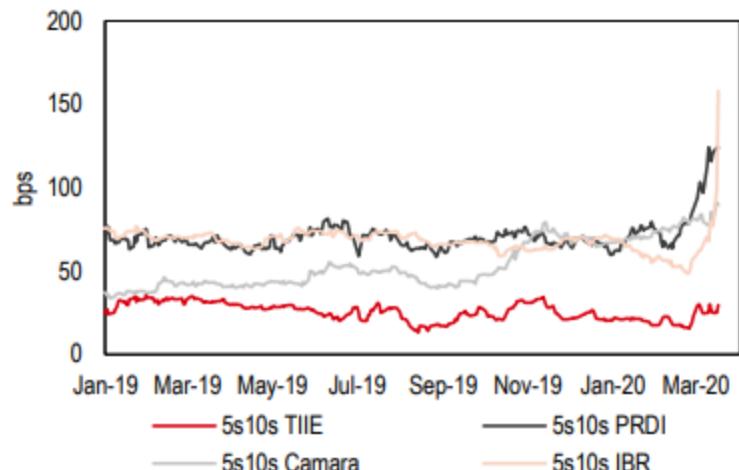
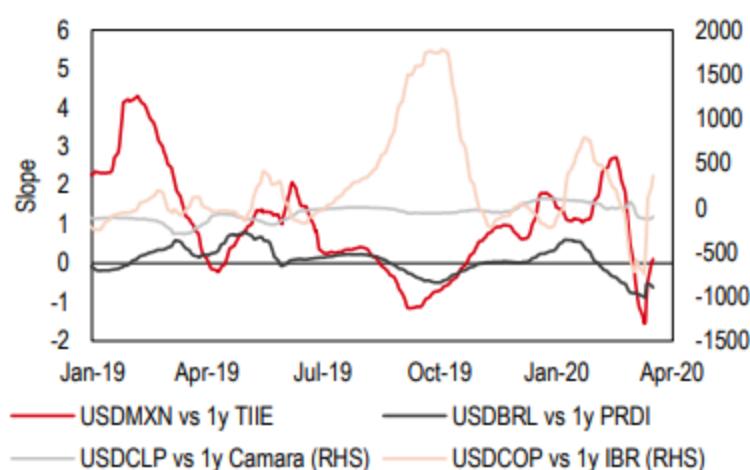
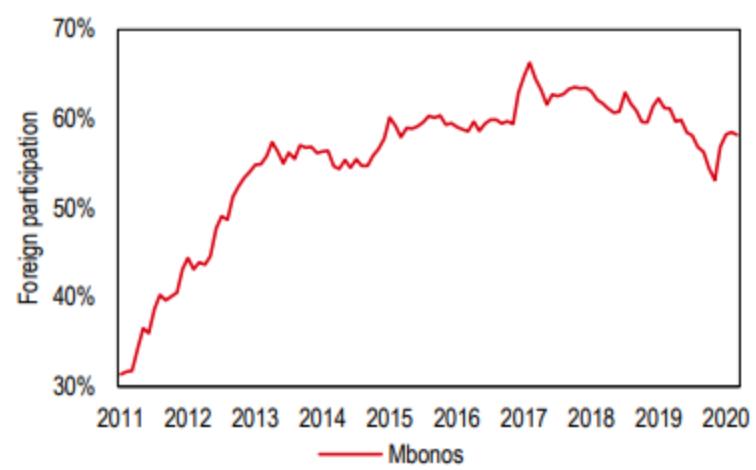
South Korea



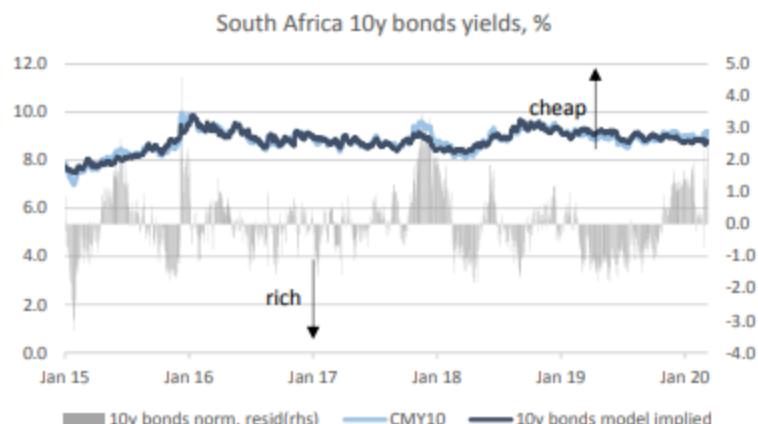
Thailand



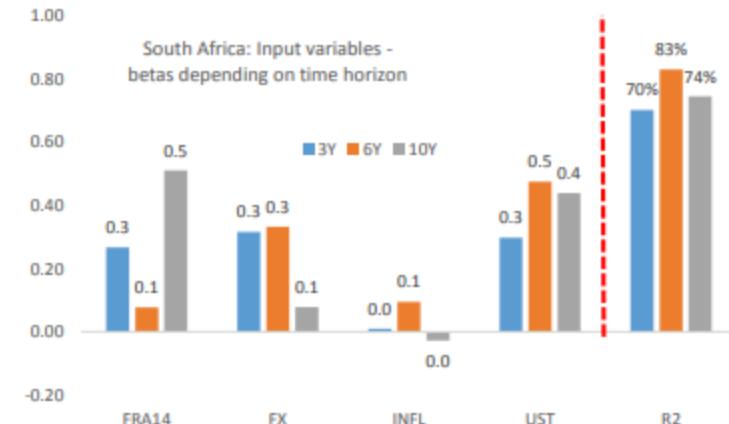
could end up adversely impacting the economic fundamentals in local economies and their fiscal situations. The CBs' actions may provide a sense of liquidity and order, but are unlikely to prevent the steeper yield curve shape, at least until global risk aversion and deleveraging subside.

Figure 1. 1s5s Yield curve slope

Figure 2. 5s10s Yield curve slope

Figure 3. Currency vs rates sensitivity regression slope

Figure 4. Mexico's foreign ownership of Mbonos is high


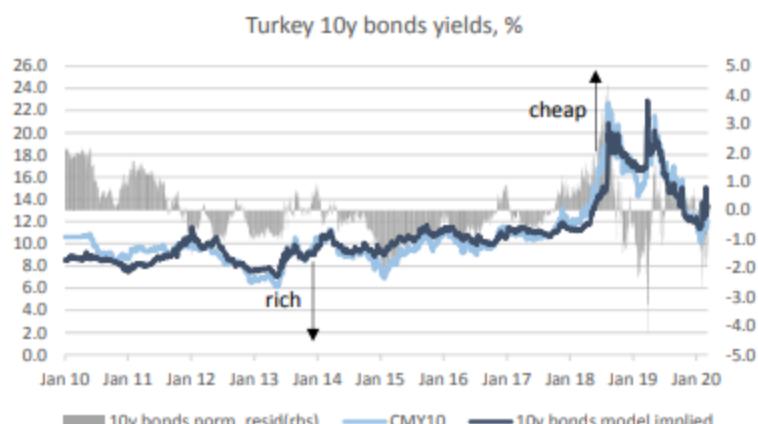
Bond valuation – Model vs implied



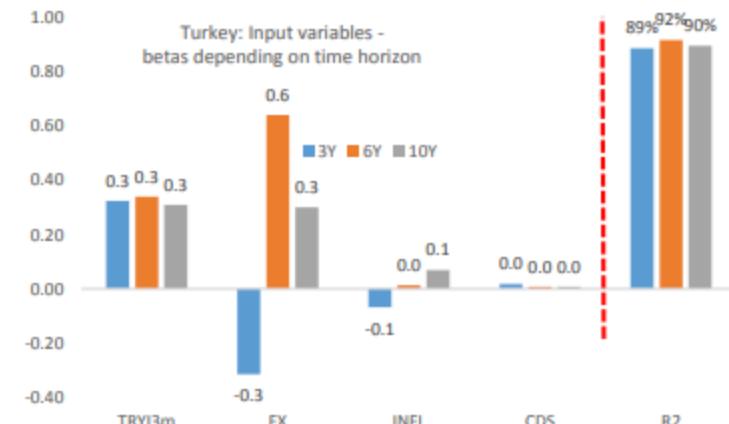
Bond valuation - betas across different time horizons



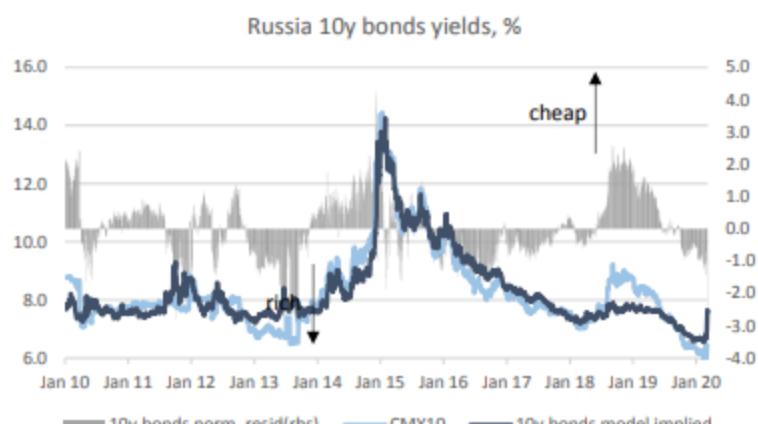
Bond valuation – Model vs implied



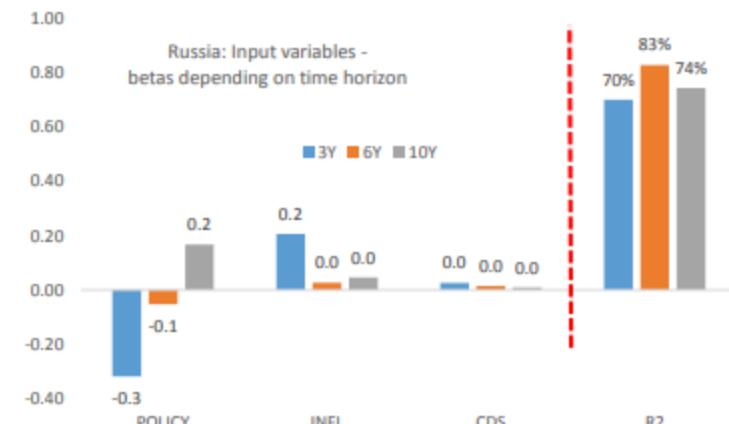
Bond valuation - betas across different time horizons



Bond valuation – Model vs implied

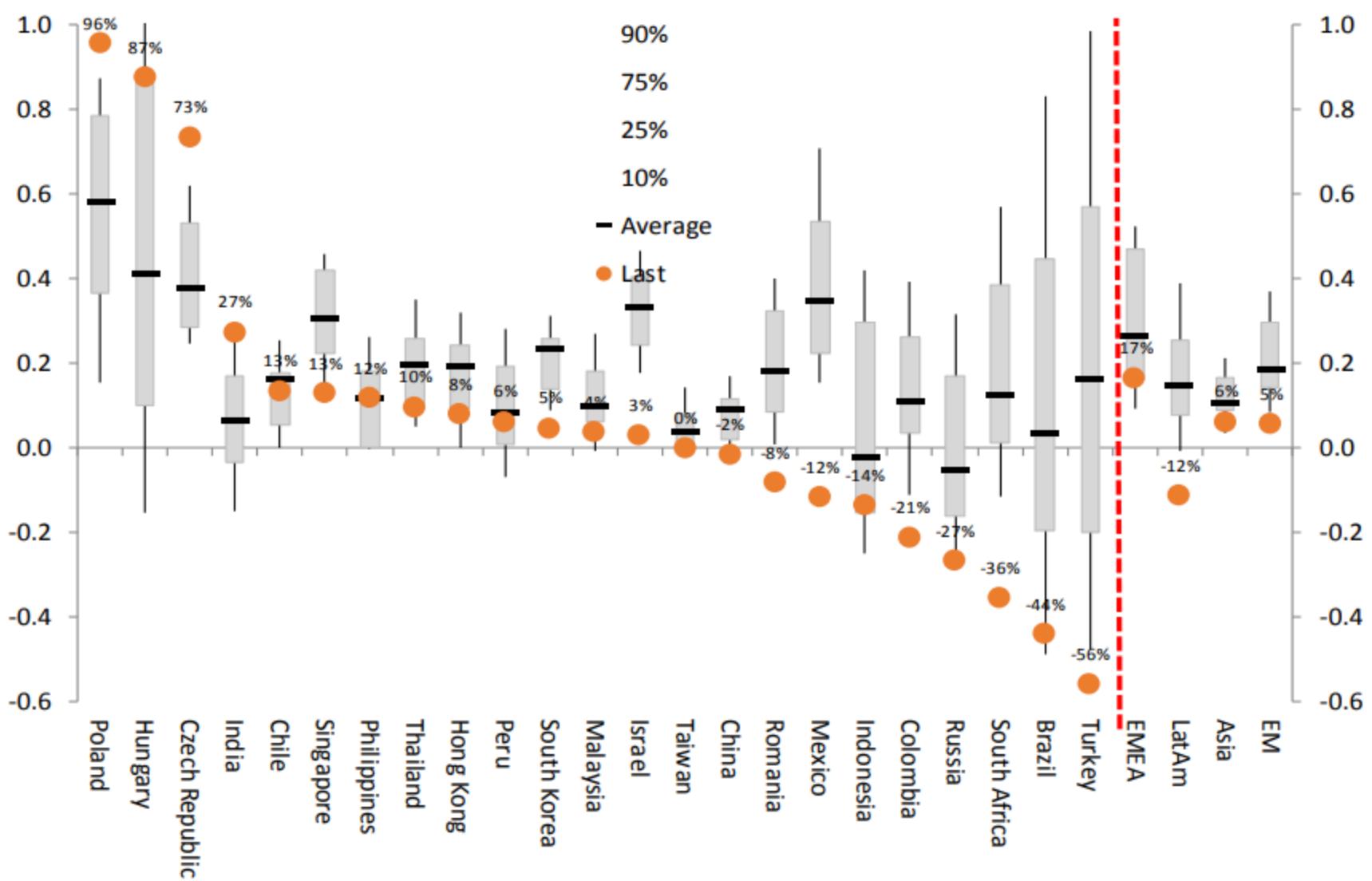


Bond valuation - betas across different time horizons

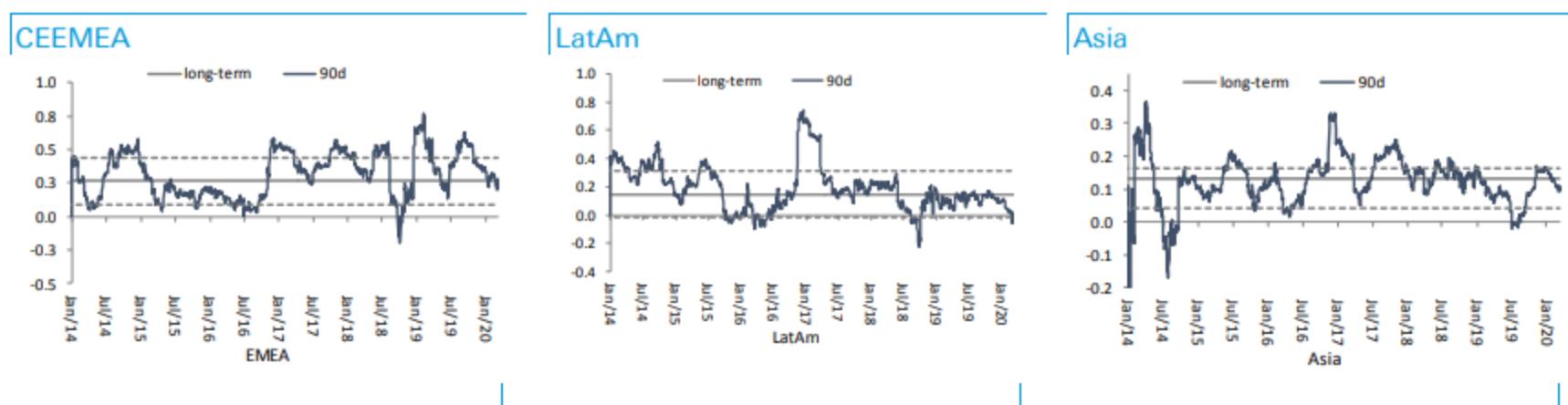


External sensitivity: Betas in 10Y EM local bonds vs 10Y core rates

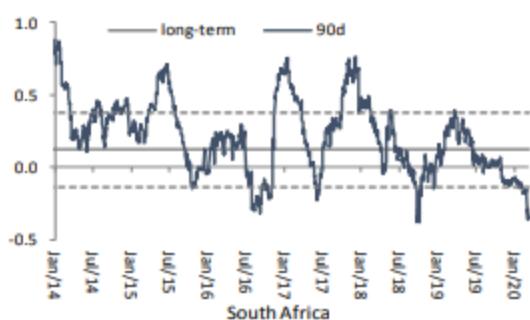
Betas in 10Y EM local bonds to US swaps over the last five years (90d rolling daily changes)



Source: Deutsche Bank, CZK, PLN, HUF and RON vs 10Y EUR swaps



South Africa



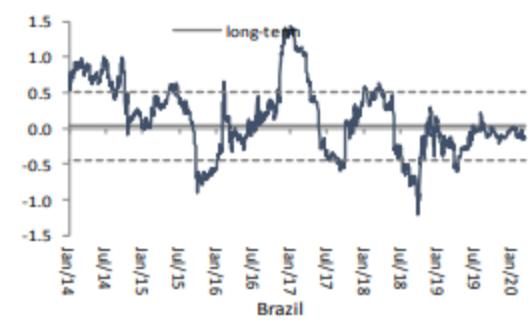
Source: Deutsche Bank

Turkey



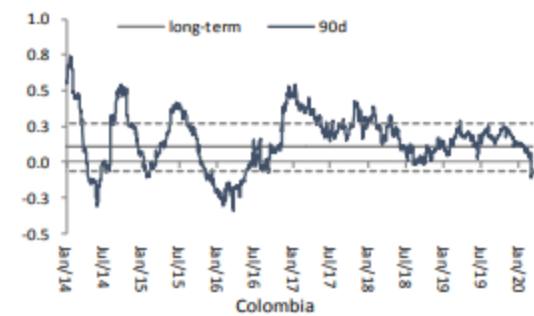
Source: Deutsche Bank

Brazil



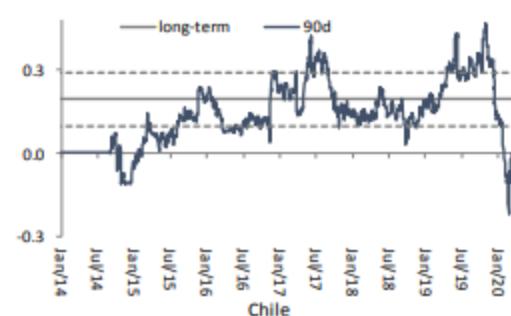
Source: Deutsche Bank

Colombia



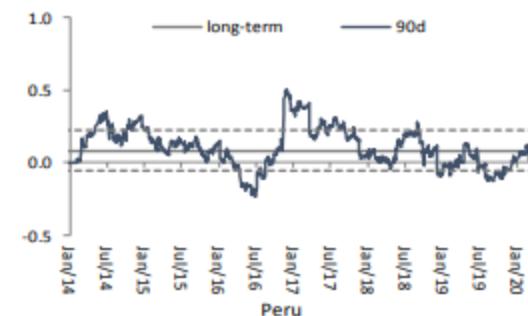
Source: Deutsche Bank

Chile



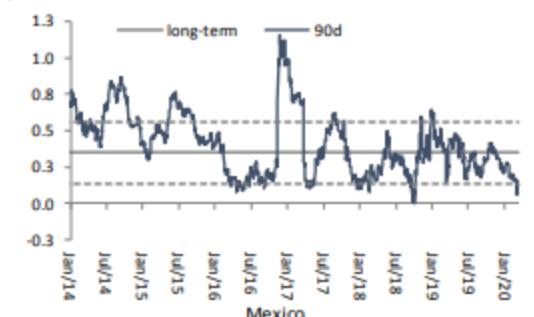
Source: Deutsche Bank

Peru



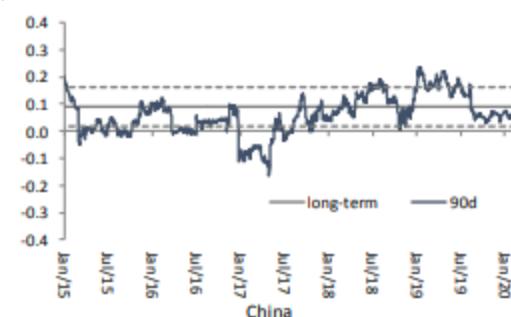
Source: Deutsche Bank

Mexico



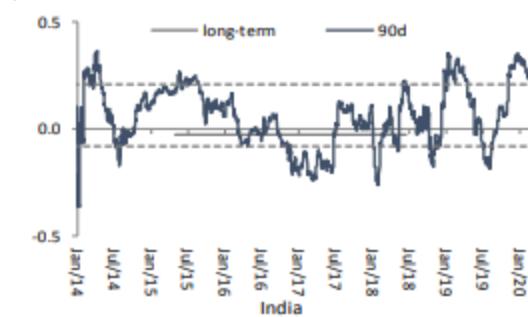
Source: Deutsche Bank

China



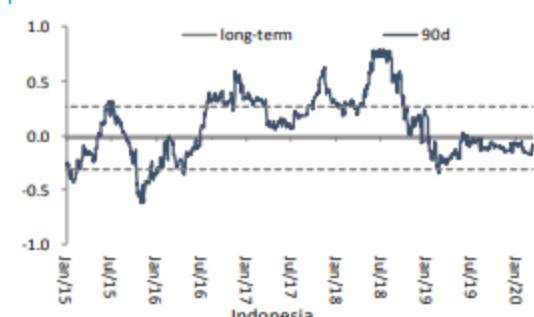
Source: Deutsche Bank

India



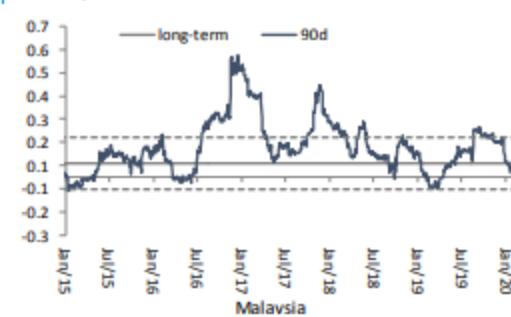
Source: Deutsche Bank

Indonesia



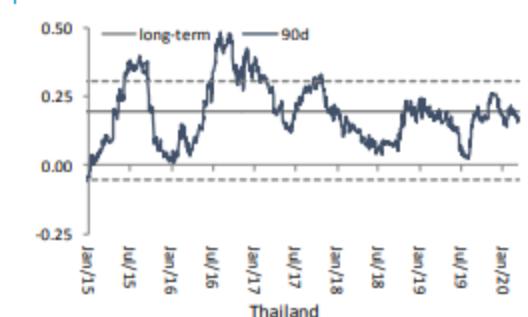
Source: Deutsche Bank

Malaysia



Source: Deutsche Bank

Thailand



Source: Deutsche Bank

Ladislav Jankovic
(1-212) 834-9618
ladislav.jankovic@jpmchase.com

Lorenzo Ravagli, PhD
(44-20) 7742-7947
lorenzo.ravagli@jpmorgan.com

Arindam Sandilya
(65) 6882-7759
arindam.x.sandilya@jpmorgan.com

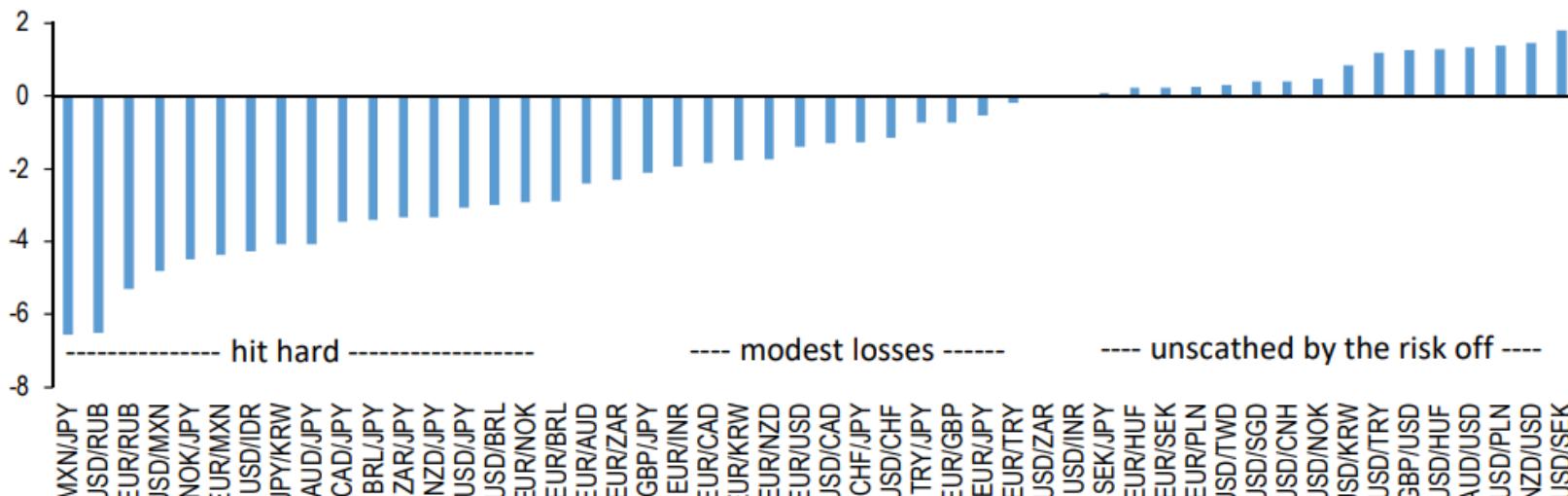
Global FX Strategy
13 March 2020

J.P.Morgan

Exhibit 7. With the recent massive repricing of FX skew most of the ATM/25D delta-hedged ratio spreads ended underwater (positions initiated on Feb 20 – just ahead of the latest vol episode).

3M ATM/25D risk-off direction call spread structures (equal notional) delta hedged daily at smile delta with expiry matching forwards. All position initiated on Feb 20.

bp P/L from equal weighted ATM/25D risk off ratio spreads, delta-hedged, initiated on Feb 20th



Source: J.P. Morgan

particular interest the structures where the short notional is placed on the “risk-off” side, i.e. selling risk-reversals. While such structures are quicker in collecting premium, exposure to left tail is notable.

The brutal sell-off in Oil prices as occurred over the past weekend led to a sharp repricing of vols and skews of oil-exporting currencies, most notably, RUB, NOK and CAD. A closer inspection reveals that outside of the EM petro currencies and yen high beta crosses, the losses in risk-off ratio spreads were moderate (Exhibit 7). This is encouraging as the currently elevated levels of skew pricing should provide a buffer from incurring further losses if spot-vol correlation picks up again.

USD/CAD vols risk-off call ratio spread is an outlier that dominates Exhibit 8 where currency pairs are screened based on 3 year Sharpe (a medium term performance horizon) of risk off ratio vol spread structures and 1-yr zscore of skew / ATM vol ratio.

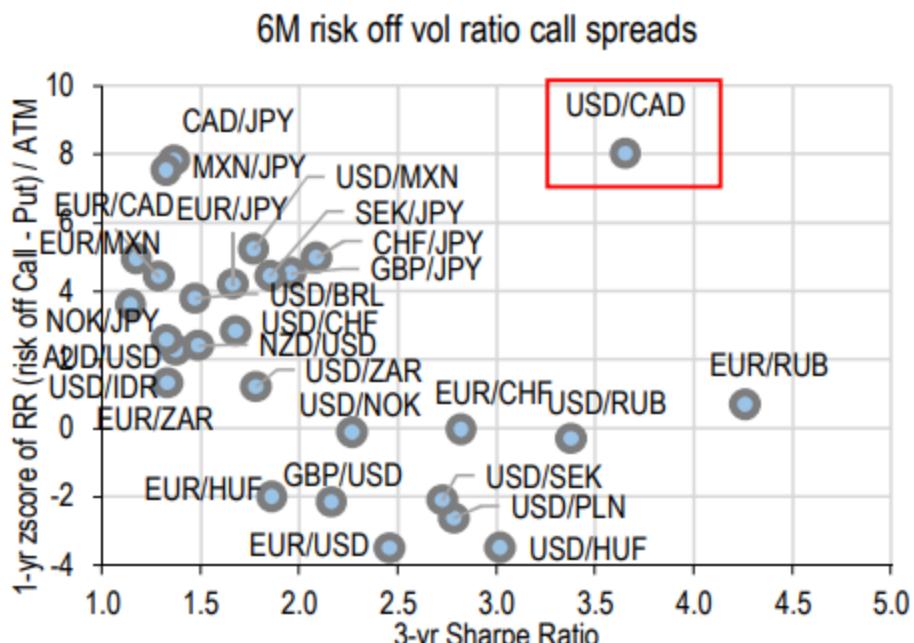
3M USD/CAD delta-hedged ATM/25D call spread @9.8/10.3 indic vs 12.7 ch, equal notional to keep the structure net long vega

An alternative way for benefiting from elevated skew, while offering at the same time risk-off exposure, is via directional (not delta-hedged) call spreads. Especially in the case of CAD, a regression analysis finds that the latest move in Oil well justifies the changes in vol and skew, but that there is further room for spot to move higher (about +3% of upside based on the past 3m change in Oil prices). Consider:

3M USD/CAD 1.40/1.4280 strikes (40D/30D) call spread (live, no delta-hedge) costs @55bps USD (spot ref. 1.3860), 3.5X max payout / cost ratio.

Exhibit 8. USD/CAD vols risk-off call ratio spread is an outlier that dominates on the metrics based on recent 3-yr performance and the current pricing.

25 delta risk reversals = (risk off call – risk off put). 6M expiry options 30D/10D risk off ratio call spreads, hedged daily using smile forward deltas and rolled into fresh strikes monthly. Transaction cost accounted for. 3-yr Sharpe Ratio calculation is excluding the current vol episode.



Source: J.P. Morgan

USD/PLN – EUR/USD vol spread in anticipation of late cycle dynamics

EUR/USD vols have been a notable casualty of the recent market gyrations resulting in USD/PLN – EUR/USD ATM vol spread at ~ 2 sigma low (basis 1-yr lookback window), a defensive dislocation worth fading, given the attractive risk/reward for buying a higher beta vol at a tight premium. Historically, such undershoots tend to be short lived, although catching the right timing can prove challenging (Exhibit 9).

Exhibit 10 beta-to vol analysis indicates PLN to be a strong buy which in conjunction with the USD/PLN-EUR/USD

Positioning and funding stress help explain cross-country differences in performance of different EEMEA countries' markets for currencies and local bonds. We still do not think that now is the time to take directional views on the EEMEA markets. But we still expect USDRUB to hold below 78 as long as Brent prices hold above \$25/bb, and we expect USDZAR to remain a function of global risk sentiment without being overly sensitive to Moody's ratings review on 27 March, on the assumption that volatility in global markets remains high. We do not like the risk-reward trade-off that comes with short EURCZK positions at this point.

Nimrod Mevorach

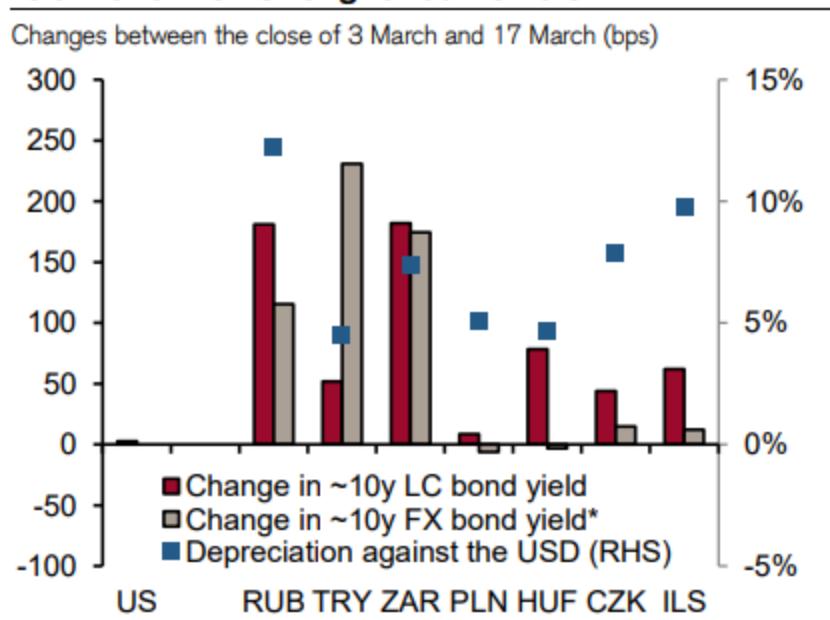
44 20 7888 1257

nimrod.mevorach@credit-suisse.com

Positioning and funding stress help explain relative performance

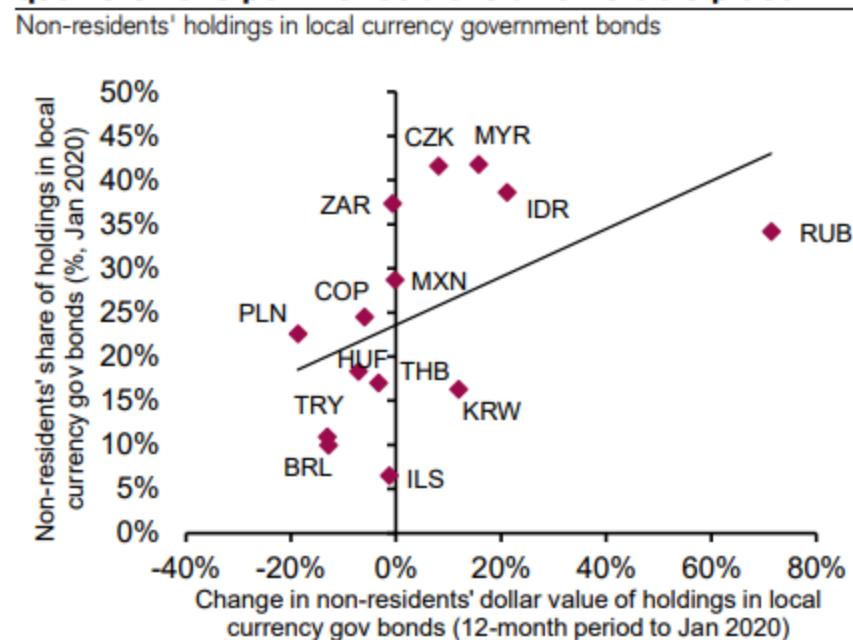
The pain across EEMEA markets for foreign exchange and local currency bonds during the past two weeks has not been spread evenly. Cross-country differences regarding foreigners' positioning in local markets is a factor which explains some of the cross-country differences in local market performance. Russia has been among the worst performers. Foreigners' heavy build-up of bond holdings in Russia in the preceding quarters, and the subsequent downscaling of those holdings, seems to have exacerbated the selloff in the rouble and in Russian bonds (OFZs), which also reflected both the global risk market selloff and the sharp decline in oil prices early last week. Turkey and Poland, by contrast, are among the recent outperformers in EM markets for foreign exchange and local-currency bonds. The fact that both of these countries saw a sizable decline in non-residents' participations in their bond markets during the 12-month period that ended in January 2020 probably helped to mitigate the selloff (Figure 9).

Figure 8. ILS and CZK have performed poorly relative to their strong fundamentals



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Figure 9. Build-up of large positions in the past quarters have put the rouble is a vulnerable place



non-resident holdings of local bonds probably also, as in the case of Russia, help explain why the koruna has underperformed this time round. But the selloff in the shekel probably cannot be mainly attributed to unwind of non-residents' positions given how small foreign participation is. Instead, the selloff in the shekel may largely reflect unwind of FX hedges by local institutional investors who responded to a sharp decline in the value of their foreign assets.

We present below our latest thoughts and views on the rouble and the rand. We also preview the central bank policy decisions which are due in these two countries later this week; and we reiterate our cautious view on CZK despite its recent cheapening.

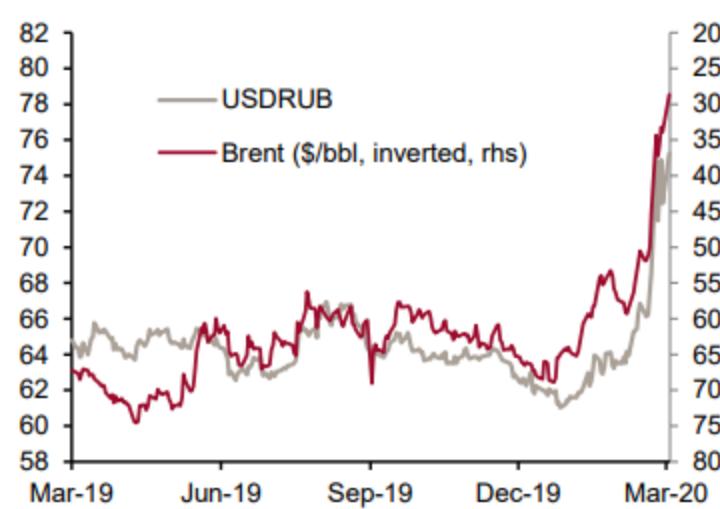
RUB: USDRUB still likely to follow oil prices

We generally stick to the views that we presented on the rouble last week. We still expect USDRUB to move largely in line with oil prices. We mark-to-market our expected USDRUB range to 72-77 (from 69-74) to take into account the new leg lower in oil prices that has unfolded since a week ago. Our underlying assumption is that the central bank's FX sales will help the rouble at the margin, although they are currently moving at a relatively slow pace of about \$1bn per month.

We still think that USDRUB is unlikely to rise substantially above 78 if Brent prices stay above \$25/bbl. But we see scope for temporary breaching this level in case of a wave of disorderly outflows from the bond market.

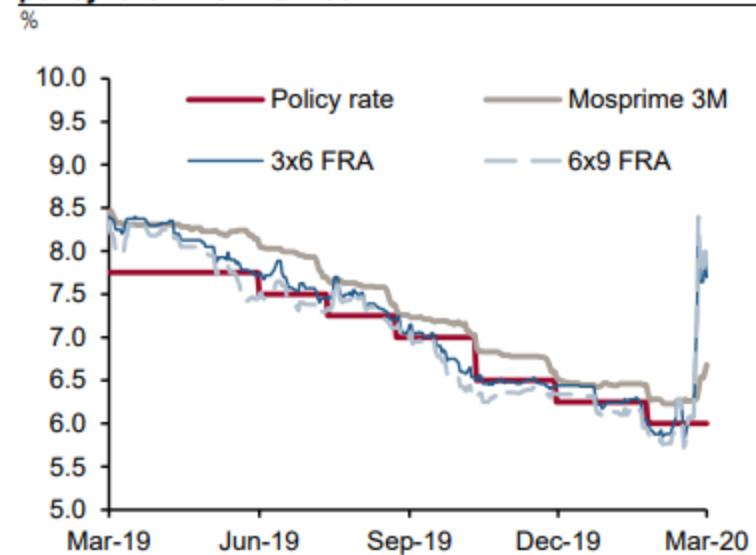
As for the central bank's policy meeting on Friday (20 March) markets currently price in a rate hike of about 75bps-100bps. This pricing is at odds with unanimous analyst expectations (according to a Bloomberg's survey) for no change in the policy rate this week. The contrast between these two measures of expectations suggests that market participants are somewhat uncertain about how the central bank will respond to the likelihood of both an increase in inflation (due to currency depreciation) and a decline in growth (due to restrictions related to the coronavirus).

Figure 10. The rouble has largely held on to its recent "outperformance" against oil prices



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Figure 11. Russia's rates markets price in a large policy rate hike this week



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

The recent selloff in the rand took USDZAR above 16.50 – a level that was last seen in January 2016. To put this into perspective, the peak USDZAR level in January 2016 resulted from an unfavourable combination of domestic

18 March 2020



political stress (a surprise firing of the then finance minister Nhlanhla Nene in December 2015) and broader global risk market weakness amid plummeting commodity prices and concerns about the Chinese economy.

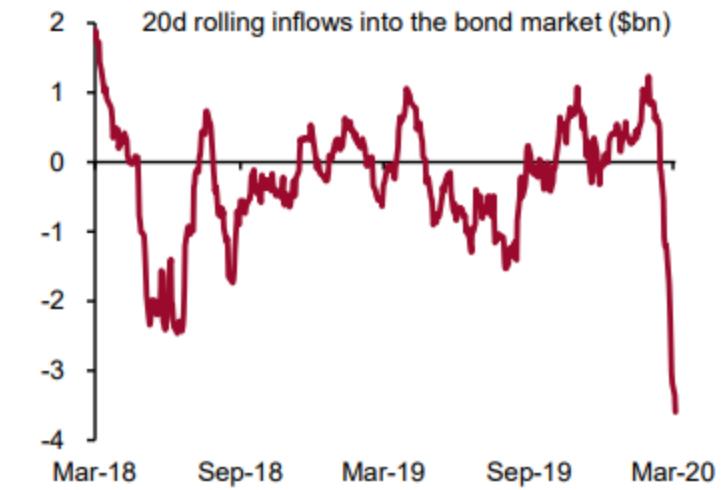
Interestingly, despite the recent weakness in the rand, the current rate market levels suggest that investors think South Africa's central bank will follow many other central banks around the globe and cut the policy rate at its meeting tomorrow (19 March). Markets currently price in a rate cut in the order of 50bps-75bps for that meeting. Investors probably expect the central bank to base its decision on the sharp decline in oil prices as well as the likelihood of a decline in growth, amid recent restrictions imposed by the government in the context of the coronavirus.

The combination of building expectations for a rate cut and a broader selloff in EM rates has led to an unusually sharp steepening of the IRS curve. The 2s10s slope has risen by more than 100bps since early March, to levels which were last seen in 1999-2000.

The sizable selloff in the rand and bonds keep Moody's rating review (due on 27 March) on the backburner for now. The USDZAR vol curve is heavily inverted at this point as it tends to be whenever the spot exchange rate is under heavy pressure. As a result, the 2-week tenor – which covers Moody's review and would normally trade above the 1-week tenor – is currently trading below the 1-week tenor. Our interpretation is that markets do not think Moody's will downgrade South Africa at this point given the unusual circumstances. An alternative explanation is that investors do not see much more room for a selloff even if a downgrade takes place.

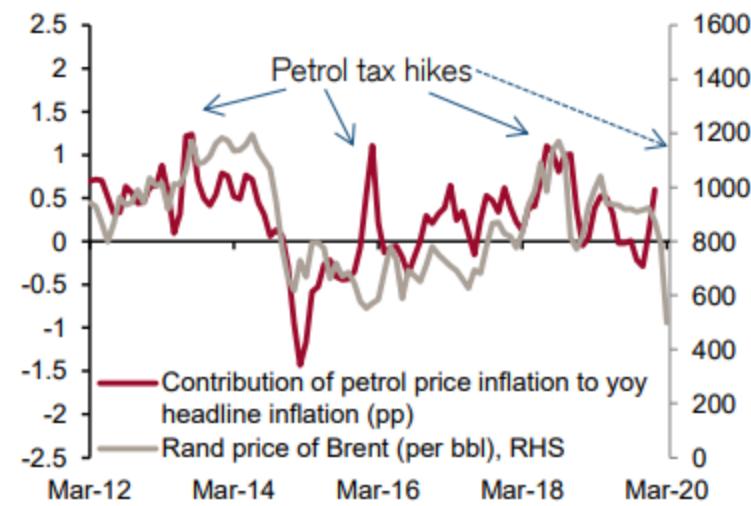
We think that USDZAR will remain largely a function of global risk sentiment. We could imagine USDZAR pushing above 17.00 if global risk sentiment remains poor as foreign investors continue to unwind positions. Meanwhile, to the extent that volatility in global markets remains unusually elevated, investors are unlikely to focus on Moody's decision as a major event risk.

Figure 12. South Africa's bond market recorded cumulative cross-border outflows of \$3.6bn between 19 February and 17 March



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Figure 13. Markets expect the drop in oil prices to help the central bank to cut rates on Thursday (19 March)



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

CZK: Catching a falling knife?

The Czech koruna has sold off unusually aggressively since the middle of last week, in the context of the global risk market selloff that was driven by coronavirus developments. The koruna has substantially underperformed peers such as PLN and HUF in that period. A sizable one-day move on Monday (16

FX Compass

13

18 March 2020



March) took EURCZK above 27.00, for the first time since the central bank removed its exchange rate floor in April 2017.

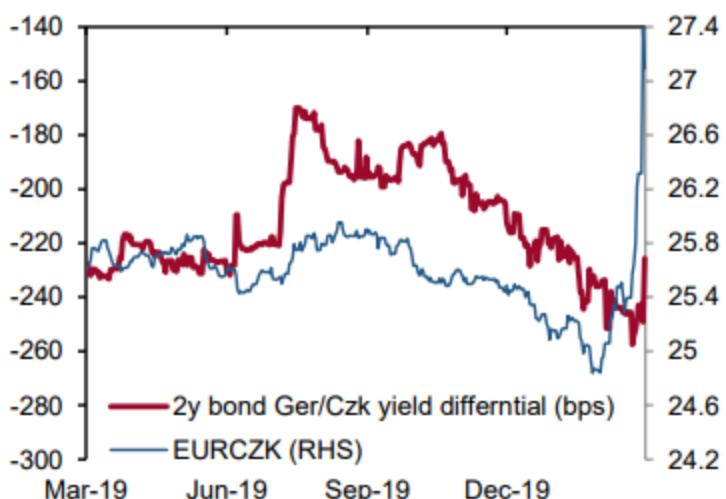
The aggressive selloff in CZK seems to reflect a combination of positioning and funding stress. As a reference, EUR/CZK basis swap fell much more than EUR/PLN and EUR/HUF basis swaps. Long positions in the koruna were popular in the run-up to the coronavirus crisis. Foreigners' share of the outstanding stock of local-currency government bonds was 41.6% at the end of January, one of the highest rates in the EM universe.

Last week we closed the long CZKHUF position that we initiated on 4 March, at the start of the recent selloff in EM FX.

The sharp selloff in the koruna since the middle of last week has made EURCZK look extremely stretched from a rate differential perspective (Figure 14). Meanwhile the Czech central bank noted on Monday (16 March), when it cut the policy rate by 50bps, that FX market interventions are not required at this stage. But this message is probably not strong enough for markets to rule out the potential for FX interventions, especially as the central bank has large

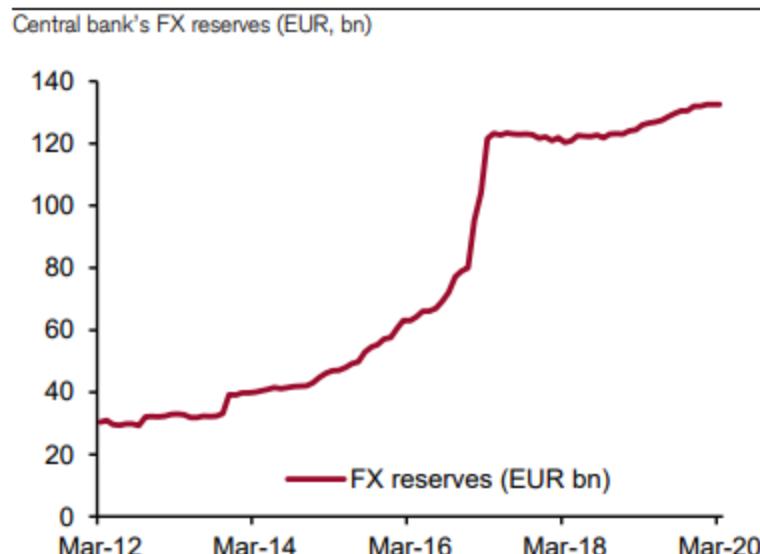
Despite these two koruna-supportive factors, the fact that EURCZK has been ignoring rate differentials is concerning. We are still not convinced that EURCZK upside is capped and remain neutral at this point.

Figure 14. EURCZK has decoupled substantially from yield differentials between bunds and Czech bonds



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Figure 15. The Czech central bank has built up sizable FX reserves when the FX floor was in place



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Positioning heavy but feels cleaner

With technicals driving the market, we assess the latest positioning data in the DI interest rate futures market.

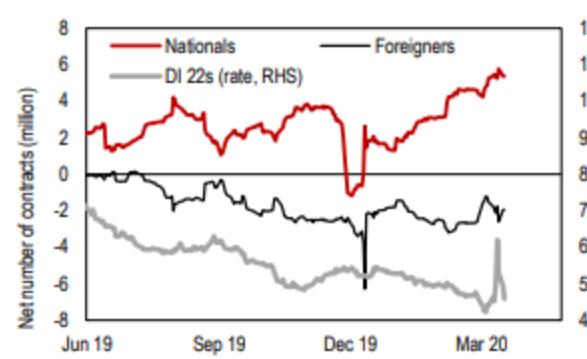
DI Futures - Locals long and comfortable

Figure 1 shows that foreigners have remained net short in DI futures since mid 2019 (with average 2.5m net shorts since October 2019). However, local investors have continued to increase their net longs since November 2019 when they were net short.

The open interest is largely in the front-end futures, suggesting that locals are taking exposure at the front-end to position for dovish central bank monetary policy. We believe that following the central bank statement on the impact of COVID-19 on the Brazilian economy on 3 March and global central banks easing, long positions at the front-end as a play on monetary policy are likely to be comfortable.

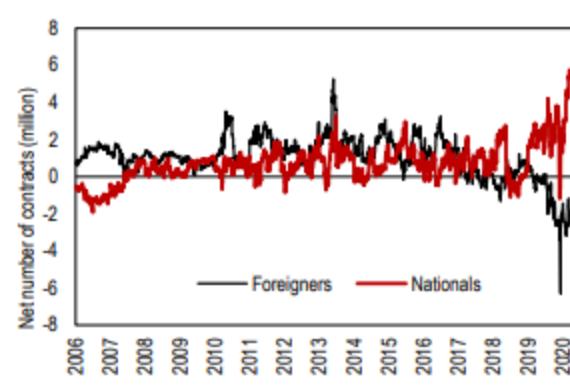
The key risk remains higher FX pass through to prices that leads to a change in central bank reaction function. Even in the case of higher FX pass through, we believe that the locals have shown a tendency to be able to see through some higher volatility which would be likely. This is especially so as the central bank can choose to overlook FX pass through effect given the strong expected deflationary impact of the global events in Brazil.

Figure 1: Nationals are net long DI futures while foreigners are net short



Source: BMF Bovespa, Bloomberg

Figure 2: DI Futures – Net longs foreigners vs. nationals



Source: BMF Bovespa, Bloomberg

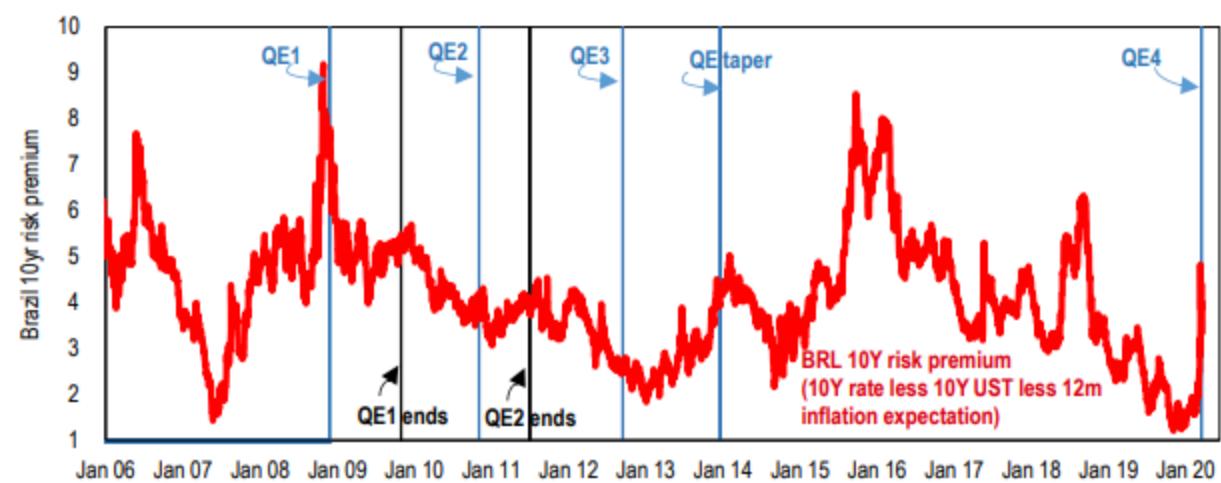
Fed QE has led to lower risk premium in Brazil rates

Volatility ahead but history suggests lower risk premium in months ahead

In derisking markets, negative feedback loops tend to dominate. Far from it that we suggest that QE is the key driver, but if the local fiscal credibility is there (aka reforms), history suggests that QE leads to lower risk premium in Brazil rates (Figure 3).

The 10-year risk premium (DI 29 less 10-year UST less 12m inflation expectations) started the year around 150bp and averaged 165bp in January. The risk premium spiked to almost 500bp last week (week of 9 March) closing the week around 400bp. It has been in the 420-440bp range in volatile trading as of the morning of 18 March. Depending on derisking and the global conditions, it is likely that risk premium touches higher especially if local growth/politics remains worrisome.

Figure 3: Risk premium in Brazil 10-year rates and Fed QE



Source: Federal Reserve, HSBC, Bloomberg

PLUMBING

(MORE ON ASIA STIR DISLOCATIONS LAST WEEK)

FX Strategy

Signs of dollar funding stress add support for USD/Asia

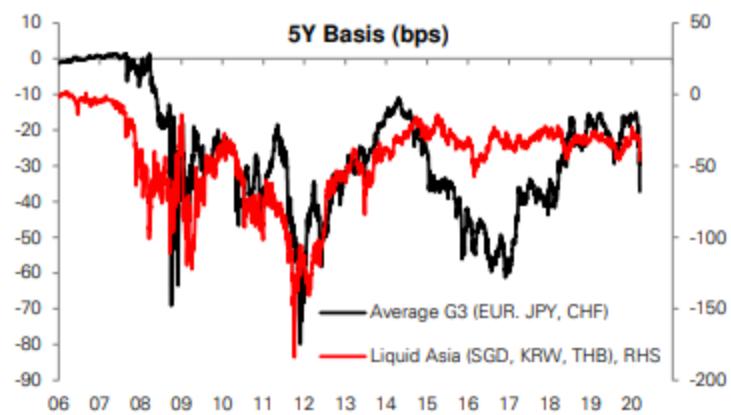
Cross-currency basis has been widening out globally, signaling dollar funding stress. Basis markets are only liquid in a few places in Asia though, and a lot of dollar funding takes place in short-term FX swap markets. We therefore focus on FX swaps, which are liquid across the region out until 1Y, and can fundamentally be thought of as equivalent to short-term cross-currency basis.

We note that FX swap-implied local currency rates are moving lower in most markets in Asia, and are below the uncollateralized lending rates in onshore interbank markets (IBORs). The discount has been widening in the past few weeks. **The growing divergence from interest rate parity in FX swap markets implies a growing dollar shortage.** In other words, banks are willing to lend local currency for less in FX swap markets than they could lend it for in their local interbank markets, because they are more desperate for the dollars they get in return for doing an FX swap. **We can thus treat the FX swap-implied “discount” on local currency lending as equivalent to an FX swap-implied “premium” on dollar borrowing.**

The short-term (3M) dollar premium in Korea, while still only about 1/3 of extremes seen in 2008, remains by far the highest in the region. **The dollar premium in Korea has jumped more than 2% in the past month, from just about 0.5% even a week ago.** The dollar premium has jumped more than 1% in Malaysia, and in India, where the RBI came out to supply dollars via sell/buy USD swaps yesterday. Dollars have become more expensive by about 1% even in Taiwan. While moves elsewhere look smaller, we note that they remain very significant. **In Singapore, the 3m dollar premium has now surpassed GFC wides,** and in the other financial hub in the region, Hong Kong, the dollar premium is the widest since 2008. The only exception seems to be Indonesia, where this measure does not give intuitive results. This is likely because the onshore forward curve has reacted more to hedging pressure than funding demand, which has pushed FX implied yields onshore up more.

The premium on dollar funding – implied by short-term FX swap markets – has spiked across Asia. We have remained firmly negative on Asian currencies, despite Fed cuts, lower oil, and our view on a weaker DXY. The higher effective yields on the dollar from the funding squeeze is acting as an additional source of support for USD/Asia.

Figure 3: Cross-currency basis widening back out



Source : Deutsche Bank, Bloomberg Finance LP

Figure 4: SOR discount to SIBOR now nearing historical wides



Source : Deutsche Bank, Bloomberg Finance LP

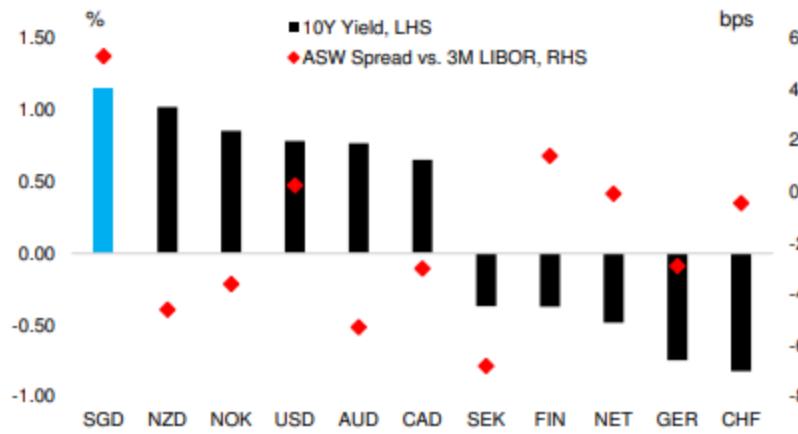
SGS bonds are now the highest yielding sovereign AAA asset in the world on absolute yield basis, with the 10Y yield at 1.16% at the time of writing. The safe-haven bid should continue to drive demand for SGS. We note that even on an asset swap basis, SGS bonds offer the highest pickup in the AAA universe.

The spread to Treasuries is attractive here. For 90% of the past 20 years, SGS yields have traded under UST yields. They are currently trading nearly 40bps above USTs. To be sure, they did trade as much as 70bps above during 2015, after the CNY devaluation stress, and at a time when SGD liquidity was tight. We do not see this occurring again, with the government likely to keep liquidity flush and to be sensitive to backup in rates at a time of corporate stress. One can also argue that uncovered interest rate parity call calls for higher SGD rates to offset to the anticipated depreciation of the currency. However, the recent underperformance of SGD rates relative to the US already appears to account for the forecast easing of MAS policy. Our forecasts for 10Y UST to trade near 0.5%, and the attractive SGS-UST spread, with recent underperformance appearing to price in MAS easing, make SGS a still compelling long.

Fiscal slippage is not a concern for the bond market. Unlike in other markets where wider fiscal deficits are typically matched by higher borrowing and bond issuance, Singapore's rules prohibit the use of SGS to finance spending. Fiscal deficits are funded from the surpluses accumulated during each government's five year terms, or in this case from drawing down on the government's vast reserves. Fiscal slippage should not be associated with higher issuance or term premium in Singapore.

We like owning duration in the SGS market, and go long the upcoming 15Y benchmark (2.25% Aug-36), and recommend a 1M FX hedge for offshore investors.

Figure 16: Singapore bonds are the highest yielding AAA government asset in the world



Source : Deutsche Bank, Bloomberg Finance LP

Figure 17: The recent underperformance of SGD rates versus US has largely priced in the FX easing we expect



Source : Deutsche Bank, Bloomberg Finance LP



The drivers of dollar shortage are manifold, and fully exploring them is beyond the scope of this note. But we note the [public reports](#) of **large drawdowns of dollar credit lines** by corporates. Corporates facing a squeeze on cash flows at a time of reduced operations will hoard liquidity to keep things running. A **decrease in export dollars** due to logistical frictions in supply chains, or the decline in commodity prices, and an **exit of portfolio flow dollars from EM assets** have all contributed. More structurally, [analysis by the IMF](#) has shown that **non-US banks remain very vulnerable to dollar funding shortages**, even compared to 2008. The dollar assets of international banks exceed their stable sources of dollar funding, with **cross-currency funding ratios higher now than in 2008**. The IMF finds that dollar funding shocks can lead to cutbacks in cross-border lending, particularly for emerging markets, which would be an added hit to growth.

From the perspective of trading Asian FX, dollar funding stress acts as a key source of support for the USD, by raising the effective yield on dollars. The Fed's 50bps of rate cuts thus far have been more than offset by the rise in dollar premiums in many Asian markets. While the Fed has responded overnight with \$1.5 trillion worth of dollar supply via repo operations, it remains to be seen whether this calms down the dollar shortage sufficiently and sustainably.

We have remained firmly negative on Asian currencies in recent weeks. Both after the Fed cut, and the drop in oil prices (which were intuitively regarded as positive for Asian FX), we [cautioned against chasing DXY beta](#), and argued that [currencies would not benefit from lower oil](#) immediately. The falling global growth environment and decline in equity valuations were seen as likely to overwhelm, and left us wary on Asian FX, particularly currencies like KRW, IDR and INR. The stress in cross-currency basis markets has become an added source of concern for Asian FX, and until dollar premiums decline, USD/Asia is likely to remain supported.



Trade Monitor

Figure 2: Trade recommendations

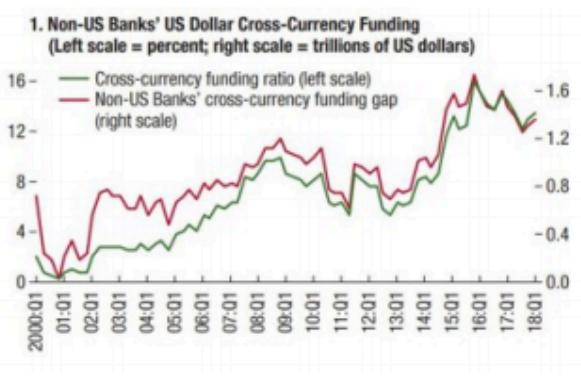
Country	Trade	Entry date	Entry Level	Current Level	Target	Stop Loss	MTM	Bias
Rates								
China	Receive 5Y CNY NDIRS	13-Mar-20	2.57%	2.56%	2.40%	2.75%	1	Add
	Receive 1Y CNH CCS	28-Feb-20	2.13%	1.83%	1.80%	2.30%	30	Hold
Cash Bonds								
China	Long 10Y CGB(3.13%, Nov-2029)	13-Mar-20	2.67%	2.65%	2.40%	2.80%	0.0% (-0.1%)	Add
Singapore	Long 15Y SGS (2.25%, Aug-2036) <i>1M FX hedge added on inception</i>	12-Mar-20	1.40%	1.63%	1.00%	1.60%	-3.2% (+0.0%)	Add
India	Long 12Y IGB(7.95%, Aug-2032) <i>1M FX hedge added on 21-Feb</i>	7-Feb-20	6.87%	6.58%	6.50%	7.00%	2.9% (-1.2%)	Hold
China	Long 5Y CGB(2.94%, Oct-2024)	6-Feb-20	2.63%	2.32%	2.40%	2.75%	1.4% (-0.2%)	Take profit
FX								
Singapore	Long USD/SGD	12-Mar-20	1.3993	1.4084	1.4250	1.3900	0.65%	Add
Korea	Long 3M3M Forward Vol	5-Mar-20	7.70	10.58	12.00	6.00	2.88 vols	Hold
Thailand	Long 1M USD/THB DF <i>(Rolled on 27-Feb)</i>	28-Jan-20 (Rolled on 27-Feb)	30.89 (30.82)	31.85 (31.86)	32.00	30.40	2.9%	Hold
Hong Kong	Long 3M USD/HKD	24-Jan-20	7.78 (7.77)	7.76 (7.77)	7.85	7.75	-0.2%	Hold
China	Long 1M USD/CNH 7.10 Call	21-Feb-20	0.33%	0.32%	-	-	0.0%	Close

Notes:

- (1) Trades in the table include 'live' positions, and those 'closed' within the last 1 month
- (2) For rates trades, MTM is in running basis points; for FX trades, MTM is in % of notional
- (3) The MTM for the cash bond trades refers only to carry and duration in local currency terms. The FX MTM is shown separately in brackets below for USD based investors. For trades taken on FX hedged basis, the FX MTM refers to spot changes plus return on NDF/forwards
- (4) For NDF trades, entry and current levels are in forward terms with the spot references noted below in brackets. Targets and stop-loss are in spot terms and are observed based on EOD levels

Source : Deutsche Bank, Bloomberg Finance LP

Figure 6: Cross-currency funding ratios are higher now than in 2008



Source : Deutsche Bank, IMF

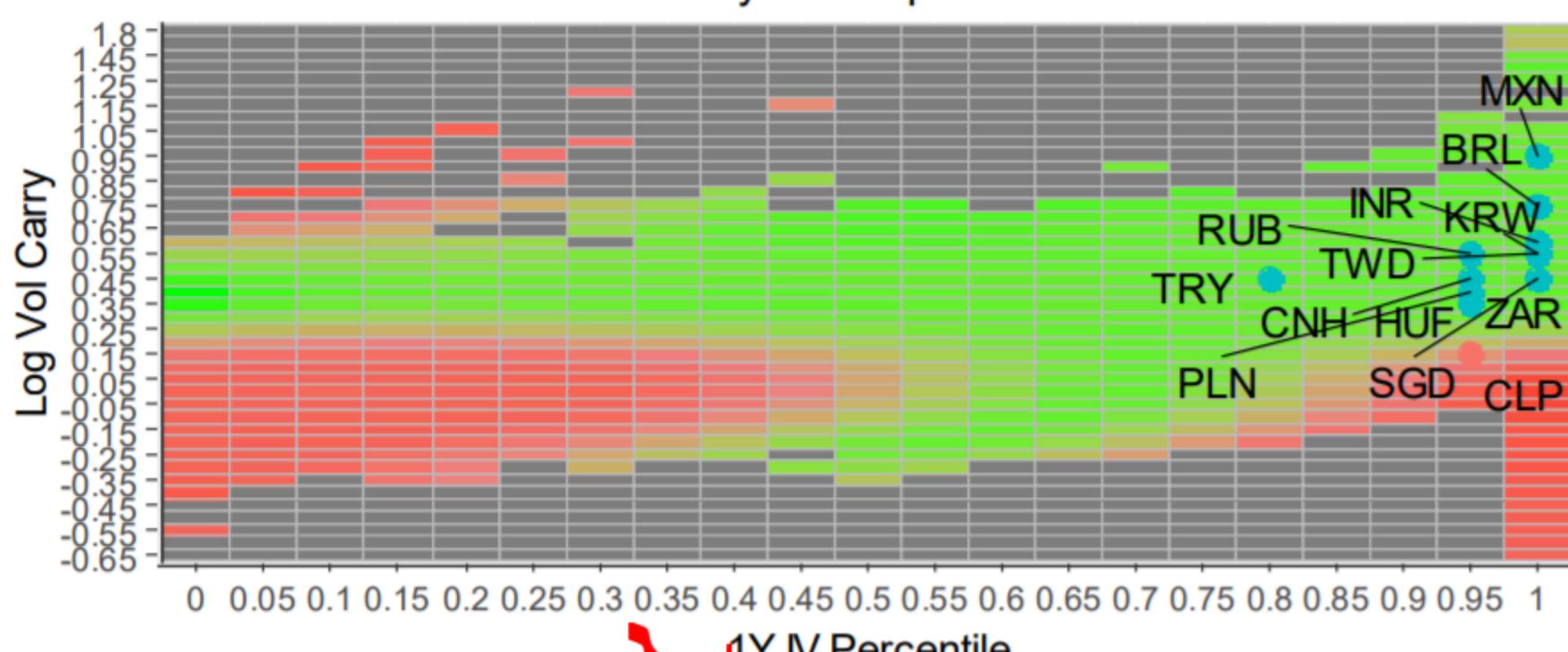
Figure 4: EM Dollar Pair FX 1M Volatility Ranking 2020-03-16

Ccy	1M ATM Implied Vol	IV Percentile(1 yr)	Log Vol Carry	Carry	Short Vol SVM Predicted Hit Ratio	Direction
1 HUF	13.27	1.00	0.36	4.01	0.96	Rich
2 INR	10.91	1.00	0.62	5.03	0.95	Rich
3 KRW	16.93	1.00	0.59	7.53	0.95	Rich
4 RUB	28.58	1.00	0.58	12.55	0.95	Rich
5 TRY	18.74	0.85	0.50	7.32	0.95	Rich
6 TWD	6.51	1.00	0.56	2.79	0.95	Rich
7 PLN	12.77	1.00	0.43	4.43	0.95	Rich
8 BRL	32.94	1.00	0.76	17.58	0.95	Rich
9 CNH	7.05	0.99	0.50	2.76	0.95	Rich
10 ZAR	26.23	1.00	0.46	9.71	0.94	Rich
11 SGD	7.38	1.00	0.48	2.83	0.94	Rich
12 MXN	35.66	1.00	1.00	22.50	0.94	Rich
13 CLP	18.01	0.99	0.17	2.86	0.42	Cheap

Source: J.P. Morgan.

Note: Log Carry = Log(IV/EMA), Carry = IV - EMA (see original report for details)

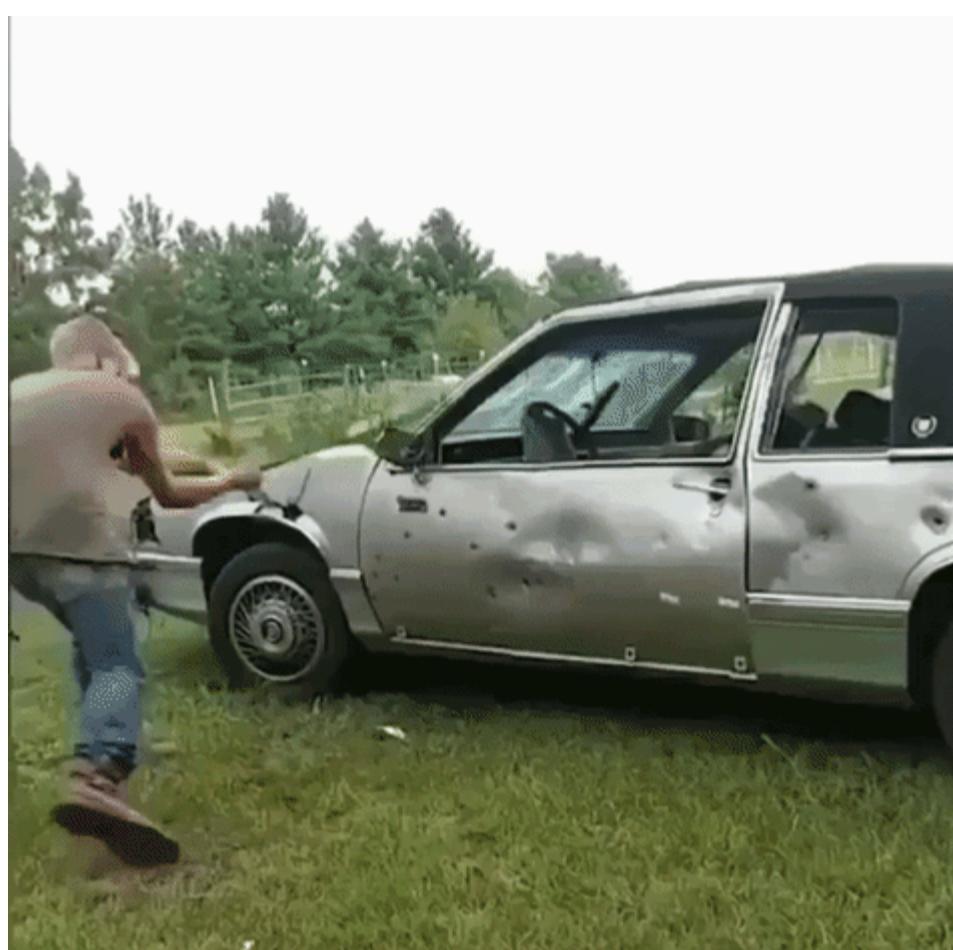
EM Dollar Pair FX 1M Volatility Scatterplot



Source: J.P. Morgan

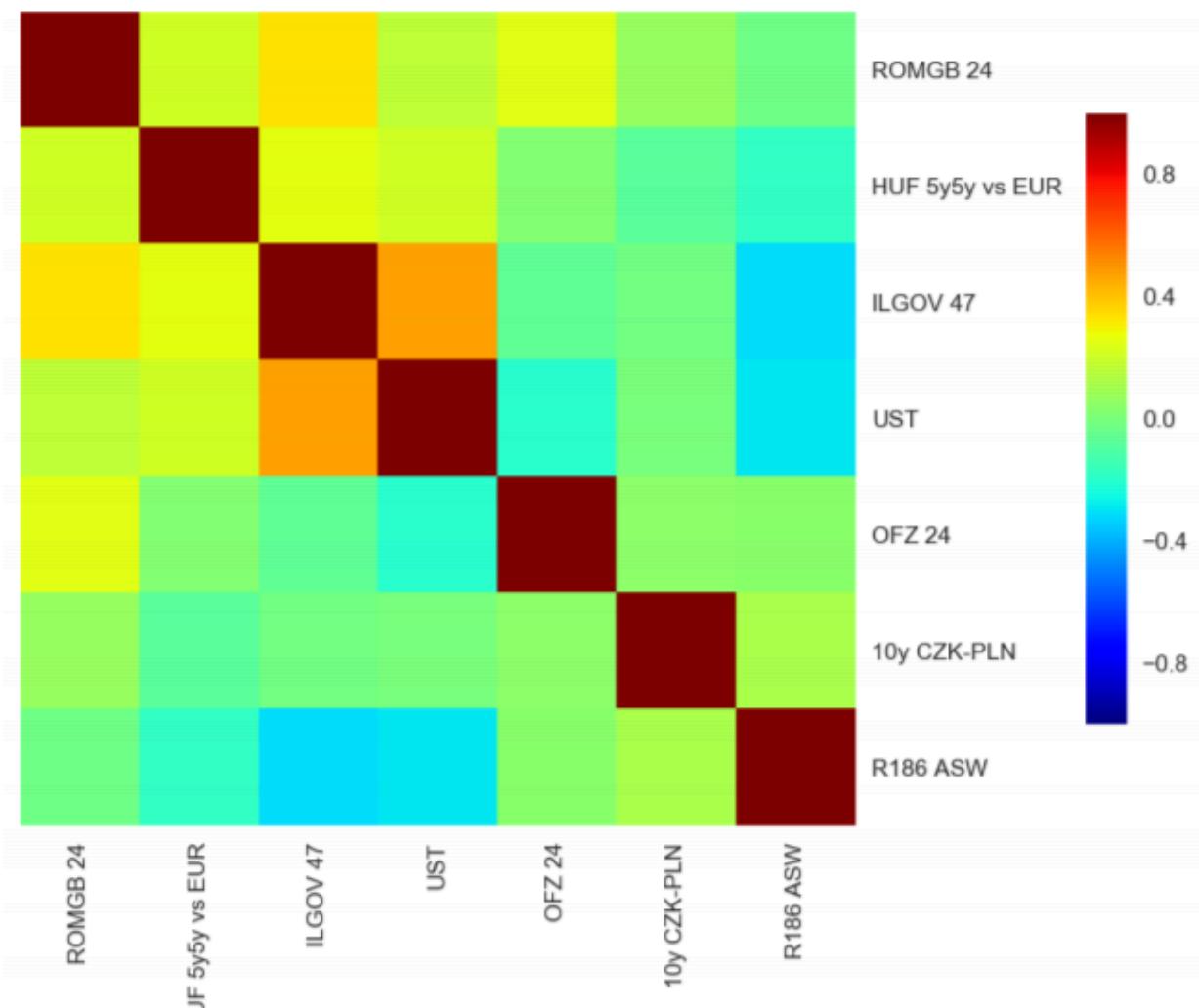
Green Region is Good for Selling Vol. Red is Good for Buying.

Direction "Rich" Means We Recommend Selling Vol.



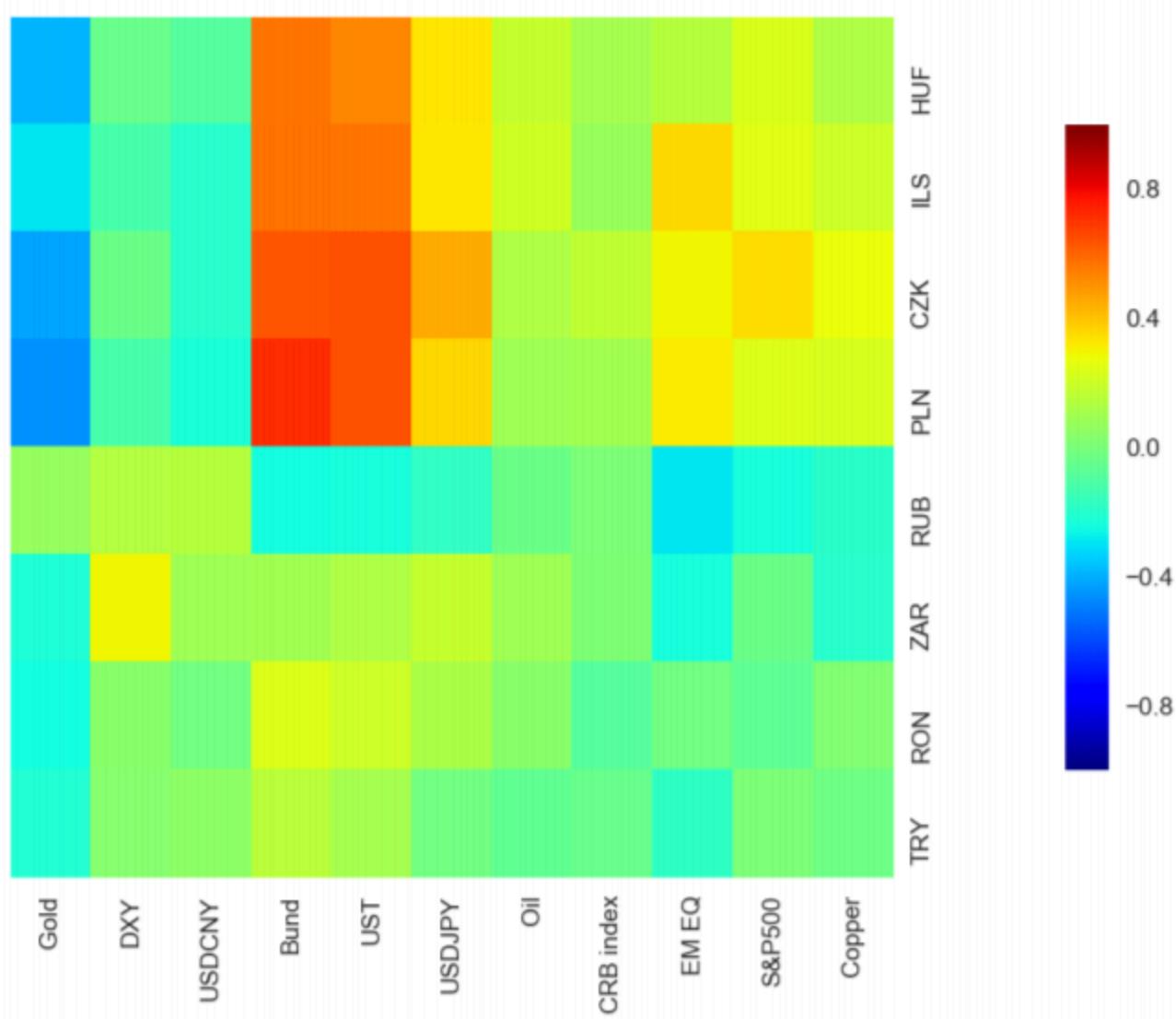
CEEMEA trade analytics

Correlation matrix of open trades and USTs



Source: HSBC, Bloomberg. Note: 1y correlation matrix on 1-week changes in rates/yields/spreads

Correlation matrix of 10Y CEEMEA bonds vs external market variables

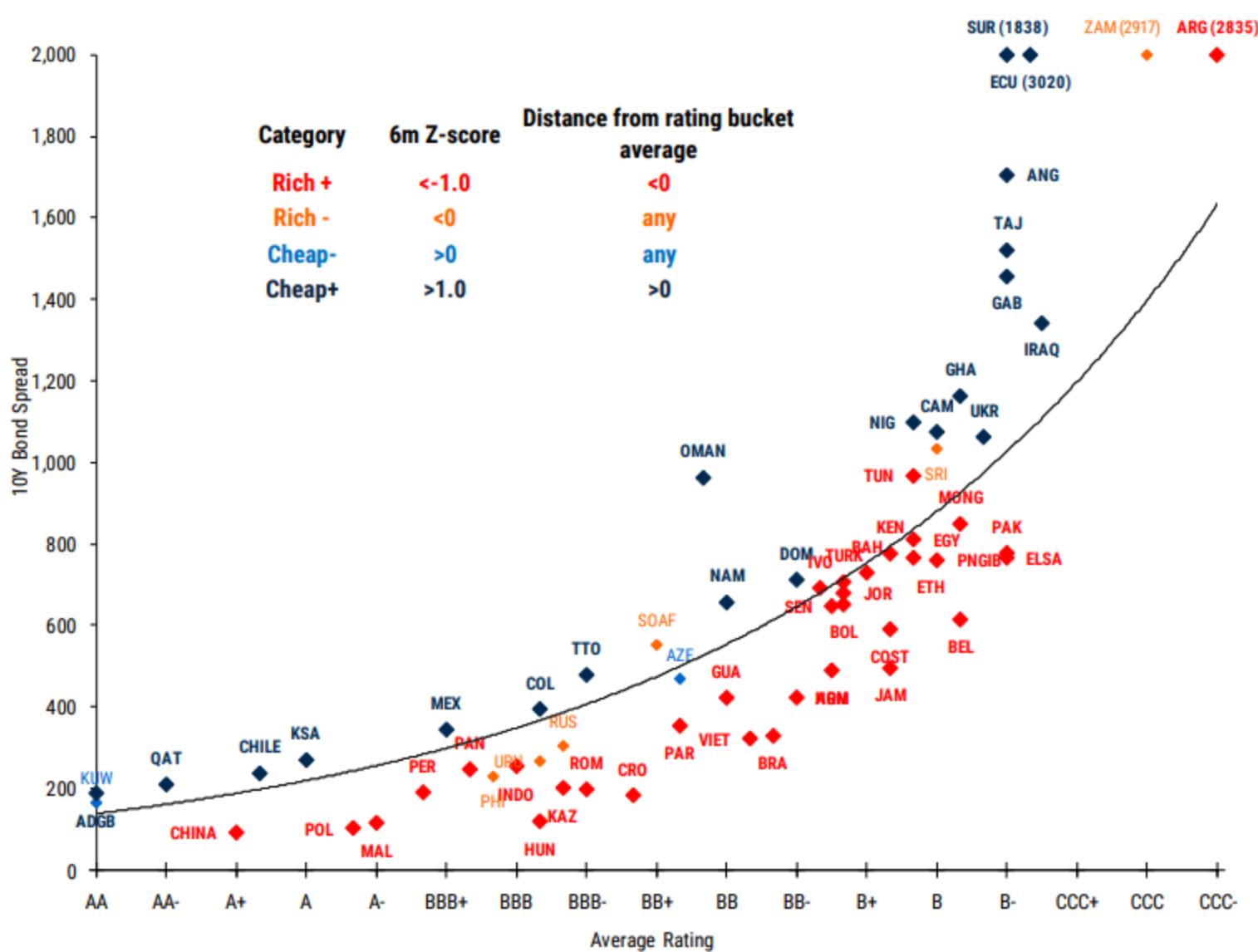


Source: HSBC, Bloomberg. Note: 1y correlation matrix on 1-week changes in rates/yields/spreads

Morgan Stanley

MORGAN STANLEY RESEARCH
Credit Rich & Cheap Watch
March 17, 2020

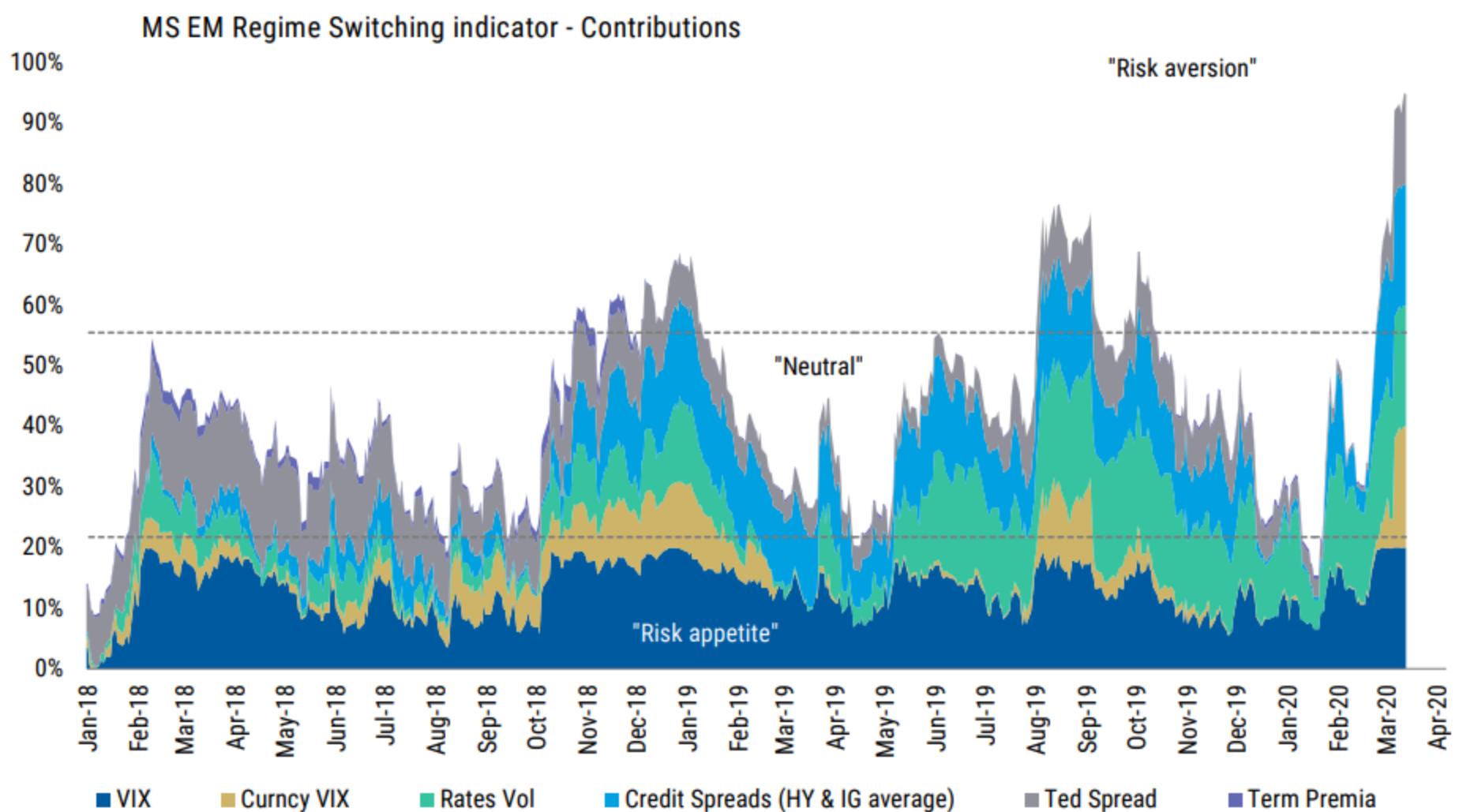
Sovereign 10Y Benchmark Bonds vs. Ratings



1. Closest 10y bond is used for each sovereign, using spread vs. benchmark.
 2. Rich and Cheap status aim to give an indication of not only how each sovereign currently trades vs. the rating average but also how this compares to the six month history of the spread vs. the rating bucket.

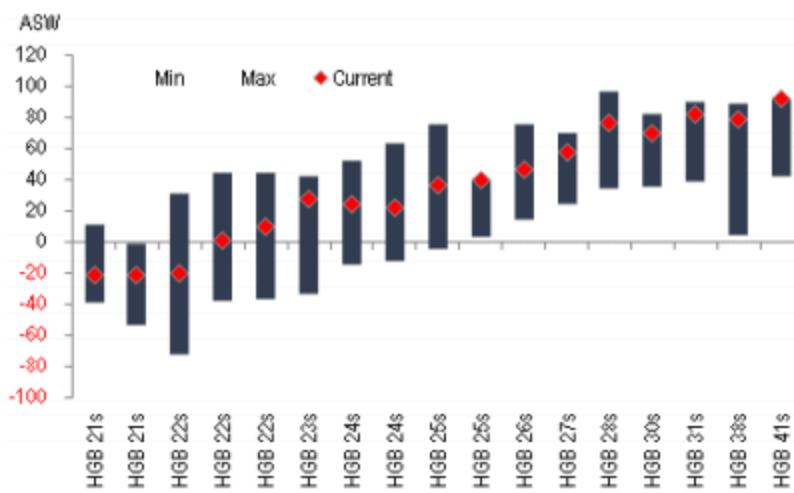
Source: Bloomberg, Morgan Stanley Research

Exhibit 3: RSM already in 'risk aversion', not the moment to fade



Source: Morgan Stanley Research

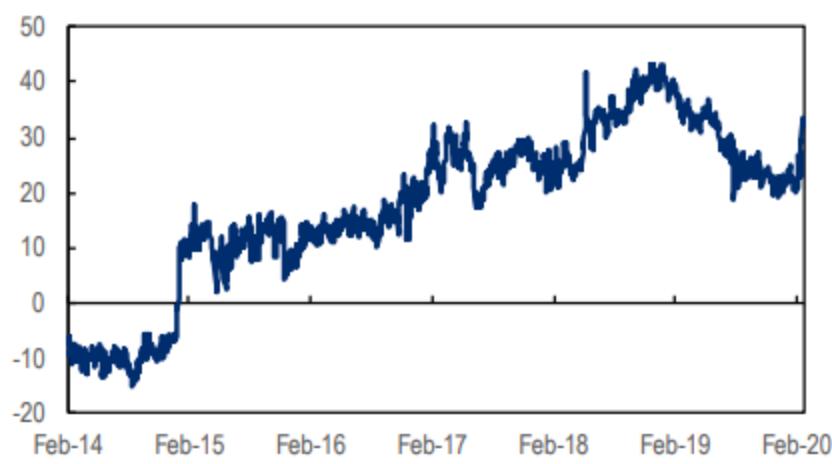
Figure 14. HGB ASW – historical 1y analysis



Source: Citi Research

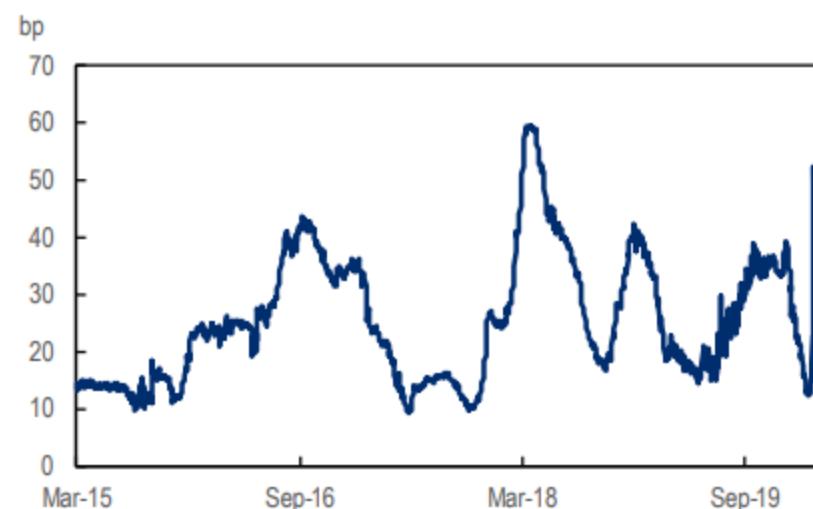
Our takeaway from this week's ECB conference (and more headlines from Capitol Hill): A tentative and limited ECB. Clear signals of lack of coordination on the international fight against the coronavirus. Some degree of polarization in the US political debate on how to tackle this crisis. In the meantime, we are seeing some degree of stress in USD funding (Libor – OIS spread is now testing new extremes). On the EMFX and local bond front, the selloff is starting to become indiscriminate: low-yielders are rolling over because of the price action in equities (many of these currencies correlate a lot better with global equity flows); and high-yielders are also responding to the general risk off move in the markets. It feels like one of those large USD moves. It only needed one additional catalyst: some EUR downside pressure, which is now finally materializing. CEMEA FX will probably respond to this risk-cocktail with further weakness.

Figure 15. Invoice spread (versus EONIA - OIS)



Source: Bloomberg

Figure 16. Libor – OIS



Source: Bloomberg

vol backdrop allows for entering a defensive long high beta / short low beta vol spread that should hold well, given the favorable entry level. We backtest a simple trade timing strategy of initiating long USD/PLN vs. short EUR/USD at times when their vol spread drops below -2 sigma on 1-yr z-score. The red dots in Exhibit 9 mark the entry points. The analysis shows the bulk of P/L coming within first two weeks and peaking around the 1-month mark with the distribution of the historical returns displaying favorably fat right tails, in line with the long high beta / short low beta characteristic of the vol spread.

Fading the current 2 sigma dislocation, should have potential of producing ~1.5-2 vol of P/L. The real nugget is in the fat right tail characteristic that historically tend to align particularly well with the late cycle dynamics. If late cycle is to take hold more forcefully, the vol spread could realize 4-5vol of P/L. Front tenors are the preferable expression but the current liquidity conditions force tenor extension:

Long 1Y USD/PLN delta-hedged straddle @9.55/10.75 vs. short EUR/USD delta-hedged straddle @8.35/9.05, in equal vega notional

Update on the FX options recommendations

We added 3m3m USD/JPY FVA @8.5vol on March 11 as a defensive position that screens 2-sigma cheap to the spot vol.

While we consider year end uncertainty around Brexit to be supportive of the GBP back end vols, we take 2.2vol profit on our existing 1yly USD/GBP FVA.

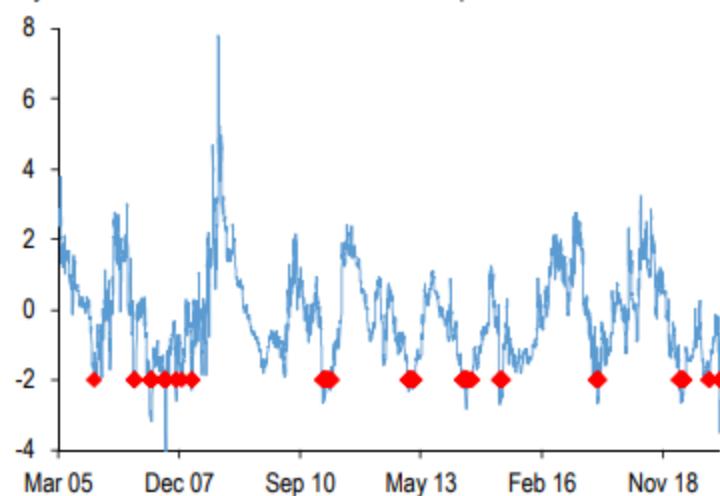
We also take off the table the systematic EM-DM vol (4.4vol P/L) amid the recent significant FX vol dislocations, to re-enter once the markets are back to more balanced and more in line with the strategy's framework.

We take -11.6vol loss on USD/JPY 3M 25D risk reversal (long USD call - short USD put), delta hedged, which was initiated on Feb 21st

We take -0.4vol loss on 3m AUD/CAD - AUD/USD vol spread initiated on Dec 13.

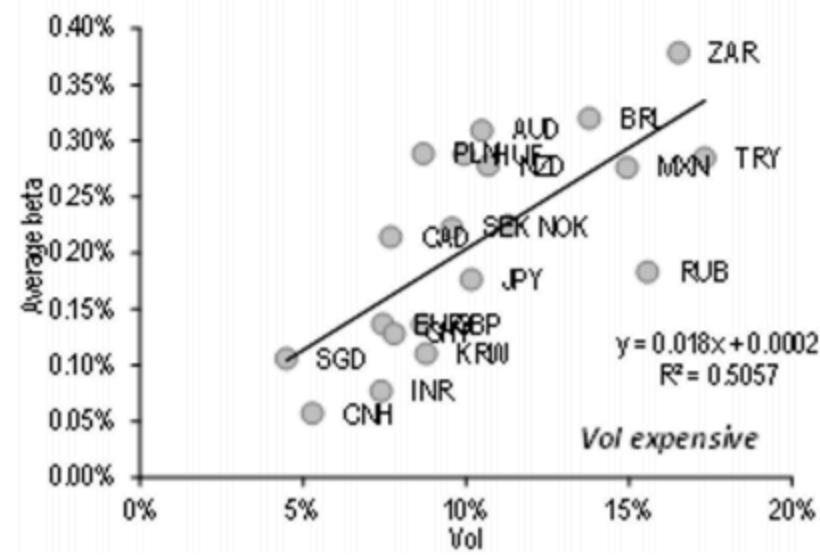
Exhibit 9. 1Y USD/PLN – EUR/USD atm vol spread is more than 2 sigma dislocated. The 2 sigma undershoots tend to be short lived and the current one is already in process or mean-reverting. Red dots mark episodes with the atm spread at or below -2 sigma.

1-yr zscore of USD/PLN - EUR/USD atm vol spread



Source: J.P. Morgan

Exhibit 10. Beta-to vol analysis identifies CEMEA and Antipodeans as vol laggards.



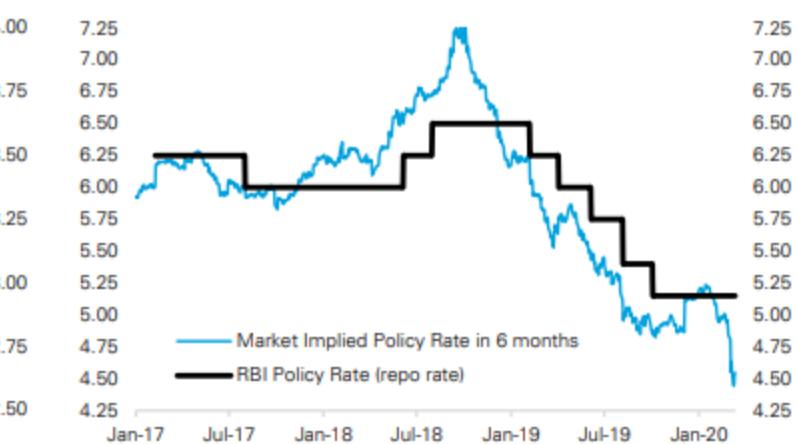
Source: J.P. Morgan

Figure 19: China



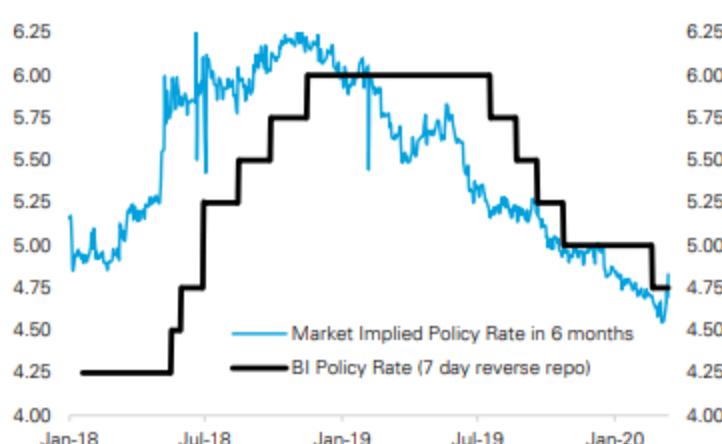
Source : Deutsche Bank, Bloomberg Finance LP. See notes on the previous page.

Figure 20: India



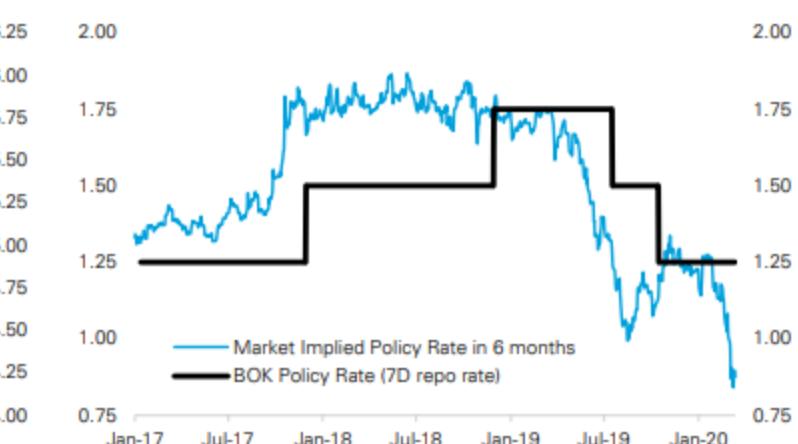
Source : Deutsche Bank, Bloomberg Finance LP. See notes on the previous page.

Figure 21: Indonesia



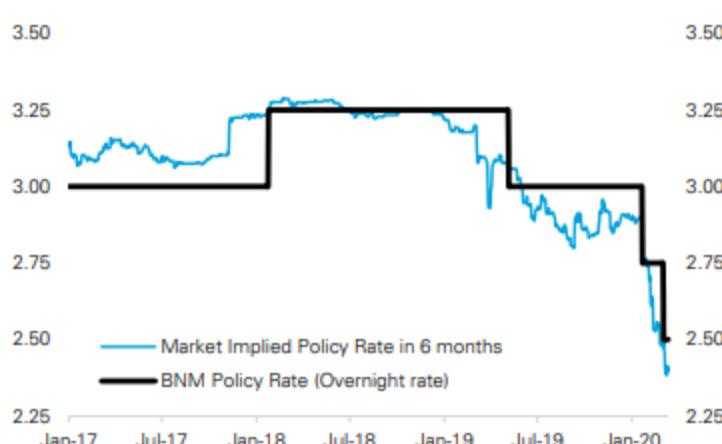
Source : Deutsche Bank, Bloomberg Finance LP. See notes on the previous page.

Figure 22: Korea



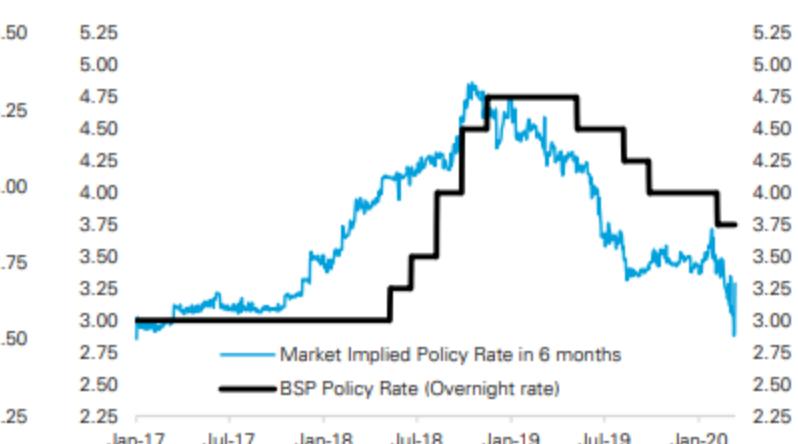
Source : Deutsche Bank, Bloomberg Finance LP. See notes on the previous page.

Figure 23: Malaysia



Source : Deutsche Bank, Bloomberg Finance LP. See notes on the previous page.

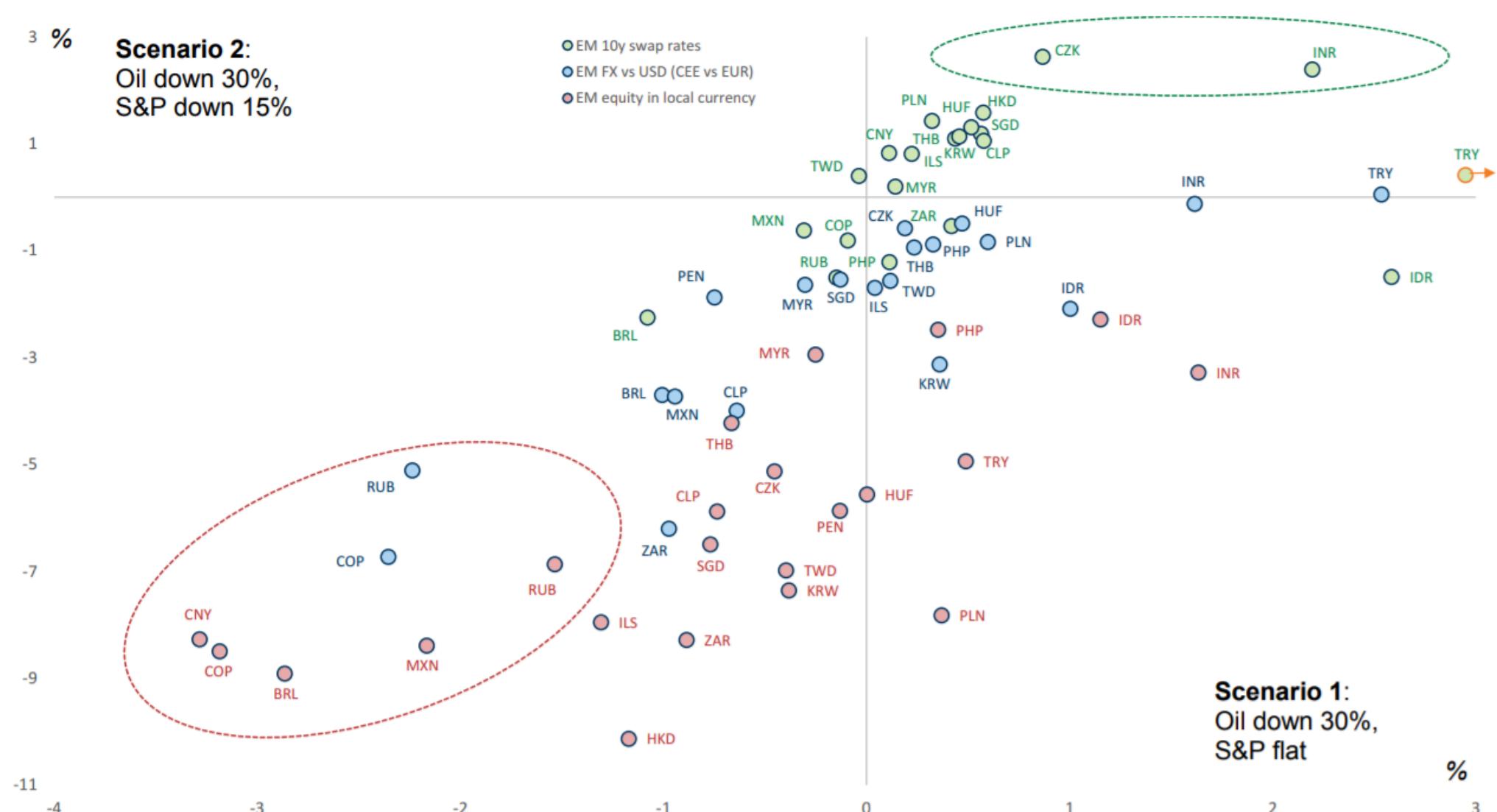
Figure 24: Philippines



Source : Deutsche Bank, Bloomberg Finance LP. See notes on the previous page.

Exhibit 2: In a world of falling oil prices, rates in EM oil importers with room to cut (INR, CZK) can be resilient, while equities and FX in 'risky' EM oil exporters (COP, MXN, RUB) may be hardest hit

Predicted % spot returns in the displayed scenario



Source: Goldman Sachs Global Investment Research

Model update

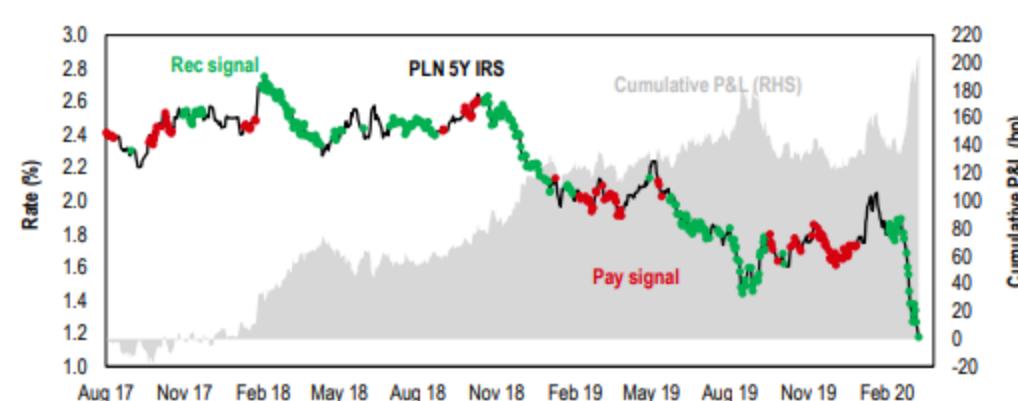
- ◆ We update the signals from our quant models on CZK and PLN
- ◆ **CZK**: our model turned to receive signal on 2 January and has been received all of this year. Since publication, the model has captured over 160bps of PnL
- ◆ **PLN**: the signal turned later than CZK to receive; however, it has captured the majority of the recent collapse in rates

Original report: [CEEMEA Quant Strategies: Systematic trading models for CEE rates](#)

Out-of-sample trading signals for CZK 5Y IRS



Out-of-sample trading signals for PLN 5Y IRS

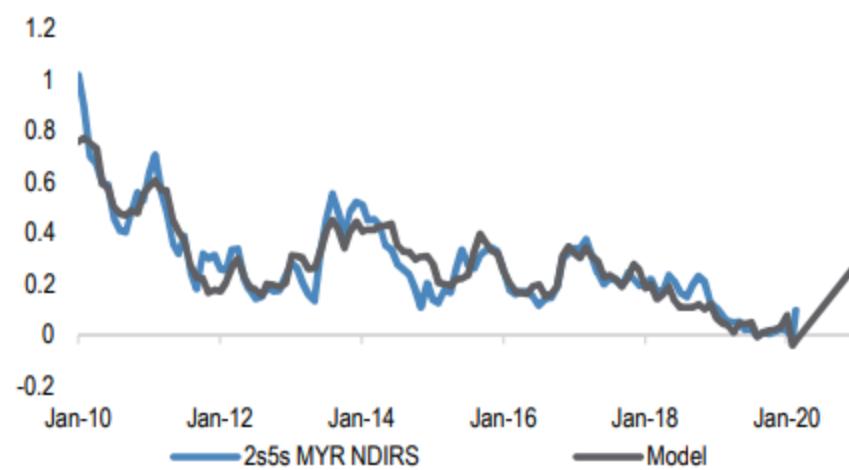


EM Asia Rates: MYR IRS curve steepening has legs

Enter 2s5s MYR NDIRS steepener; hold 2s10s THB IRS steepener

- The “sell everything” mentality has moved from riskier markets (equities and HY credit) to every financial asset that can still be sold, even “safe haven” assets like Gold and US Treasuries. Recent curve steepening moves in Asia LY fixed income reflect interest to square “high price” bonds while they are still in-the-money after the YTD rally in duration. We have held a Thailand 2s10s IRS steepener since the early days of the Covid-19 outbreak in Asia on expectations of sharp BoT easing, and today we add a Malaysia 2s5s NDIRS steepener to the mix on similar grounds at +13bp, targeting 15bp of P/L.
- The MYR NDIRS curve has been in a multi-year flattening trend, and we have mostly traded the curve from the received/flattening side. The arguments against steepening trades include: 1) a stable BNM policy rate regime under Dr. Zeti outside of the emergency cuts in 2008-2009, which reduced uncertainty around the path of interest rates and thus term premium; 2) continued progress in fiscal consolidation; and 3) a gradual decline in foreign ownership of Malaysia local bonds that meant less NDIRS paying pressure by foreign investors to hedge bond positions in a bear market.
- Yet, a regime change in the growth and policy climate means that these long-held themes have to be revisited.
- First, the BNM has already cut 75bp since 2019. In the current environment, we believe the central bank is likely to adopt a similar playbook to the 2008-2009 era and cut the OPR further to 2%. Unlike low yielding peers like Korea and Thailand, Malaysia is still quite far from the point where “effective lower bound” will become a binding constraint on further policy easing. In event of such sizable, decisive cuts, yield curve is most likely to steepen as monetary policy has delivered its “share”. For example, the US Treasury curve steepened substantially right after the Fed cut rates to zero in December 2008, and also earlier this month.
- Second, similar to 2008-2009, fiscal consolidation is likely to take a backseat in the current environment of lower energy revenues and the need to stimulate the economy through government spending. Our economist now expects a fiscal deficit of 3.8% of GDP in 2020, the highest since 2013.
- Third, while foreign ownership of MGS/GII bonds as % of total stock outstanding has declined over the years, insurers and Employees Provident Fund (EPF) holding of bonds are mainly a function of long-term inflation expectations, which is a slow moving variable. For example, the EPF’s strategic target is to declare at least 2% real dividend on a rolling three-year basis. When decisive rate cuts are effected, yields of long-term bonds are therefore unlikely to fall as quickly as the policy rate, leading to curve steepening pressure. Moreover, note that duration position shakeout in recent sessions has also been experienced in countries with lower foreign ownership like Korea and Thailand.
- On our econometric model of 2s5s MYR NDIRS, if we assume the 1y1y MYR NDIRS – policy rate spreads to be +60bp *after* decisive BNM cuts (this is a mild assumption given a long-term average +35bp spread of 3m KLIBOR – policy rate), fiscal balance to be -4% of GDP, and US 2s10s at +80bp, our estimated value for the curve is +25bp.
- Strategy: Enter 2s5s MYR NDIRS steepener. We stay MW MGS having squared our remaining small OW last week. We also reaffirm our paid 2s10s THB NDIRS position.

Exhibit 1: Model on 2s5s MYR NDIRS



Source: J.P. Morgan.

Exhibit 2: Current outright trades

Outright Recommendations in EM Asia Rates	Entry Date	Entry	Current	Total Return
Long CGB 3.29 05/23/29	02-Aug-19	3.10	2.75	+40
2s10s THB NDIRS steepener	21-Jan-20	35	45	+9
Receive 1y1y HKD IRS	6-Mar-20	0.91	1.26	-35
Long KTB 1.375 12/10/29	6-Mar-20	1.33	1.50	-17
Receive 2y CNY NDIRS	13-Mar-20	2.32	2.24	+8
2s5s MYR NDIRS steepener ** new **	18-Mar-20	13		

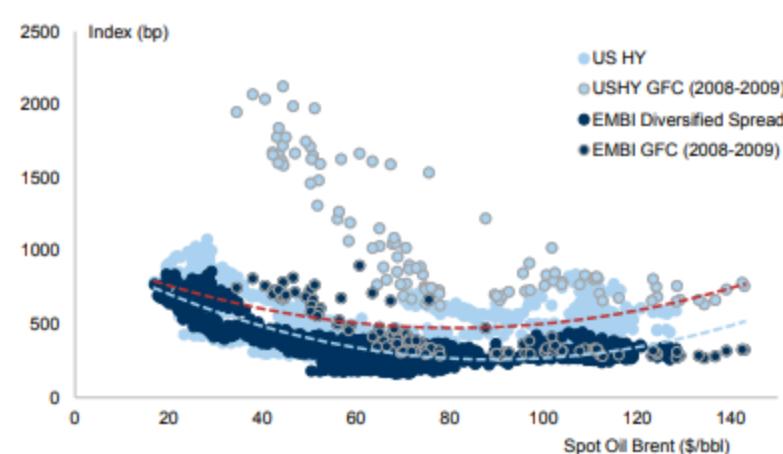
Source: J.P. Morgan.

Exhibit 3: Closed outright trades in 2020

Closed Recommendations in EM Asia Rates	Entry Date	Entry Level	Exit Date	Exit Level	Total Return
2s5s INR NDOIS Steeper	24-Sep-19	12	2-Feb-20	12	-4
Receive 2y THB NDIRS	21-Jan-20	1.09	5-Feb-20	0.87	+22
3s10s KTB futures steepener	18-Jun-19	12	13-Feb-20	30	+16
Receive 1y1y CNY-HKD IRS	05-Nov-19	115	6-Mar-20	128	-13
Receive 1y1y KRW IRS	25-Sep-19	1.14	6-Mar-20	0.90	+18
Pay belly on the TWD 2y-5y-5y5y IRS butterfly (1:2:1 ratio)	3-Dec-19	-35	6-Mar-20	-25	+10
Buy SDBC 3.42 07/02/24 vs pay 5y CNH CCS	11-Oct-19	101	13-Mar-20	106	+2
Long INDOGB 7 09/15/30, FX-hedged with 3m NDF	23-Oct-19	7.17	13-Mar-20	7.30	-2
Long IGB 7.37 04/16/23	24-Sep-19	6.30	13-Mar-20	5.73	+55
Receive 2y INR vs pay 2y SGD IRS	31-Jan-20	387	13-Mar-20	383	+5
Receive 5y CNY NDIRS	6-Mar-20	2.36	13-Mar-20	2.55	-19

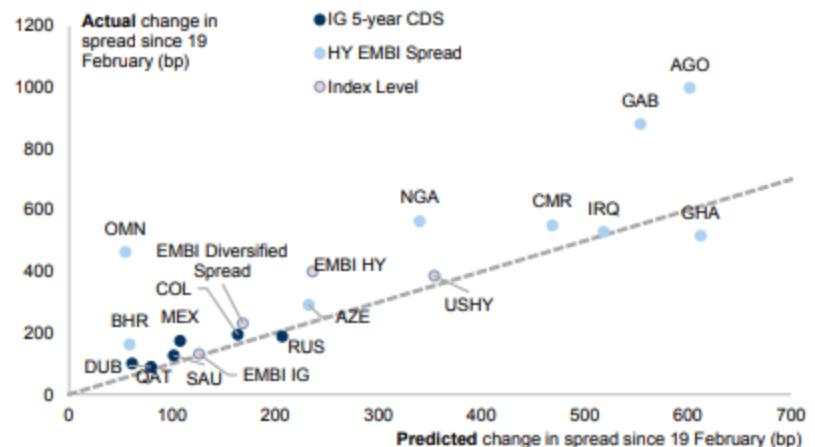
Source: J.P. Morgan.

Exhibit 4: The sensitivity to oil prices is non-linear and increased during the GFC



Source: Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 5: We can roughly explain the change in spreads of oil exporters through their historical sensitivity to global risk when oil prices were below \$50/bbl



Predicted (x-axis) and actual (y-axis) approximate change in spread (bp). Predictions are based on historical sensitivities of weekly changes to oil prices, the S&P500 and US10-year yields when oil Brent was below \$50/bbl

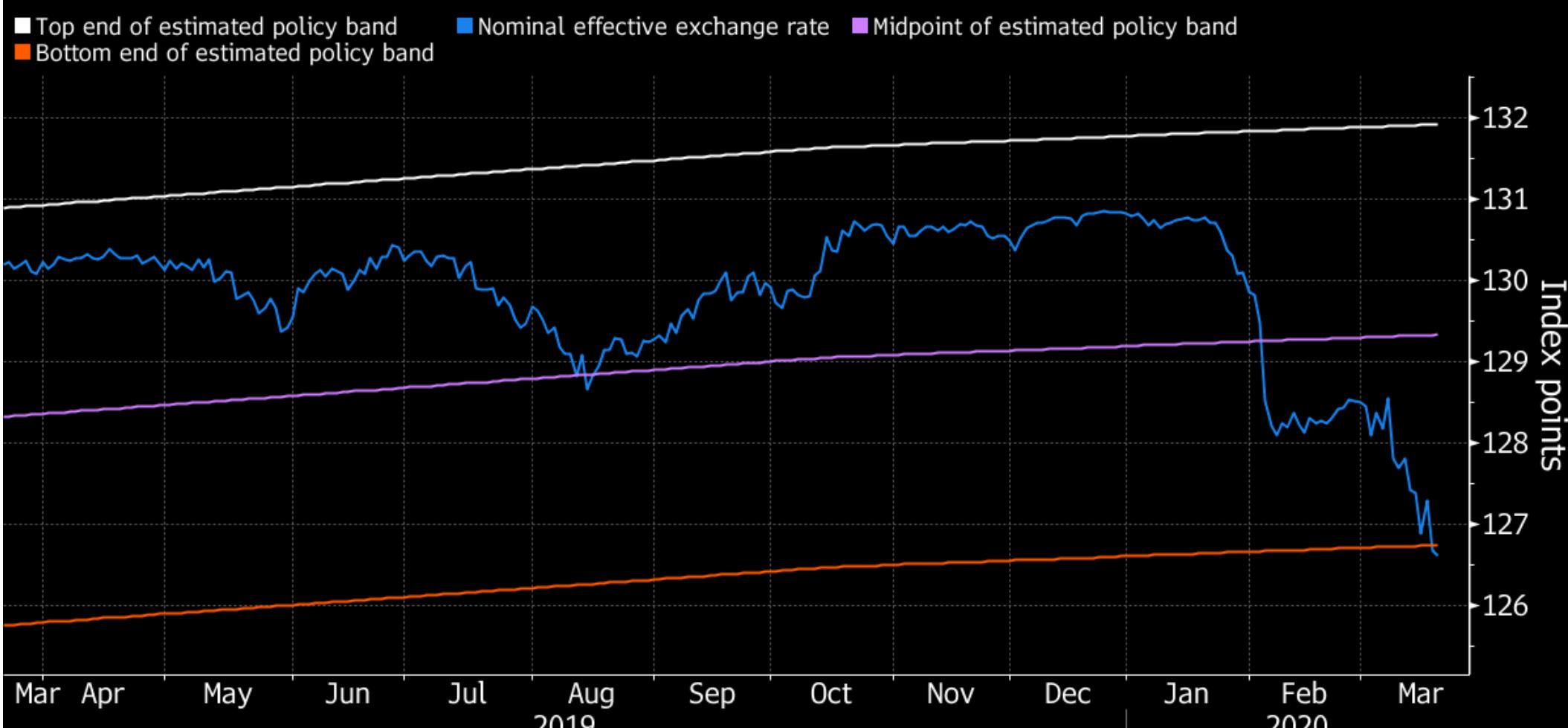
Source: Haver Analytics, Datastream, Bloomberg, Goldman Sachs Global Investment Research

Most oil-exporting credit spreads are around 2016 wides

Using the beta estimates above, we gauge where oil-exporting credit spreads could go if oil prices fell further to \$20/bbl, and if global equity prices fell another ~10%. The results are shown in [Exhibit 6](#), and are benchmarked against the spread levels seen during February 2016, when oil-exporting credits last peaked. We highlight that most oil-exporting credits are now close to the peak seen in 2016, but have room to move further (our beta estimates likely underestimate the potential moves in the GCC, which only came to market in 2016). As such, most IG oil-exporting CDS spreads should still offer protection against a further drop in oil prices alongside risk-off price action. We would also note that fundamentals have changed since the 2014-2016 oil-price shock, with improving fundamentals in [Russia](#) and a weaker fiscal backdrop in the [GCCs](#). As such, the 2016 peak is not a perfect benchmark for which spreads could widen the most, and indeed our beta estimates suggest that the spread widening would be roughly similar in all IG credits.

In our latest [EM Trader](#), we screened for the credits which have higher external vulnerabilities, and pointed to HY oil-exporting credits such as **Bahrain, Oman, Ghana, Nigeria** and **Angola** as looking particularly vulnerable in the current environment. We also highlighted **Dubai** as vulnerable given its dependence on tourism, alongside its interdependence with other GCC oil-exporting credits.

Testing Lower SGD NEER drops toward lower bound of policy band

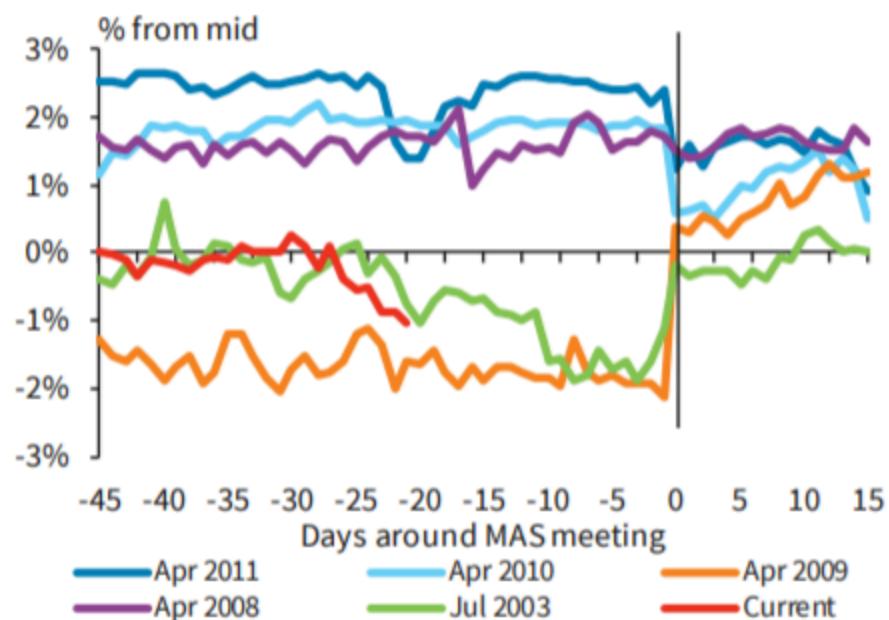


Source: Standard Chartered

Bloomberg

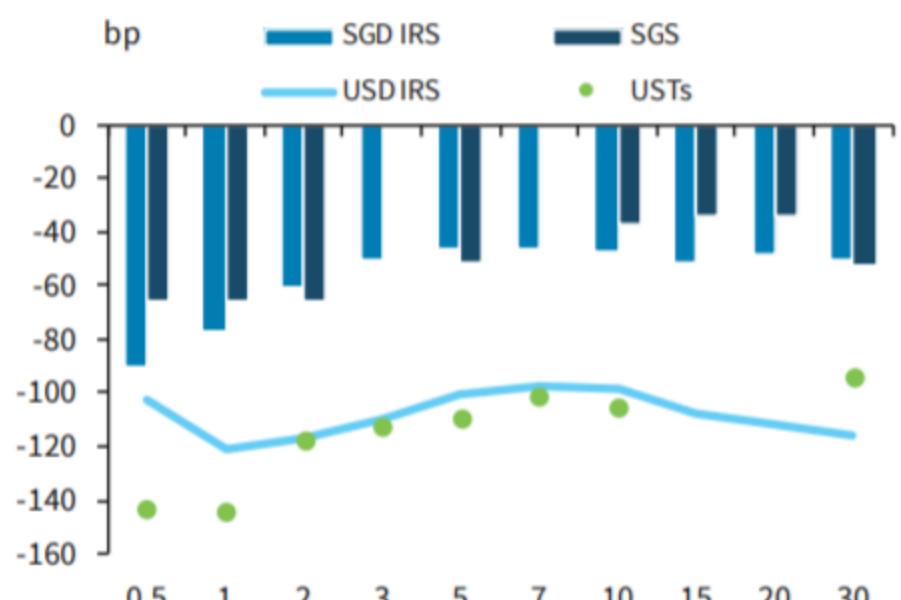
We expect fixed income markets to continue to underperform on a relative basis, at least in the run up to the MAS review. Singapore markets tend to underperform in a bullish rates environment as global rates converge with Singapore rates and the weak economic outlook dampens the outlook for the SGD NEER. The Fed's 150bp cut to benchmark rates (see [The Fed steps up in a Sunday night surprise](#) 16 March 2020) helped rates move lower but Singapore has underperformed. We see scope for further underperformance but acknowledge that we are in late stages of this relative underperformance. We think SGS are relatively attractive from a medium-to-long term perspective, especially as they are trading at the widest spreads to USTs in decades. SGS are also high-yielders in the AAA space and markets have already absorbed bulk of 2020 duration in 1Q.

FIGURE 4
SGD NEER stabilises after re-centering
(SGD NEER relative to mid; before and after)



Source: Bloomberg, Barclays Research

FIGURE 5
Relative underperformance in FI to continue
(net changes since 17 January 2020)

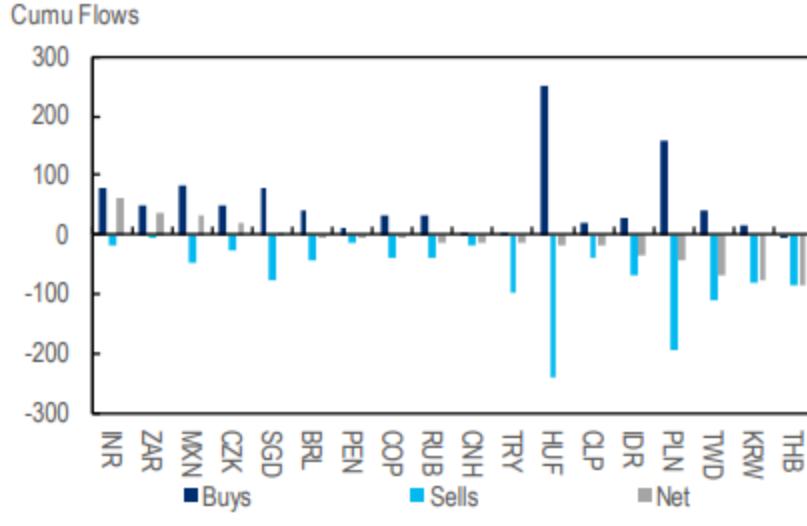


Source: Bloomberg, Barclays Research

This happened on March 3. If this happens in a down-market, the forward returns are typically -0.5% on a one month timeframe and -1.6% on a three month timeframe. There is pronounced selling pressure if investors are long and wrong. As of right now investors are still underperforming the index, suggesting that position clean-up has been limited on an asset class level.

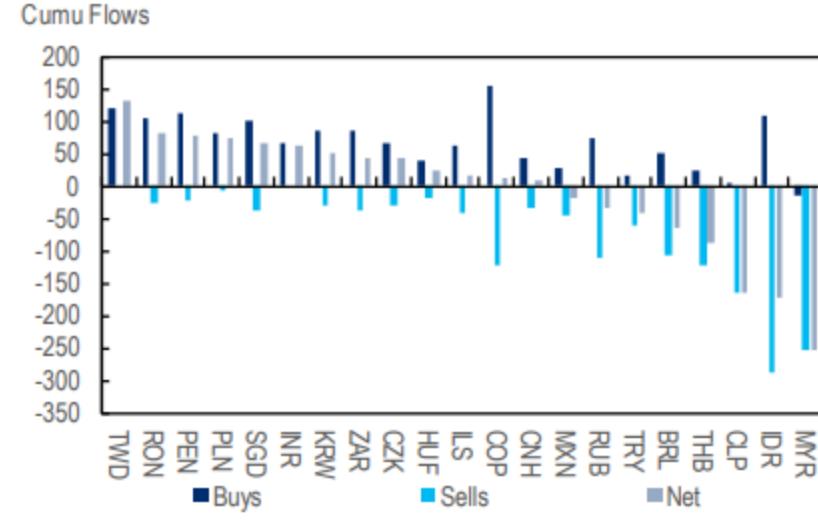
Leveraged investors have turned long USD for the most part, but real money still quite short USD. For EMFX we also look at positioning on a country level. We do this by looking at the peak inflows (dark blue bars in Figure 7 and Figure 8) from both leveraged clients and real money clients since the start of the EMFX bullishness in late November (all expressed compared to normalized 6-month volume for each currency). We then compare those flows to outflows since the currency's peak cumulative inflow position (light blue bars in Figure 7 and Figure 8). The net figure is the grey line. As can be seen in the first chart, leveraged money has already more than offset the inflows and is probably long USD against many currencies, including in KRW, THB, TWD and PLN. Somewhat surprisingly, the outflows in INR, ZAR and MXN are still meaningfully smaller than the previous inflows, suggesting some remaining USD shorts. Those remaining USD shorts may mean that these currencies continue to underperform. And, in any case, real money is still quite short USD as well, in particular against TWD, RON, PEN, SGD, INR, KRW, ZAR and CZK.

Figure 7. Leveraged money likely short in KRW, THB, TWD, PLN. Still long in INR, ZAR, MXN.



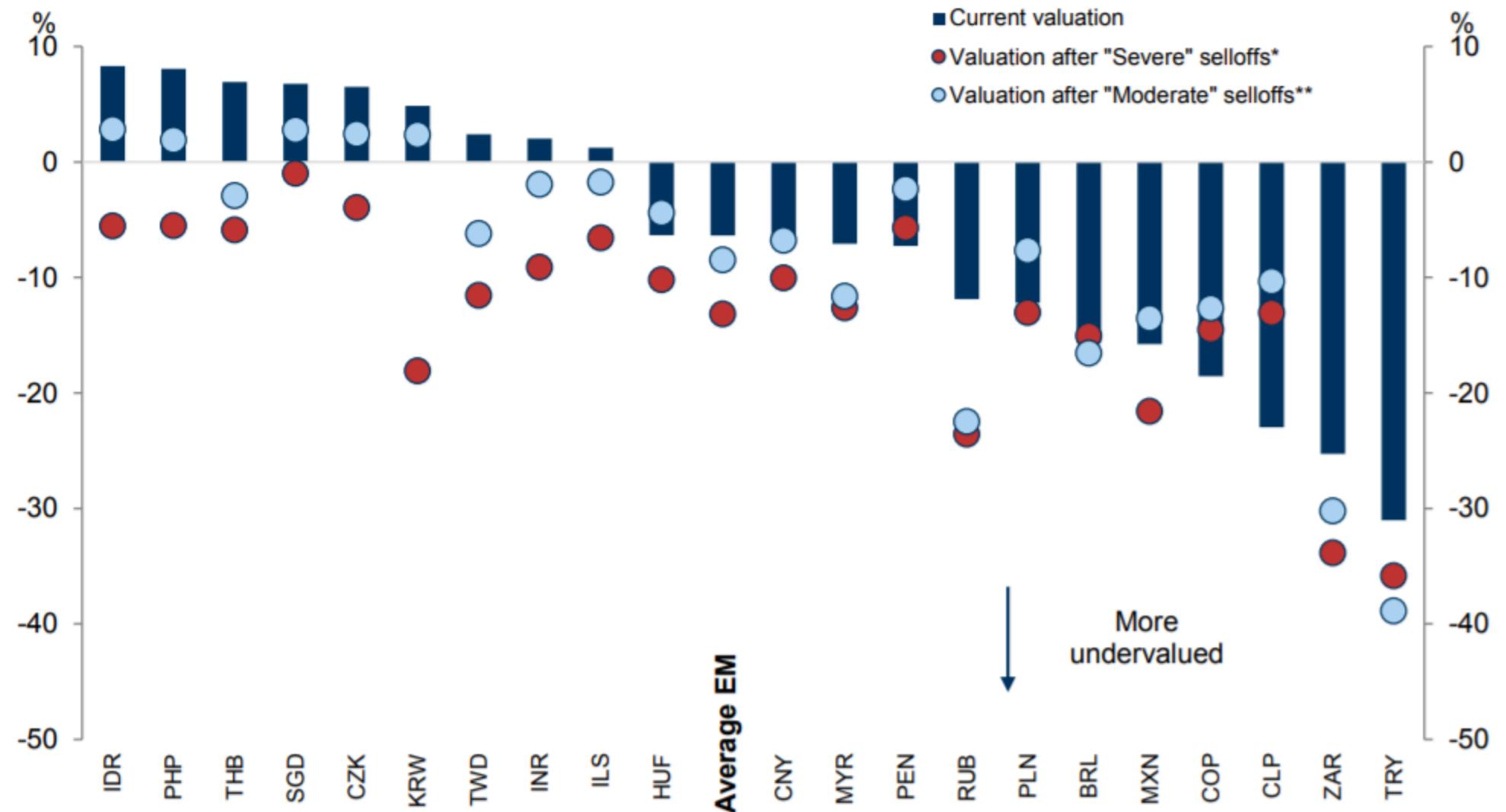
Source: Citi Research

Figure 8. Real money still long(er) in most places, but has cut back longs in IDR, MYR, THB, CLP.



Source: Citi Research

Exhibit 1: From current levels, EM currencies would have to depreciate around ~2% to reach 'moderate' levels of undervaluation, and another ~7% to reach 'severe' undervaluation levels
 % valuation vs USD (except CEE vs. EUR) according to our combined 60:40 average of GSDEER and FEER



*i.e., average level of the Global Financial Crisis valuation trough (in March 2009) and of the country-specific undervaluation trough since 2014. **i.e., average level of valuation in the benchmarks January 2016 and September 2018.

Source: Goldman Sachs Global Investment Research

Morgan Stanley | RESEARCH

March 13, 2020 09:18 PM GMT

EM Quant Strategy | North America

EMFX Quant's Lab: Not Finding Bottom

Risk-aversion along with negative momentum in EMFX are as strong as in previous episodes of serious stress for the asset class; yet valuations in spot and volatility markets are not stretched. All our models continue suggesting short EMFX positions with the largest underweights in MXN, KRW and IDR.

For a full explanation of our models, see How to read the signals.

PortHB signal: The allocation of the portfolio to high-beta (HB) FX declined further, reaching levels not seen since the taper tantrum. This is the 4th week that the model suggests underweight EMFX positions, as negative momentum remains very strong (Exhibit 1). It is important to note that valuations in EMFX as an asset class are not stretched, yet. In addition, valuation tends to lag normalization in the volatility markets, suggesting that EMFX could continue underperforming even if the models become less defensive.

QUANTWISE [q/w]

MORGAN STANLEY & CO. LLC

Andres Jaime

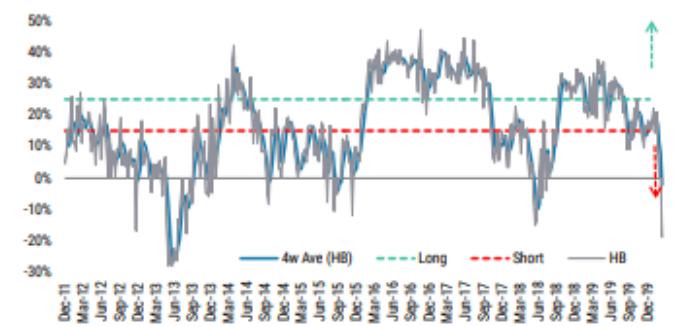
STRATEGIST

Andres.Jaime@morganstanley.com

+1 212 296-5570

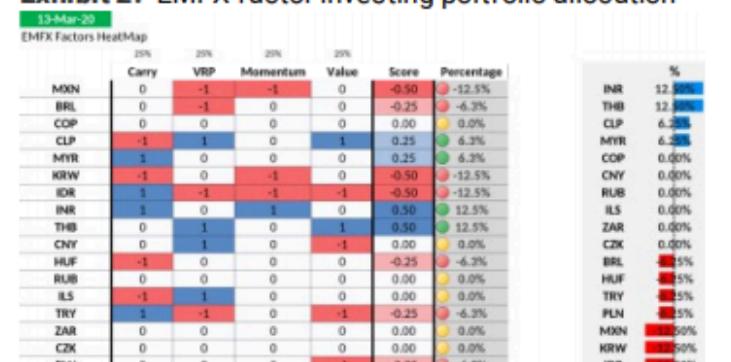
Exhibit 1: Portfolio allocation to high-beta EMFX (PortHB)

High/Low Beta allocation



Source: Morgan Stanley Research

Exhibit 2: EMFX factor investing portfolio allocation



EMFX factor investing portfolio allocation (EMFXFIPA): The factor investing portfolio is long USD in notional and after scaling by beta to the USD. The portfolio has its largest underweights in MXN, KRW and IDR, followed by equally weighted short positions in BRL, HUF, TRY and PLN. On the other hand, it heavily favors THB and INR, followed by CLP, and MYR. See [Exhibit 2](#) for the full FX allocation.

The portfolio has returned 20% YTD annualized (including carry and transaction costs), assuming a leveraged portfolio that equals historical EM LC vol at ~9%.

Regime-Switching Model (RSM) and High-Beta Centrality (HBC): Our Regime-Switching Model firmly remains in "risk aversion", with the index barely changing during the week, and mildly dragging negative momentum lower ([Exhibit 3](#)). Despite this, from a historical point of view, it is still in the top percentiles, and further stabilization will be needed before the model suggests to buy risk.

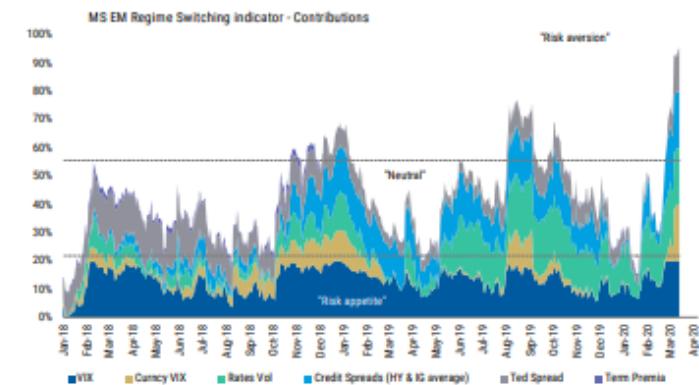
Notes: The "buy" and "sell" signals are purely rule-based trading strategies and only serve as an input in our decision-making framework. The performance data provided in this document is a hypothetical illustration of mathematical principles; it does not predict or project the performance of an investment or investment strategy.

Past performance is no guarantee of future results.

QuantWise highlights research that incorporates a robust quantitative approach in our investment analysis.

Source: Morgan Stanley Research

Exhibit 3: RSM already in 'risk aversion', not the moment to fade



Source: Morgan Stanley Research

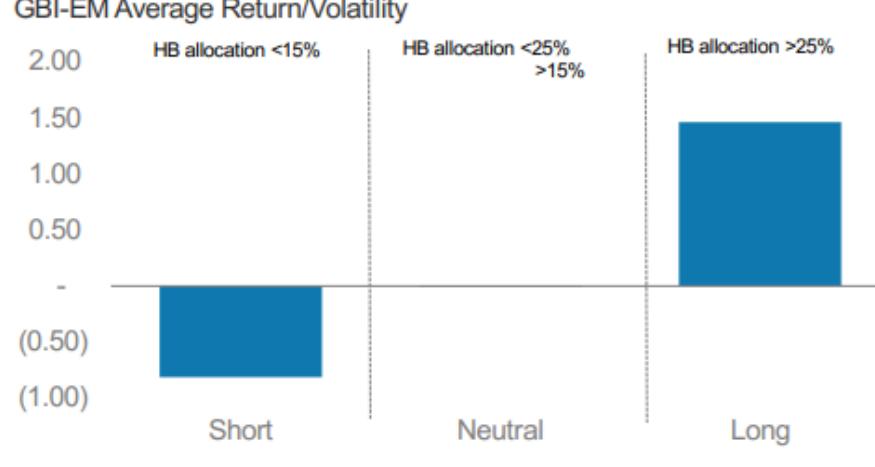
Morgan Stanley does and seeks to do business with companies covered in Morgan Stanley Research. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of Morgan Stanley Research. Investors should consider Morgan Stanley Research as only a single factor in making their investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report.

Using an approach similar to that described in [Using VIRP HB \(High Beta\) to Detect GBI EM LC Index Trends](#), we utilize the percentage allocated to high-beta currencies (to USD) in our portfolio approach (PortHB) in order to detect the overall direction of EM ([Exhibit 1](#)). The ranking/selection of the high-beta currencies set is achieved by using the beta of the USD factor in [EM Quant Strategy: Assessing Risk Premia in EMFX \(Part 1\): A Two-Factor Model Approach](#) (June 5, 2018). We include MXN, BRL, ZAR, COP and TRY in the High-Beta basket.

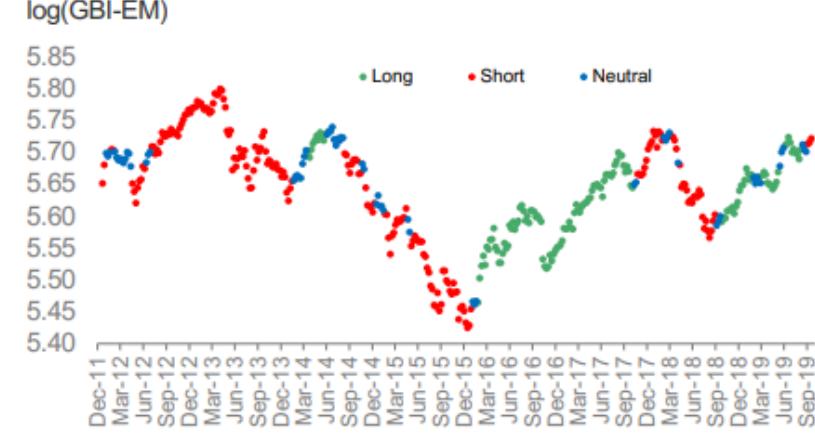
[Exhibit 4](#) shows the Sharpe ratio (average return/volatility) of GBI EM local currency conditional on the percentage of high-beta currencies allocated by our portfolio model (see [PortHB](#)). **We take an allocation above 25% as a long signal, between 25% and 15% as neutral, and below 15% as short.** The threshold was selected using data prior to 2018, but the result is quite consistent when taking different samples (i.e., cross-validating). In [Exhibit 5](#), we plot GBI EM LC overlapped with the model's signal.

Exhibit 4: Portfolio HB model



Source: Morgan Stanley Research

Exhibit 5: GBI-EM local currency total log return index and portfolio HB model signals (4w MA)



Source: Morgan Stanley Research

EMFX Factor Investing portfolio allocation

We build a portfolio of four commonly used strategies in EMFX in order to better assess an "optimal" allocation week over week, depending on the signals of each of our models: **Carry, VRP-Volatility Risk Premia model (VRP), Momentum (short-term) and Value-Idiosyncratic Risk Premia (IRP)**. The allocation of the portfolio is not optimized as we prefer to equally weight the strategy in order to avoid potential issues with over-fitting.

One of the advantages of this approach is that the strategies complement each other as the correlation is quite low or even negative ([Exhibit 7](#)). In [Exhibit 8](#), we show the annualized return of the portfolio targeting 8% volatility (historical GBI-EM volatility).

Exhibit 7: Correlation matrix of the strategies included in our portfolio

	VIRP	VRP	Momentum	Value	Carry
VIRP					
VRP	56%				
Momentum	26%	20%			
Value	-8%	-2%	0%		
Carry	-19%	-11%	-3%	27%	

Source: Morgan Stanley Research

Exhibit 8: Yearly performance of our EMFX Factor Investing approach



Source: Morgan Stanley Research

FIGURE 7

CDX.EM: Investors bought \$2.0bn protection in on-the-run, \$2.1bn across series

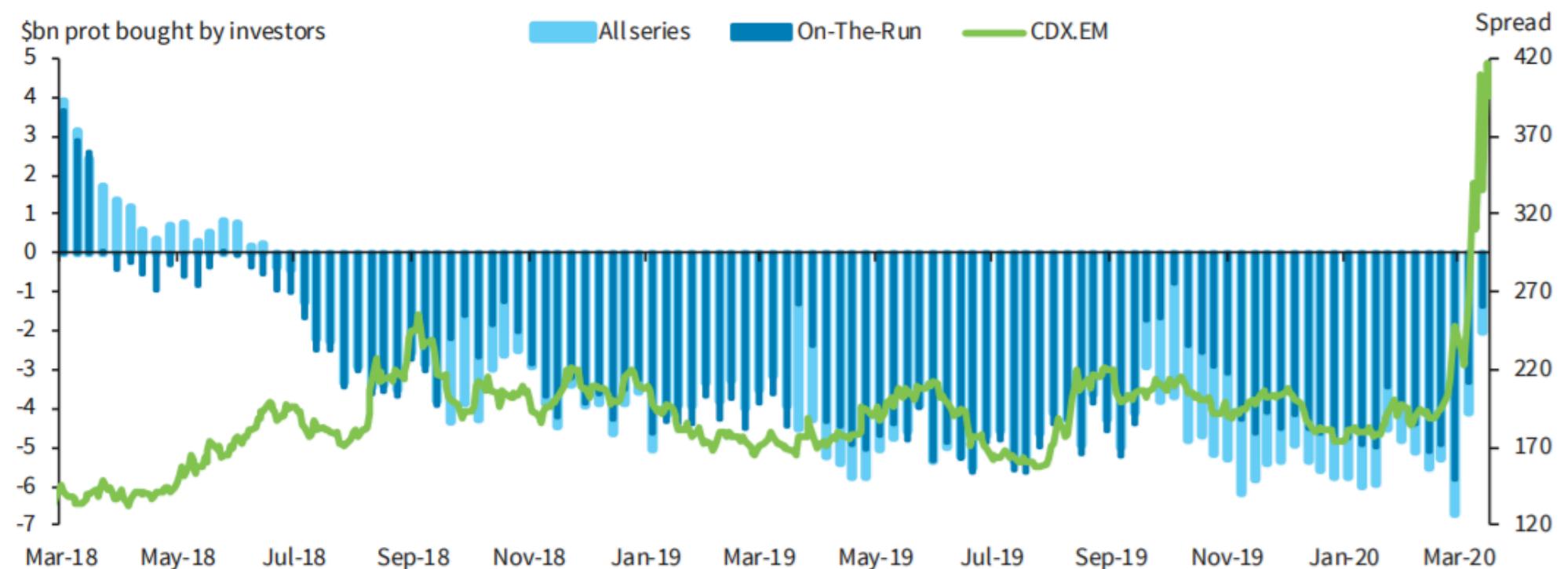
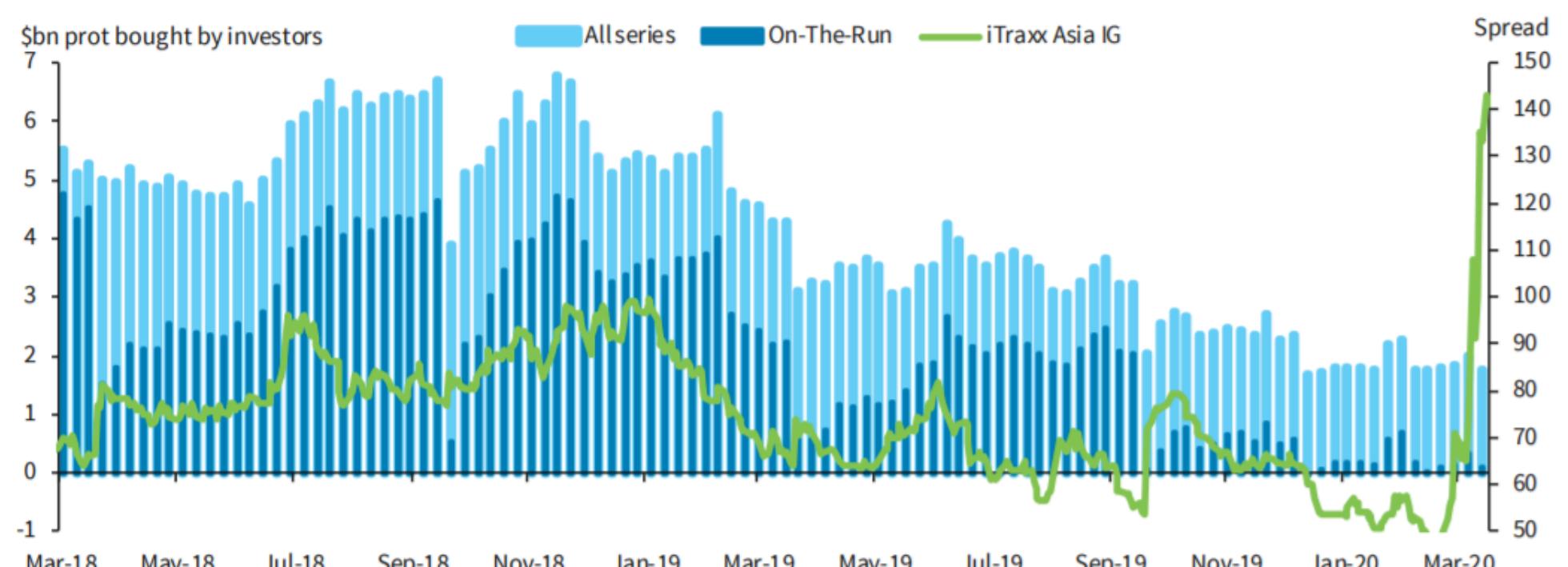


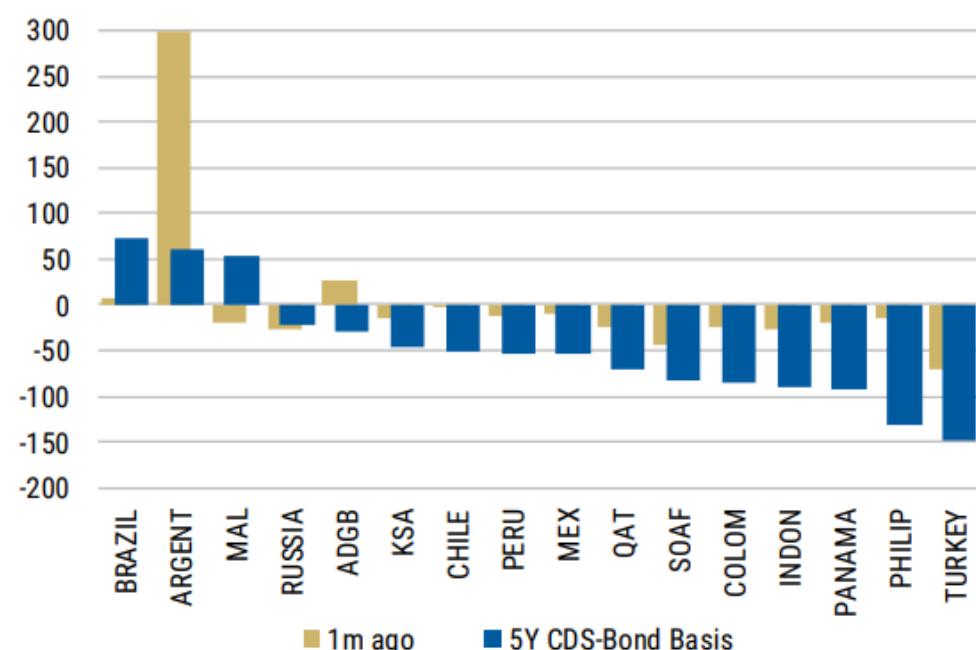
FIGURE 10

Asia: Investors sold \$225mn protection in on-the-run, \$250mn across series

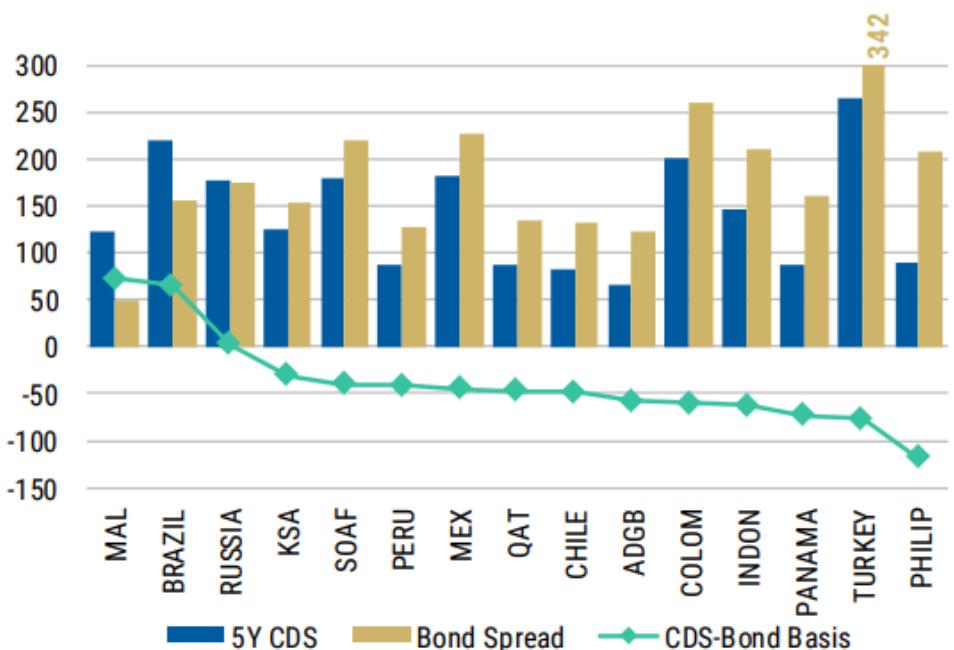


CDS Snapshot

Current CDS-bond basis (bp)



CDS-bond basis 1m change (bp)



Source: Morgan Stanley Research, Bloomberg

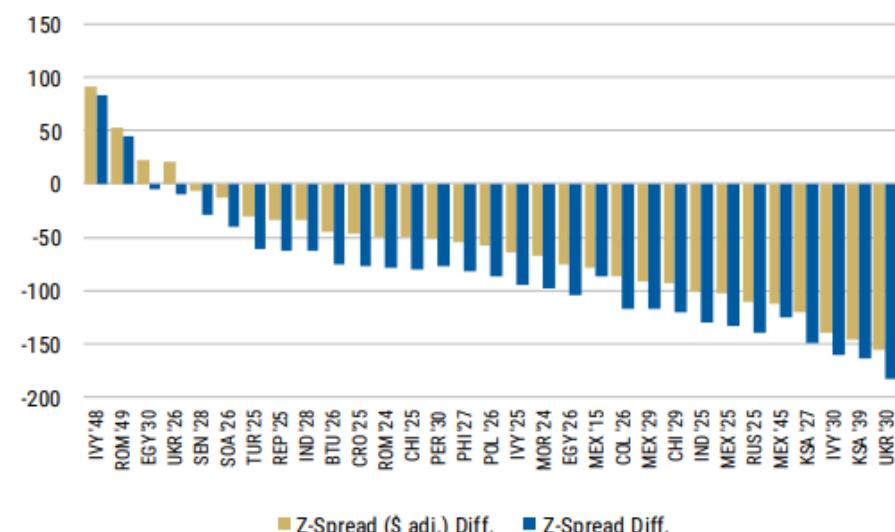
*NOTE: Aggregate series uses BRAZIL, MALAYS, CHILE, COLOM, INDON, PANAMA, PERU, REPSONU, PHILIP, TURKEY, RUSSIA, MEX, CHINA, KSA, QATAR and ADGB. Current basis uses an interpolated series if the CDS and bond maturities diverge by more than 6 months

Morgan Stanley

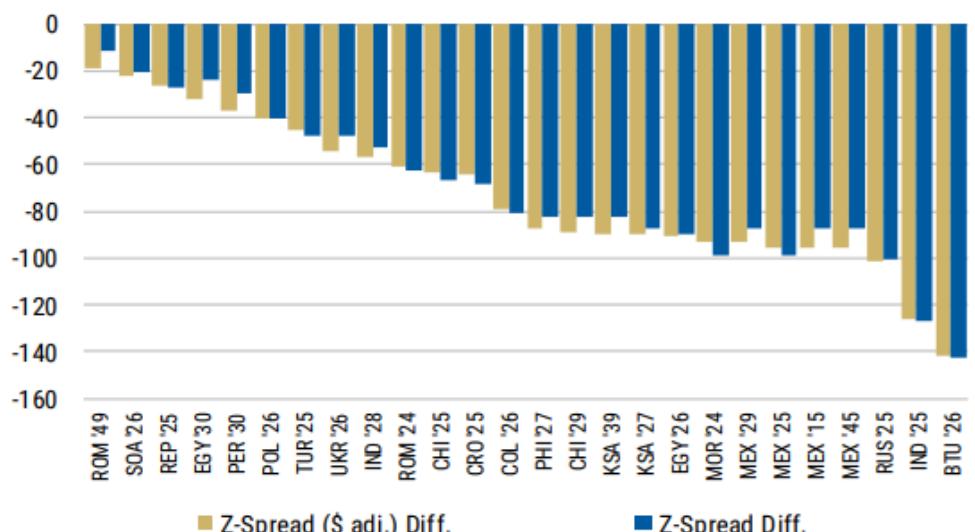
 MORGAN STANLEY RESEARCH
 Credit Rich & Cheap Watch
 March 17, 2020

EUR vs. USD Bonds Snapshot

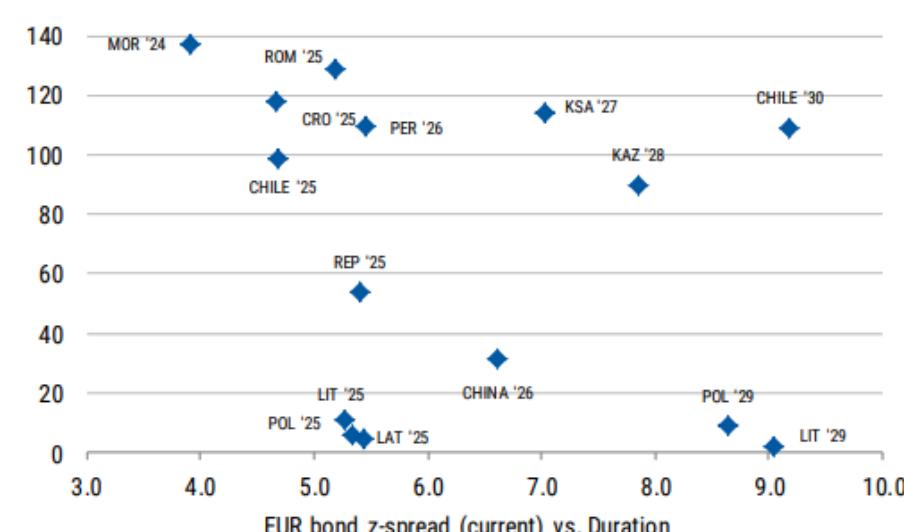
Current z-spread differentials by sovereign bond*



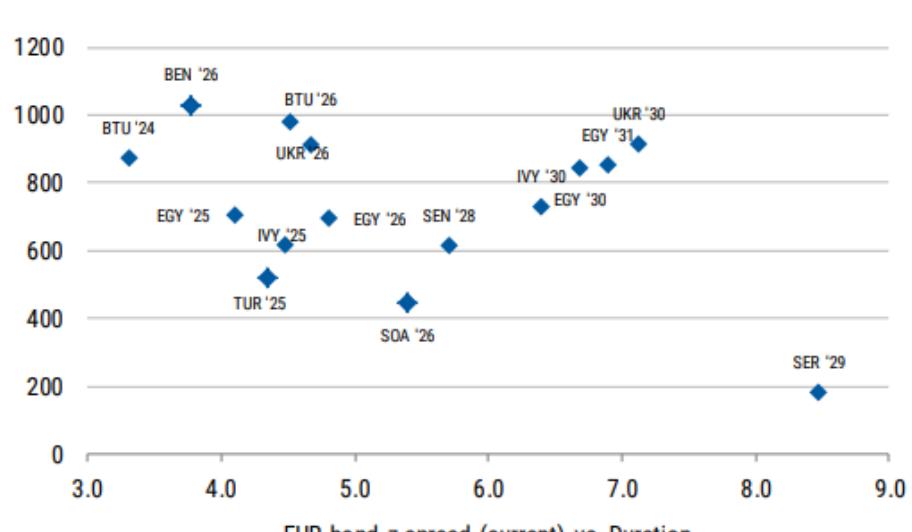
6m change in z-spread differentials by sovereign bond**



Current EUR bond z-spread vs. Duration (IG)



Current EUR bond z-spread vs. Duration (HY)



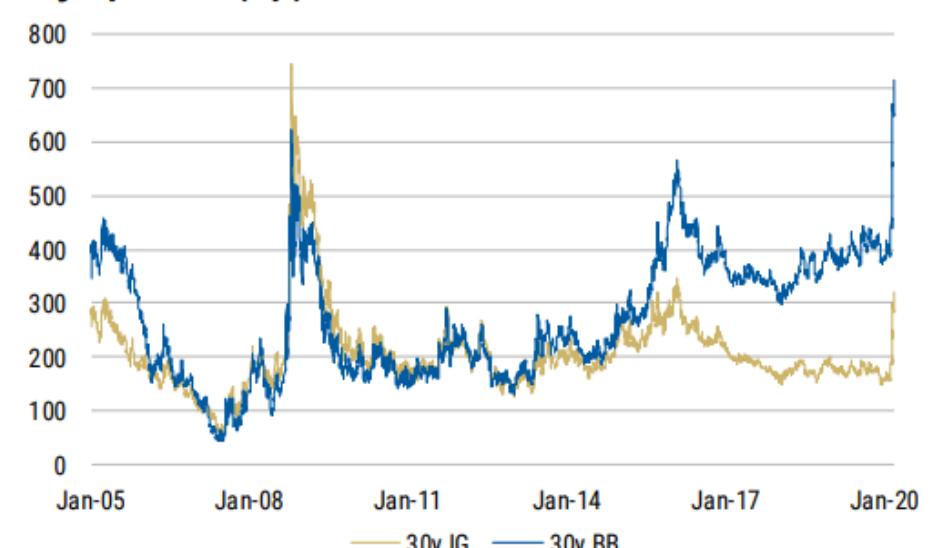
Source: Bloomberg, Morgan Stanley Research. *To compare IVYCST'48 EUR bond the SENEGL'48 USD bond is used. **Chart shows 6m change or change since issue, whichever is closer.

Constant Maturity Charts

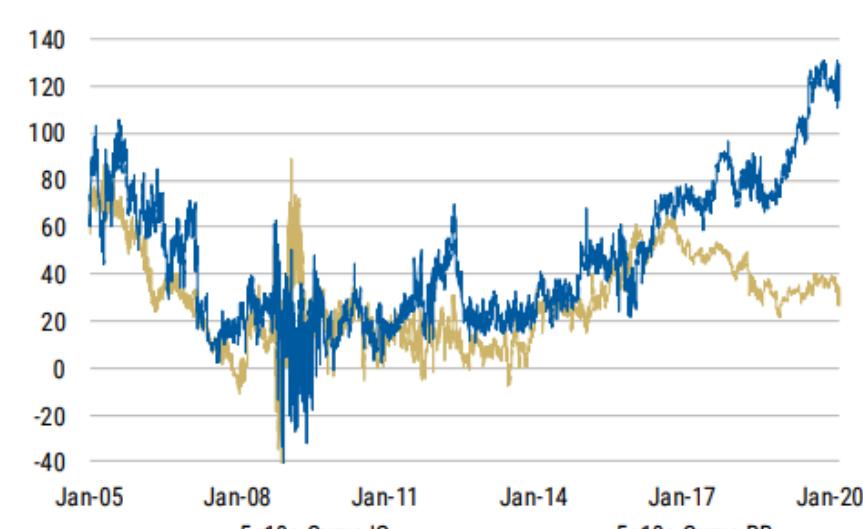
10y spreads (bp)



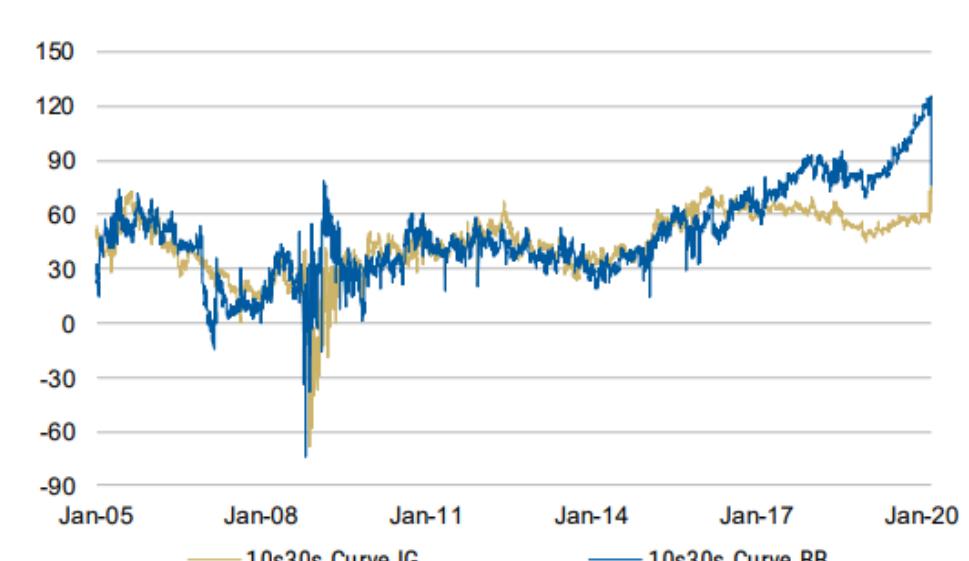
30y spreads (bp)



5s10s curves (bp)



10s30s curves (bp)



Source: Morgan Stanley Research, Bloomberg.

Sovereign 10Y Benchmark Bond Valuations (page 1)

Rating	Country	Bond	Outright Spreads				Vs. EM Rating Bucket		Vs. US Rating Bucket		Vs. Region Bucket			
			Min	Current Spread	Max	6M Z-Score	Current Spread	6M Z-Score	Current Spread	6M Z-Score	Region	Current Spread	6M Z-Score	Country
A & Above	Chile	CHILE '28	65	237	237	7.3	64	7.1	44	5.0	LatAm	-671	-5.2	Chile
	Saudi Arabia	KSA '30	105	270	270	5.5	97	4.3	77	3.6	MENA	-645	-4.8	Saudi Arabia
	Abu Dhabi	ADGB '27	61	188	188	6.1	16	4.2	-5	-0.3	MENA	-726	-4.9	Abu Dhabi
	Qatar	QATAR '28	69	209	209	5.9	37	4.0	16	0.7	MENA	-705	-4.9	Qatar
	Kuwait	KUWIB '27	54	165	165	5.6	-8	0.1	-28	-2.2	MENA	-749	-5.1	Kuwait
	China	CHINA '28	39	92	92	5.9	-81	-4.7	-101	-4.7	Asia	-81	-4.6	China
	Malaysia	MALAYS '26	66	115	115	3.7	-57	-4.8	-78	-4.9	Asia	-57	-5.0	Malaysia
	Poland	POLAND '26	42	103	103	3.6	-69	-5.4	-90	-5.2	Europe	-389	-5.6	Poland
	Colombia	COLOM '29	123	395	395	6.6	126	6.7	91	6.5	LatAm	-513	-4.7	Colombia
	Trinidad & Tobago	TRITOB '26	142	478	478	3.8	210	3.3	174	3.4	LatAm	-429	-4.8	Trinidad & Tobago
BBB	Mexico	MEX '29	135	344	344	5.8	75	2.9	40	2.5	Central & North America	-132	-0.4	Mexico
	Philippines	PHILIP '29	53	229	229	6.0	-40	-0.2	-75	-0.5	Asia	56	5.9	Philippines
	Russia	RUSSIA '29	109	304	304	4.2	35	-0.3	0	-0.5	Europe	-188	-3.7	Russia
	Uruguay	URUGUA '27	83	267	267	6.3	-2	-0.4	-37	-0.5	LatAm	-641	-4.8	Uruguay
	Panama	PANAMA '28	78	247	247	7.3	-22	-1.2	-57	-1.2	Central & North America	-230	-2.2	Panama
	Kazakhstan	KAZAKS '25	46	201	201	3.6	-68	-3.2	-103	-3.2	Europe	-291	-6.2	Kazakhstan
	Peru	PERU '27	54	190	190	5.9	-79	-4.4	-114	-3.8	LatAm	-718	-5.4	Peru
	Romania	ROMANI '24	53	198	198	4.8	-71	-4.4	-106	-3.9	Europe	-294	-5.7	Romania
	Indonesia	INDON '29	106	255	255	5.0	-14	-5.9	-49	-4.7	Asia	82	3.2	Indonesia
	Hungary	REPHUN '24	37	119	123	2.8	-150	-6.7	-185	-6.3	Europe	-373	-6.7	Hungary
BB	Dominican Rep.	DOMREP '28	255	712	712	6.3	222	6.2	99	0.7	LatAm	-196	-2.1	Dominican Rep.
	Oman	OMAN '28	323	962	962	5.6	473	5.4	349	3.7	MENA	48	1.5	Oman
	Namibia	REPNAM '25	254	656	656	5.3	167	3.9	43	-1.5	SSA	-470	-5.8	Namibia
	Azerbaijan	AZERBJ '32	156	469	469	6.0	-21	1.1	-144	-3.4	Europe	-23	3.7	Azerbaijan
	South Africa	SOAF '30	290	552	552	5.6	63	-3.0	-61	-4.6	SSA	-574	-5.7	South Africa
	Paraguay	PARGUY '27	131	354	354	6.2	-136	-4.4	-259	-4.3	LatAm	-554	-4.8	Paraguay
	Brazil	BRAZIL '28	134	329	329	5.1	-161	-4.6	-284	-4.3	LatAm	-579	-4.8	Brazil
	Vietnam	VIETNM '24	92	322	322	5.4	-167	-5.0	-291	-5.0	Frontier Asia	-426	-4.7	Vietnam
	Guatemala	GUATEM '28	198	422	422	5.5	-67	-5.4	-191	-4.8	Central & North America	-54	0.2	Guatemala
	Armenia	ARMEN '25	160	423	423	5.0	-67	-5.4	-190	-4.4	Europe	-69	-1.3	Armenia
CCC	Croatia	CROATI '24	48	183	183	5.4	-306	-5.4	-430	-5.2	Europe	-309	-4.8	Croatia

** For Malaysia 10y Sukuk is used.

Closest 10y bond used for each sovereign. Z-Score Min/Max: -4/4. Each rating bucket includes the +/-middle/- level of each rating. All ratings CCC and below are grouped into one bucket as are all ratings A and above.

Source: Bloomberg, Morgan Stanley Research

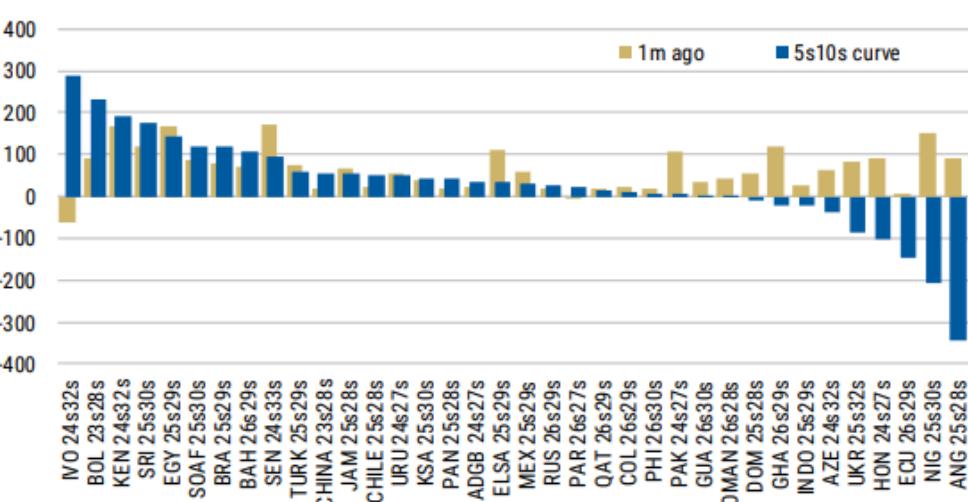
4

Sovereign 10Y Benchmark Bond Valuations (page 2)

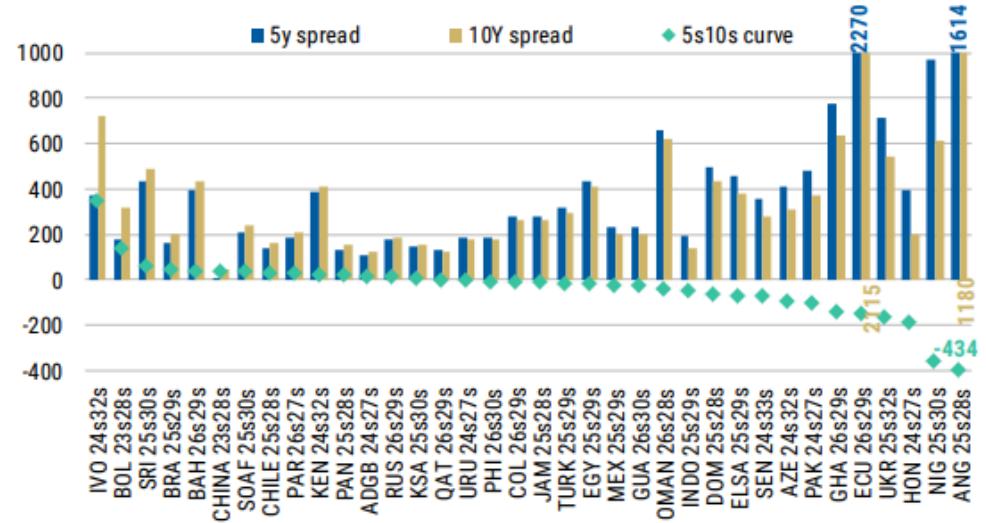
Rating	Country	Bond	Min	Current Spread	Max	6M Z-Score	Current Spread	6M Z-Score	Current Spread	6M Z-Score	Region	Current Spread	6M Z-Score	Country
Angola	ANGOL '28	501	1,705	1,733	5.8	702	5.6	874	5.6	SSA	579	5.6	Angola	
Iraq	IRAQ '28	471	1,342	1,342	6.2	339	5.3	511	5.1	MENA	427	5.1	Iraq	
Gabon	GABON '25	355	1,456	1,456	5.7	453	5.0	625	5.0	SSA	330	5.2	Gabon	
Ecuador	ECUA '28	649	3,020	3,020	4.9	2,018	4.5	2,189	4.6	LatAm	2,113	4.6	Ecuador	
Ghana	GHANA '29	515	1,163	1,163	6.0	160	3.6	332	3.3	SSA	36	-0.5	Ghana	
Nigeria	NGERIA '30	464	1,098	1,098	5.6	96	3.1	267	3.4	SSA	-28	-0.9	Nigeria	
Tajikistan	TAJIKI '27	763	1,521	1,521	5.6	518	1.9	690	2.3	Europe	1,029	4.7	Tajikistan	
Suriname	SURINM '26	1,052	1,838	1,838	5.0	835	1.9	1,007	1.9	LatAm	930	2.2	Suriname	
Cameroon	REPCAM '25	431	1,075	1,075	5.4	72	1.2	244	2.0	SSA	-52	-1.3	Cameroon	
Ukraine	UKRAIN '28	409	1,062	1,062	5.2	60	1.2	231	2.1	Europe	571	4.8	Ukraine	
Mongolia	MONGOL '24	304	849	886	5.0	-154	-1.5	18	0.5	Frontier Asia	100	4.4	Mongolia	
Sri Lanka	SRILAN '28	527	1,033	1,033	5.3	31	-2.1	202	-0.2	Frontier Asia	285	3.8	Sri Lanka	
Ethiopia	ETHOPI '24	273	766	766	4.7	-237	-3.0	-65	-1.8	SSA	-361	-6.0	Ethiopia	
Tunisia	BTUN '25	493	967	967	4.9	-36	-3.1	-136	-2.0	MENA	53	-1.5	Tunisia	
Bahrain	BHRAIN '29	270	729	729	5.9	-274	-3.5	-102	-1.7	MENA	-185	-1.4	Bahrain	
Pakistan	PKSTAN '27	404	778	778	4.4	-225	-3.9	-53	-3.0	Frontier Asia	29	-0.8	Pakistan	
Egypt	EGYPT '28	376	811	811	5.5	-192	-4.0	-20	-2.5	MENA	-103	-1.8	Egypt	
Jordan	JORDAN '27	279	679	679	5.9	-323	-4.2	-152	-2.8	MENA	-235	-2.1	Jordan	
Ivory Coast	IVYCST '28	322	692	692	5.2	-311	-4.2	-139	-3.1	SSA	-435	-5.4	I	

Bond 5s10s Curves Snapshot

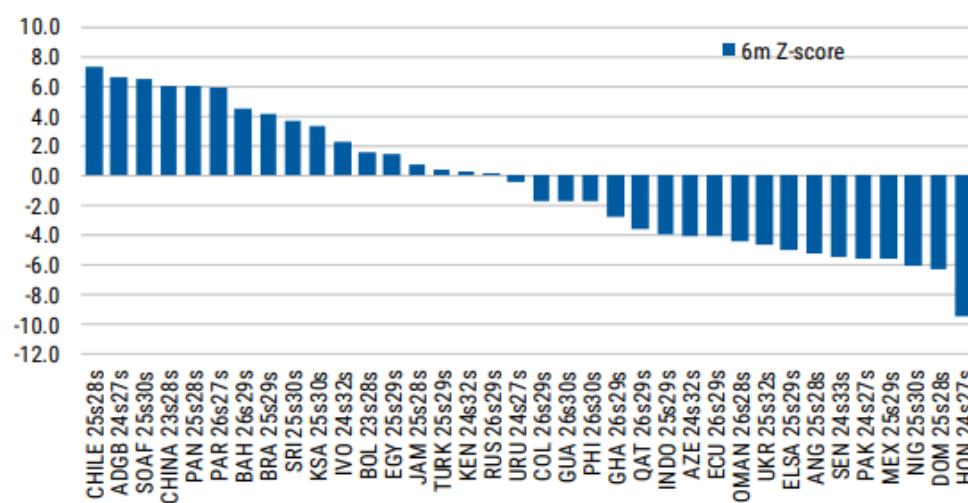
5s10s Bond Slope (Z-spread curves, bp)



5s10s Bond Slope (1M Z-spread change, bp)

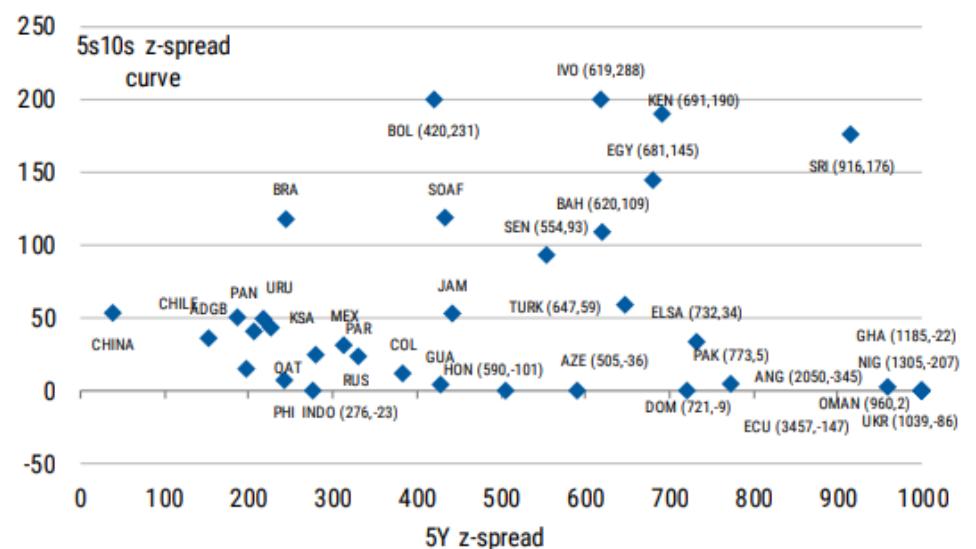


5s10s Bond Slope (6m z-score)



Source: Morgan Stanley Research, Bloomberg.

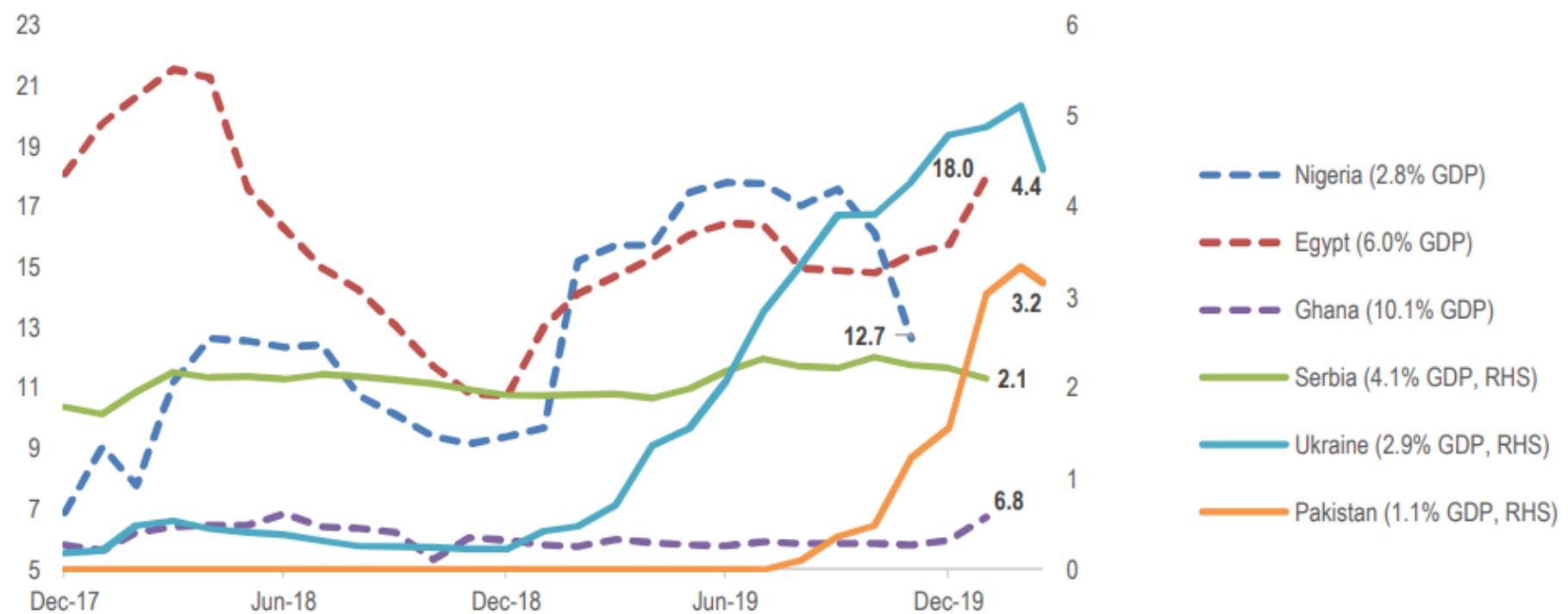
5s10s Bond Slope (5s10s curve vs. 5y spread, bp)



3) Less liquid frontier local markets: These smaller markets have seen historically large investor inflows in the last 18 months, which will be a test for some currency regimes. Since the start of 2019 frontier markets ownership by foreign investors has increased significantly (Exhibit 7). Given the fast-shifting global environment, we think there is a high chance that there could be greater damage to frontier markets asset prices, both on account of fundamental pressures (loss of oil and tourism export revenues) and broader financial deleveraging from emerging markets. We recommend caution in these markets, having cut our exposures (see [EMEA EM Frontier Local Markets Compass](#), 13th March).

Exhibit 7: EM frontier markets have seen increased foreign ownership of local currency government securities

Foreign ownership stock of frontier local currency government securities (left and right axes in USDbn). Country labels also have the % of GDP.



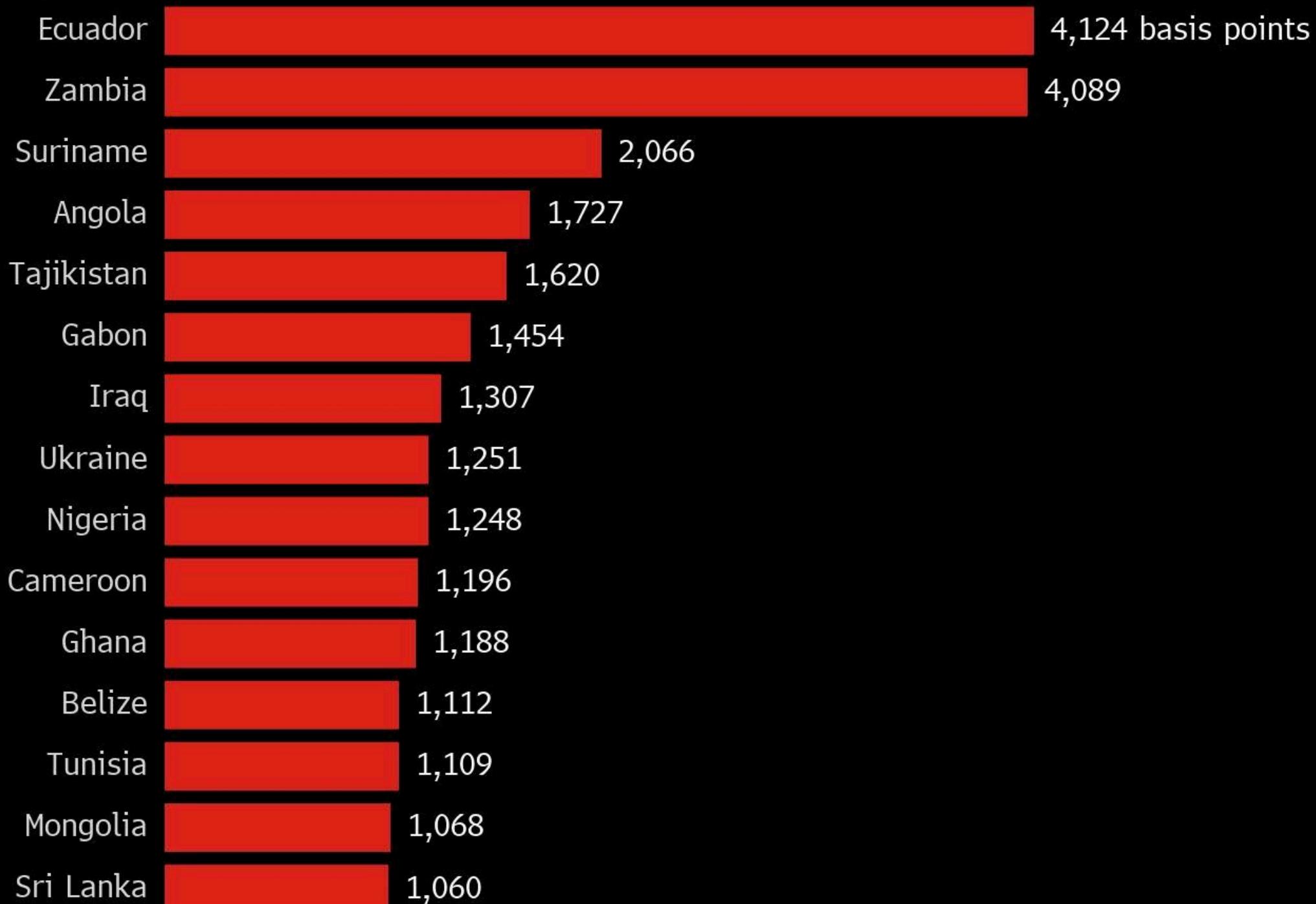
Source: J.P. Morgan, Haver, IMF, National Central Banks. %GDP using IMF WEO 2019 forecast. Nigeria is CBN data on OMO holdings only, Egypt is T-bills only, Serbia is RSD denominated SERGBBs, Ukraine is UAH denominated bills and bonds, Pakistan is PAKTB + PIBs

4) EM ETFs: More a visible risk than a large one. In the near-term, EM bond ETF shares may be sold first given greater ease of transaction, but we do not view this as a major source of vulnerability risk. EM ETFs are still just 15% of EM retail bond AUM, and analysis of previous episodes shows that the majority of EM retail bond fund outflows have come from non-ETFs.

The 1,000 Club

The Eurobonds of at least 15 governments are in distressed territory

Average bond spread over U.S. Treasuries



Source: Bloomberg Barclays indexes

Note: Excludes nations in default and Argentina, which has begun restructuring talks with bond investors

Bloomberg

BASIS FLIP

Morgan Stanley

MORGAN STANLEY RESEARCH

Credit Rich & Cheap Watch

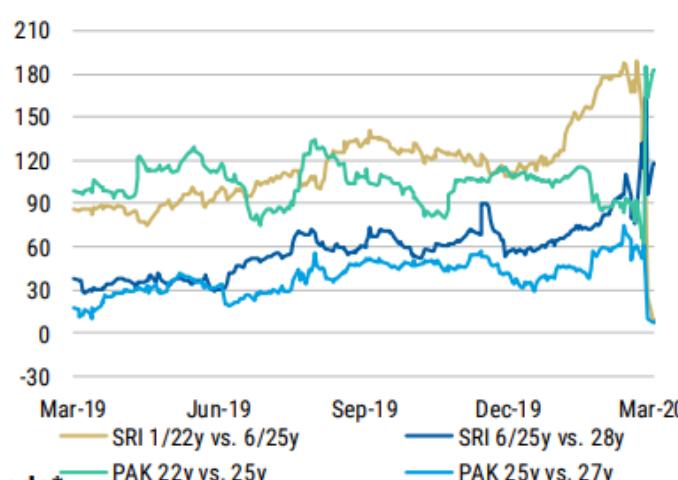
March 17, 2020

Sri Lanka and Pakistan

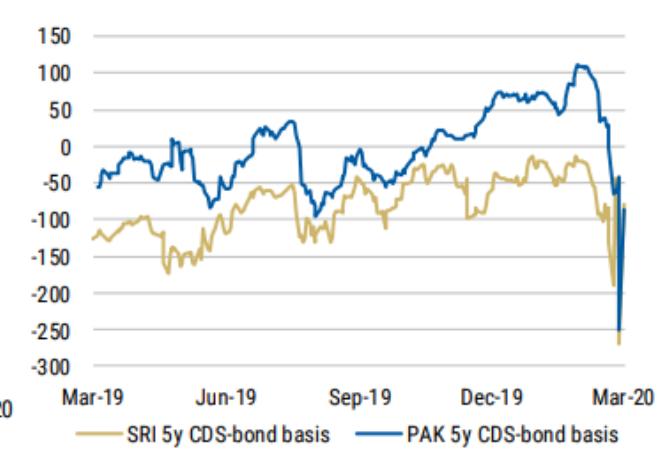
10y bond spreads vs. ratings (bp)



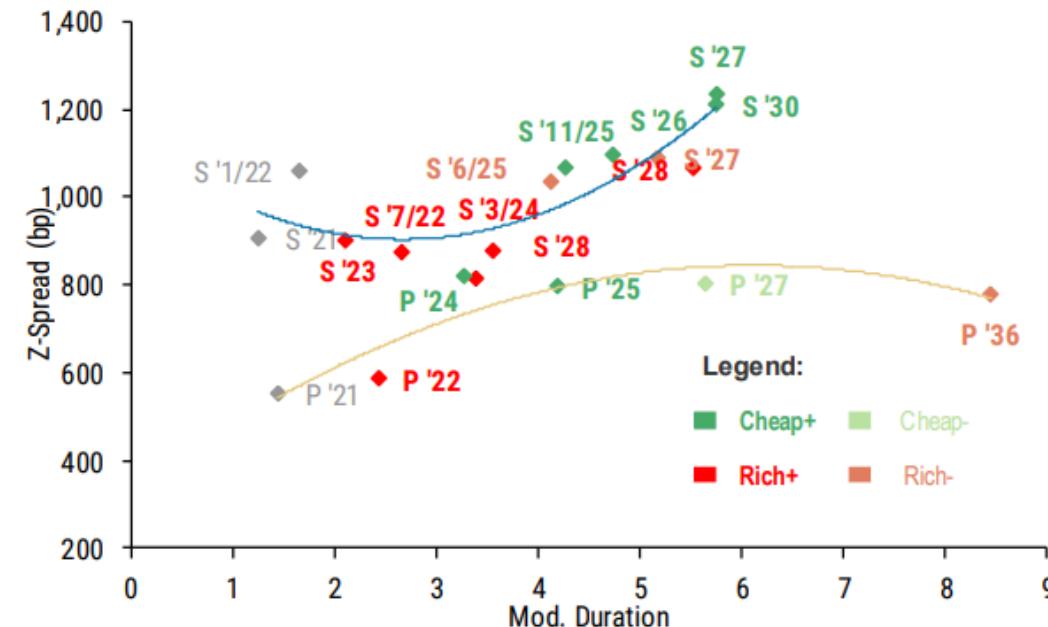
Bond spread curves (bp)



5y CDS-bond basis (bp)



Sri Lanka (S) and Pakistan (P) Rich & Cheap bonds*



Current and historical rating

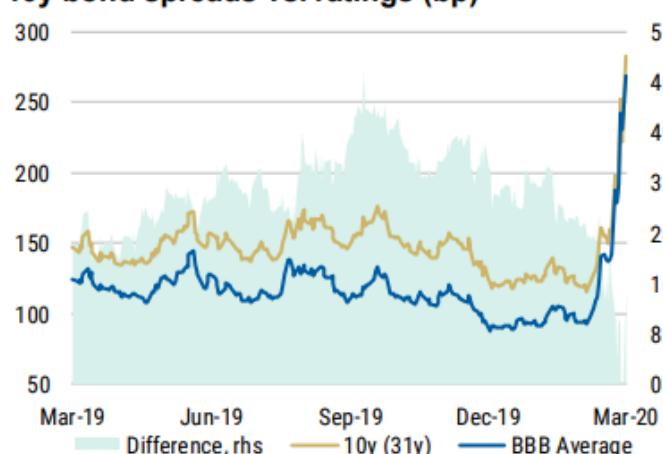
Agency	Sri Lanka		Pakistan	
	Rating	Outlook	Rating	Outlook
S&P	B	Negative	B-	Stable
Moody's	B2	Stable	B3	Stable
Fitch	B	Negative	B-	Stable



Source: Morgan Stanley Research, Bloomberg. *S represents Sri Lanka and P represents Pakistan. The rich and cheap models for Sri Lanka and Pakistan are independent of one another.

Uruguay

10y bond spreads vs. ratings (bp)



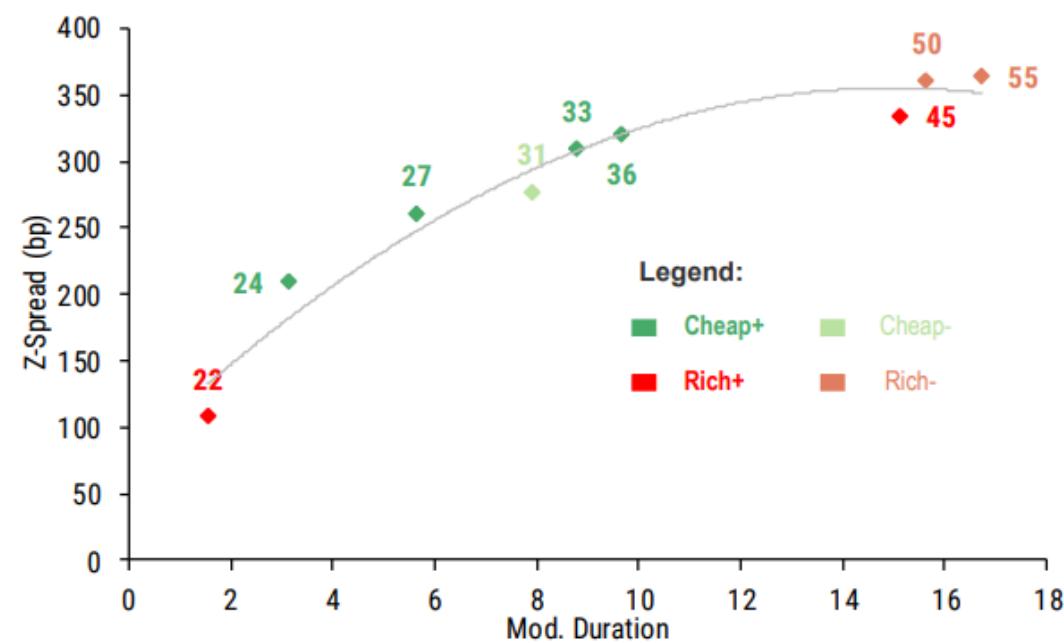
Bond spread curves (bp)



5Y CDS-bond basis (bp)

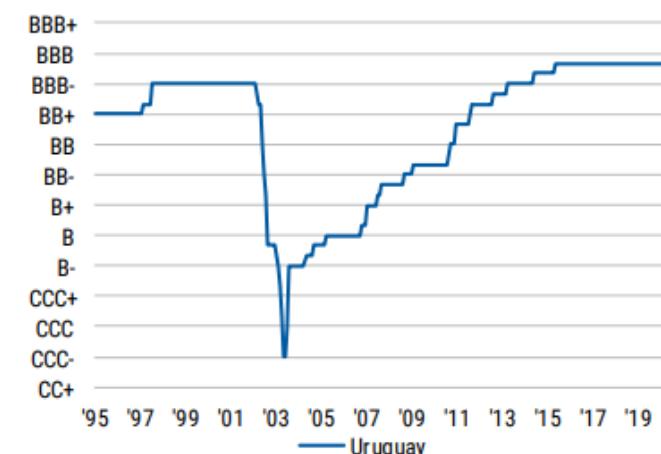


Rich & Cheap bonds



Current and historical rating

Agency	Rating	Outlook
S&P	BBB	Stable
Moody's	Baa2	Stable
Fitch	BBB-	Negative



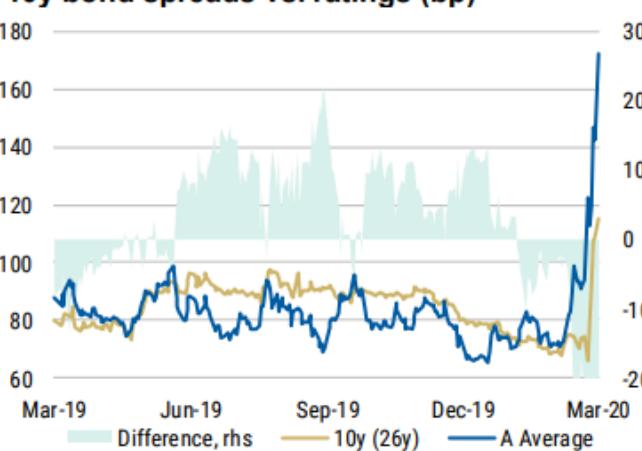
Source: Morgan Stanley Research, Bloomberg

32

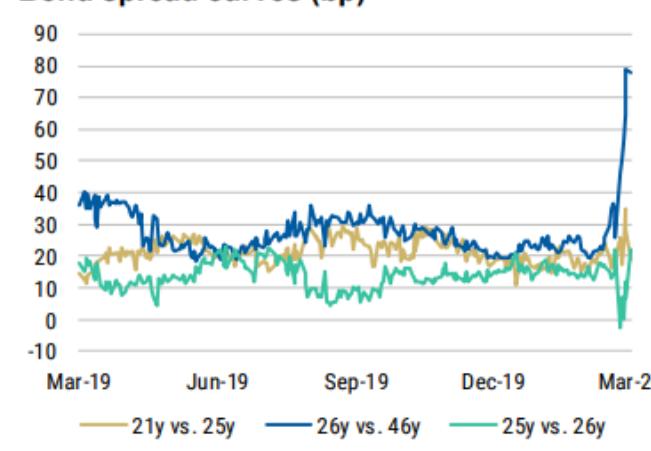
Morgan Stanley

Malaysia*

10y bond spreads vs. ratings (bp)



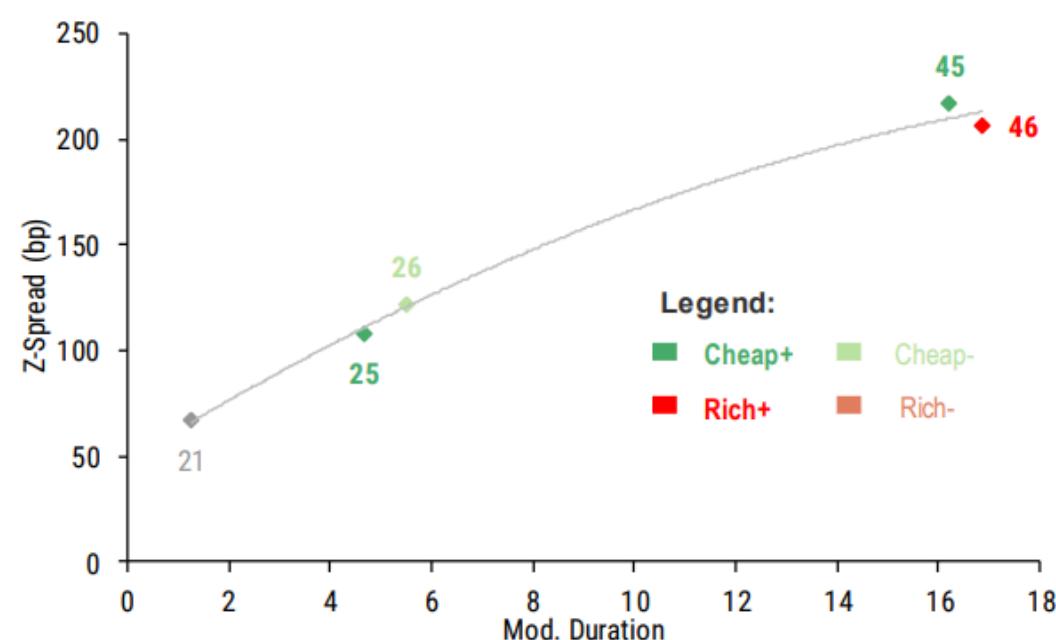
Bond spread curves (bp)



5Y CDS-bond basis (bp)

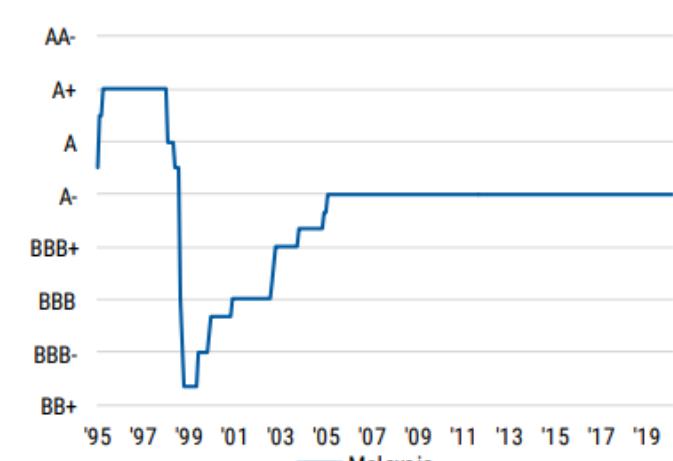


Rich & Cheap bonds



Current and historical rating

Agency	Rating	Outlook
S&P	A-	Stable
Moody's	A3	Stable
Fitch	A-	Stable

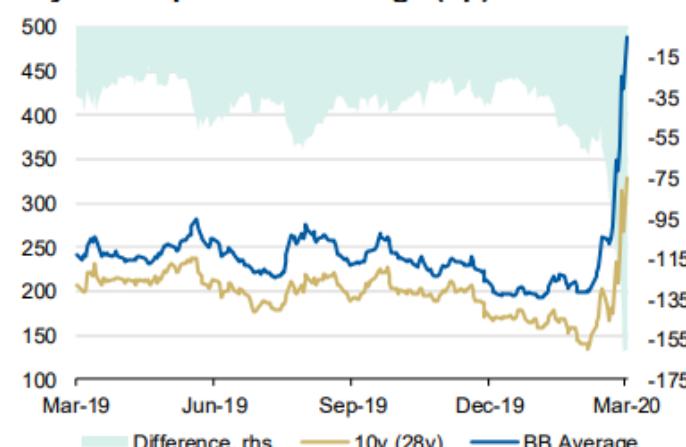


Source: Morgan Stanley Research, Bloomberg. *All Malaysian international government bonds shown are sukuk.

19

Brazil

10y bond spreads vs. ratings (bp)



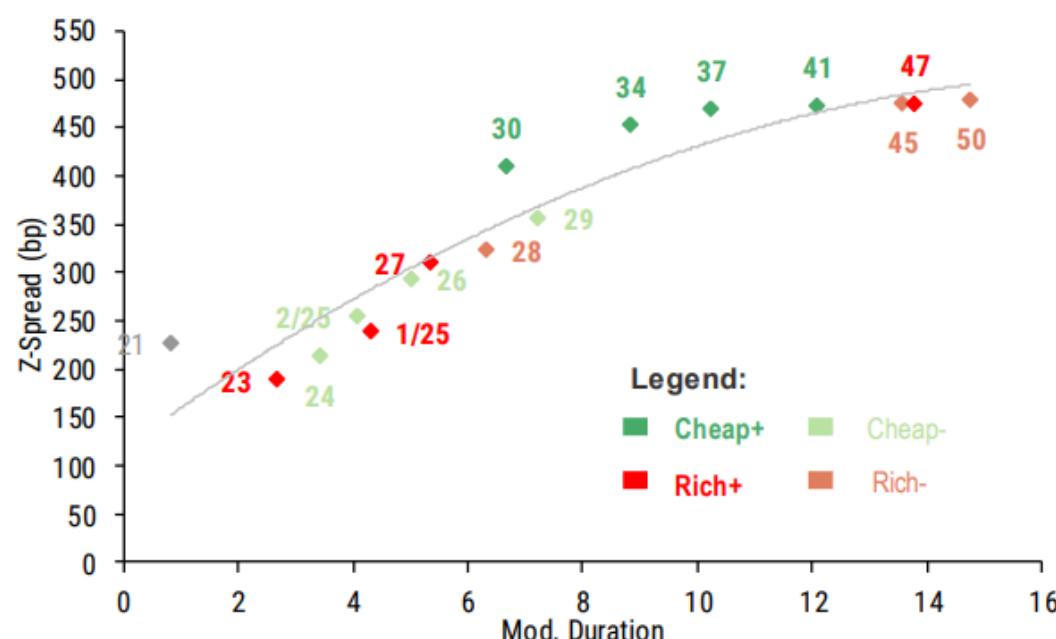
Bond spread curves (bp)



5Y CDS-bond basis (bp)

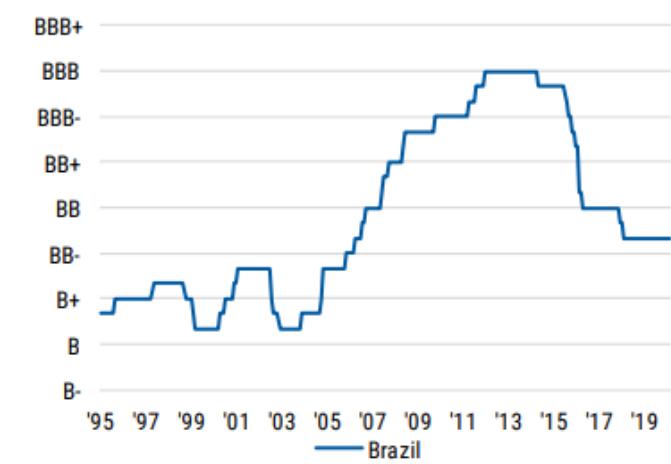


Rich & Cheap bonds



Current and historical rating

Agency	Rating	Outlook
S&P	BB-	Positive
Moody's	Ba2	Stable
Fitch	BB-	Stable



Source: Morgan Stanley Research, Bloomberg

Emerging Markets CDS Index Rolls

Analyzing the CDS index rolls for iTraxx Asia ex-Japan and CDX.EM

- The upcoming index roll for global and EM CDS indices will be on 20th March 2020.
- We analyze the index roll for Emerging Market Sovereign and Corporate CDS indices, and refresh investors on how the index roll works, as well as the specifics of each individual index.
- We calculate the impact of different maturities and compositions on where the new indices should trade versus the existing indices. We estimate that CDX.EM will trade 31bp tighter (18 cents higher in price), and iTraxx Asia ex-Japan to trade 14bp wider.
- CDX.EM Series 33 will see Lebanon leaving the index, while Ukraine will be entering the index. In addition, there are also weight changes among existing members.

Introduction

CDS indices allow risk positioning and/or hedging of global Emerging Markets and Credit market exposure with a single trade. These CDS index products 'roll' twice a year, meaning a new maturity is introduced and traded, with potential changes in composition. The next index roll is happening on 20th March 2020, and the new 5-year maturity will be 20th June 2025.

iTraxx Asia ex-Japan IG and CDX.EM will both roll into a new on-the-run series, and in this piece we review the specifics of the roll process for each index and provide our analysis of where the new indices should trade given changes in maturity and composition. These changes are summarized in Table 1. We also list the details and the composition of the new indices. Appendix 1 offers a useful reminder about how CDS indices work in general.

Table 1: Index Change Summary

Index Name	Spread (bp) New Series*	Spread Chg (bp) vs Old Series	New Series
iTraxx Asia ex-Japan IG	154	+14	S33
CDX.EM	430	-31	S33
<i>In Points: 85.30</i>			

Source: J.P. Morgan, Markit. * The spread of the New Series is where the new series should trade compared to COB spread levels for existing indices and our calculations of the theoretical impact of changes from the roll process. Actual spread levels will depend on trading levels on March 20th and also on market supply and demand dynamics.

EM CDS Index Rolls – Summary

Global CDS indices roll on 20th March 2020; a new series will begin trading with an extended maturity and some indices have composition changes.

As part of the lifecycle of CDS indices, each 6 months a new version of the index is introduced, which has a 6-month longer maturity and potentially a different composition. We refer to the new version of each index as a new *Series*, for example, CDX.EM Series 32 is currently trading and, as of 20th March, CDX.EM Series 33 will start trading as well. While trading continues in the old series, over time liquidity tends to concentrate in the newer series, which we refer to as the *On-the-Run Series* (or On-the-Run Index). The purpose of rolling the indices is to keep the maturity centered around standard maturity points, 5 years for example, as over time, CDX.EM Series 32 with maturity of 20th December 2024 will become further away from being a 5-year maturity product. Additionally, the composition of the indices can change to keep the index in line with its intended scope (IG, for example) and current liquidity of single-name CDS.

The Emerging Market Index Family

The Emerging Markets CDS indices are summarized in Table 2. Series 32 is currently (pre-March 2020) the on-the-run index for iTraxx Asia ex-Japan IG and CDX.EM.

Table 2: EM & Asia CDS Indices – Summary

Index Name	Pre-Mar 20th Series	No. of Entities	Selection Criteria	Equally Weighted	Index Coupon (bp)	Index Recovery Rate	Quoting Convention	Currency	Current Spread (bp)
iTraxx Asia ex-Japan IG	32	40	Most liquid Asian IG entities	Y	100	40%	Flat spread	USD	140
CDX.EM	32	18	Liquid EM sovereign CDS entities	N	100	25%	Price	USD	461

Source: J.P. Morgan, Markit. All indices roll every 6 months on Mar 20th and Sep 20th or next business day. Spreads as of COB 18th March.

CDX.EM

Expected Index Spread

We expect CDX.EM Series 33 to trade 31bp tighter to Series 32 at the 5-year-point due to the maturity extension and composition changes. These effects are summarized in Table 7.

Table 7: CDX.EM Series 33 Expected Index Spread

Spreads, bp

	S32				S33	
	Current	Composition	Maturity	Basis	Net	Final
5 Year	461	-34	3	0	-31	430
In Points	85.125	1.30	-1.12		0.18	85.30

Source: J.P. Morgan. Spreads as at COB 18th March.

Roll Details

CDX.EM Series 33 will begin trading on 20th March 2020. The 5-year maturity will be 20th June 2025, meaning that the index starts with a 5.25-year maturity. The coupon on the index remains 100bp and the recovery rate remains 25%.

Composition Changes

Lebanon leaves the index while Ukraine enters the index with a 2% weight. China increases from 9% to 12%, Malaysia decreases from 4% to 3% and Russia decreases from 8% to 6%. The number of entities is kept at 18.

Table 8: CDX.EM Series 33 Composition

Ticker	Name	Current Weight	New Weight	Moody's Rating	S&P Rating	Fitch Rating	5Y Spread (bp)
ABUDHAB	ABU DHABI	2%	2%	Aa2	AA	AA	135
ARGENT	ARGENTINA	5%	5%	Caa2	CCC-	CC	12927
BRAZIL	BRAZIL	12%	12%	Ba2	BB-	BB-	375
CHILE	CHILE	2%	2%	A1	A+	A	166
CHINA	CHINA	9%	12%	A1	A+	A+	67
COLOM	COLOMBIA	5%	5%	Baa2	BBB-	BBB	322
INDON	INDONESIA	8%	8%	Baa2	BBB	NR	219
MALAYS	MALAYSIA	4%	3%	A3	A-	A-	166
MEX	MEXICO	12%	12%	A3	BBB+	BBB	287
PANAMA	PANAMA	2%	2%	Baa1	BBB+	BBB	164
PERU	PERU	2%	2%	A3	BBB+	BBB+	149
PHILIP	PHILIPPINES	2%	2%	Baa2	BBB+	BBB	134
QATAR	QATAR	2%	2%	Aa3	AA-	AA-	154
RUSSIA	RUSSIA	8%	6%	Baa3	BBB-	BBB	297
KSA	SAUDI ARABIA	2%	2%	A1	A-	A	234
SOAF	SOUTH AFRICA	9%	9%	Baa3	BB	BB+	393
TURKEY	TURKEY	12%	12%	B1	B+	BB-	562
UKRAIN	UKRAINE	0%	2%	Caa1	B	B	1085

Source: J.P. Morgan, Markit, Bloomberg. Spreads as of COB March 18th; highlighted rows are composition changes. Notes: Ratings are issuers' ratings.

13 March 2020

Asia Local Markets Weekly



Asia Market Indicators

Figure 25: Asia FX Dashboard

vs USD	Momentum-Risk model		Carry and Vol			Portfolio Flows (Latest 5 day sum, \$mn)		Top 3 drivers ⁵		
	Momentum indicators ¹	Risk-Monitor ²	3m carry ³	3m implied vol ³	Implied sharpe ratio ⁴	Equities	Fixed-Income			
CNH	▼	▼	1.8%	6.7%	0.26	-4,320		Metals (+)	Commods (+)	EM Stocks (+)
IDR	▼	▼	10.8%	13.6%	0.79	-142	-1,162	VIX (-)	S&P500 (+)	EM Stocks (+)
INR	▼	▼	9.4%	8.6%	1.09	-2,305	-905	3M FX Vol (-)	US 2Y Swap (+)	Eurodollar 3M (+)
KRW	▼	▼	0.9%	11.7%	0.07	-3,427	-1,918	CNH (+)	Metals (+)	Local Stocks (+)
MYR	▼	▼	2.6%	6.5%	0.41			CNH (+)	EM Stocks (+)	AUD (+)
PHP	▲	▼	4.3%	5.5%	0.78	-47		AUD (+)	CNH (+)	EM Stocks (+)
SGD	▼	▼	0.4%	5.7%	0.06			USD TWI (-)	AUD (+)	EUR (+)
THB	▼	▼	0.6%	6.4%	0.09	-652	-389	3M FX Vol (-)	AUD (+)	CNH (+)
TWD	▲	▼	-4.1%	6.0%	-0.68	-5,057		CNH (+)	Metals (+)	AUD (+)

1. 5/30 day moving average cross-over rule

2. Composite indicator of investor risk-appetite for each Asian country, comprising credit, equities, FX and fixed income indicators.

3. Shading for carry & vol columns, blue (red) = increasing (decreasing) versus prior week

4. Implied sharpe ratio is 3m carry divided by 3m implied vol

5. Top 3 most correlated drivers to spot performance based on 3 month correlations of 3 day changes

Source : Deutsche Bank, Bloomberg Finance LP



200) Refresh

201) Table

202) Export

World Currency Ranker

203) Single Ranking

204) Historical Ranking

205) Multiple Ranking

Period Year To Date

Basket Asia

Base USD

Range 12/31/19

- 03/19/20

Total Returns (%)

1) Hong Kong Dollar	HKD
-0.32	0.70
2) Philippine Peso	PHP
-0.72	
3) Japanese Yen	JPY
-0.88	
4) Chinese Renminbi	CNY
-1.18	
5) Taiwanese Dollar	TWD
-1.47	
6) Offshore Chinese Renminbi	CNH
-3.50	
7) Indian Rupee	INR
-6.48	
8) Malaysian Ringgit	MYR
-7.01	
9) Singapore Dollar	SGD
-8.07	
10) Thai Baht	THB
-8.39	
11) Indonesian Rupiah	IDR
-9.80	
12) South Korean Won	KRW

200) Refresh

201) Table

202) Export

World Currency Ranker

203) Single Ranking

204) Historical Ranking

205) Multiple Ranking

Period Year To Date

Basket EMEA

Base USD

Range 12/31/19

- 03/19/20

Total Returns (%)

-3.85	RON
-5.59	TRY
-7.17	ILS
-8.03	PLN
-9.01	HUF
-10.49	CZK
-13.15	ISK
-18.62	ZAR
-22.34	RUB



Source: Bloomberg

INR Curncy (Indian Rupee Spot) Rupee record low Daily 01JAN2018-19MAR2020

Copyright © 2020 Bloomberg Finance L.P.

19-Mar-2020 11:24:47



Source: Bloomberg

GIND10YR Index (India Govt Bond Generic Bid Yield 10 Year) Rupee & Bond 3 Days 3

Copyright © 2020 Bloomberg Finance L.P.

19-Mar-2020 10:13:08

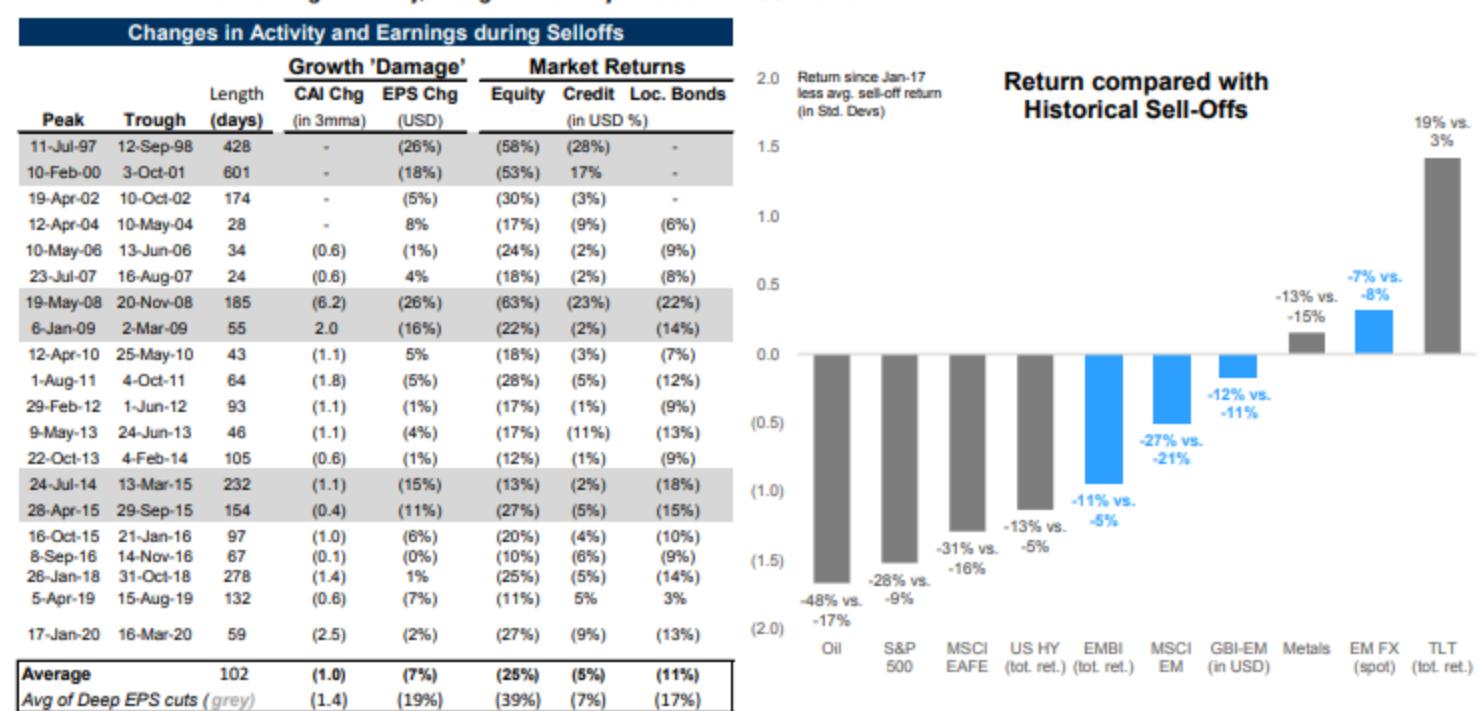
17 March 2020

3

Goldman Sachs

EM in Focus

Exhibit 1: EM has sold off significantly, though unusually less so than US assets



Source: Factset, Datastream, Goldman Sachs Global Investment Research

2. Does the S&P 500 need to find a bottom before EM can recover?

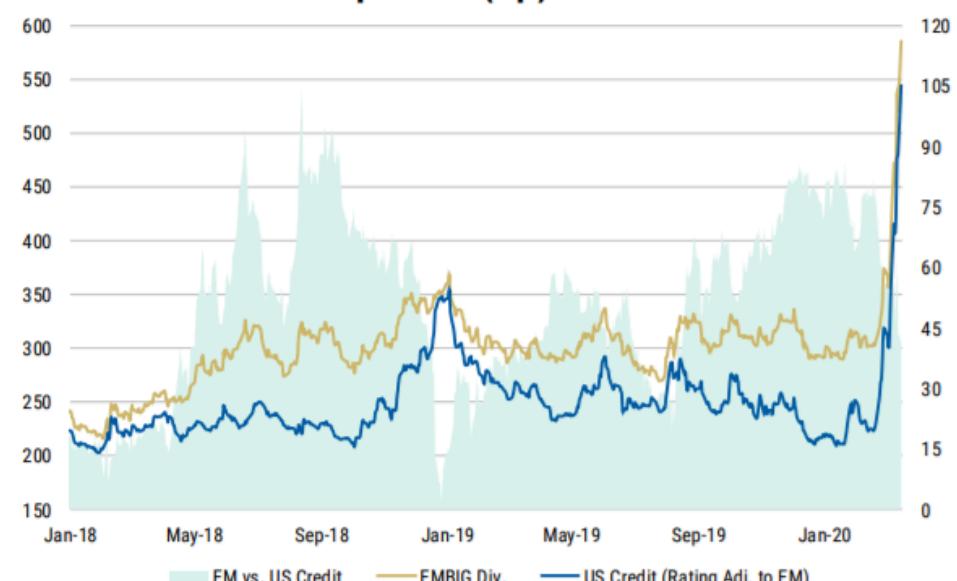
Anecdotally, we find that portfolio managers are in "preservation mode," seeking to limit downside over taking additional risk by buying into potential growing pockets of value.

Signposts for a market bottom are often discussed, and as noted yesterday, we see the three important conditions that are not yet met in the US: (1) greater clarity on the depth of the economic contraction, (2) policy that is forceful enough to allay concerns of private sector defaults, and (3) asset valuations that are low enough to discount downside scenarios for the economy.

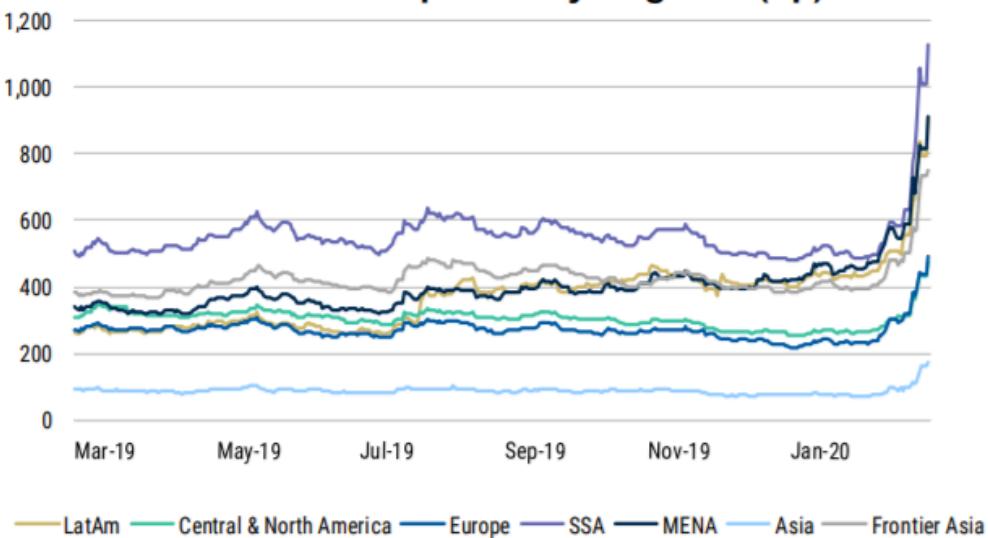
As far as EM is concerned, we find that history strongly suggests a market trough is contingent upon US risk stabilizing. It is true that EM assets have sometimes bottomed before the S&P 500 trough in previous bear markets, but EM performance remains weak (and often double-dips) until the S&P 500 begins a new bull cycle. As shown below, EM equities more consistently bottom before EM FX and credit, and we remain more constructive on EM equities currently (for example, pairing them against non-US DM equities).

EM Sovereign Market Composite

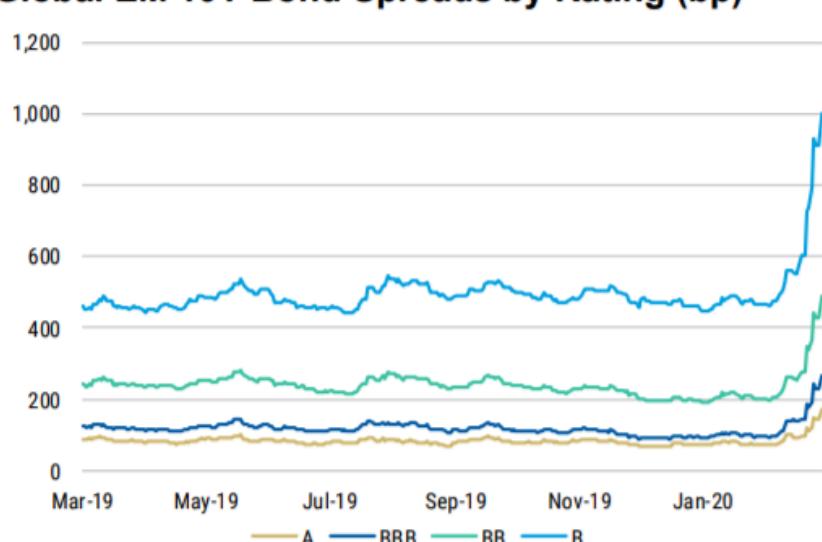
EM vs. US - Credit Spreads (bp)*



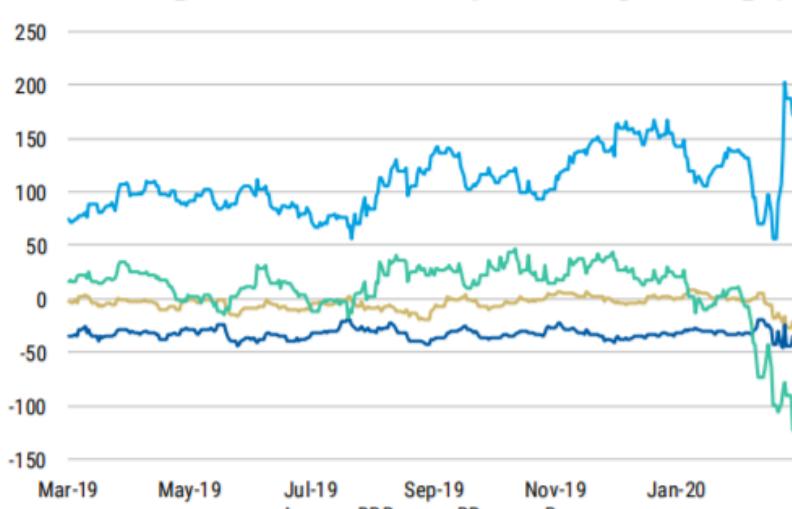
Global EM 10Y Bond Spreads by Region** (bp)



Global EM 10Y Bond Spreads by Rating (bp)



EM Sovereign vs US Credit Spreads by Rating (bp)

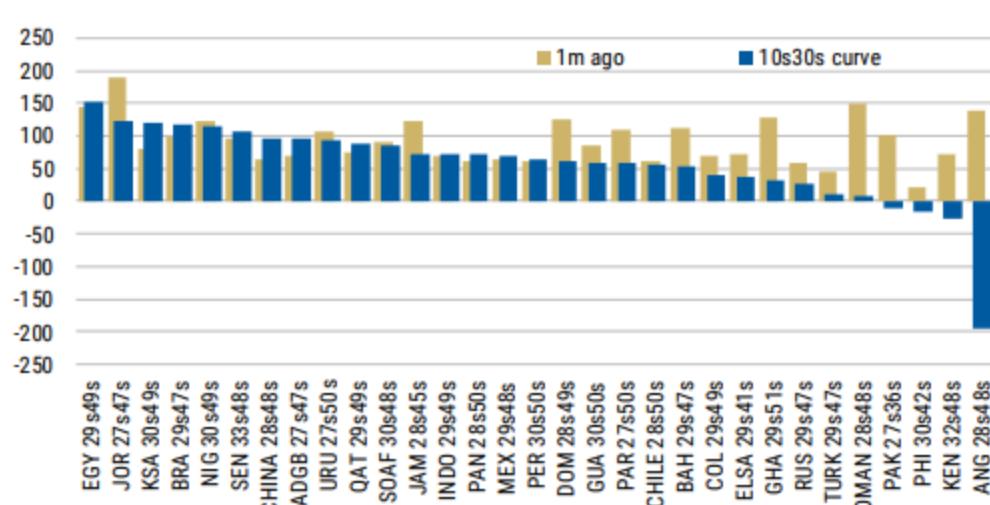


Source: Bloomberg, Morgan Stanley Research. * US credit is a weighted average of US HY and IG with the weights taken to achieve an equal rating to the EM index.

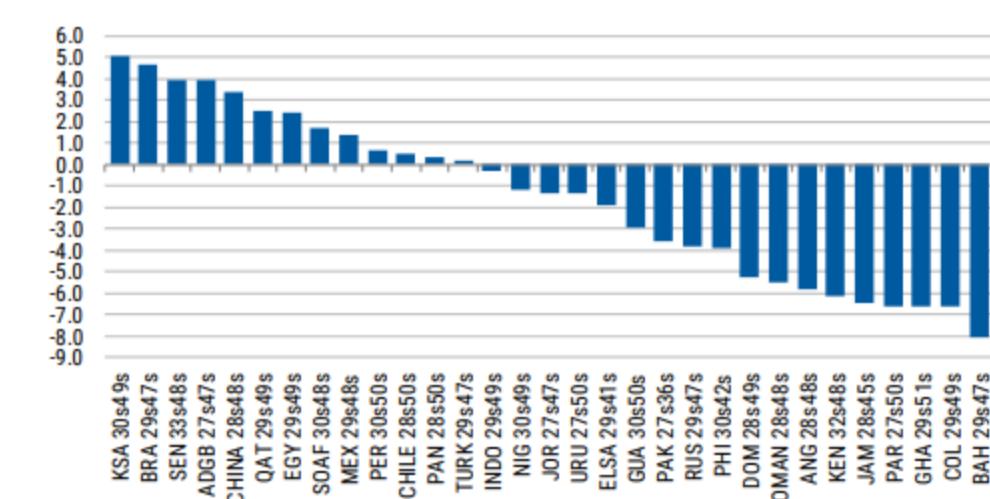
2

Bond 10s30s Curves Snapshot

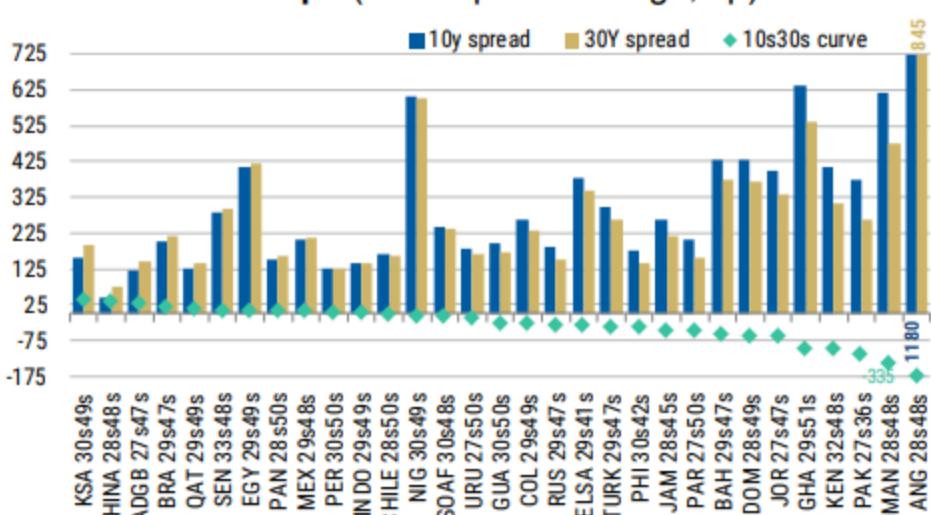
10s30s Bond Slope (Z-spread curves, bp)



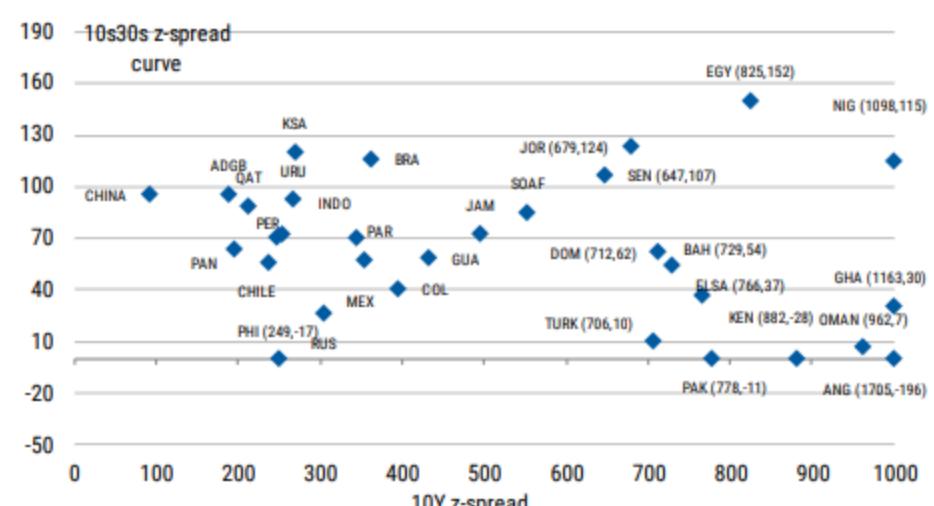
10s30s Bond Slope (6m z-score)



10s30s Bond Slope (1M Z-spread change, bp)



10s30s Bond Slope (10s30s curve vs. 10y spread, bp)



IDR DNDF-NDF SPREAD

(MORE ON THIS IN PREVIOUS WEEKS)

Indonesia – IDR under pressure amid heavy bond outflows; we see risk of further sell-off near term. The IDR market has underperformed NJA FX in the past two weeks. Net foreign bond selling has reached around USD 6bn this year. As we highlighted in [our previous report](#), we think BI has ample room to absorb bonds, where they bought IDR 112trn (or USD 7.2bn) this year. The DNDF market is a hedging tool, but it is not a substitute for USDs. With the focus of markets right now on the fear of fund redemptions, we see IDR as one of the most vulnerable currencies in EM Asia, given heavy foreign positioning in bonds. However, once the risk aversion subsides, we think IDR can snap back very quickly. During previous episodes of IDR weakness (in 2013 and 2018), the Fed was tightening policy compared to easing now. Valuations are not stretched with GS DEER fair value for USD/IDR at 14,600 and IDR spreads vs. UST are already at relatively attractive levels. BI cut policy rates by 25bp to 4.50% against expectations, and we expect BI will cut policy rates thrice more in 2020 (twice in Q2 and again in Q3) to 3.75%.

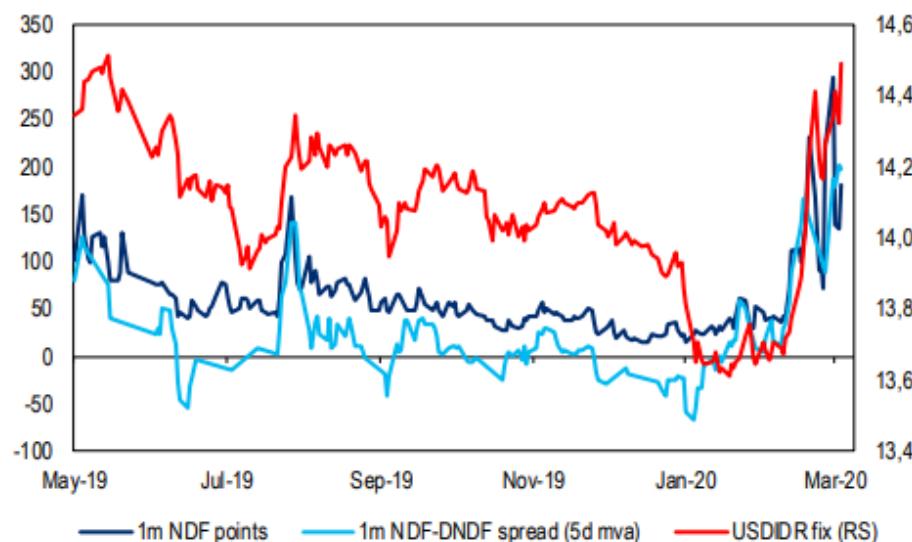
Singapore – We expect MAS to deliver double-easing by flattening the SGD NEER slope to zero and re-centering the mid-point of the band. We have revised our Singapore 2020 growth forecasts lower to -1.8% yoy. This led to a widening in our

21 March 2020

5

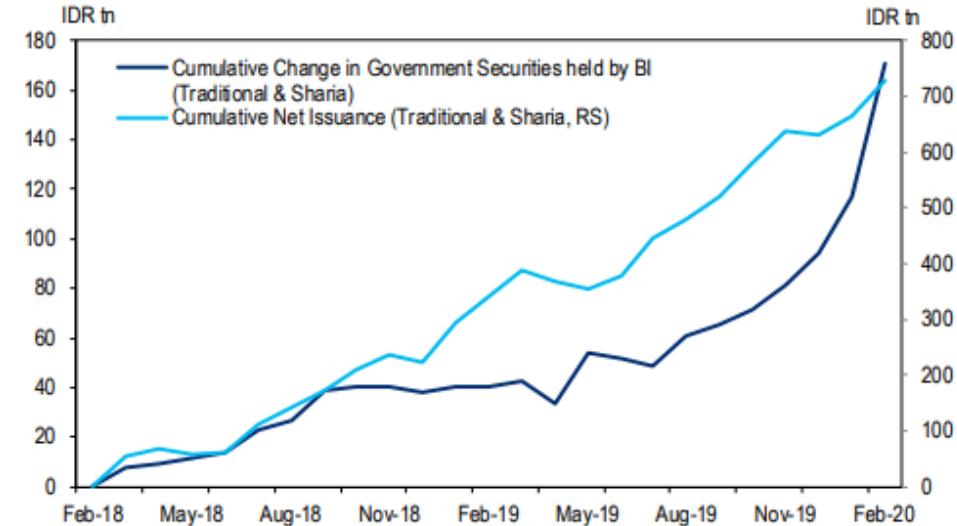
Indonesia bonds likely to weaken further. Bonds have sold-off again alongside the deterioration in broad risk sentiment/appetite. But the weakness in bonds is arguably less severe mainly because of aggressive buying of bonds by the BI -- has bought far more than the total net issuance since start of the year. Positioning in bonds has lightened up but if broad stress in credit and equity markets necessitate build of precautionary cash balances by real money managers, further weakness is imminent. 10y bond yield may easily push towards 7.50-7.60% (from 7.15%) before bottom fishing starts.

Figure 19. Indonesia: USDIR NDF points widening relative to DNDF suggesting bearish sentiment



Source: Bloomberg, Citi Research

Figure 20. Indonesia: BI's purchase of government bonds has been aggressive



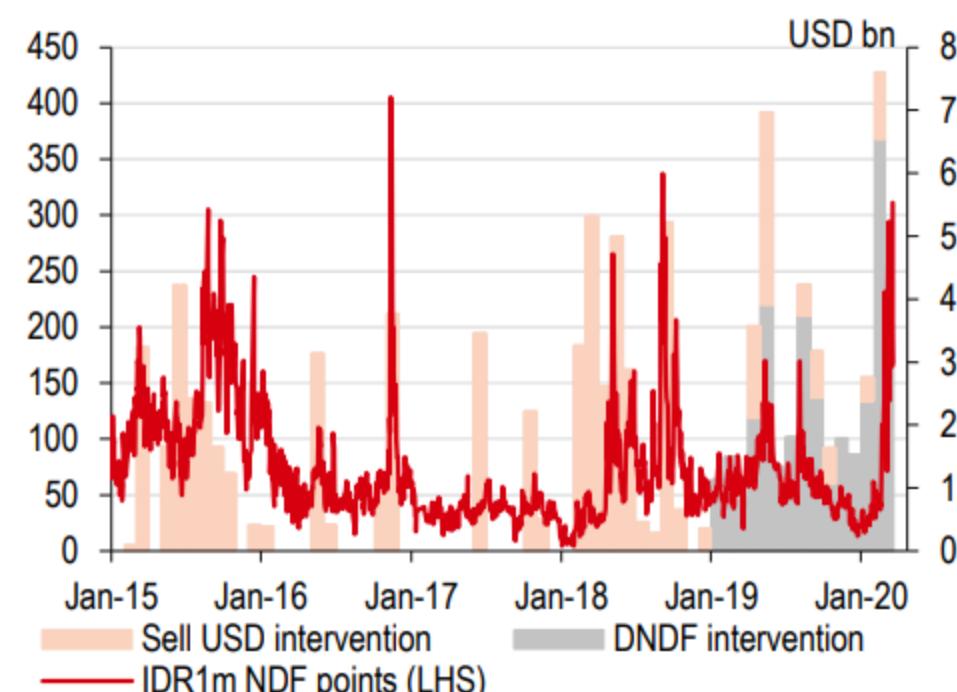
Source: Bloomberg, Citi Research

IDR likely to remain under pressure; USDIDR may push towards 14,800. We acknowledge that Indonesia's fundamentals and foreign reserves have improved since late 2018, but its reliance on portfolio flows to finance its CAD keeps it hostage to global risk sentiment. Moreover, investors remain concerned about

efficiency of DNDF to prevent IDR from weakening with outstanding estimated at USD 11.5bn ([IDR FX Intervention: What's Next?](#)). BI certainly has the option to deploy the FX reserves to prevent any sharp move up in USDIDR, but perhaps will be prudent to let some price adjustment happen given the extent and broad-based nature of risk aversion. This may still take USDIDR towards 14,800 in the near term unless global asset price volatility comes off. Accordingly, we are underweight IDR (-1%) in the EM bond portfolio.

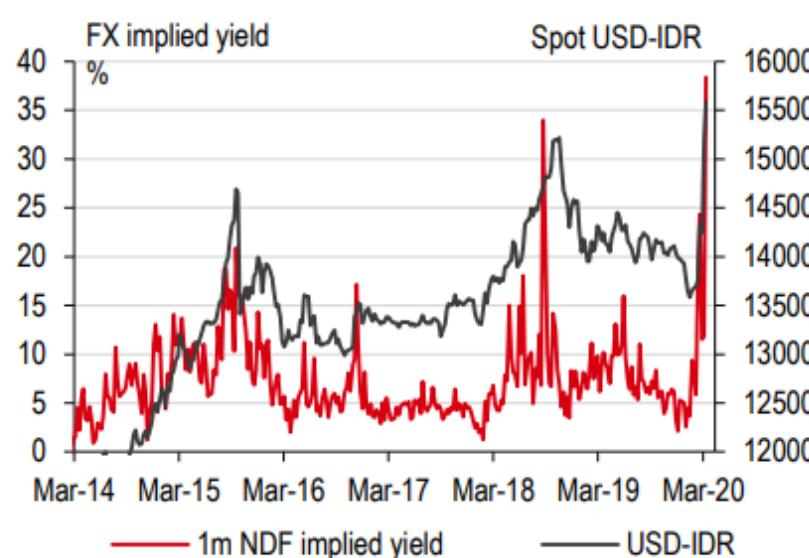
Indonesia bonds likely to weaken further. Bonds have sold-off again alongside the deterioration in broad risk sentiment/appetite. But the weakness in bonds is arguably less severe mainly because of aggressive buying of bonds by the BI -- has bought far more than the total net issuance since start of the year. Positioning in bonds has lightened up but if broad stress in credit and equity markets necessitate build of precautionary cash balances by real money managers, further weakness is imminent. 10y bond yield may easily push towards 7.50-7.60% (from 7.15%) before bottom fishing starts.

5. BI intervened significantly in February, considering both spot FX sales and DNDF auctions



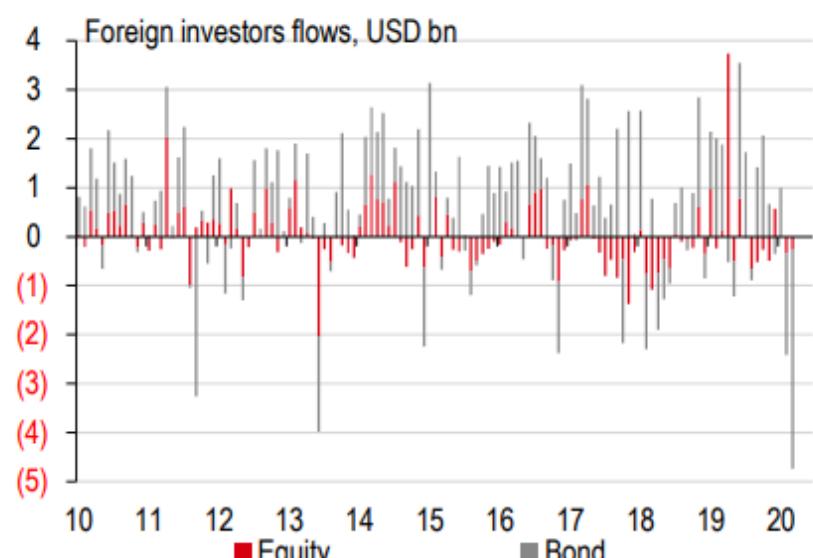
Source: Bloomberg, HSBC

1. The IDR is under pressure again



Source: Bloomberg, HSBC

2. Record portfolio outflows are posing challenges



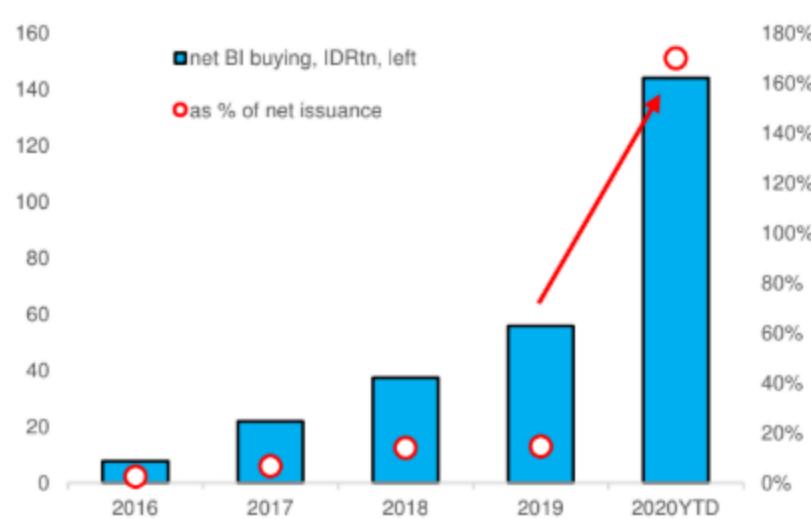
Source: Bloomberg, HSBC

Indonesia – IDR under pressure amid heavy bond outflows; we see risk of further sell-off near term. The IDR market has underperformed NJA FX in the past two weeks. Net foreign bond selling has reached around USD 6bn this year. As we highlighted in [our previous report](#), we think BI has ample room to absorb bonds, where they bought IDR 112trn (or USD 7.2bn) this year. The DNDNF market is a hedging tool, but it is not a substitute for USDs. With the focus of markets right now on the fear of fund redemptions, we see IDR as one of the most vulnerable currencies in EM Asia, given heavy foreign positioning in bonds. However, once the risk aversion subsides, we think IDR can snap back very quickly. During previous episodes of IDR weakness (in 2013 and 2018), the Fed was tightening policy compared to easing now. Valuations are not stretched with GS DEER fair value for USD/IDR at 14,600 and IDR spreads vs. UST are already at relatively attractive levels. BI cut policy rates by 25bp to 4.50% against expectations, and we expect BI will cut policy rates thrice more in 2020 (twice in Q2 and again in Q3) to 3.75%.

Singapore – We expect MAS to deliver double-easing by flattening the SGD NEER slope to zero and re-centering the mid-point of the band. We have revised our Singapore 2020 growth forecasts lower to -1.8% yoy. This led to a widening in our

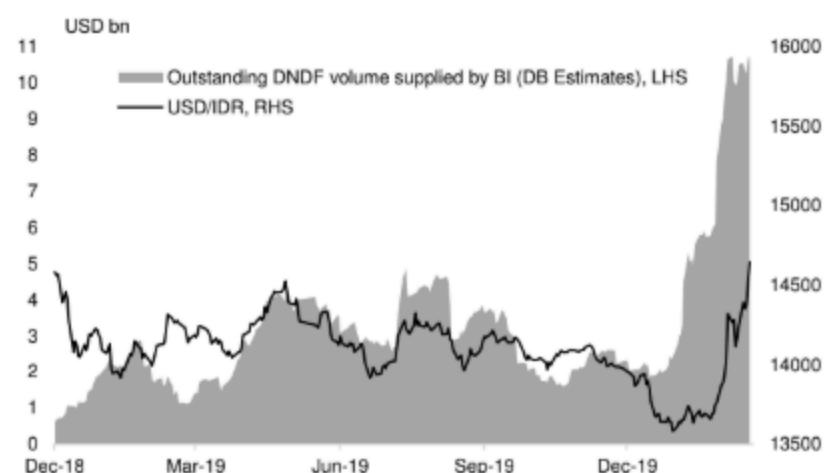


Figure 10: Bank Indonesia has bought equivalent of 170% of net local currency issuance this year



Source : Deutsche Bank, Bank Indonesia

Figure 11: After having run up its DNDf book to \$10bn+, the CB seems to have shifted weight to the third leg of the 'triple intervention' (selling reserves)



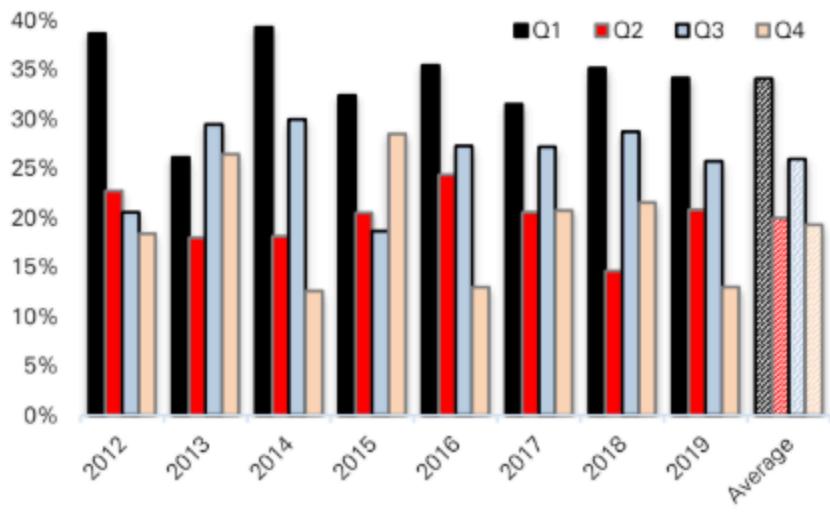
Source : Deutsche Bank, Bloomberg Finance LP

Figure 12: The GBI index managers have lightened up on their holdings of IndoGBs, but it is unlikely that they have gone underweight



Source : Deutsche Bank, Bloomberg Finance LP

Figure 13: The DMO's effective supply run rate, accounting for the increase in deficit, is at 27% for Q1 versus average of 34% over the last 8 years



Source : Deutsche Bank, DMO

2. Administrative measures

On 2 March, BI announced two important administrative measures to stabilise FX market conditions:

- ◆ Underlying transactions required for foreign investors to buy DNDf contracts will now include IDR deposits raised from IndoGB sales. This aims to reduce or delay foreigners' spot FX demand, even if they sell IndoGBs (since they can access high IDR deposit rates while hedging against IDR depreciation by buying DNDFs). This also aims to alleviate spikes in NDF points, by allowing more foreigners (even those that have sold IndoGBs) to do the buy DNDf-sell NDF arbitrage.
- ◆ Loosen USD liquidity conditions onshore – BI said USD3.2bn of USD liquidity will be added onshore, as banks' FX reserve requirement ratio will be halved to 4%.

As alluded to earlier, we think a potential next step may involve tweaking banks' FX NOP regulations, so as to ensure more effective participation in the DNDf auctions.

BI's FX administrative measures are being complemented by actions taken by other regulators to try and stabilise the sharply falling stock market, for example:

- ◆ Banning short selling in stocks (Indonesia Stock Exchange or IDX; 2 March)
- ◆ Allowing listed companies to buy back 20% of share capital without seeking shareholder approval (Financial Services Authority or OJK; 9 March)
- ◆ Limiting maximum declines in each company's stock price to 10% (IDX, 10 March)

That said, we believe equity outflows generally matter less to the IDR than bond outflows. So, apart from secondary bond market intervention, we wonder if BI will eventually consider administrative measures such as tax cuts for foreign bond investors to incentivise them to not exit the market. Currently, there is a 20% withholding tax applied to interest income and a 20% capital gains tax (unless reduced by a Double Taxation Treaty Agreement).

They wont break, word is Saudi SWF pulling \$\$ from Bridgewater, AQR, TwoSigma among others



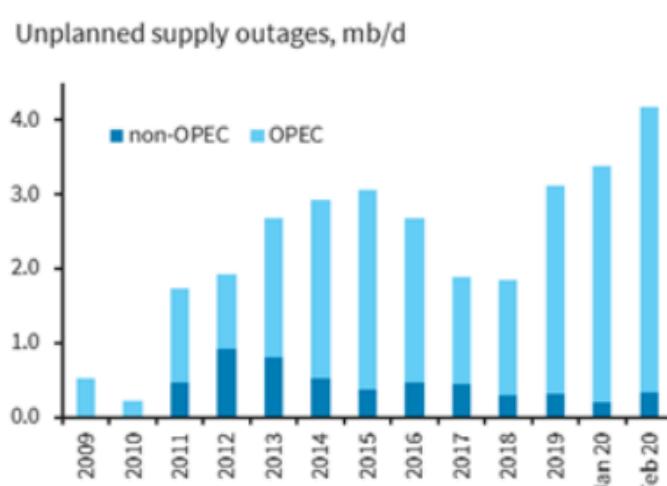
Saudi Arabia: Why the Kingdom is prepared for much lower oil prices

When OPEC and non-aligned producers reached the so-called OPEC+ agreement in early December 2016, many wondered whether the deal could be sustained over time. While the breakdown of the OPEC+ talks on 6 March highlighted the limits of the Saudi-Russia rapprochement, the reduction in the Saudi official selling price (OSP) of up to \$8, the biggest in two decades, sent a strong message: Broad-based burden-sharing is essential. The Kingdom has often remained committed to its role of swing producer, sometimes at the cost of negatively affecting its domestic economy. Yet, it also has a long history of fighting for market share.

The recent shift in oil policy differs from 2014, in our view, due to a concomitant slowdown in global demand and historically elevated unplanned global supply outages (Figure 1). The Kingdom's decision to increase output to 12.3mb/d from April highlights its resolve to fight for market share, despite lingering uncertainty about the outlook for Libyan crude supply. We note that the shift in the Kingdom's oil policy in 2014 was driven by its desire to: 1) restore discipline and burden-sharing within OPEC; 2) bring about cooperation with non-aligned producers; 3) trigger a structural rebalancing in global oil markets in order to protect the Kingdom's natural endowments; and 4) engineer a domestic fiscal adjustment after the fiscal oil price breakeven increased fivefold.

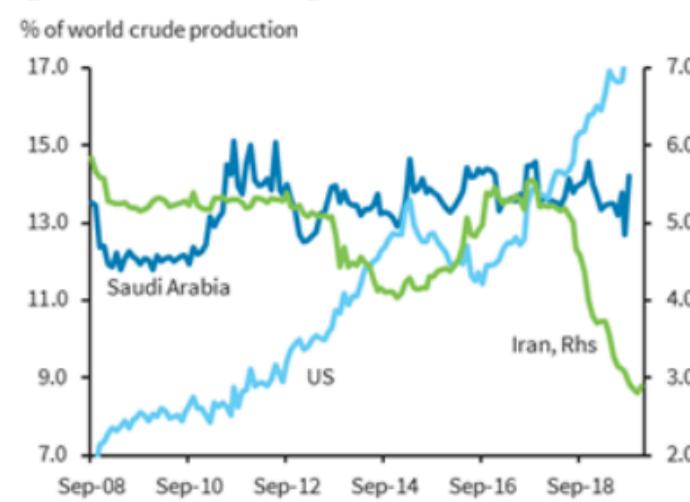
Unlike 2014, other OPEC members supported the Kingdom's call for a 1mb/d, but Russia reportedly opposed deeper cuts (500mb/d for non-aligned producers) and an extension to year-end instead of three months. According to *The Wall Street Journal* ("Saudi Arabia's Crown Prince Tanked Oil Markets. Here's the Back Story," 11 March 2020), the Saudi Royal Court asked the finance ministry to prepare a budget based on oil prices at \$12-20/bbl, suggesting a readiness to sustain periods of much lower oil prices. In our view, the Kingdom's decision to delay OSP announcement until the day after the OPEC+ meeting, along with Kuwait and the UAE simultaneously deciding to substantially increase their crude output, too, suggests the decision to aggressively fight for market share was likely pre-emptively discussed among the Gulf Trio, potentially preparing for a protracted oil price war. More than the increase in US shale's market share (Figure 2), we believe the Gulf Trio's coordinated move is more focused on strong discipline among major oil producers.

Figure 1: Supply outages add to uncertainty



Source: EIA, Barclays Research

Figure 2: Renewed fight for market share



Source: JODI, EIA, Bloomberg, Barclays Research

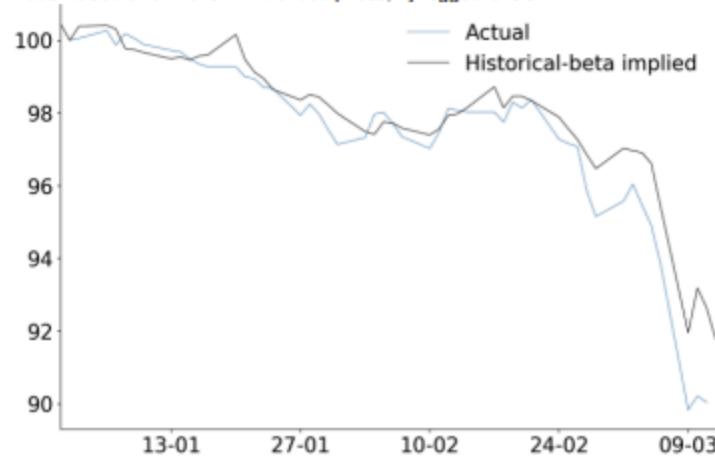
Petro-FX: Considerable macro vulnerabilities beyond just price dislocations

Hold shorts in CAD, NOK & NGN, while neutral COP & RUB

- The collapse in crude over last weekend following Saudi Arabia's decision to abandon production cuts contributed to the worst deterioration of market conditions since 2008 this week. The repricing of petrol FX itself, however, had been until today, relatively well-calibrated to the historical beta of crude prices.
- The overall sensitivity of petro FX to oil should rise. Sensitivity to crude prices is not static, and tends to be elevated when oil volatility is high, price adjustments are large, and when prices are falling. All of these conditions are currently unfolding.
- But the key place to look for mispricing is in considering the second-order, and potentially non-linear macro impact – this is greatest in CAD, NGN, and NOK. We also discuss idiosyncratic local issues in COP and RUB.
- Trade Recommendations:** Hold long USD/CAD, short NOK vs a basket of JPY, CHF and USD, long USD/NGN 3m NDF; stay neutral COP and RUB

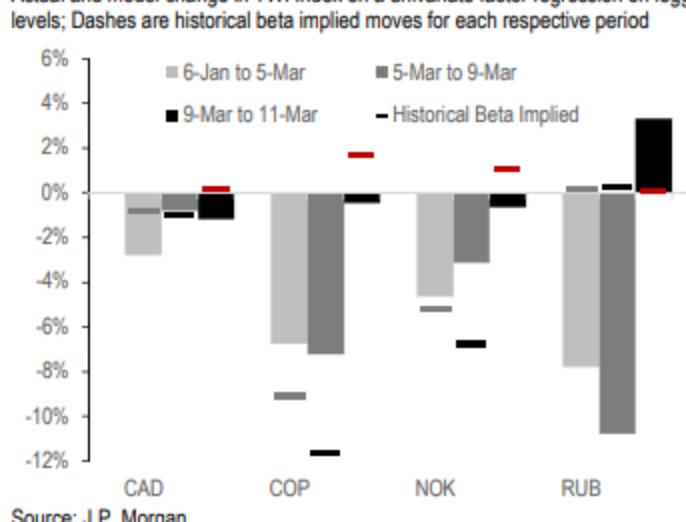
Petro FX's repricing against the drama in crude oil markets appear to have been relatively orderly

Exhibit 1: There had been limited sign of dislocation in petro FX, as moves have been in-line with historical betas until most recently... PetroFX TWI Index (average of CAD, NOK, RUB, COP TWIs, 1-Jan=100), and model based on a Brent/TWI blended prices, 2y logged levels



Source: J.P. Morgan

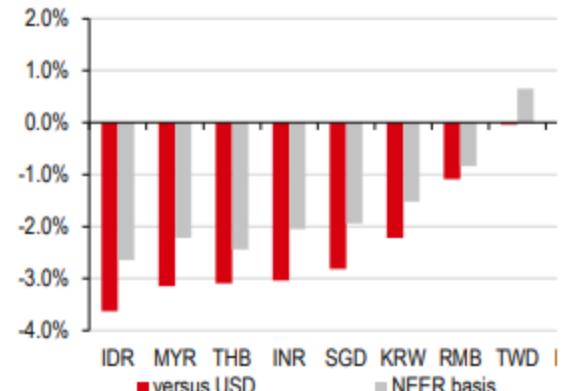
Exhibit 2: ... although there been varying degrees of under / and overshoots across individual currencies, when compared to the spot move in oil
Actual and model change in TWI Index on a univariate factor regression on logged levels; Dashes are historical beta implied moves for each respective period



Source: J.P. Morgan

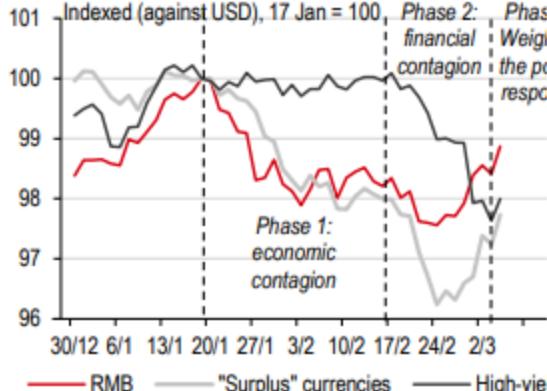
The surprise weekend move by the Saudis to initiate an oil price war exacerbated the fast-escalating COVID-19 pandemic to deliver the worst deterioration of global market conditions since 2008. **However, until today, petro FX repricing itself looked to have been relatively orderly** when benchmarked against recent crude price betas. This was during the earlier year-to-date period, as global markets were increasingly pricing in global recession risks, and also through the weekend's additional supply shock announcement up through yesterday. In the year to Feb 26th, the average decline in petro-FX TWI's was 2.9% compared to -2.6% implied by the oil price move according to the 2-year historical beta. In the past two weeks since, the petro-FX decline

1. Asia FX performance: 20 January-3 March 2020



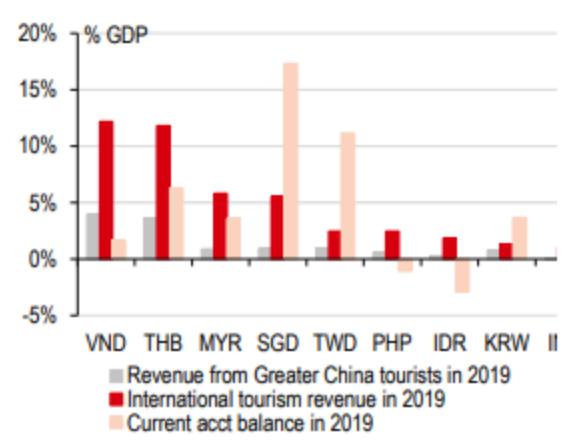
Source: Bloomberg, HSBC

2. Asian FX reaction to the coronavirus outbreak, in phases



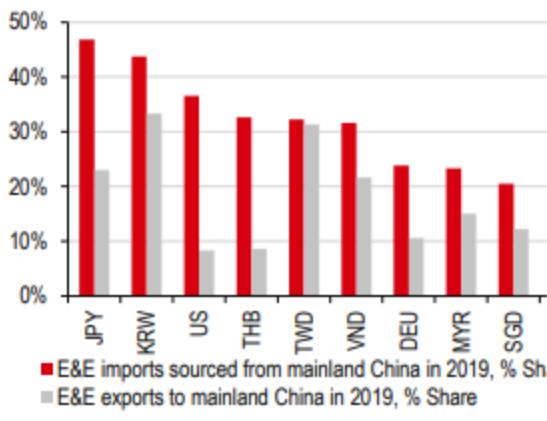
Note: "Surplus" currencies are KRW, MYR, SGD, TWD and THB. High-yielders refer to INR, IDR and PHP. We use simple averages. Source: Bloomberg, HSBC

3. Dependence on international tourism



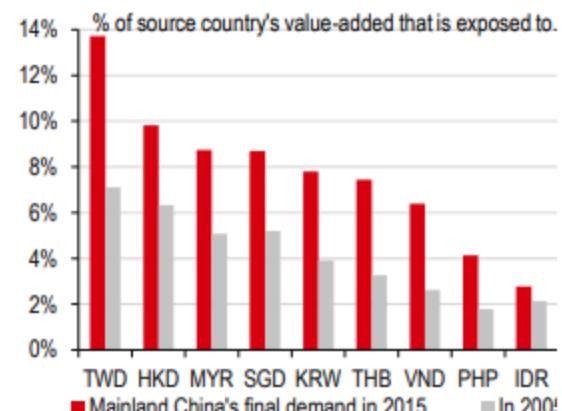
Source: Bloomberg, HSBC

4. Impact of mainland China's 'shutdown' on regional supply chains



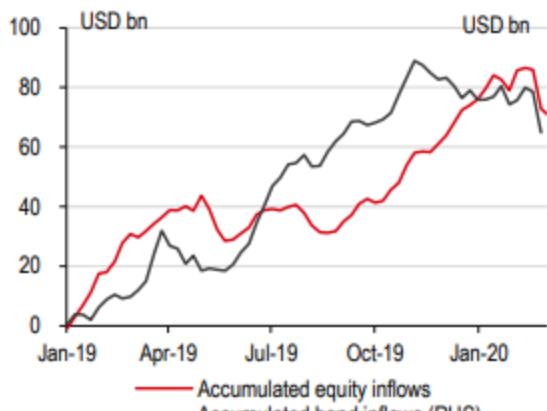
Note: E&E refers to electrical and electronic products (HS85). Source: ITC, HSBC

5. Reliance on mainland China's final demand



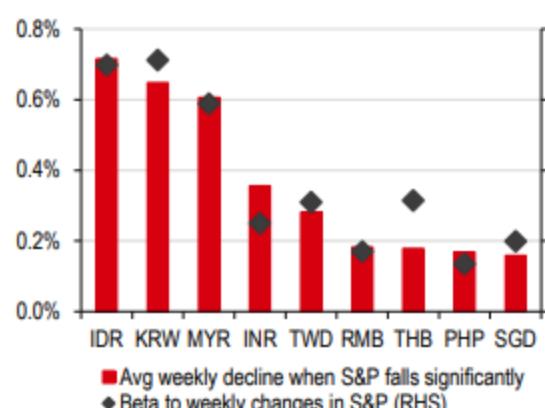
Source: OECD TIVA, HSBC

6. Portfolio outflows occurred in the second half of February



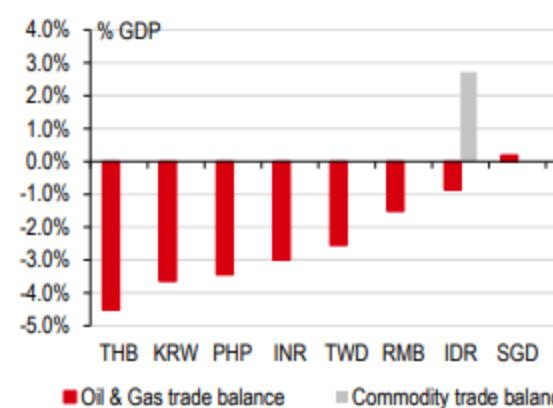
Note: We sum weekly equity inflows from mainland China, India, Indonesia, Korea, Malaysia, Philippines, Taiwan and Thailand. We sum weekly bond inflows from India

7. Asian FX betas to the S&P 500 Index



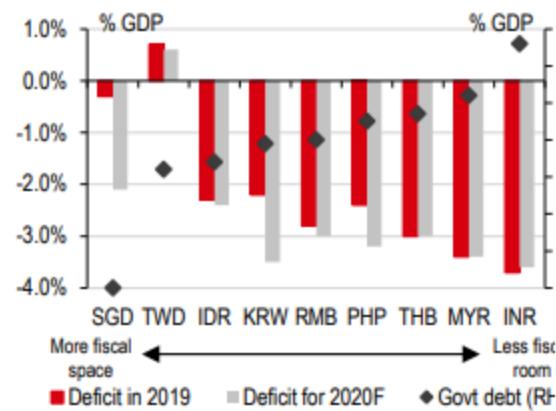
Note: We use a sample starting from January 2014 to calculate the weekly depreciation and betas. We define significant declines of the S&P 500 Index as exceeding 4% in a week. Source: HSBC

8. Asia's commodity trade balances



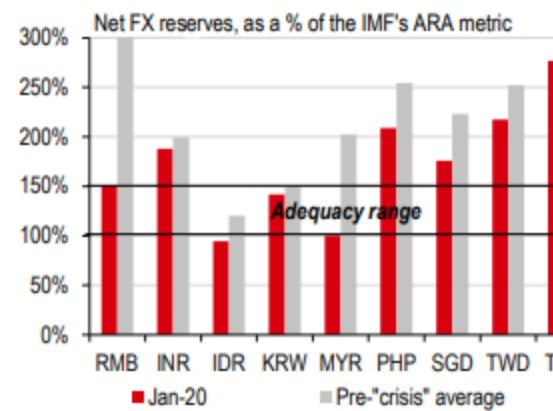
Note: We include net exports of palm oil and coal for Indonesia's commodity trade balance, and we include net exports of palm oil for Malaysia's. Source: CEIC, HSBC

9. Economies with fiscal space are able to implement larger relief packages



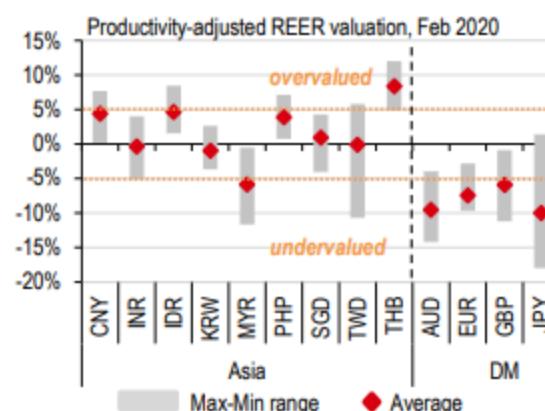
Note: 2020 deficit numbers are HSBC economists' forecasts. We denote Singapore's government debt as 0% since it does not issue bonds for financing and the government has large fiscal reserves. Source: CEIC, HSBC

10. Asian FX reserves adequacy



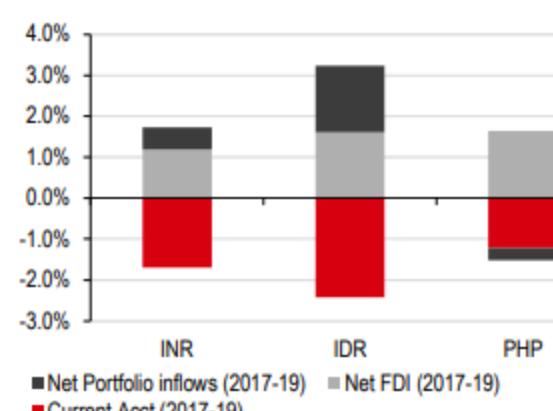
Note: The IMF ARA metric is calculated with the following formula: 5% of annual exports + 5% of M2 + 30% of short-term external debt + 15% of "other liabilities" (i.e. portfolio liabilities + other investment liabilities in the IIP less short-term external debt). We augment the IMF ARA metric calculation for SGD to reflect its unique status as an entrepot trading hub and a global financial centre. Source: HSBC

11. Asian FX valuations – a snapshot



Note: We use The Conference Board's Total Factor Productivity estimates to adjust BIS REERs in order to achieve stationarity, where necessary. There is a valuation range for each currency because we calculate the deviation of each REER from all possible measures of its "historical average" (beyond a 5-year sample period). Source: HSBC

12. Funding of current account deficits



Source: CEIC, HSBC

EM33 Roll: Back to the Old Rules

On March 11, following feedback from its advisory committee, IHS Markit decided to revert to the prior index rules that were published in August 2019. We originally expected the new index to expand from 18 to 20 credits, but that change has been put on hold. As a result, the constituents of the index will remain the same with the exception of Lebanon, which will be replaced by Ukraine.

There are also a few changes to index weights based on trading volumes over the past year. China's weight will increase from 9% to 12% while Russia's will decline from 8% to 6% and Malaysia's from 4% to 3% (Figure 2).

FIGURE 2. Final Changes from EM32 to EM33

Reference Entity	EM32	EM33	Difference
Republic of Turkey	12%	12%	0%
Federative Republic of Brazil	12%	12%	0%
United Mexican States	12%	12%	0%
People's Republic of China	9%	12%	3%
Republic of South Africa	9%	9%	0%
Republic of Indonesia	8%	8%	0%
Russian Federation	8%	6%	-2%
Republic of Colombia	5%	5%	0%
Argentine Republic	5%	5%	0%
Malaysia	4%	3%	-1%
Kingdom of Saudi Arabia	2%	2%	0%
Republic of the Philippines	2%	2%	0%
Republic of Chile	2%	2%	0%
Republic of Peru	2%	2%	0%
State of Qatar	2%	2%	0%
Republic of Panama	2%	2%	0%
Abu Dhabi	2%	2%	0%
Lebanese Republic	2%	0%	-2%
Ukraine	-	2%	2%

Source: IHS Markit, Barclays Research

Based on these changes, we think intrinsic for the new EM33 index will be 22 cents higher (33bp tighter) than that of EM32, with the change in portfolio composition taking it \$1.33 higher and the six-month maturity extension taking it \$1.11 lower (Figure 3). If we instead use the 4.5y to 5.0y roll, we get a similar estimate of \$0.21 (37bp tighter).

FIGURE 3. Intrinsic Roll Estimate from EM32 to EM33

	Intrinsic Price	Intrinsic Spread
EM32	\$87.10	407bp
Change in composition	\$1.33	-35bp
6-month maturity extension	-\$1.11	2bp
EM33	\$87.32	374bp

Note: Levels as of the morning of March 18, 2020.

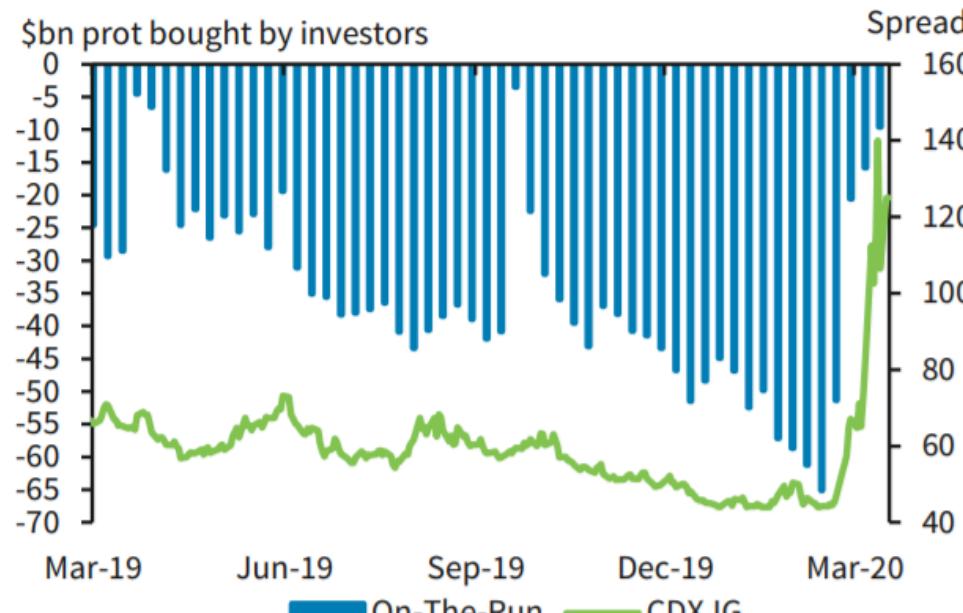
Source: Barclays Research

Thoughts on Approaching the Upcoming Roll

Amid the current volatility, investor net long positioning in IG33 and EM32 has declined significantly over the past four weeks by 85% and 75%, respectively (as of the week ending March 13; see Figures 4 and 5), leaving positioning much more balanced than it has been historically. In the past, with long-risk positioning in the indices much more persistent and the rolls typically steeper, our expectation had generally been for rolls to trade flatter than intrinsic as longs would roll to take advantage of wider spreads. And roll volumes would be significant on the roll date and for several days after.

This time around, given flatter rolls, elevated volatility, and wider bid-ask spreads, we would not be surprised to see investors wait to roll until volatility subsides and bid-ask compresses. This could keep the current on-the-run series more liquid than the new series for the time being. As a result, we do not think there is much advantage to rolling early and would instead recommend waiting to see where the roll stabilizes.

FIGURE 4. Non-dealer Long Positioning Has Declined Sharply in OTR CDX.IG...



Source: DTCC, Barclays Research

FIGURE 5. ...and in OTR CDX.EM



Source: DTCC, Barclays Research



Summary Views

Figure 1: Asia FX & Rate Views

	Bias	Fundamentals/Drivers	Trade View
CNY	FX: Neutral	Initially we held the view that the severity of the slowdown would make China consider using RMB as part of its policy toolkit. However, the gradual economic activities recovery and PBoC's preferences to maintain RMB stability during global uncertainty, suggest otherwise. Coupled with the CFETS basket is still 5% away from its 2018 highs and our weak USD view, there is more reason for RMB to hold its beta to a weaker dollar. Hence we closed our long USD trade.	
	Bonds: Modest Overweight	Global market turmoil and its spillover, domestically weak credit demand, moderating inflation risk calls for imminent policy actions. While USD liquidity risk is a risk to RMB bonds, we expect the impact to be relatively limited given the low foreign bond ownership. The recent volatility of RMB rates offers a good opportunity to add our RMB long duration position. We recommend to buy CBGs or receive RMB NDIRS.	* Long 10Y CGB, target 2.4% * Receive 1Y CNH CCS target 1.80% * Receive 5Y NDIRS, target 2.40%
INR	FX: Bearish	The rupee has come under stress recently with an unwind of carry positioning. While typical ingredients of INR weakness are not in place (lower oil, narrow CAD, significant RBI reserves potential), we think FX stress could continue. Large equity inflows are reversing, real rates are deeply negative, and RBI may allow weakness given valuation and liquidity considerations. We think bonds can continue to perform, given relatively less FX sensitivity, and with RBI likely to cut rates and add liquidity aggressively in the midst growth and financial system shocks.	* Long 12Y IGB, target 6.5% (FX-hedged)
	Bonds: Overweight	Indonesia 10Y yields closed above their 200d MA for the first time in almost a year this week. Illiquidity has overtaken consideration of fundamentals and/or underlying valuations. But the technicals are getting more challenging, which argue against fading this move just yet. BI has doubled up on its defense of the bond market, but seems to be allowing more adjustment on FX. Offshore index investors have lightened up, but unlikely to have gone underweight. And the supply pipeline is building up.	
IDR	FX: Bearish	Until the economic cost of the virus is clear and the no. of cases have stabilized, Won weakness is likely to stay. Adding to the weakness is also the lack of decisive action from the BoK. However, with the government sizing up its supplementary budget and rising market volatility, BoK will need to react soon not just by cutting rates earlier but also more aggressively. The BoK has also hinted that they could do bond purchasing to stabilize the system. Given the string of potential measures, we maintain our long rates via the front (2Y NDIRS).	
	Bonds: Underweight	We see another 50bps of rate cuts from BNM, but we have been less inclined to chase bond yields lower in recent weeks. Fiscal risk will rise as growth slips further, and offshore flows should be biased weaker. Malaysia's weight declining in the GBI-EM index, and local currency fund flows struggling. Political risks, lower oil prices, poorer risk and low reserves adequacy also leave the MYR vulnerable. However, given the recent backup in yields, term premium has normalized and we would look for opportunities to re-engage once global risk settles.	* Received 2Y NDIRS, target extended to 0.8% * Long 3M3M forward vol
MYR	FX: Bearish	USD/PHP has finally broke higher this week. Weakness could remain given (1) PHP remains one of the largest USD shorts in Asia and (2) CA pressures will eventually resurface as govt spending & imports pick back up. In addition, the announcement to lock Manila down for a month would also raise market concern that growth would slow more. Bonds should generally remain supported by policy rate and RRR cuts, but easing is largely priced and illiquidity has widened out bid-offers dramatically.	
	Bonds: Marketweight	We now expects MAS to re-center the midpoint lower in April, in addition to flattening the slope to neutral. Historically, SGD NEER has always traded at, or near, the band extremes ahead of re-centerings. But after downward recenterings, SGD NEER tends not to follow through further lower. The time to be short SGD is now, not necessarily after the decision. Sing bonds are now the highest yielding sovereign AAA asset in the world. Safe-haven flows should continue to drive demand, and fiscal slippage is not a concern with SGS issuance not used for spending.	* Long USD/SGD, target 1.42 * Long 15Y SGS (FX-hedged)
TWD	FX: Neutral	Despite the ongoing market turmoil, TWD has been one of the better performing currencies. Its immunity to global conditions can be distilled down to: (1) the unwillingness of foreign investors to repatriate their equity earnings; and (2) the slowdown in overseas investments by corporates, which in turn limits recycling of the current account surplus. We have initially expected TWD to weaken on the back of ongoing equity outflow (-\$10bn). But with equity repatriation light, we have turned neutral on TWD for now.	
	Bonds: Marketweight	Thailand was identified early as highly exposed to virus fallout. Beyond large dependence on tourism, Thailand is also heavily dependent on Chinese products as intermediate good imports, with exports a significant share of GDP. The THB weakened sharply in the first few weeks of the virus fallout, but has been lower beta to equity stress. The BoT has cut rates to all-time lows and not closed the door to further easing. We think more cuts are in the offing, with the market likely to keep probability of further easing. We keep both our FX and rates exposure in Thailand.	* Long USD/THB, target 32.00 * Keep receive 2Y swaps, extend target to 0.5%
THB	FX: Moderately Bearish		
	Bonds: Marketweight		

Source : Deutsche Bank

TOP TRADE

ASW R186

CURRENT TARGET STOP

122bp 60bp 140bp

Entry: 105bp Entry date: 4 Mar 20

Source: Bloomberg, HSBC

- ◆ We like ASW R186 on stabilisation of issuance, carry, and positioning

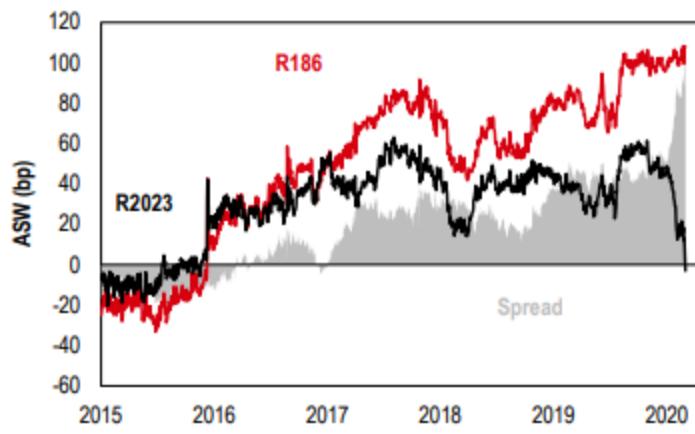
The double whammy of global supply shocks is negative for risk. But fiscal risks are better priced, inflation is likely to decline, and the current account should improve given the oil price weakness. The uncertainty hanging over the market from the 2020 National Budget has now dissipated, and while the details were still ugly, the market initially experienced a relief rally. The bulk of the good news came from proposed curbs to the public sector wage bill – an attempt to save ZAR160bn (0.9% of GDP) over three years.

While the intention is positive, the implementation is likely challenging given the Congress of South African Trade Unions (COSATU) and the Public Servants Association (PSA) have warned that they will resist any attempt to make state workers pay the price for alleged government corruption. Nonetheless, the market has seen the intention as enough to warrant relief, and overlook the worsening fiscal forecasts, which are expected to reach a 30-year record 6.8% of GDP in FY20/21, according to the Treasury. Finance Minister Mboweni has also said that he does not believe Moody's will downgrade South Africa's rating, and the agency will understand plans to reduce the deficit.

Even with the wider deficit, the Treasury expects gross SAGB issuance to be marginally lower in FY20/21 compared with estimates in the MTBPS, consistent with the current weekly auction schedule. Stable issuance and increased probability of Moody's postponing a downgrade should be supportive for bonds. Given current spreads, we see room for ASWs to tighten. At such wide levels the carry on offer on long ASWs is also very attractive; we like to buy R186 on ASW, picking up C&R of 8bp/3m.

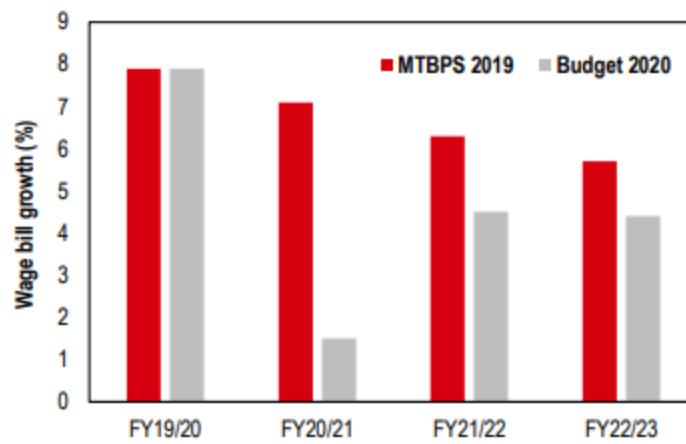
On the macro front, after the temporary pick up in recent months, inflation is likely to resume its downturn as the underlying trend remains benign (3.5%saar) and the oil price plunge should push fuel/energy prices sharply lower. The front-end of the curve appears priced for this scenario, with FRAs looking for around two cuts by year-end. Near term, the front-end gains should be capped as the pricing is already quite aggressive, making carry unattractive, and instead we have a preference to fade the steepness here.

Figure 19. R186 ASW offers sizeable pick-up and carry



Source: HSBC, Bloomberg

Figure 20. Proposed wage bill savings



Source: HSBC, NT

Fuel importers were not immune to the decline in oil prices

Lower credit quality fuel importers also impacted by the overall EMD market movements despite low to negative correlation to crude oil prices

Country	Fuel Importers† (% Total Imports)	Avg Credit Rating (S&P/Moody's/Fitch)	Current EMBIGD Weight (%)	Current STW	Spread Change YTD	YTD Total Return (%)	YTD US Treasury Return (%)	YTD Spread Return (%)
Belarus	29	B / B3/ B	0.33	499	169	-2.0	5.7	-7.7
Pakistan	29	B- / B3/ B-	0.82	506	135	0.0	4.5	-4.3
Senegal	28	B+ / Ba3/ -	0.40	571	183	-4.7	11.6	-14.6
Jamaica	25	B+ / B2/ B+	0.88	426	144	-2.3	12.9	-13.5
Ukraine	23	B / Caa1/ B	2.32	726	305	-8.1	5.6	-13.1
Barbados	23	B- / Caa3/ -	0.09	461	35	0.3	1.9	-1.6
Mongolia	22	B / B3/B	0.54	526	244	-3.6	3.1	-6.4
Mozambique	22	CCC+ / Caa2/CCC	0.13	807	199	-4.6	8.6	-12.2
Cote d'Ivoire	22	/ Ba3/B+	0.50	568	193	-4.2	8.3	-11.6
Lebanon	21	CC / Ca/C	0.50	6114	3720	-53.3	3.8	-55.1
Jordan	21	B+ / B1/BB-	0.49	525	143	-1.3	9.5	-9.9
Lithuania	20	A+ / A3/ A	0.26	43	14	1.9	2.0	-0.1
Kenya	19	B+ / B2/B+	0.97	644	201	-4.8	7.8	-11.7
South Africa	19	BB- / Ba1/BB+	2.49	475	156	-2.3	9.8	-11.9
Egypt	18	B / B2/B+	2.43	636	181	-3.8	8.8	-11.6
Top 15 Importers† (Weighted)	22	B	13.14	647	239	-5.7	7.8	-13
EMBIG Oil Importers Index	15	BB	15.78	478	157	-2.8	11.0	-12

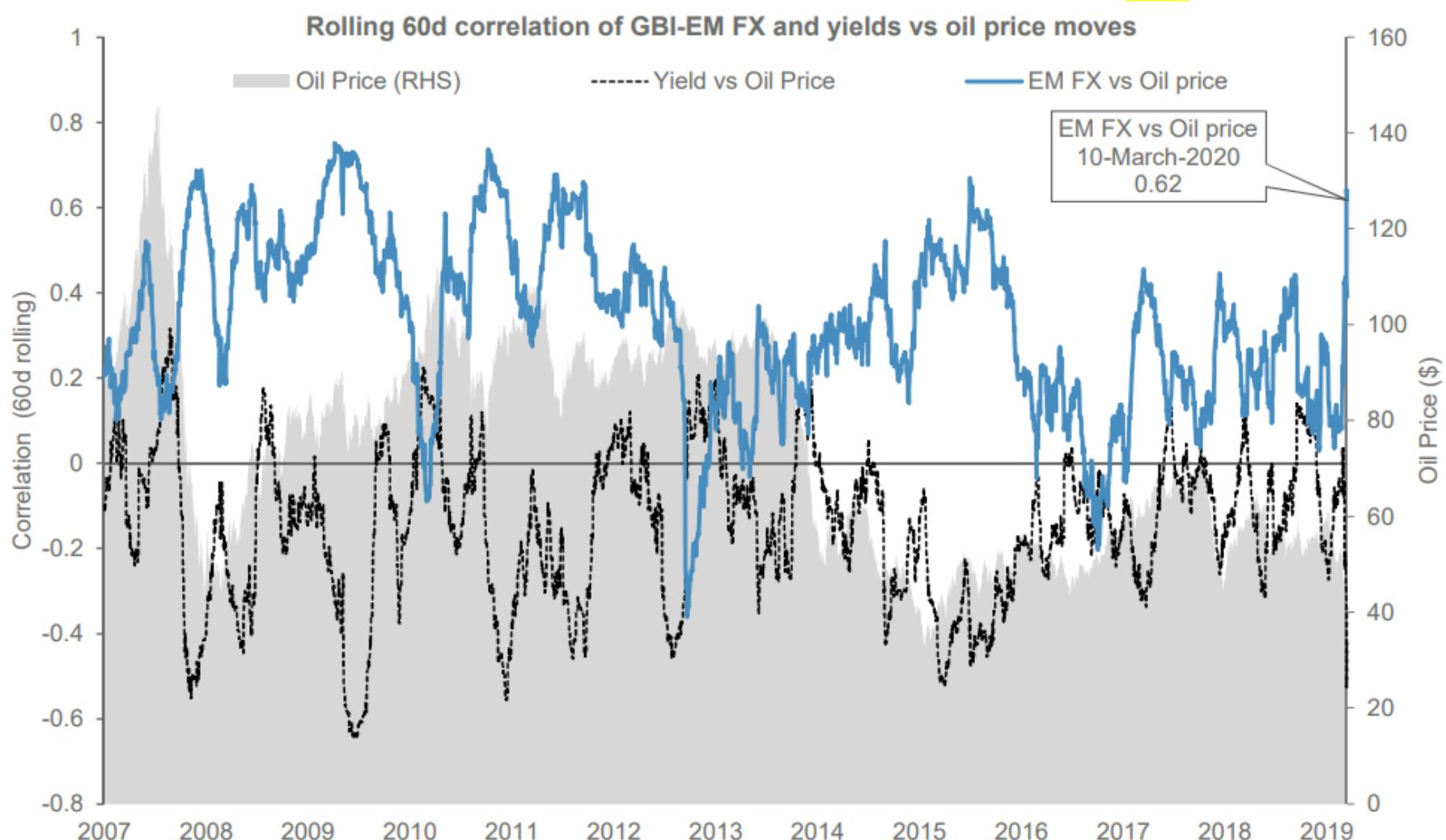
†Source: World Bank, J.P. Morgan, latest available data.
Fuel includes petroleum, gas, and coal, according to STIC categorization 3.

5

J.P.Morgan

GBI-EM FX exhibits the highest sensitivity to oil price shocks

Whereas local yields demonstrate low to negative correlation anchored more by domestic fundamentals

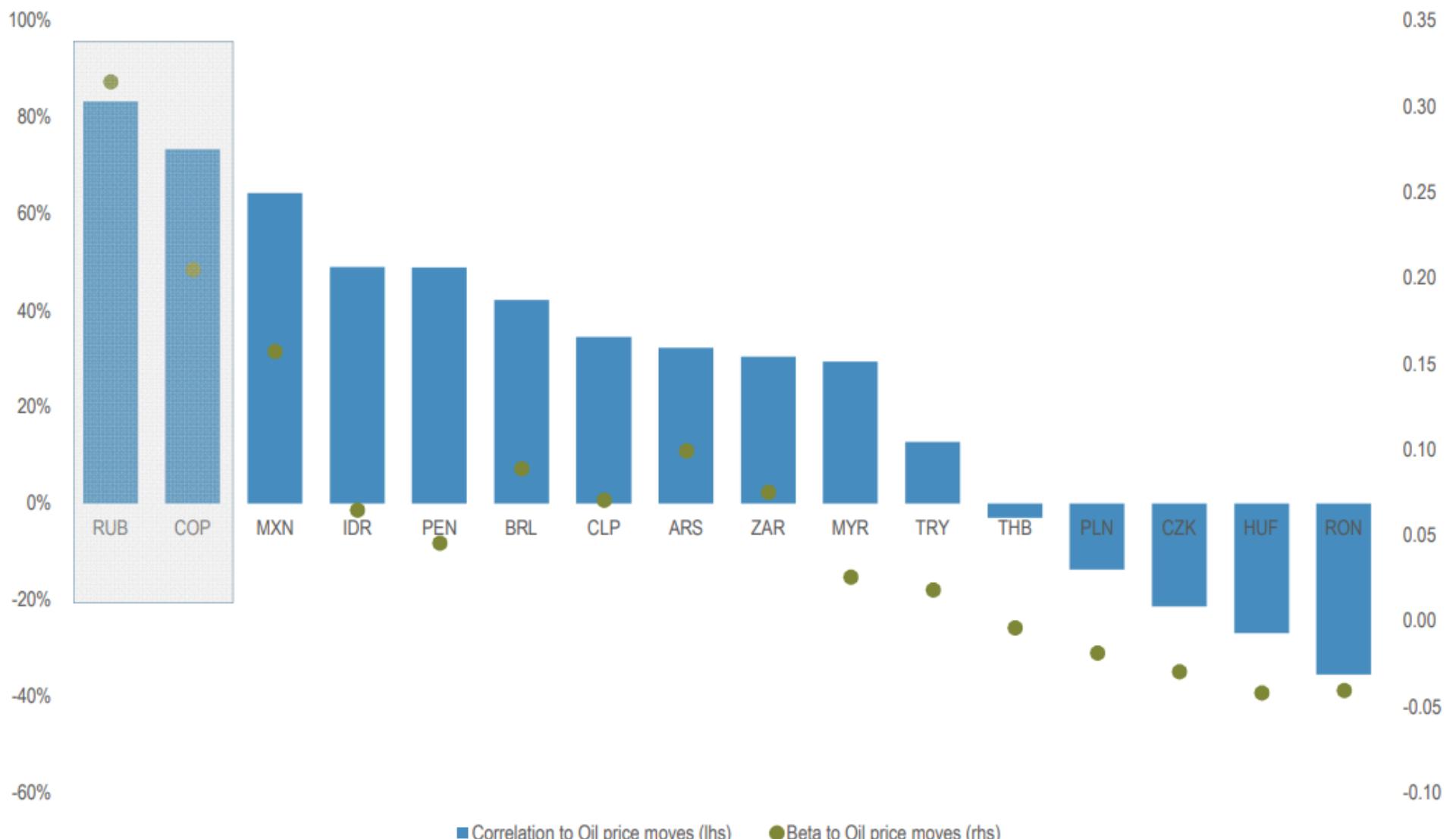


Source: J.P. Morgan, March 10, 2020.

7

J.P.Morgan

RUB and COP exhibit strongest linkages to oil among the currencies in the GBI-EM GD



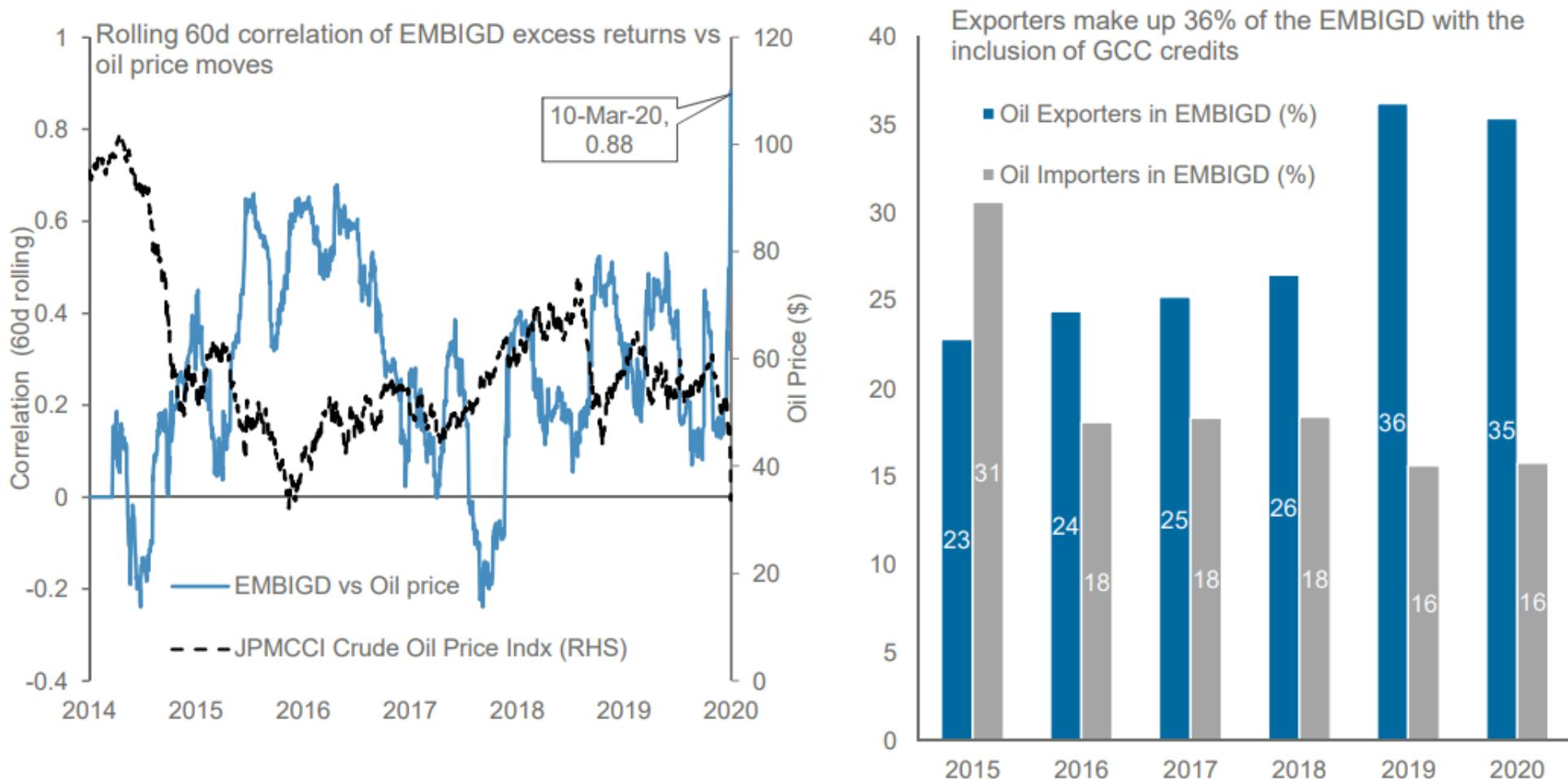
Note: Figures are calculated over the past 60 days.
Source: J.P. Morgan, March 10, 2020.

8

J.P.Morgan

Correlation of the EMBIGD to oil has reached the highest levels in recent years

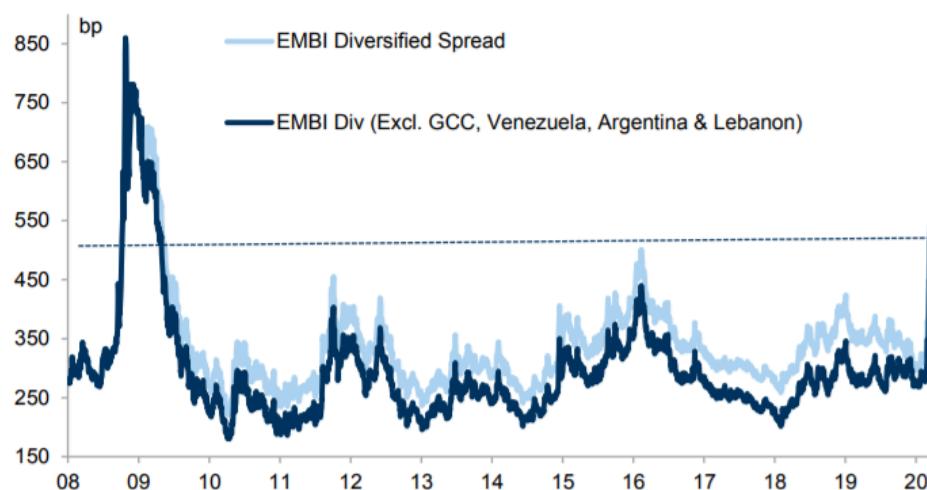
36% of the EMBIGD categorized as oil exporters currently compared to 23% back in 2015



Source: J.P. Morgan, March 10, 2020.

2

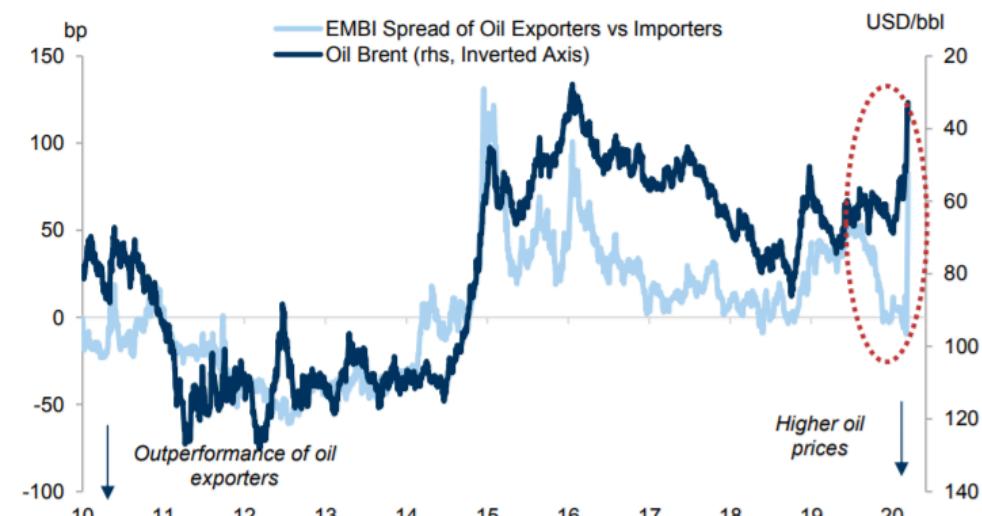
J.P.Morgan

Exhibit 1: EM credit spreads have widened to levels somewhat beyond early 2016


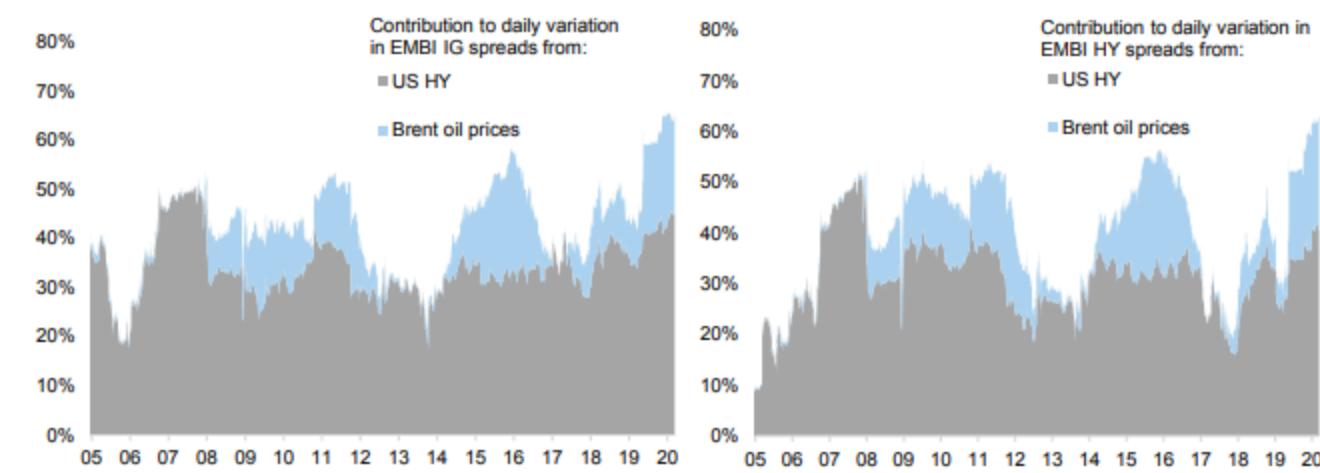
Source: Datastream, Goldman Sachs Global Investment Research

Exhibit 2: Oil-exporting credits have significantly underperformed oil importers in recent weeks

Oil exporters exclude Ecuador & GCC for back-testing purposes



Source: Datastream, Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 3: The contribution to the daily variation in EM credit spreads from oil prices has increased across IG and HY, as it did in 2014-16 and 2008-09


Source: Haver Analytics, Goldman Sachs Global Investment Research

We can explain most of the move in spreads through the non-linear sensitivity to oil prices and global risk

That oil prices matter 'on the margin' is also consistent with the non-linear impact of oil prices on credit spreads. [Exhibit 4](#) shows the level of the EMBI Diversified spread and US HY spreads since the early 2000s, plotted against the level of oil prices. The exhibit shows that, for both asset classes, there appears to be a convex relationship between oil and the level of spreads, which increase significantly as oil falls to \$20/bbl. Moreover, there is some evidence that this convexity increased during the global financial crisis. This non-linear relationship between oil prices and spreads is analogous to what we have documented previously in the case of oil prices and currencies, specifically for oil exporters (see [here](#)).

With this in mind, we look at the recent change in spreads of EM oil-exporting credits, as well as different indexes (i.e., EMBI, EMBI IG & HY, and US HY), and compare this to the predicted change based on their non-linear sensitivity to oil prices. More specifically, we plot the recent change in spreads against the predicted change in spreads based on their historical sensitivity to weekly changes in oil prices, the S&P500 and US 10-year yields when Brent oil prices were below \$50/bbl. The results show that, on these estimates, we can roughly explain the recent change in spreads of most oil exporting credits (i.e., most credits are close to the 45-degree line) as well as on an index level ([Exhibit 5](#)).

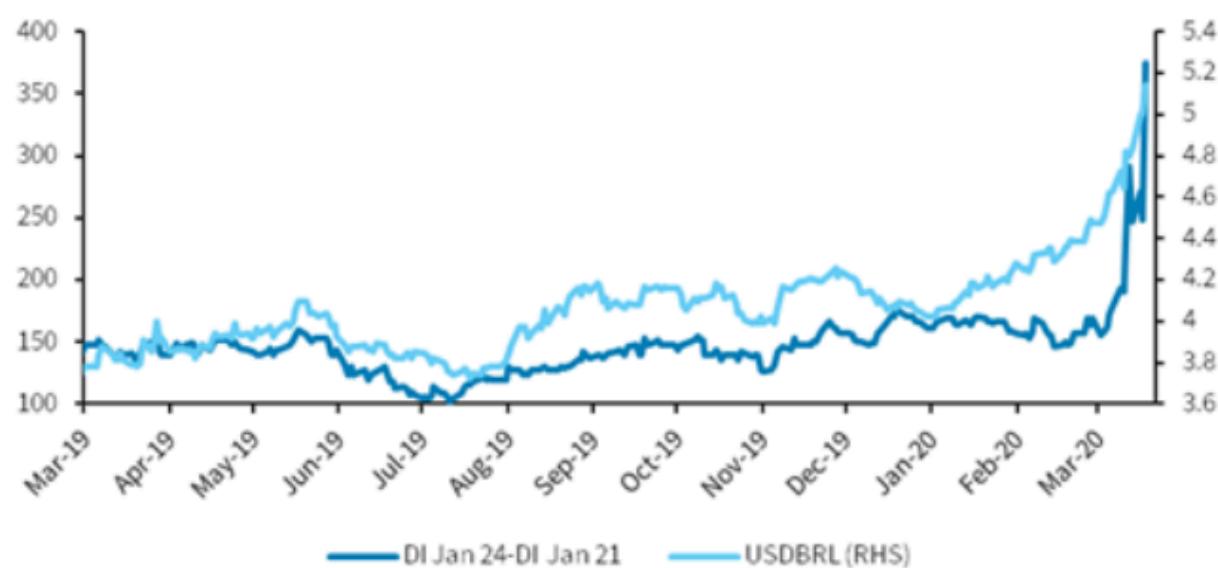
A few credits have underperformed more significantly, such as Bahrain, Oman, Nigeria, Gabon and Angola. In the case of Bahrain and Oman, we think this largely reflects poor beta estimates (given low quality spread data), but also additional risk premium in these credits given the [geopolitical risks](#) in the region. In the case of Nigeria, Gabon and Angola, we believe the additional risk premium priced reflects the weaker fiscal backdrop of these credits, given their significant dependence on oil exports.

hikes are priced beginning in August 2020. Given the downside risks to growth and inflation, we think it is unlikely that the BCB will engage in a tightening cycle as early as the market is anticipating, and **we expect the pricing of hikes to be pushed into 2021**. In that case, the very short-end of the DI curve could flatten.

We continue to recommend long Jan 21 DI future vs. Jan 24 steepener. On the short-end, we see risks for the market to price additional BCB easing and/or to and price out near-term hikes. In the belly/long-end, we think the market can continue to build risk premium on fiscal concerns amid the deterioration in global risk sentiment. We hit the revised target in our long Jan 21 DI future vs. short Jan 24 DI steepener (Figure 1) and we revise again our target and stop-loss to lock in profits. **Now we target 496bp with a stop-loss of 290bp**, both on a closing basis, locking in 95bp of profit (ref: 346bp, previous target: 320bp, previous stop: 245bp, entry level: 195bp).

We expect BRL to remain under pressure as carry erodes further. As we had pointed out in [Trading Brazil: carried down](#), BRL REER underperforms during periods in which the real interest rate is below the natural rate (Figure 2). In addition, when rates are at cyclically low levels, additional BCB cuts tend to bring depreciation vs. the USD (Figure 3). With today's cut, Brazil has entered deeper into the "below natural" territory. However, BRL response might be neutral as the market was expecting the 50bp cut and the BCB hit a mildly hawkish tone, although the possibility of further cuts remains. We believe BRL will continue to suffer from the negative global environment and erosion of carry, and BCB will likely continue to intervene to smooth volatility and provide liquidity to the market.

Figure 1: The DI curve has steepened on fiscal risks and expectations of monetary easing



Source: Bloomberg, Barclays Research

Erick Martinez	+1 212 526 9380	erickrafael.martinezmagana@barclays.com	BCI, US	Completed: 18-Mar-20, 00:20
Aroop Chatterjee	+1 212 526 9617	aroop.chatterjee@barclays.com	BCI, US	Released: 18-Mar-20, 05:00
Juan Prada	+1 212 412 1726	juan.prada@barclays.com	BCI, US	

BARCLAYS CLASSIFICATION: Restricted - External

Trading Mexico

Peso problems: Seven questions about the MXN sell-off, options for intervention, and outlook

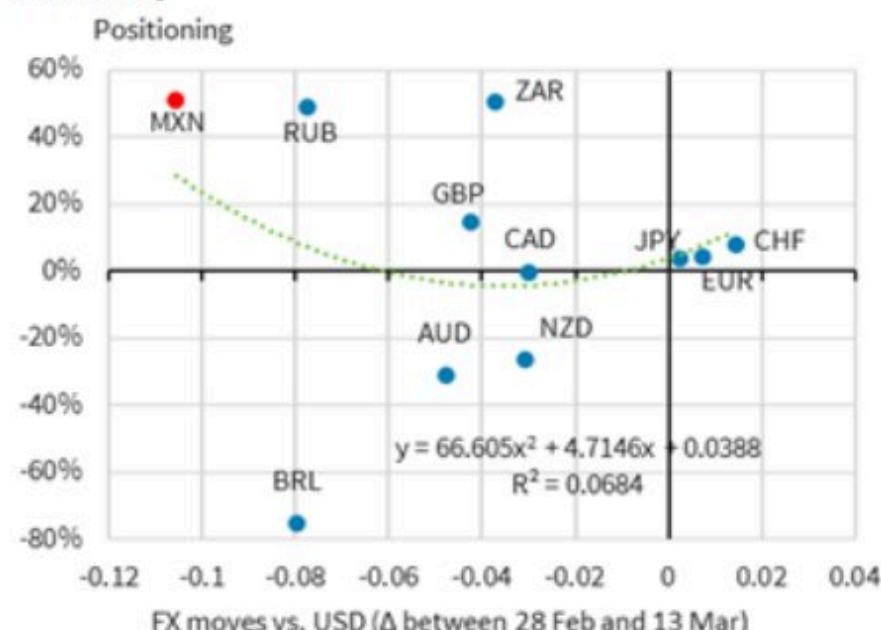
Positioning and liquidity have been the nemeses of the MXN and Mbonos in recent weeks. The MXN is the second-worst performing emerging markets currency month-to-date (after COP), as a broad risk-off move and generalized concerns about global growth led investors to liquidate positions across all asset classes in EM. As the MXN underperformance continues, we explore potential additional FX intervention measures, which in the past have ranged from daily USD auctions to less common direct dollar sales and a swap line with the Federal Reserve. We remain cautious and would not expect a significant USDMXN retracement unless risk sentiment and broad market dynamics change substantially, even as the currency approaches to relatively cheap levels.

1. Why has the MXN underperformed its EM peers?

The rapid spreads of COVID-19 has triggered a meaningful repricing of downside risks to global growth (reflected in the generalized sell-off in equity markets), mirrored by widespread liquidation across all asset classes in EM. We believe that the MXN has been particularly affected because of:

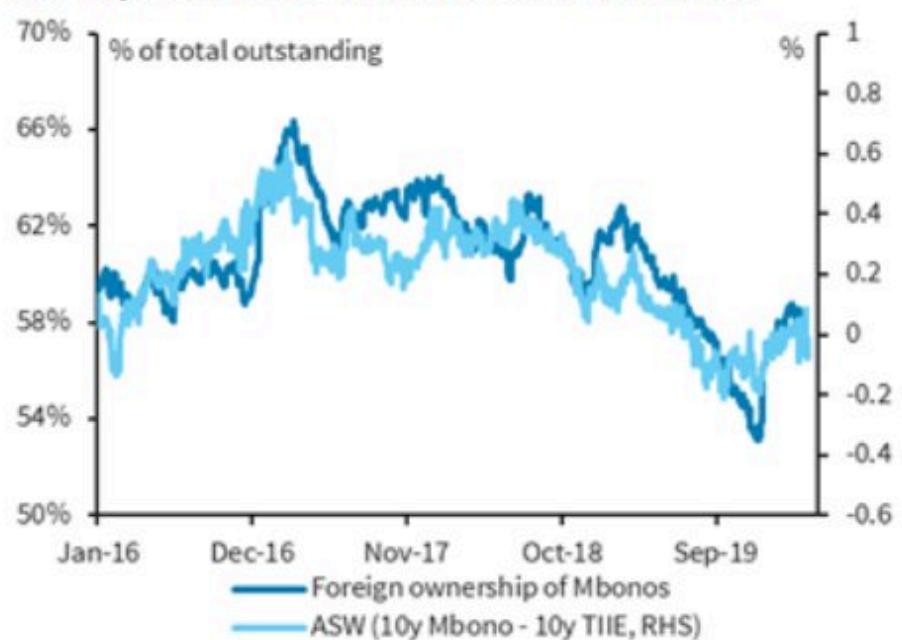
- The positioning reduction due to the VaR (Value-at-Risk) shock to global portfolios (see [Thickening fog](#)), which was particularly sizable in segments with established long positions, such as the MXN (Figure 1) and long-end Mbonos (Figure 2).
- The use of the currency as a hedge against risk-off moves, given the historically high negative correlation of USDMXN with global equities (Figure 3), elevated liquidity, and 24-hour trading. Despite its high carry, the use of hedges via the peso appears to have increased during the current risk-off episode, particularly as moves in BRL (a relatively cheaper hedge) have been smoothed by the BCB's continued interventions.
- Markets' reassessment of US growth prospects, as COVID-19 has a real potential to undermine the longest US expansion in record, with spillovers for its main trading partners, including Mexico.
- The sharp fall in oil prices, which, alongside a weaker growth outlook, represents a risk for tax collections and Pemex/sovereign ratings.

Figure 1: FX moves versus positioning per currency



Note: The y-axis refers to speculative positioning from CFTC data, measured as the sum of non-commercial and non-reported positions

Figure 2: Widening ASW spread suggests that the liquidation of Mbonos could continue



Source: Bloomberg, Barclays Research

2. Who is responsible for setting FX policy in Mexico?

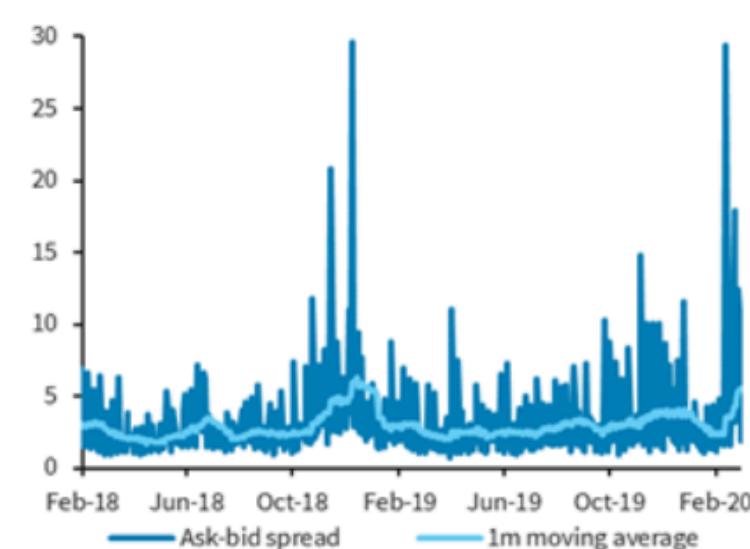
The Foreign Exchange Commission is the agency in charge of FX policy. It is an integration of the Ministry of Finance, the Governor of Banxico, and two deputy officials from each institution. In case of a split vote during its decisions, the Ministry of Finance has the power to decide the final course of action, and as such, the executive branch has, on the margin, more influence in decisions regarding FX policy than the central bank. Widening bid-ask spreads hint at deteriorating liquidity conditions in the FX market (Figure 4), and the MXN has extended its underperformance against peers at a rapid pace, as suggested by MXN's RSI in oversold territory. Extreme MXN cheapness after controlling for factors such as market liquidity, the speed of depreciation, and volatility has in the past triggered FX interventions, as the FX Commission considers them indicative of FX misalignment from macro fundamentals.

Figure 3: USDMXN's negative sensitivity to global equities has increased in the past few weeks



Note: We regress USDMXN spot weekly returns to MSCI All Country Global Index weekly returns. Source: Bloomberg, Barclays Research

Figure 4: Widening bid-ask spreads suggest deteriorating liquidity conditions in the FX market



Source: Bloomberg, Barclays Research

3. What mechanism is currently in place?

Last week (March 9), the FX Commission announced an increase of the size of its NDF hedge program to USD30bn (from USD20bn previously), and it intervened on March 12 for the first time in three years by selling USD460m (of USD2bn offered) in a new FX hedge auction. This has been the Commission's preferred intervention mechanism since it was first implemented three years ago in the wake of increased FX volatility following the US presidential election, as it does not imply a reduction in Banxico's foreign reserves (the NDFs are settled in pesos). It is worth noting that the IMF measure of reserve adequacy, which accounts for metrics such as exports, broad money, short-term debt, and liabilities, shows that Mexico's foreign reserves (currently at USD185.6bn) are only USD32.3bn in excess of the level estimated to be adequate under a floating FX regime (Figure 5).

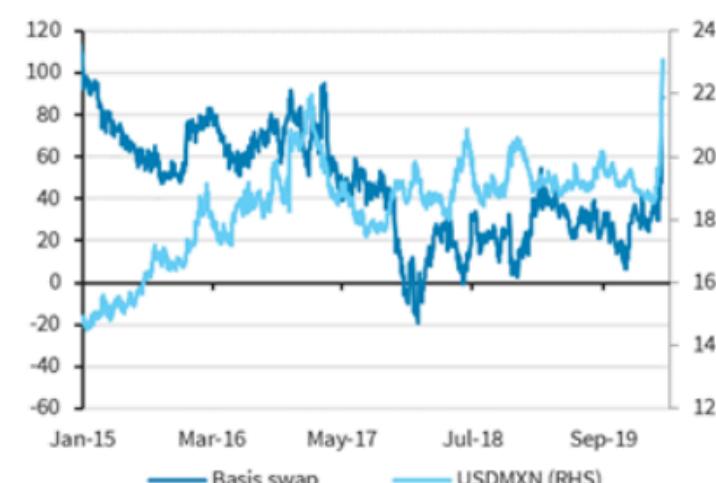
The NDF hedge program had sold only USD5.5bn in 2017 out of the original USD20bn maximum before last week's auction. While the expansion of the program shows Banxico's willingness to do more if necessary, it has so far had little effect on the pace of MXN's depreciation (since March 9, the MXN has depreciated 9.8% against the dollar, the worst performing EM currency in the period). We believe that this may be reflecting an increased demand for dollars in the spot market amid a rapid liquidation of risky assets, including by foreign investors who had built considerable long Mbono positions, rather than enhanced demand for FX hedging. This can also be inferred from the recent change in the correlation between USDMXN and the basis: past USDMXN increases were correlated with declines in the basis (reflecting USD funding demand), whereas now they are positively correlated (i.e., selling underlying rather than hedging demand, Figure 6). **This suggests to us that the FX Commission could consider alternative tools to encourage orderly functioning of the FX market.**

Figure 5: IMF's reserve adequacy metrics and current foreign exchange reserves

IMF reserve adequacy metrics	
	billion USD
Reserve needs based on a fixed exchange rate regime	226.6
Reserve needs based on a floating exchange rate regime	153.3
Current international reserves	185.6
Current international reserves + FCL	246.6

Note: RA Metric (fixed exchange rate regime) = $10\% \times \text{Exports} + 10\% \times \text{Broad Money} + 30\% \times \text{Short-term Debt} + 20\% \times \text{Other Liabilities}$. RA Metric (floating exchange rate regime) = $5\% \times \text{Exports} + 5\% \times \text{Broad Money} + 30\% \times \text{Short-term Debt} + 15\% \times \text{Other Liabilities}$.

Figure 6: The correlation between USDMXN and basis has reversed, suggesting underlying selling pressures rather than hedging demand



Source: Bloomberg, Barclays Research

4. What other mechanisms does the FX Commission have in its toolkit?

The current situation resembles the market turmoil during the global financial crisis (GFC), when the FX Commission implemented a number of intervention measures to stabilize the FX markets. During that episode, the MXN weakened 58% between August 2008 and March 2009 (compared with 25% from the minimum of January 2020 to the recent maximum). The tools range from direct USD sales to several types of USD auctions and even a swap line with the Federal Reserve. Some of these actions were reactivated during periods of high volatility in international financial markets (the taper tantrum in 2013 and collapse of oil prices in 2014-15) and provide a point of reference for potential further actions if MXN underperformance continues amid challenging liquidity conditions. A summary of FX intervention mechanisms is presented below and in Figure 7.

- **Direct USD sales.** Banxico has directly sold dollars in the FX markets in only three instances: February 2009, February 2016, and January 2017, for a total of USD5.8bn. In each of these, Banxico communicated that the USD sales were aimed at providing liquidity amid disruptions in the FX market and did not target a specific level for the exchange rate.
- **Extraordinary USD auctions.** These interventions took place exclusively in October 2008, after the MXN depreciated 25% versus the dollar in two months. Banxico sold USD11bn during five days of extraordinary USD auctions.
- **Auctions of USD with a minimum price.** Under this mechanism, Banxico auctioned dollars at a minimum exchange rate of 2% above the exchange rate the immediate day before. This is the category of USD auctions that remained in place for a longer period (1,011 days in total during different episodes^[1]). In total, Banxico sold USD16.6bn with this mechanism.
- **Auctions of USD without a minimum price.** During two periods of elevated volatility in international financial markets (March-September 2009 and March-November 2015), Banxico sold reserves without setting a floor in the auction price, effectively encouraging a significant part of the international reserves to be sold in the FX market (USD30.9bn).
- **Swap line with the Federal Reserve.** This mechanism was active from late 2008 to late 2009, and its objective was to provide financing to market participants from the private sector that faced pressures to obtain USD funding. USD3.2bn was drawn from the swap line in only one auction.
- **Flexible Credit Line with the IMF.** Originally introduced in 2009, the Flexible Credit Line agreement with the International Monetary Fund was designed to meet the demand for crisis-prevention and crisis-mitigation lending for countries with strong policy frameworks. Disposable resources have been gradually reduced and currently stand at about USD61bn. This mechanism has never been activated.

Figure 7: Summary of FX intervention mechanisms

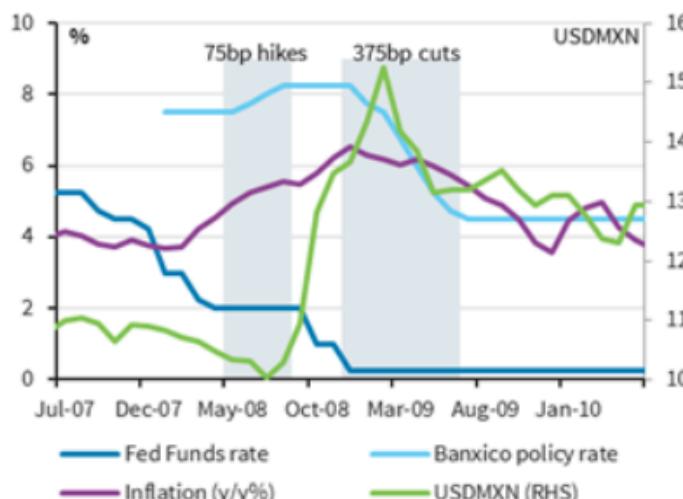
Mechanism	Dates	Frequency	Interventions (days)	Amount sold (USD millions)
Direct USD sales	Feb-2009, Feb-2016 and Jan-17	Discretionary	7	5,835
Extraordinary USD auctions	October-2008	Discretionary	5	11,000
Auctions of USD with a minimum price*	Intermittently between 2008 and 2016 ⁴	Daily	62	16,566
Auctions of USD without a minimum price	Mar-Sep 2009 and Mar-Nov 2015	Daily	319	30,946

5. Does the recent peso sell-off have any implications for monetary policy?

We recently lowered our forecast for Mexico's GDP growth, and we now expect the Mexican economy to contract 2.0% y/y in 2020 (see [Mexico: Trouble never comes alone](#), 13 March 2020). In this environment, Banxico will likely cut, as it has plenty of room after the Federal Reserve slashed the fed funds rate all the way down to its effective zero lower bound, but a prudent stance will probably persist. As such, we believe that favorable rate differentials and a widening output gap should allow Banxico to implement a 50bp cut at its March 26 meeting. Nevertheless, Banxico might be between a rock and a hard place, as the currency has depreciated significantly and there are concerns about additional capital flight. Furthermore, president Lopez Obrador recently said that Mexico should refrain from tapping its foreign reserves to support the currency ([Bloomberg: Mexico's AMLO rejects peso intervention, sticks to austerity](#), 12 March 2020), suggesting that the FX Commission could find it difficult to reproduce previous models of intervention.

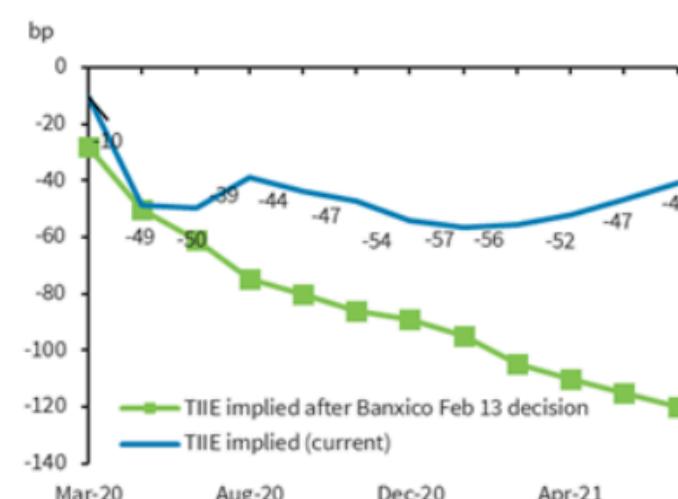
As such, Banxico could prioritize financial and exchange rate stability over downside growth risks in the short run amid a relatively elevated FX pass-through to inflation. We note that during the GFC, Banxico hiked rates three times between June and August 2008 even after the Fed had cut rates 325bp since 2007, in an attempt to stabilize the FX market, and later delivered aggressive cuts once USDMXN appreciation and inflation pressures eased (Figure 8). In a recent interview, governor Diaz de Leon mentioned that it is difficult to anticipate what actions Banxico will need to take in the future and that "while countries have cut rates, they weren't experiencing currency shocks" and that the "Mexican case is different as the country is exposed to capital flows" ([Bloomberg: Difficult to anticipate future Banxico action, Diaz de Leon says](#), 13 March 2020). The market seems to be well aware of these challenges and has pared down its expectations of rate cuts considerably, from 100bp over a one-year horizon after Banxico's February meeting to about 50bp currently (Figure 9).

Figure 8: During the GFC, Banxico delayed its policy rate cuts amid the FX sell-off



Source: Bloomberg, Barclays Research

Figure 9: The market has moderated its expectations of rate cuts



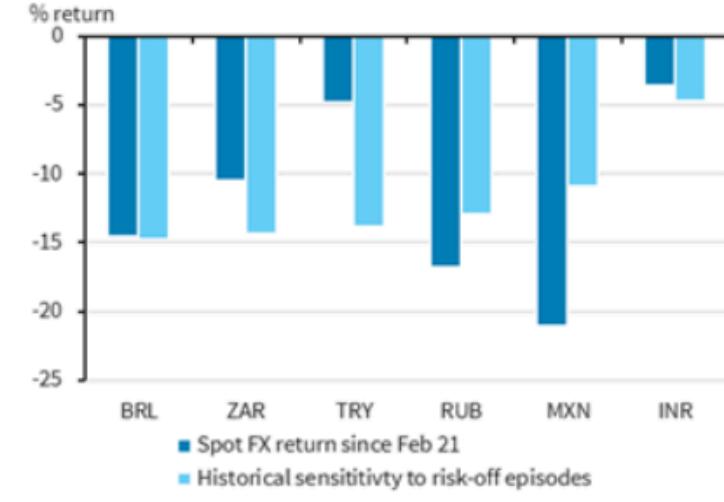
Source: Bloomberg, Barclays Research

6. Has the MXN overshot during the current risk-off episode?

We examine whether the recent moves in FX markets have overshot their historical response to similar risk-off episodes, characterized by a significant repricing of downside risks to global growth (reflected by the sell-off in equity markets), a sudden rise in volatility across asset classes, and a collapse of oil prices. Then, we obtain the model-implied FX response, calibrated with the recent extreme moves in asset markets, and compare it with realized FX moves. Among the high-yielding currencies, we find that only the MXN and RUB have overshot their typical moves (Figure 10), weighed by large positioning reductions in high-yielding EMs.

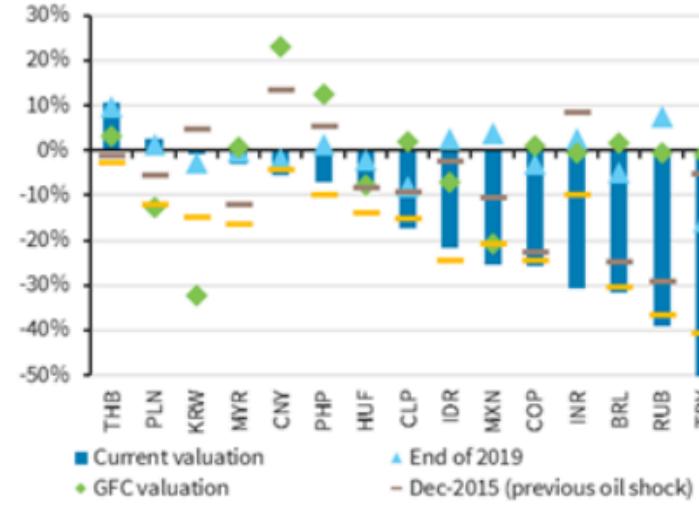
From a PPP valuation perspective (REER deviation from its five-year moving average), ongoing shocks have deepened MXN undervaluation to levels not seen since the GFC (Figure 11). However, our FFV model, which links short-term currency valuations to moves in rate differentials, relative equity returns, and commodity prices, shows that the MXN is currently not greatly undervalued (Figure 12).

Figure 10: The MXN has overshot its typical move in similar risk-off episodes



Note: Refers to FX spot return (XXXUSD) sensitivity during simulated stylized market scenarios calibrated with recent market moves (c.5 std dev shock in S&P 500 and VIX and c.4 std dev shock in price of Brent, which represent the weekly average change in these variables in the past three weeks). Source: Bloomberg, Barclays Research

Figure 11: PPP valuation shows that MXN's current undervaluation is similar to that during the GFC



Note: The chart shows the REER deviation from its 5y moving average. Source: Bloomberg, Barclays Research

7. What is the near-term outlook for Mexican assets?

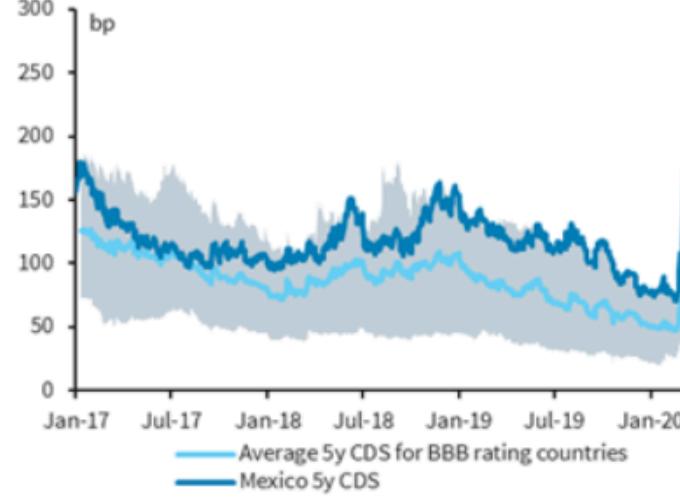
Despite the recent MXN underperformance, we remain cautious and would not expect a significant retracement unless risk sentiment and broad market dynamics change substantially. The US is looking to increase COVID-19 testing, likely leading to a steep rise in confirmed cases that could hurt Mexican assets as the outlook for the US economy and its health system worsens. Furthermore, the foreign positioning unwind in Mbonos is likely to continue, as suggested by the persistent widening of the ASW spread (Figure 2). But even if the wide-ranging monetary, fiscal, and quarantine policies and directives finally bring some stabilization to global risk sentiment, we do not see USDMXN returning to its pre-virus range. Mexico's CDS continues to trade in the upper range of the BBB spectrum (Figure 13), and the risk of a downgrade has increased, as oil prices are likely to remain depressed for some time and the COVID-19 shock could hurt the Mexican economy through various channels (see [Mexico: Trouble never comes alone](#), 13 March 2020), jeopardizing public revenues and tax collection. **As such, we now recommend paying the 5s10s TIIE spread (reference: 29, target: 79, stop-loss: 4, 3m carry/roll-down: +1.5bp)**, as deteriorating fiscal prospects imply additional risk premia embedded in long-end rates, while the belly of the curve could start to price in deeper cuts if the economy weakens further.

Figure 12: The MXN is not significantly undervalued, according to our FFV model



Source: Bloomberg, Barclays Research

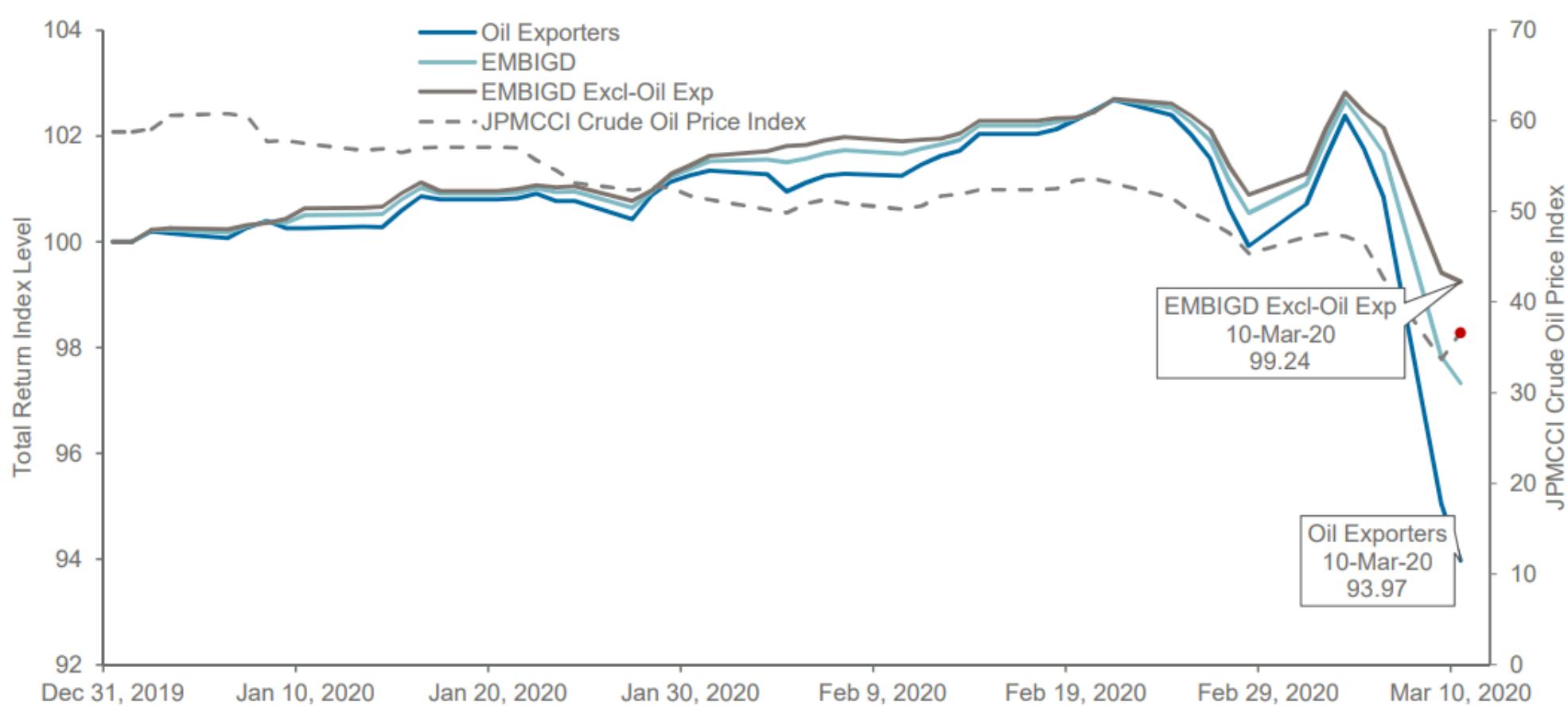
Figure 13: Mexico CDS continues to trade in the upper range of BBB credits



Source: Bloomberg, Barclays Research

As of March 10, EMBIGD total return is down 3% for the year weighed down by oil exporters (-6% YTD)

Excluding oil exporters, the EMBIGD would have weathered the oil price shock nearly unch. YTD



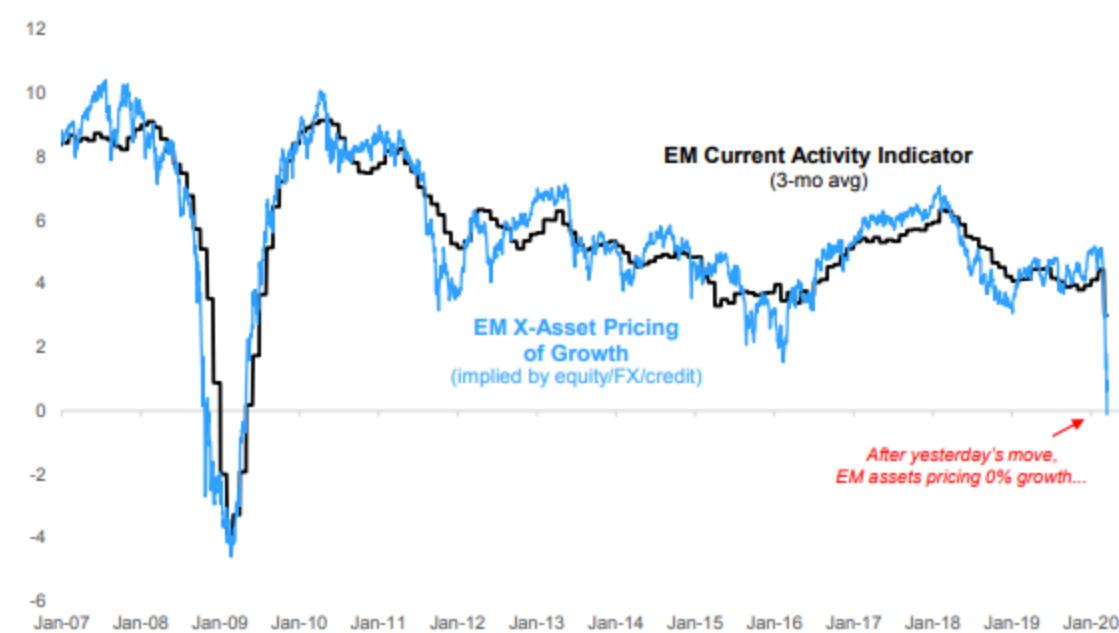
Source: J.P. Morgan, March 10, 2020.

3

J.P.Morgan

The current signal points to a 0% CAI reading (compared with the current 3mma of 3.0%) and represents the lowest growth outcome since the GFC (see Exhibit 4). With growth forecasts still in flux, we find it difficult to have confidence in a growth outcome that is a 'firm downside' scenario. But with high-frequency growth data in China improving from distressed levels and current growth pricing well below levels any level of the post-GFC period, we see pockets of value in EM and look for US volatility to stabilize as the catalyst to engage in 'beta' EM exposure.

Exhibit 4: EM assets are pricing close to 0% growth outcomes



Source: FactSet, Bloomberg, Goldman Sachs Global Investment Research

For a more simple perspective on valuation, below we look at long-run ranges of EM assets at the aggregate and country level. As shown, EM equities appear to be the most discounted relative to history, with EM FX and credit roughly 1/2 a standard deviation below average (for Credit, we take the average across the largest 19 EMs, not the EMBI which is almost 45% frontier markets).

At the market level, we find that Turkey, Chile, Mexico, Colombia and South Africa appear to be trading at the most distressed valuations, whereas Taiwan, Philippines, China, and India remain slightly above average valuations. Given the viral outbreak began in Asia, it may appear odd that Asian markets have traded defensively and remain near average valuation levels, but as shown further below, that dynamic is quite typical of EM bear markets.

The worst weekly debt outflow since 2016

Sell as if there is no tomorrow

EEMEA debt markets have already witnessed the largest weekly outflows since late 2016 (cumulative \$2.20bn across local, external, and blended fixed income). EEMEA equities markets did marginally better with \$1.25bn of weekly outflows although the equity positioning is certainly much lighter given the 5-year wide gap between equity outflows and bond inflows. Given the most recent sell-off in gold, [cash has become king once again](#) and the [\(EEMEA\) capitulation seems far from over](#), particularly in light of [ETFs that are likely to exacerbate the moves](#).

Most debt outflows from an oil importer - Turkey

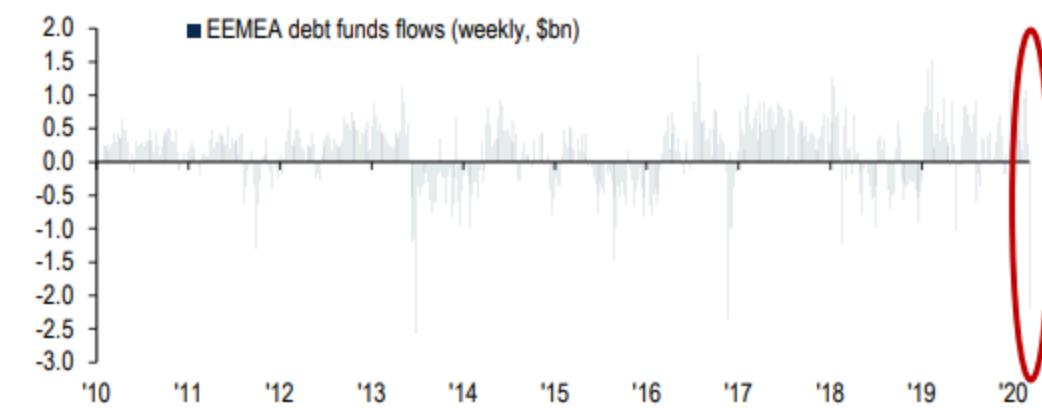
The largest weekly debt outflows were recorded from Turkey (\$281m) despite relatively more resilient TRY FX ([particularly compared to MXN, ZAR, or BRL](#)). Russia had the second largest outflows (\$212m – [relatively small given crowded OFZ positioning](#)) followed by South Africa (\$180m – [already UW among EM RM](#)), UAE (\$131m) and Saudi (\$116m). The MENA markets cumulatively had \$439m in outflows.

De-risking in the largest EM equity OW - Russia

Russia witnessed the largest weekly equity outflows (\$498m), which is not surprising given the [largest OW positioning across GEM equities](#). South Africa and Turkey also experienced outflows: \$212m and \$90m, respectively. The MENA markets cumulatively had \$136m in outflows, but [investors are already largely UW vs MSCI EM index](#).

See inside weekly & monthly figures for all EEMEA debt + equity markets

Chart 1: Just sell: the worst weekly EEMEA debt outflows since 16-Nov-2016



Source: BofA Global Research, EPFR Global

13 March 2020

GEM FI & FX Strategy
EEMEA

Jure Jeric >>
EEMEA Cross Asset Strategist
MLI (UK)
jure.jeric@bofa.com

David Hauner, CFA >>
EEMEA Cross Asset Strategist
MLI (UK)
david.hauner@bofa.com

Andrew MacFarlane, CFA
EEMEA FI Strategist
MLI (UK)
andrew.macfarlane@bofa.com

EEMEA FI Strategy & Economics
MLI (UK)

GEMs FI Strategy & Economics
BofAS

KRW

Angela Hsieh, CFA	+65 6308 2003	angela.hsieh@barclays.com	Barclays Bank, Singapore	Completed: 16-Mar-20, 11:18 GMT
Ashish Agrawal	+65 6308 4246	ashish.agrawal@barclays.com	Barclays Bank, Singapore	Released: 16-Mar-20, 11:18 GMT

Korea

COVID-19 forces BoK into uncharted territory

Economics: Emergency mode switched on; we think one more 25bp rate cut is on the table

The Bank of Korea slashed its policy rate by 50bp to 0.75%, a record low, in an unscheduled meeting. This marks the largest rate reduction since the Global Financial Crisis in 2008 (see [Korea: Covid-19: Entering emergency mode; BoK likely to cut 50bp, 16 March 2020](#)). The action was in response to the negative economic and financial implications from COVID-19 proliferation globally, which will likely have a bigger and long-lasting impact on Korea, according to the Governor Lee Juyeol. **The decision to cut by 50bp was not unanimous**, as one monetary policy board (MPB) member, Dr. Lim Jiwon, called for a 25bp rate cut.

Key points:

- **Increased downside risks to growth and inflation:** The BoK highlighted downside risks to its 2.1% GDP growth forecast for 2020 amid the spreading COVID-19 outbreak globally. Indeed, the governor admitted it is not possible to estimate an exact growth impact yet. The BoK is scheduled to reveal its new growth and inflation forecasts on 28 May, but we expect the governor to give more clarity on the expected growth impact at the 9 April meeting by when more data will be available.
- **Effective lower bound (ELB):** Governor Lee said the Fed's two inter-meeting rate cuts totalling 150bp have provided the BoK with more room, effectively lowering the ELB. We think this implies that the MPB members had previously considered the ELB to be at 0.75%, but the dire situation as well as the Fed's aggressive action suggests the BoK is willing to go into uncharted rate territory, if needed. In the press conference, the governor said "the effective lower bound can be changed", indicating the Bank will not be constrained by the theoretical concept, and will do whatever it takes to mitigate the economic fallout.

BARCLAYS LIVE

- **Non-conventional policies:** Governor Lee reiterated all policy measures are on the table. When asked whether the BoK is considering bond purchase, the governor said "it is a 'card' the central bank always has". This, in our view, suggests the BoK views non-conventional policy like quantitative easing as one of its tool options, but this would be a "last resort" when the room for traditional policy action is exhausted.
- **Governor Lee defended the on-hold decision in February:** The governor emphasised that February's on-hold decision was appropriate, saying that a move then would have had a little impact on markets. As policy room is already limited, the Bank had to time its move well. He downplayed concerns about property prices, noting that the "vitality of businesses are more important than property bubbles", in line with our earlier expectation that the bank's priorities have shifted. We also think that the COVID-19 outbreak will slow property market transactions and cool prices in the near term.
- **Other measures announced to support SMEs:** In addition to the 50bp rate cut, the BoK lowered the interest rate on the Bank Intermediated Lending Support Facility, to help the financing of SMEs. The BoK also announced a broadening of the eligible collateral for open market operations to include bank financial debentures that are not credit risk-free, with effect from 1 April 2020. In 2008-09, similar measures were announced to address the credit crunch and to ease the financial pressure on SMEs.

Given the fluidity of the situation and the BoK's "ready-to-act" stance, we think another 25bp rate cut is likely in Q2 20, most likely in April. In our view, 1) if incoming data (March exports, February IP/services) suggests the hit to Korea's economy in Q1 is likely to be deeper-than-expected; and 2) the COVID-19 situation is not brought under control globally by early April, the BoK will likely have to follow-up with another 25bp rate cut, taking the policy rate to 0.5%.

Note: All comments are cited from Bloomberg headlines on 16 March 2020

Rates Strategy: Steeper curves on aggressive monetary easing and front loaded fiscal stimulus

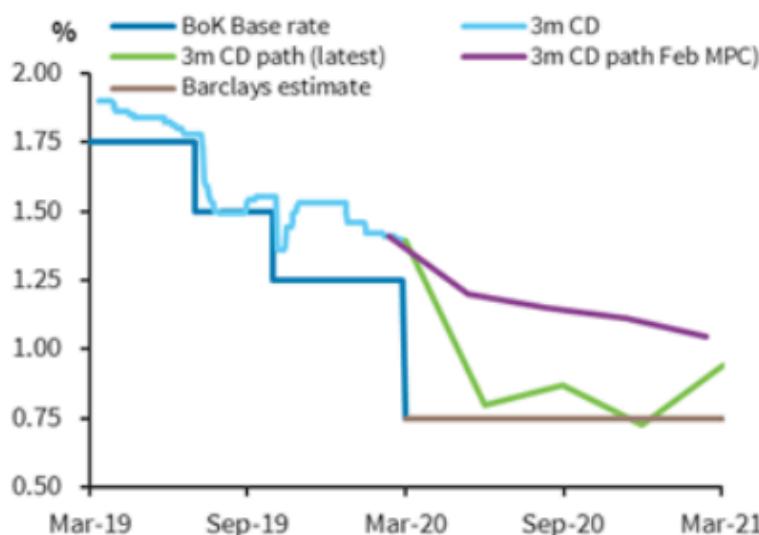
We expect bonds and swaps to react positively to the BoK's 50bp cut in the base rate to 0.75% earlier today. This rate cut was largely priced in, but the IRS curve was pricing some uncertainty around chances of a front loaded cut. The 50bp move should help bull steepen the front end of market curves. We expect the BoK to ease by another 25bp in April 2020.

Front end rates will likely converge towards 0.75% on easy liquidity and expectations of further easing. We expect 3y KTB yields to fall to 0.8% from 1.15% (see [Korea – long 3y KTB futures](#) 16 March 2020). The longer segments will likely lag in the near term; reflecting the BoK's front loaded and aggressive monetary policy easing coupled with record fiscal stimulus in 2020.

We expect the front end of the swap curve to bull steepen as 3m CD rates fall to 0.65-0.75% levels while 1y1y IRS eases into a 0.65-0.75% range. The steepening should be more pronounced in 1s5s IRS, reflecting the moderating negative carry and roll in front end receivers and spreads will likely widen marginally as the back end starts reflecting relatively defensive demand for duration.

Risks to our view are from technical factors in the short run, especially if short-term speculative positions continue to be unwound. Easing global uncertainties pose medium term risks to our bullish view.

BoK front loads easing...



Source: Bloomberg, Barclays Research

... markets weighed down by supply



Source: Bloomberg, Barclays Research



Foreign Exchange Research | Instant Insights

16 March 2020

Ashish Agrawal

+65 6308 4246

ashish.agrawal@barclays.com

Barclays Bank, Singapore

Completed: 16-Mar-20, 07:13 GMT

Released: 16-Mar-20, 07:13 GMT

FX & EM Macro Strategy Korea – long 3y KTB futures

We recommend going long 3y KTB futures (16 June 2020 maturity) at 1.16% (111.28), targeting a move to 0.80% with a stop at 1.35%.

We think the sell-off in KTB futures last week and muted retracement today opens up an opportunity to position for aggressive monetary policy easing in Korea. This sell-off was partly technical in nature, in our view, as a rush for cash on heightened asset-market volatility triggered an unwind of foreign investor positions in KTB futures. Foreign investors unwound a record 32,236 contracts of 3y and 10y KTB futures on Friday, and the unwinding has continued today, especially in 3y KTB futures. As a result, KTB futures have cheapened relative to KTBs and IRS.

Domestic macro backdrop remains bullish for fixed income. Our economists expect growth to slow to 1.7% this year, well below the BoK's 2.1% forecast, with inflation relatively muted at 0.8%. We expect the BoK to ease by 50bp to 0.75% at an emergency meeting this week, and acknowledge risks of a move to 0.50% and unconventional policies (see [Korea - Covid-19: Entering emergency mode; BoK likely to cut 50bp](#) 16 March 2020). The Fed's 100bp cut to benchmark rates (see [The Fed steps up in a Sunday night surprise](#) 16 March 2020) adds to the pressure on the BoK, with policy rate differentials at the widest since 2016.

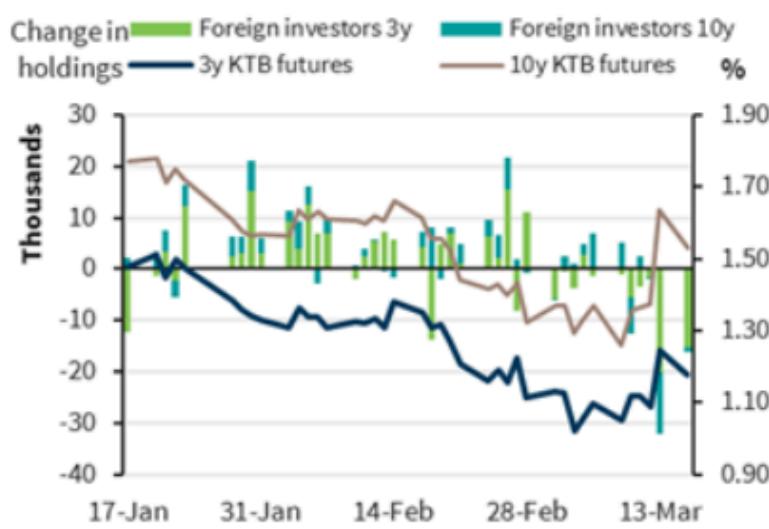
Record supply and front loaded easing could stop the back end from moving lower but we think it is premature to expect curves to steepen further in the current global backdrop. Markets have been discounting record supply in 2020 (see [South Korea: 2020 supply preview; still early to extend duration](#), 6 January 2020) and that is set to climb another KRW10.3trn, especially if the additional budget proposals are cleared in the extraordinary parliament session this week. This would push net issuance to around KRW81trn and gross issuance to KRW141trn this year. Front-loaded spending, including the additional budget, would translate into a sharp increase in supply in the coming quarter, with most in the longer segments.

We think the long end of the KTB curve could lag the global move in long-term rates. Aggressive front loaded easing to the effective lower bound and QE by central banks should show up in a material flattening in term spreads but KTBs could lag as supply and a less aggressive BoK limit further flattening from relatively tight levels. 10y KTBs are already trading 28bp above the current policy rate and 10s50s spreads are flat at 4bp. However, the front end of the IRS curve and recent widening in term spreads shows that markets have not fully priced a low for long rate regime and risks that the BoK uses unconventional policy tools.

We think going long 3y KTB futures is an efficient expression of a bullish view in the current backdrop. KTB futures have cheapened relative to bonds and the front end is more likely to respond to policy easing while the longer segments lag on supply considerations. Looser liquidity conditions could also help front end term spreads tighten relative to the policy rate. KTBs are relatively cheap to swaps with spreads at the widest in years. The implied path of 3m rates indicates that the IRS curve is currently pricing in a policy rate of 0.75% but 1y1y IRS at 0.95% implies some potential for repricing.

Risks to our view are from technical factors in the short run, especially if short-term speculative positions continue to unwind. A less aggressive BoK and easing global risks pose medium term risks to our view.

KTB futures unwinding triggers a sell-off...



Source: Bloomberg, Barclays Research

...and KTBs underperform IRS

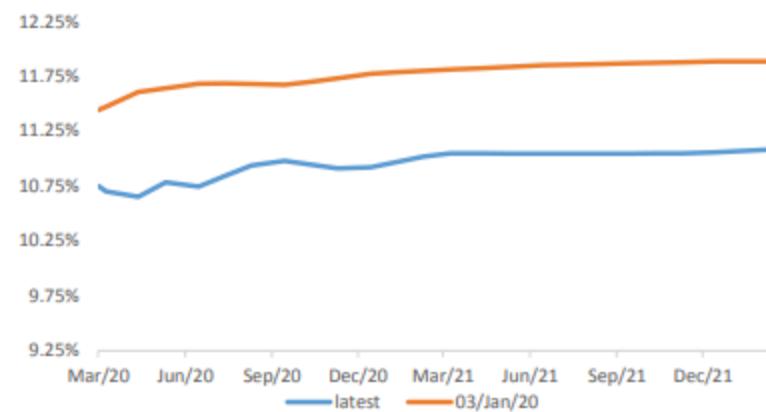


Source: Bloomberg, Barclays Research

Turkey

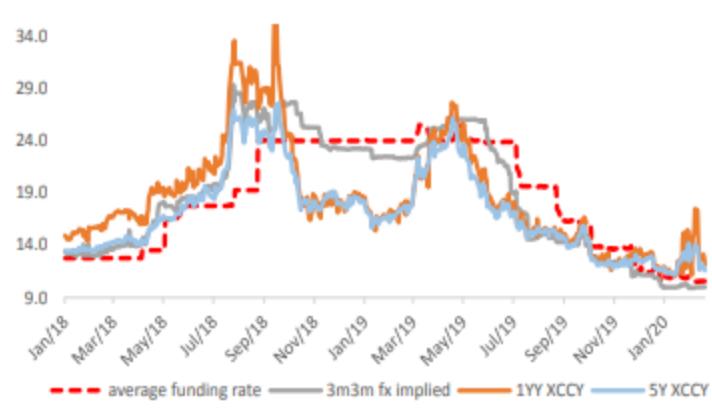
What is priced?

Turkey - What is priced?

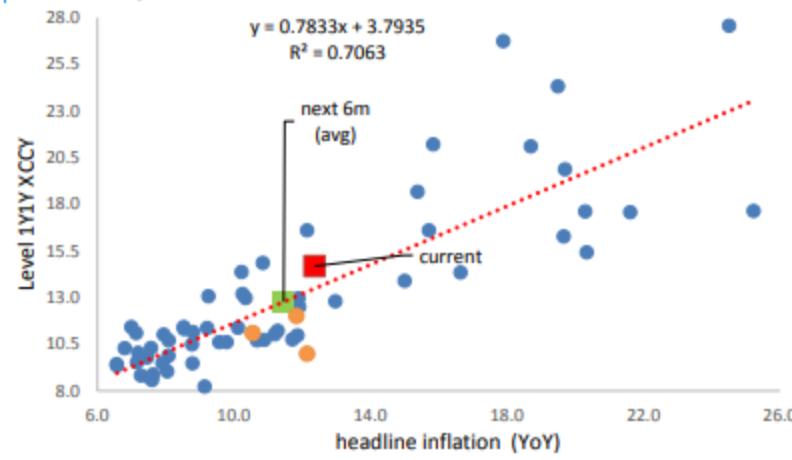


Short-end rates - IRS curve

Turkey - short-end rates



Inflation dynamics vs short-end rates...



...and what is implied for the next six months..



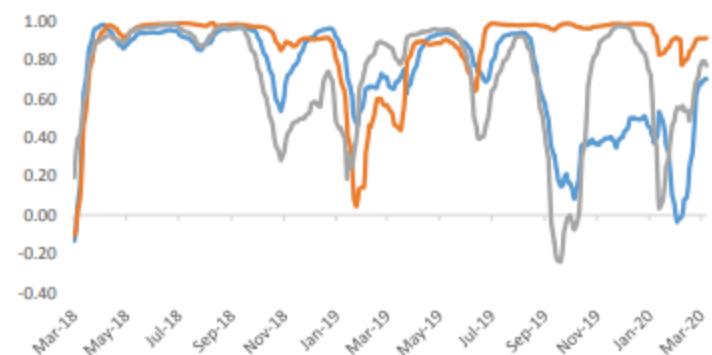
Short-term valuation model - results

Financial fair value - Turkey 1Y1Y XCCY



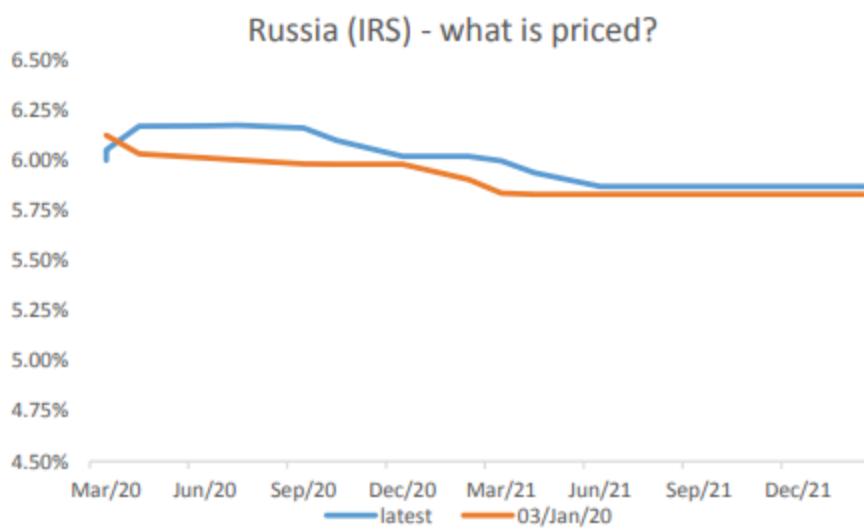
1Y1Y IRS correlation to...

1Y1Y XCCY correlation to...

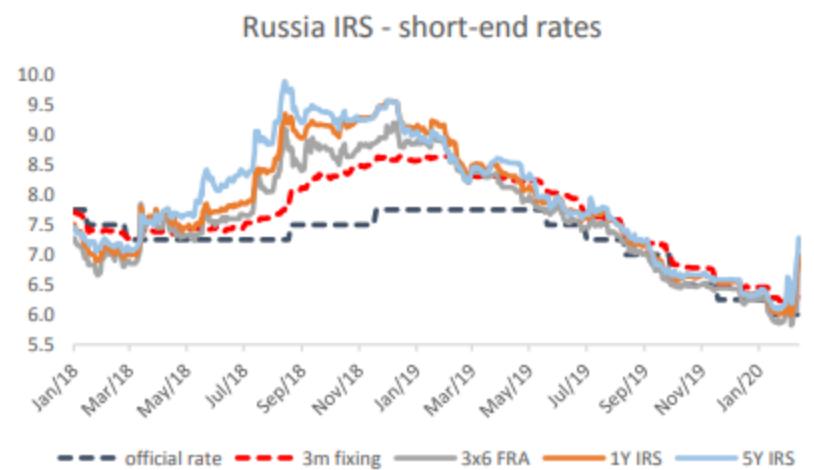


Russia (IRS)

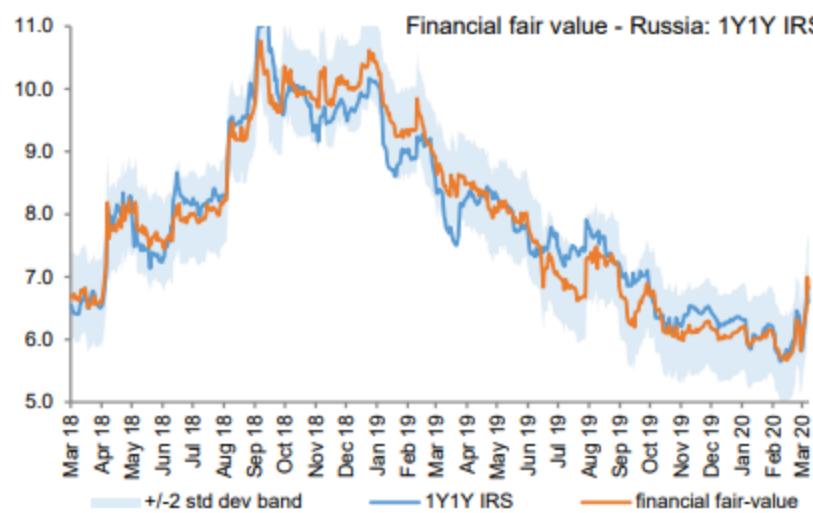
What is priced?



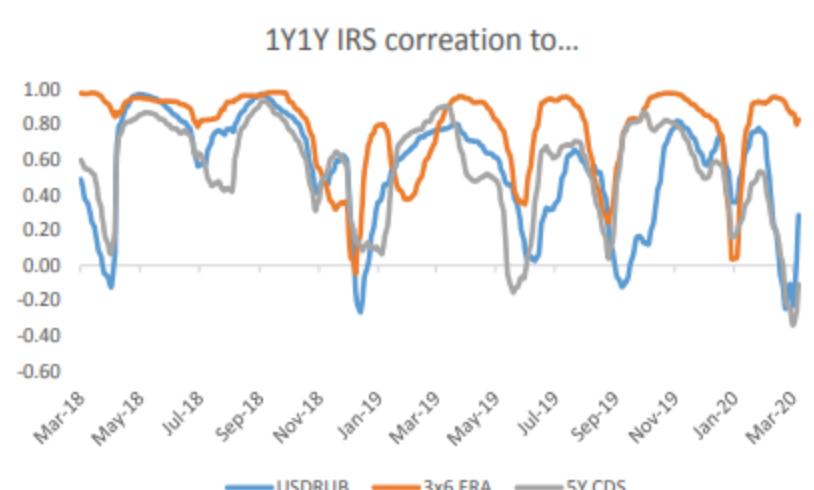
Short-end rates - IRS curve



Short-term valuation model - results

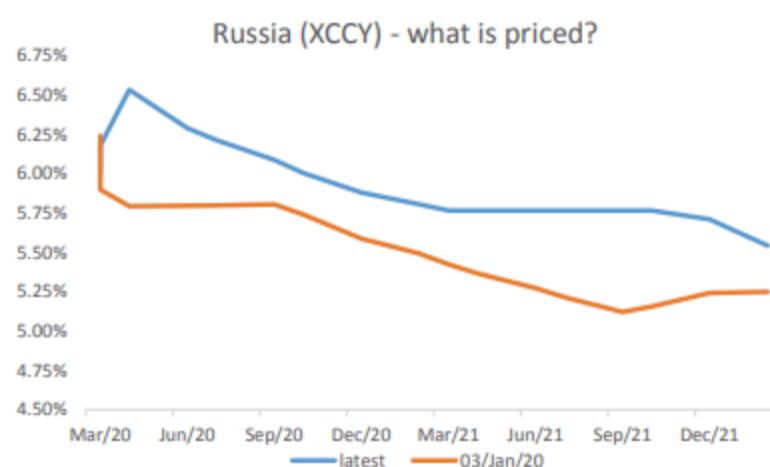


1Y1Y IRS correlation to...

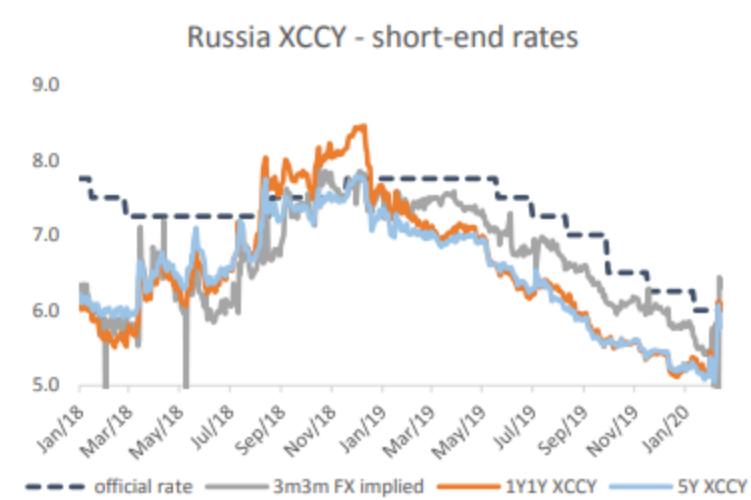


Russia (XCCY)

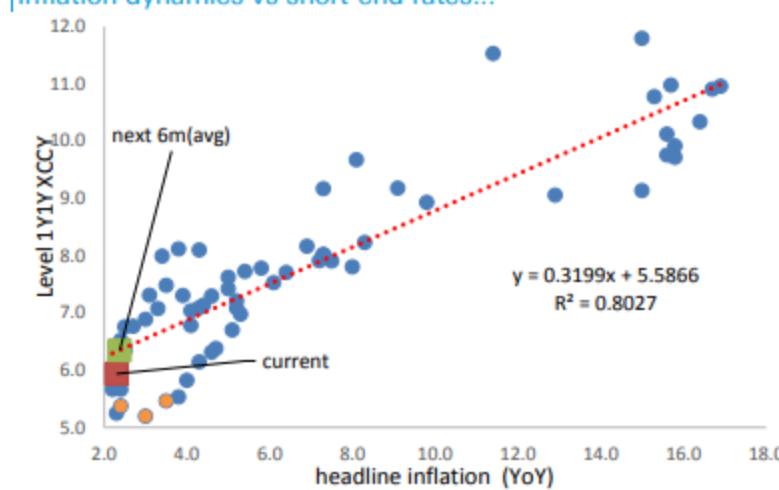
What is priced?



Short-end rates - IRS curve



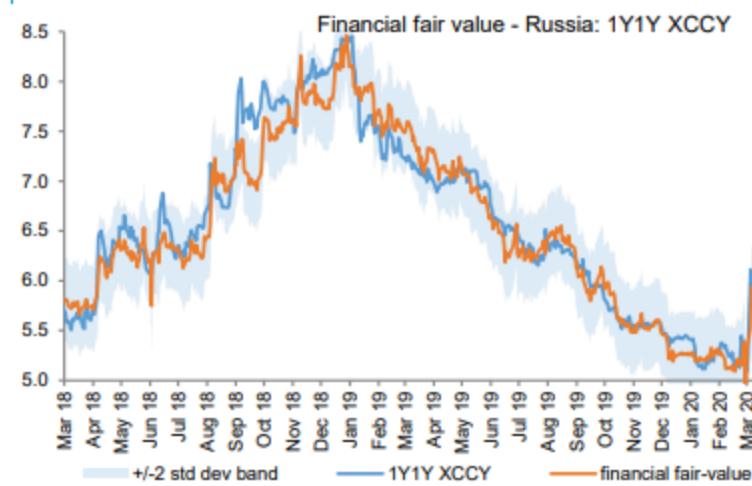
Inflation dynamics vs short-end rates...



...and what is implied for the next six months..



Short-term valuation model - results



1Y1Y IRS correlation to...

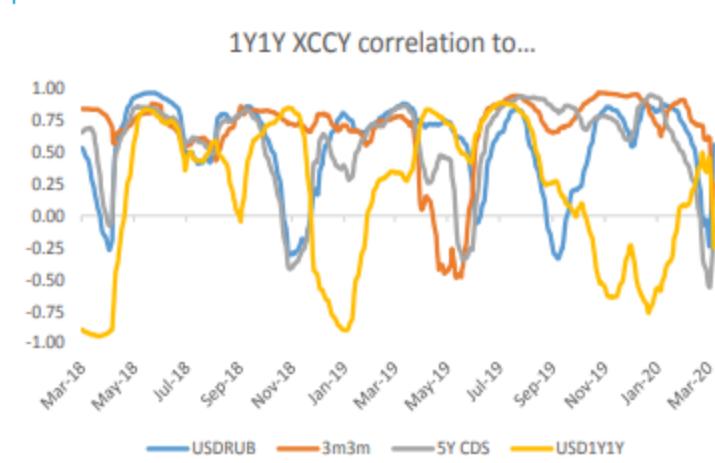
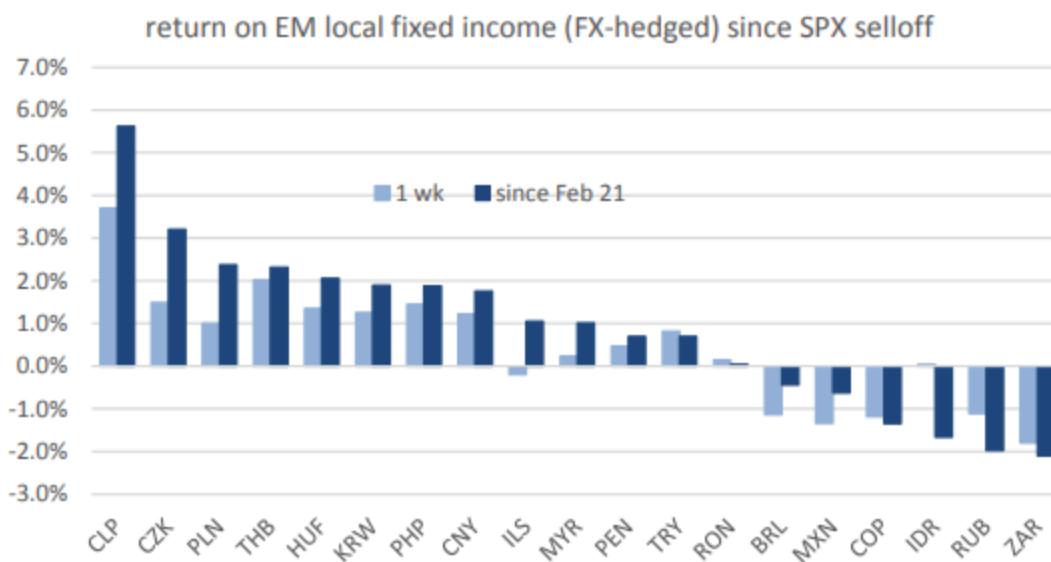


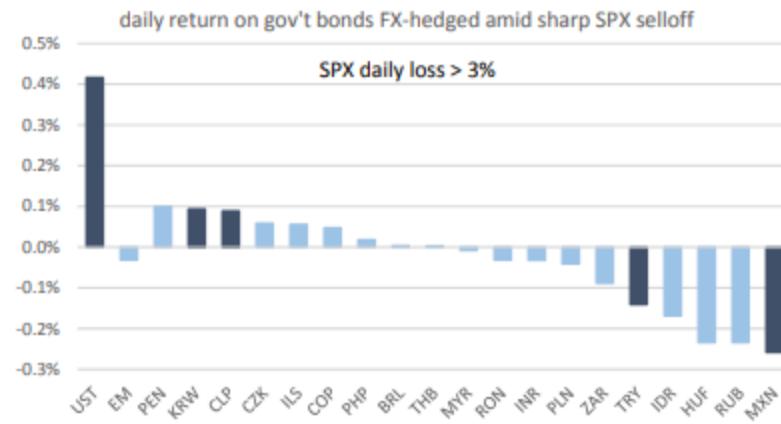


Figure 2: EMFI FX-hedged has held up relatively well amid the recent stock and oil markets' selloff as COVID-19 is quickly becoming a global pandemic, with exceptions of some high yielders



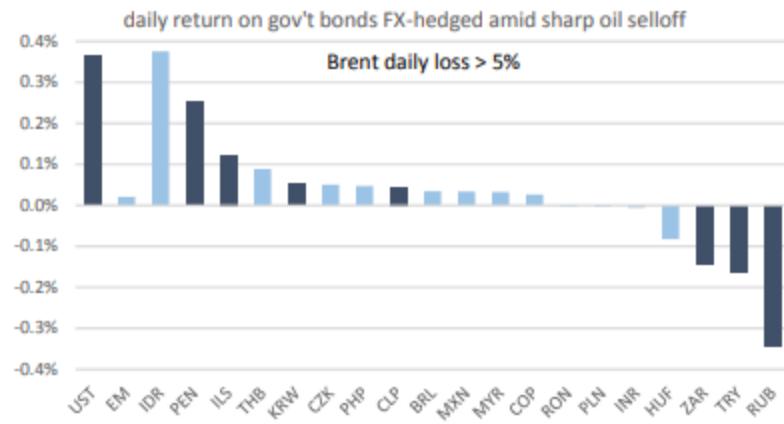
Source : Deutsche Bank, Bloomberg Finance LP

Figure 3: Historically, only Mexico and Turkey show statistical significance of negative daily returns amid sharp SPX selloff...



Source : Deutsche Bank, Bloomberg Finance LP
Note: Dark blue bars mean statistical significance.

Figure 4: ... so do Russia, Turkey and South Africa amid sharp oil selloff (the opposite holds true for Peru and Israel)



Source : Deutsche Bank, Bloomberg Finance LP
Note: Dark blue bars mean statistical significance.

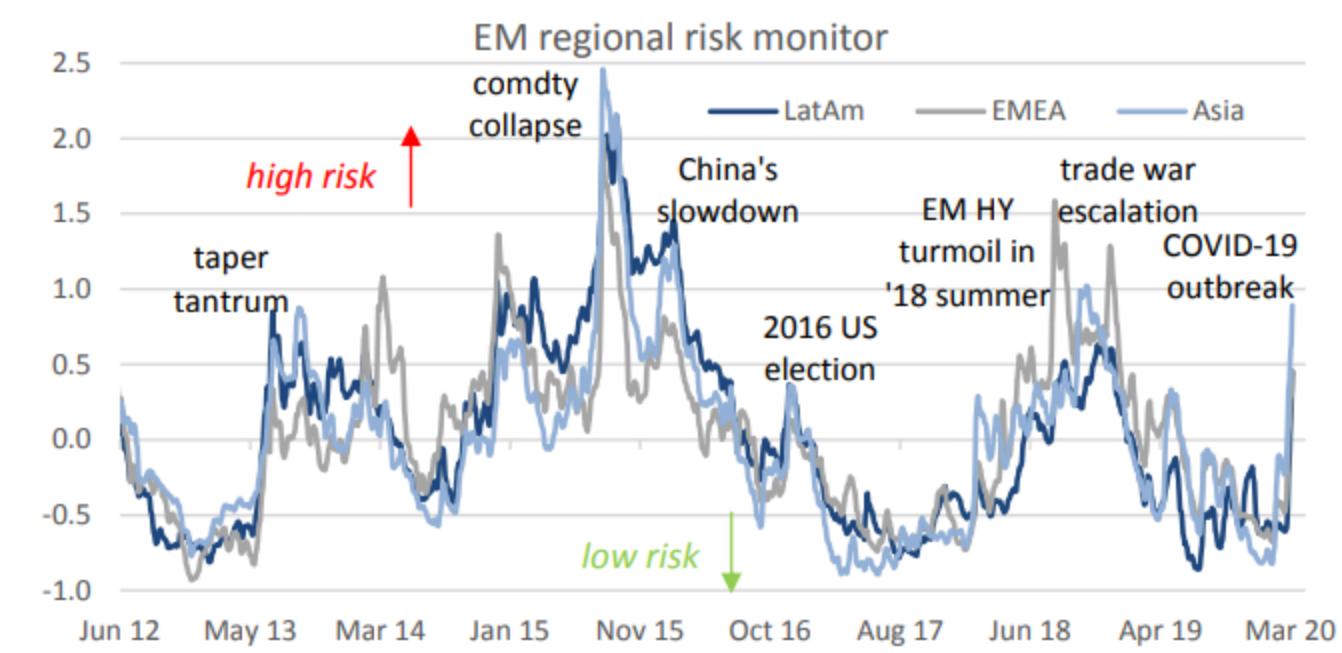
To sum up: EMFI FX-hedged not only provides robust outperformance during easing cycles coupled with global risks, but also holds up relatively well amid sharp SPX selloff, except **Mexico** and **Turkey**.

By applying the same exercise to the 64 cases of sharp oil selloff², we find:

- The sizes of daily return are mostly within a +0.2% band, as opposed to 0.4% on UST. Daily returns are slightly skewed to the positive side, with the size of positive returns being larger than that of negative ones.
- Only 7 out of 19 countries show statistical significance on daily returns. **Peru, Israel, South Korea** and **Chile** provide positive returns (returns on the latter two are quite subdued), in striking contrast with **Russia, Turkey** and **South Africa**.

The bottom line: EMFI FX-hedged can largely withstand intensified global risks associated with sharp SPX/oil selloff, but we need to keep a close watch on **Mexico, Turkey, Russia** and **South Africa**.

Figure 1:EM risk levels have surged as COVID-19 threats intensify



Source : Deutsche Bank, Bloomberg Finance LP

ZAR IRS steepeners with target 200bp in 2s10s and 125bp in 5s10s

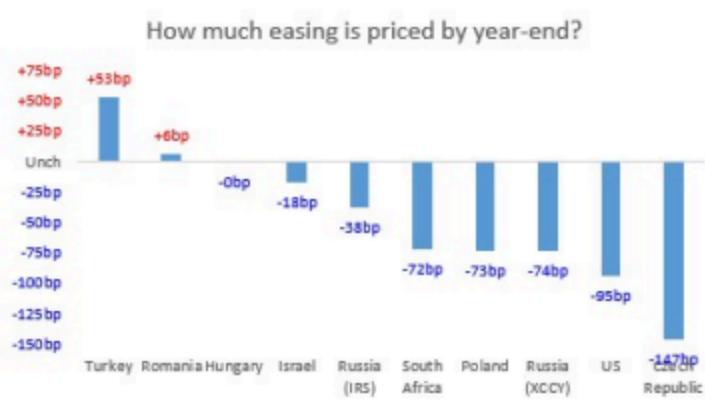
Rationale: The IRS curve already steepened aggressively in recent days driven by markets pricing more easing, the increased downgrade risks, and, most importantly, the ZAR weakness. Nonetheless, the curve remains flat compared with the bond curve where term-premium has just reached new record highs. For the IRS curve, the market is now pricing 70bp of easing by year-end, which looks aggressive, but not unreasonable considering current market pricing for the Fed, inflation dynamics with risks of sub-3% by mid-year as well as DB Economics forecast of 75bp of easing in this time period (we would not receive rates here outright, but like short-end receivers in steepeners).

More importantly the curve should remain under pressure given high downgrade risk and the potential of significantly higher fiscal deficits on weaker growth. In addition, we find ZAR highly vulnerable to further global risk-off, and we therefore keep our bearish bias further supporting ZAR steepeners.

The problem remains the high negative roll in the benchmark steepeners with 1s5s and 2s10s ZAR providing 3m roll of -22bp and -11bp, respectively. This is particularly high when considering the historical 3m vol of only 5-7bp in the curve trades. However, there are ways to optimize steady-state return characteristics without increasing convexity too much. Instead of 1s5s IRS steepeners, we prefer 1Y – 2Y1Y IRS steepeners with only 1bp of negative carry/roll (but significantly higher vol) or as curve trades 2Y2Y-10y or 3m fwd 5s-10s which are both carry/roll neutral (vs the negative 11bp in 2s10s IRS steepeners).

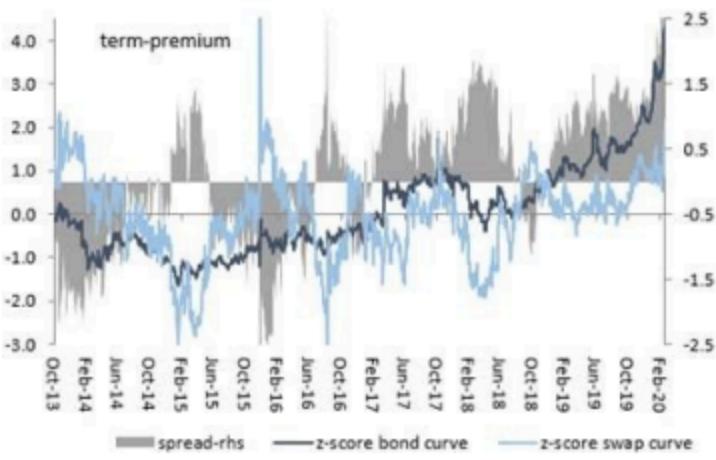
Another option would be to buy 15Y bonds as an overlay (but FX-hedged). The downgrade is already well priced into the bond curve with ASW-spreads at record levels and positioning is not as crowded any more as in mid-Feb.

Figure 3: What is priced for Central Bank across CEEMEA



Source :Deutsche Bank, Bloomberg Finance LP

Figure 4: Term-premium has increased of late, however, remains low in swaps vs bonds...



Source :Deutsche Bank, Bloomberg Finance LP, Note: 5s10s slope 2Y-beta adjusted (shown as z-score)

LATAM

Receive MXN rates
on selloffs
Receive 1y CLP
rates

Short ILS/MXN

Overweight IG Non-Commodity credits (Peru, Panama, Uruguay) vs. Underweight IG Commodity Exporters (Chile, Colombia, Mexico)

Underweight HY (Argentina and Ecuador)

CEEMEA

TRY Curve steepening

Cautious RON,
cautious TRY

Overweight Russia
Underweight CE-3
(Czech, Hungary,
Poland)

Overweight IG Non-Commodity credits (i.e., CEE/Balkans such as Poland, Hungary, Croatia)

Underweight commodity exporters (GCC and SSA Oil Exporters)

CHINA

Lower CNY rates in
the near term

Mild CNY
depreciation in
the near term

Overweight
H/A shares

Neutral across IG and HY
IG: prefer 3-5yr BBB China corporates and non-bank financials

HY: prefer low BB/high B China property

EM ASIA
EX-CHINA

Long INR 10Y
bonds

Receive KRW 2y
rate, 1y fwd

Long CNH vs PHP
Long INR/THB

Overweight India,
Korea; Underweight Thailand, Malaysia

Neutral across IG and HY

IG: prefer HK, India corporates and banks, Korea tier 2 bonds

Cautious on Pakistan, Mongolia, neutral on Sri Lanka

G3/GLOBAL

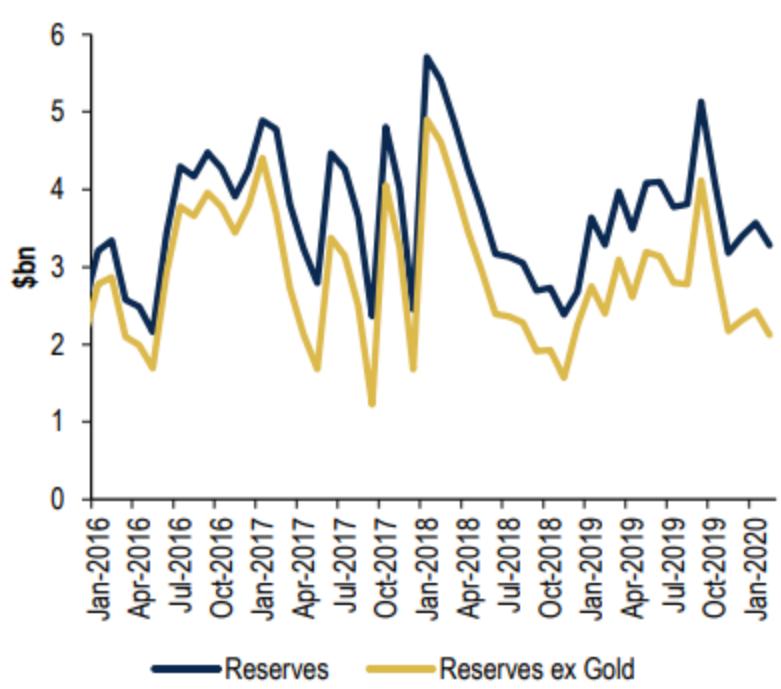
Short 5-year EUR versus
USD real rates

Long 5s30s UST
steepener vs. EUR swap
flattener

Short CAD/JPY
Long CHF/SEK

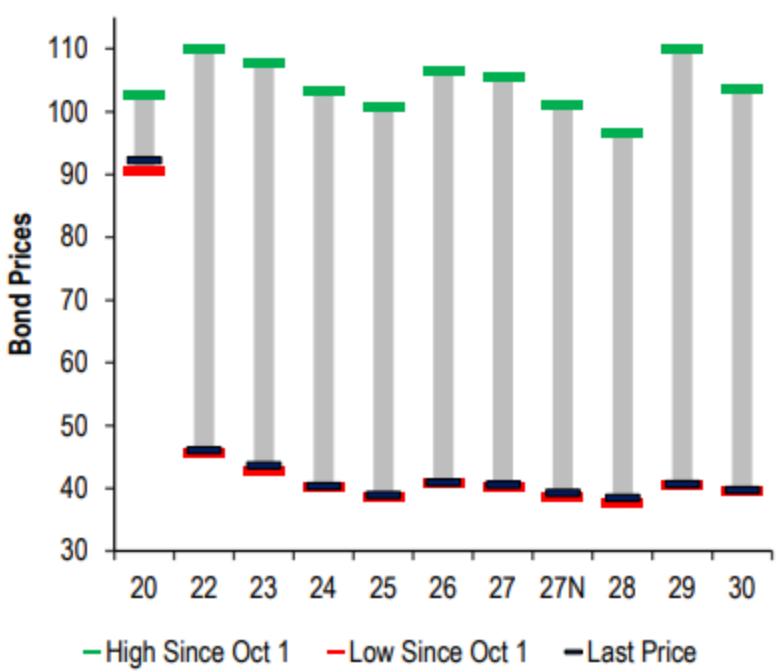
Long MSCI EM
vs. MSCI EAFE

Chart 1: Ecuador tight international reserve position



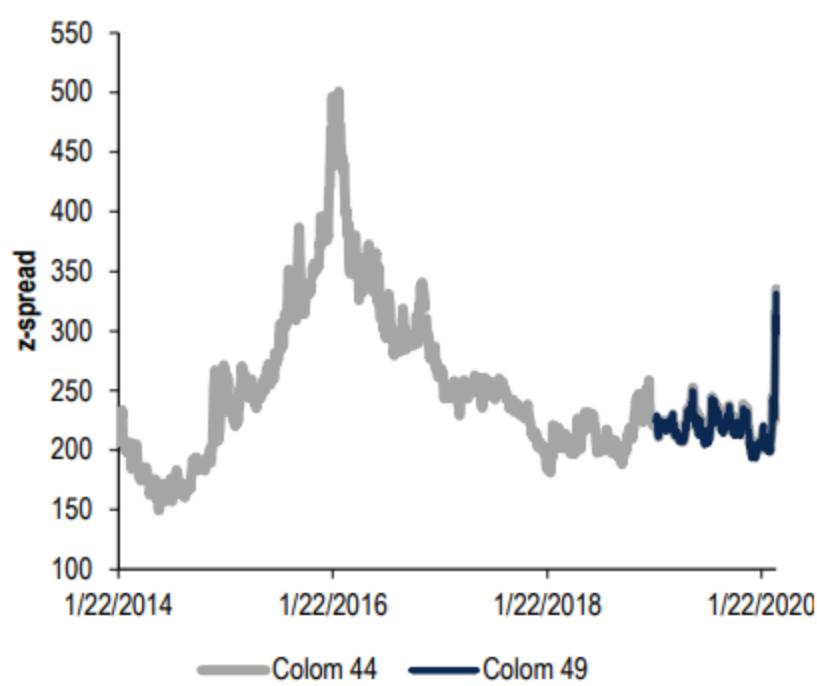
Source: BofA Global Research, Haver.

Chart 2: Ecuador bonds already trading at distressed levels



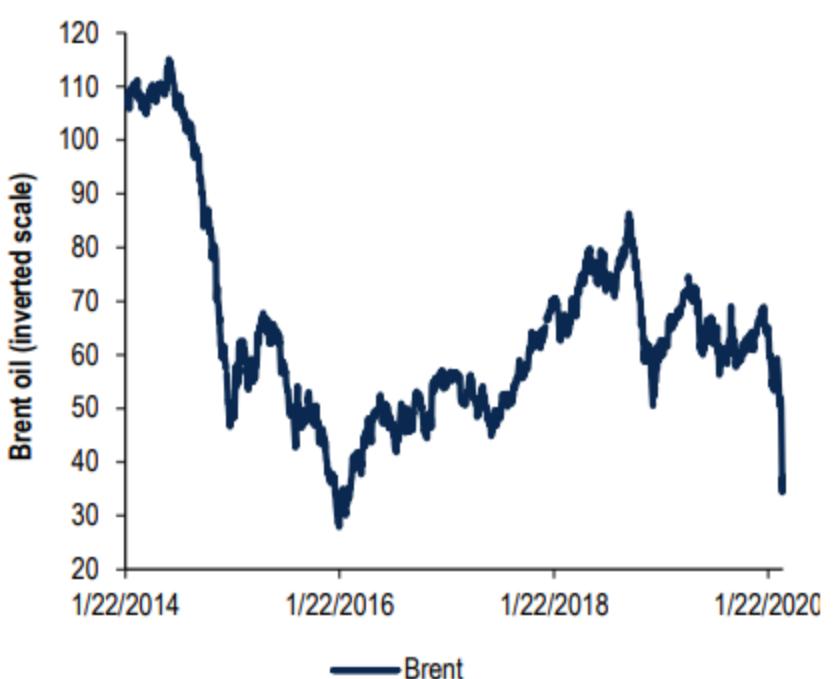
Source: BofA Global Research, Bloomberg.

Chart 3: Colombia long-end spreads traded around 400bp...



Source: Bloomberg.

Chart 4: ...when oil last traded at \$35 in 2016



Source: Bloomberg.

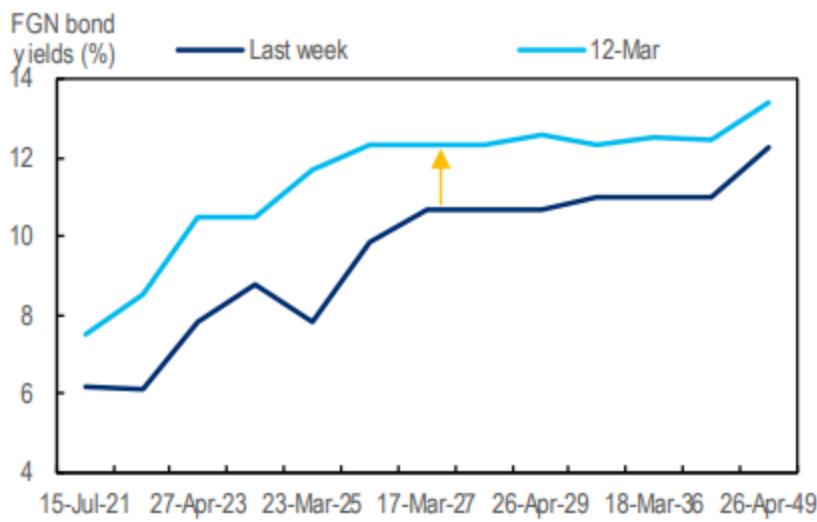
Nigeria

Nigeria local bonds under pressure as oil price collapses. The Nigeria curve shifted upwards as Brent price hovers around USD35/barrel and the market continues to trade the Saudi Arabia/Russia oil price war. The curve bear flattened on Monday as T-bill yields rose 200bp and FGN bonds 100bp, while liquidity remained poor. The curve then recovered slightly but it is still significantly wider than last week (Figure 27). The DMO also published a revised issuance calendar this week for Q1, lowering the targets for the March 25's auction (NGN 35-65bn vs. NGN 140-170bn in the original) and slightly extending the maturity compared to the original plan.

FX also under pressure. As concerns of a currency devaluation rise with the drop in oil price, USDNGN traded higher this week towards 367 in the investor and exporter (I&E) window. At the same time, 12M USD-NGN NDFs are trading much higher this week (up to 460 from 400 average in February), reflecting concerns of a currency devaluation. Overall, foreign investors are likely to remain on the [sidelines awaiting for a better entry point - which may take some time given the CBN historical reluctance to devalue](#) - and focus in the meantime on the fiscal and monetary measures (to be announced over the next few day) to counteract the coronavirus'

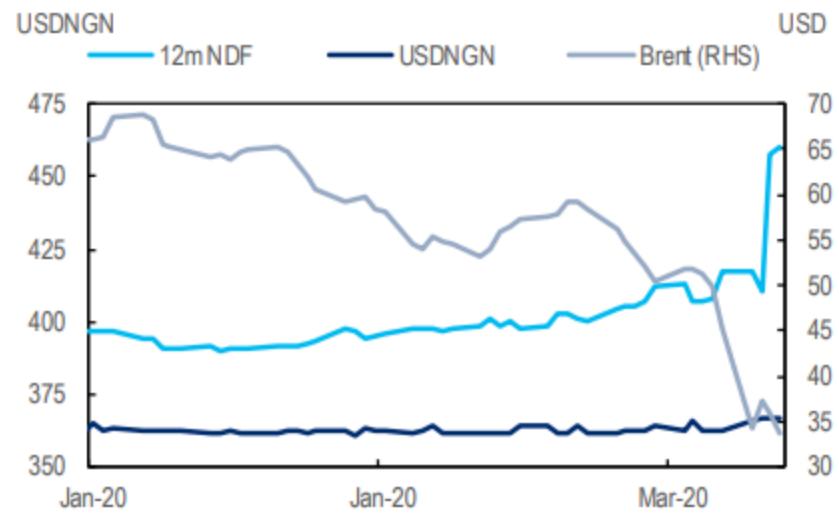
economic impact. We have [taken profits in our exposure to Nigeria local bonds](#) a few weeks back amidst increased market volatility and will also remain on the sidelines as we expect that upside pressure on the curve and FX will persist.

Figure 27. The curve shifted upwards this week



Source: Citi Research. Indicative mid-levels as of 10:00 London on 12-Mar-20

Figure 28. NDF under pressure as well

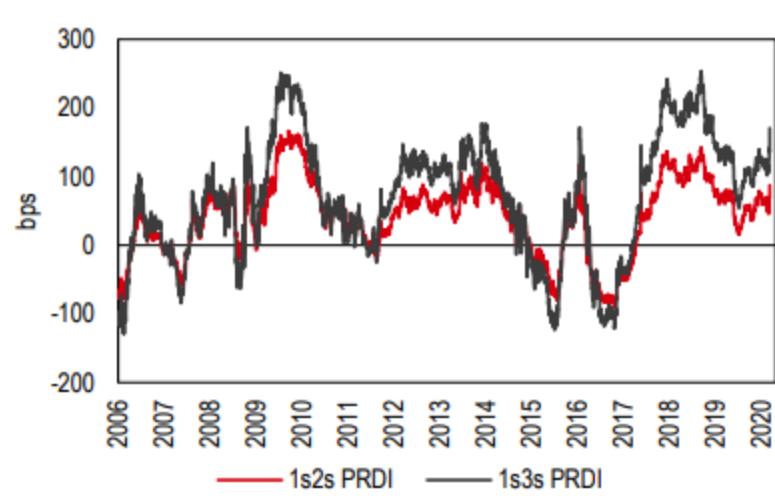


Source: Bloomberg, Citi Research

in Brazil too, particularly NTN-F's (fixed-rate coupon) in a similar way to Mexico's swapping of Mbonos to help markets reduce duration. Our understanding is that in Brazil this operation tends to be more a straight buyback rather than a switch into securities of less duration.

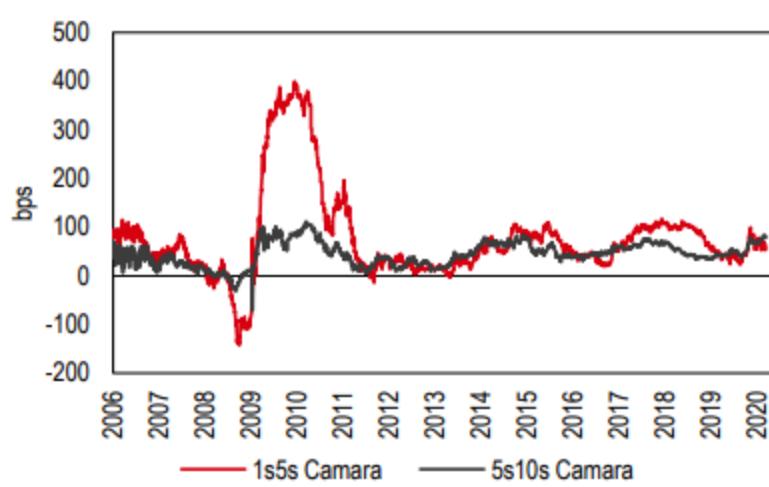
Chile's local yield curve shape tends to be the most well behaved in the region, not only by historical standards but also because of the handling of its public finances, which has set an example for the region. While we think that the additional fiscal impulse that Chile has embarked on since October of last year deviates from the behaviour of the country in previous years, it should still be seen as a leader of what needs to be done in the region. When looked at in isolation, there is fiscal expansion that needs to be associated with higher costs of funding, but one that by comparison is still better behaved than other countries in the region. We think that this curve should steepen too, but probably in a slower fashion and by a lesser magnitude than Mexico or Brazil.

Figure 2. Brazil's local curve is used to steeper levels



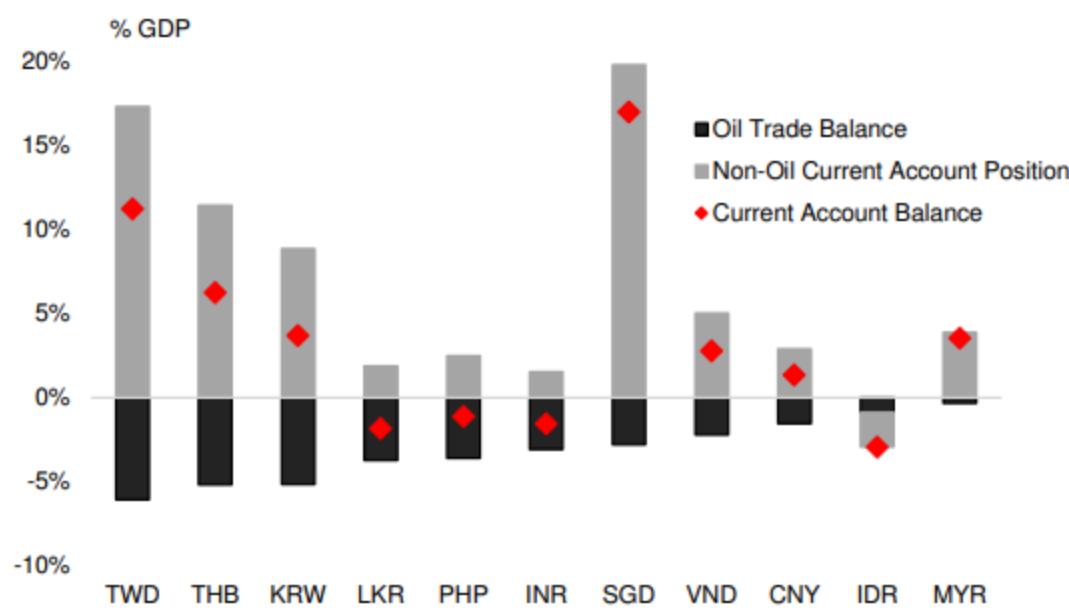
Source: HSBC, Bloomberg

Figure 3. Chile- A steeper curve is likely, but maybe less so than other regional peers



Source: HSBC, Bloomberg

Figure 7: All major economies in Asia run negative oil trade balances, which mitigate the size of current account surpluses or add to deficits



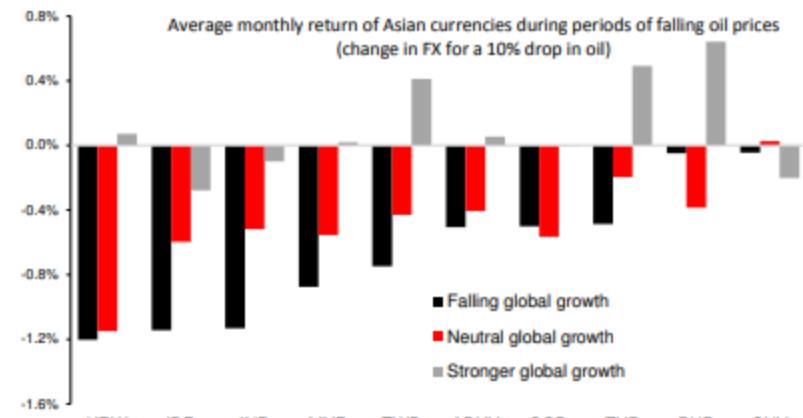
Source : Deutsche Bank, Haver Analytics

Figure 8: Asian FX has moved with oil prices over long cycles - with a growth factor dominating



Source : Deutsche Bank, Bloomberg Finance LP

Figure 9: KRW, INR & IDR weaken the most, while CNH & PHP hold steady in periods of falling oil & falling growth



Source : Deutsche Bank, Bloomberg Finance LP

Note: We look at monthly FX and oil returns since 2005. We define global growth regimes by the 2m change in the global composite PMI (2m change <-1, between -1 and 1, or >1). We focus on average returns of Asian FX when oil prices are falling, standardizing for the move in oil, across the three growth regimes.

Mexico's local yield curve in recent years has actually remained inverted. This has been the result of the prolonged tightening cycle that Banxico initiated in late-2015 and that only concluded in 2018. Here, we see that the curve flattened as the threats seemed external (including NAFTA mostly, and immigration), but public finances were in relative order and ultimately a presidential transition proved to be relatively well contained in spite of initial hiccups. Here keep in mind that as the curve inverted, the cost of carry of having flattening positions was actually positive, thus incentivizing these type of trades. Now the situation is starting to change. The curve is no longer inverted. As of writing, the Overnight rate is at 7.00%, a 10-Yr rate in TIIE is around 7.70%, and a 5Yr rate is around 7.60%. Indeed, the carry proposition that favoured flatteners may start to change as the curve "bear" steepens, further enhancing this move that was kicked off by a combination of global dislocations and also a less optimistic forward fiscal outlook as growth is anaemic and the drop in oil prices may flow quickly via state-owned company PEMEX back into public coffers.

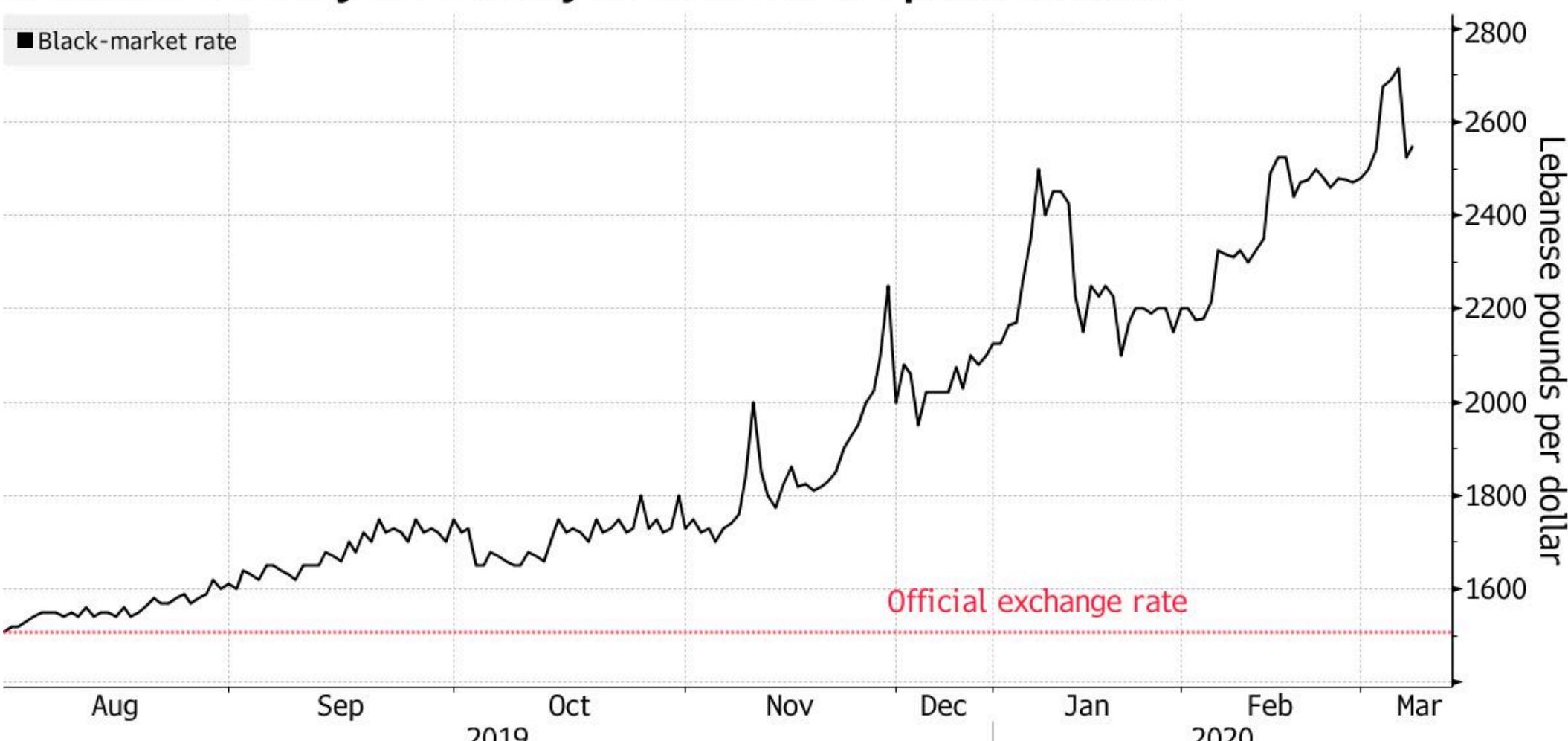
Finally, Banxico is now launching a large switch operation, essentially seeking to buy back long-dated securities (Mbonos) and provide the market in return with short-dated Cetes (zero coupon, 1Y maturity) and Bondes D (which have floating-rate coupons). This action should help markets to digest the sell-off in the long-end of the curve and probably slow (but not stop) the steepening trend that we are seeing. But, in essence, the steepening tide seems too big to be contained as there are both global and local fundamentals factors creating the change in sentiment.

Figure 1. Mexico, starting to look steeper after many years of flattening



Source: HSBC, Bloomberg

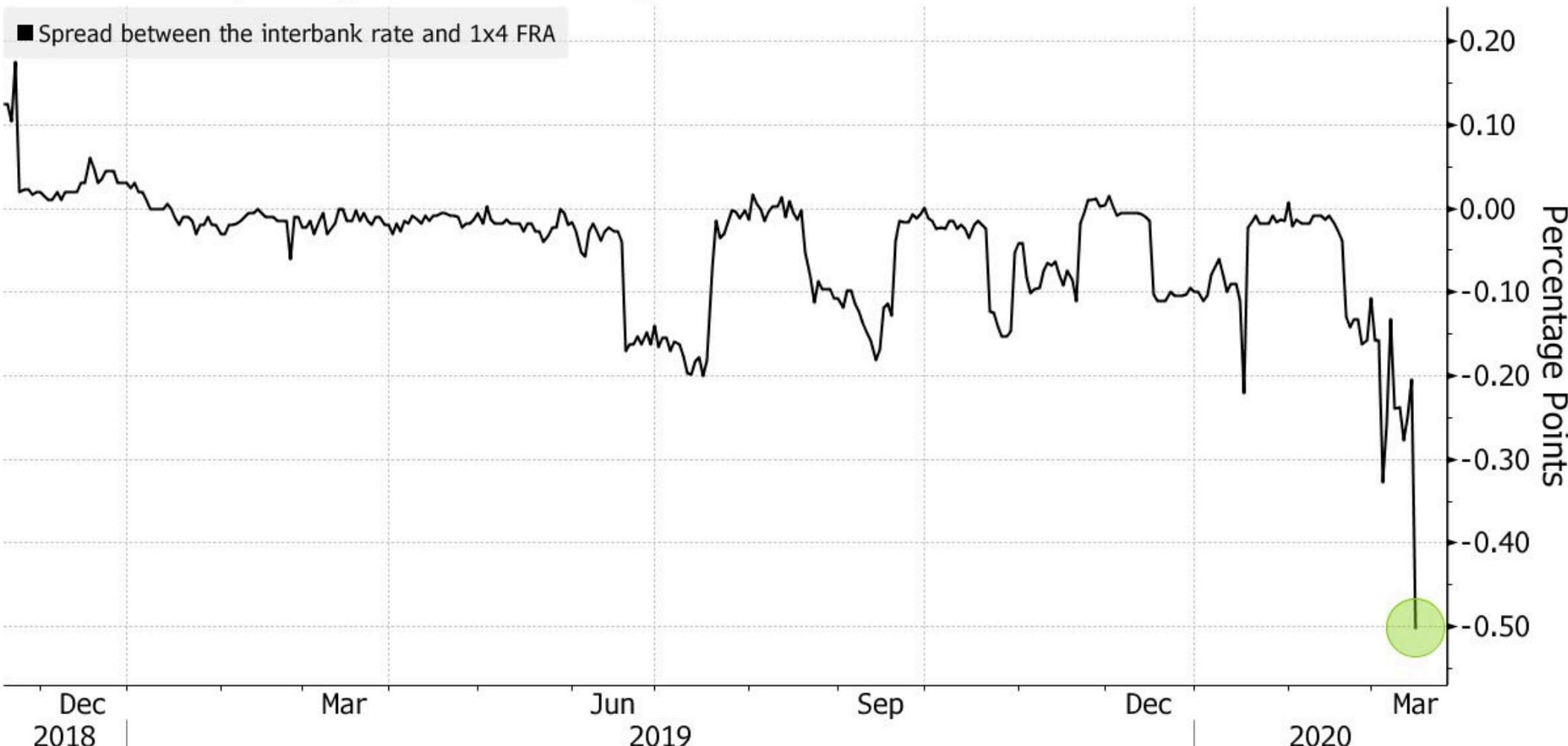
What Peg? Lebanon's currency has already devalued on the parallel market



Source: lebaneselira.org, lebaneselira.net

Rate-Cut Bets

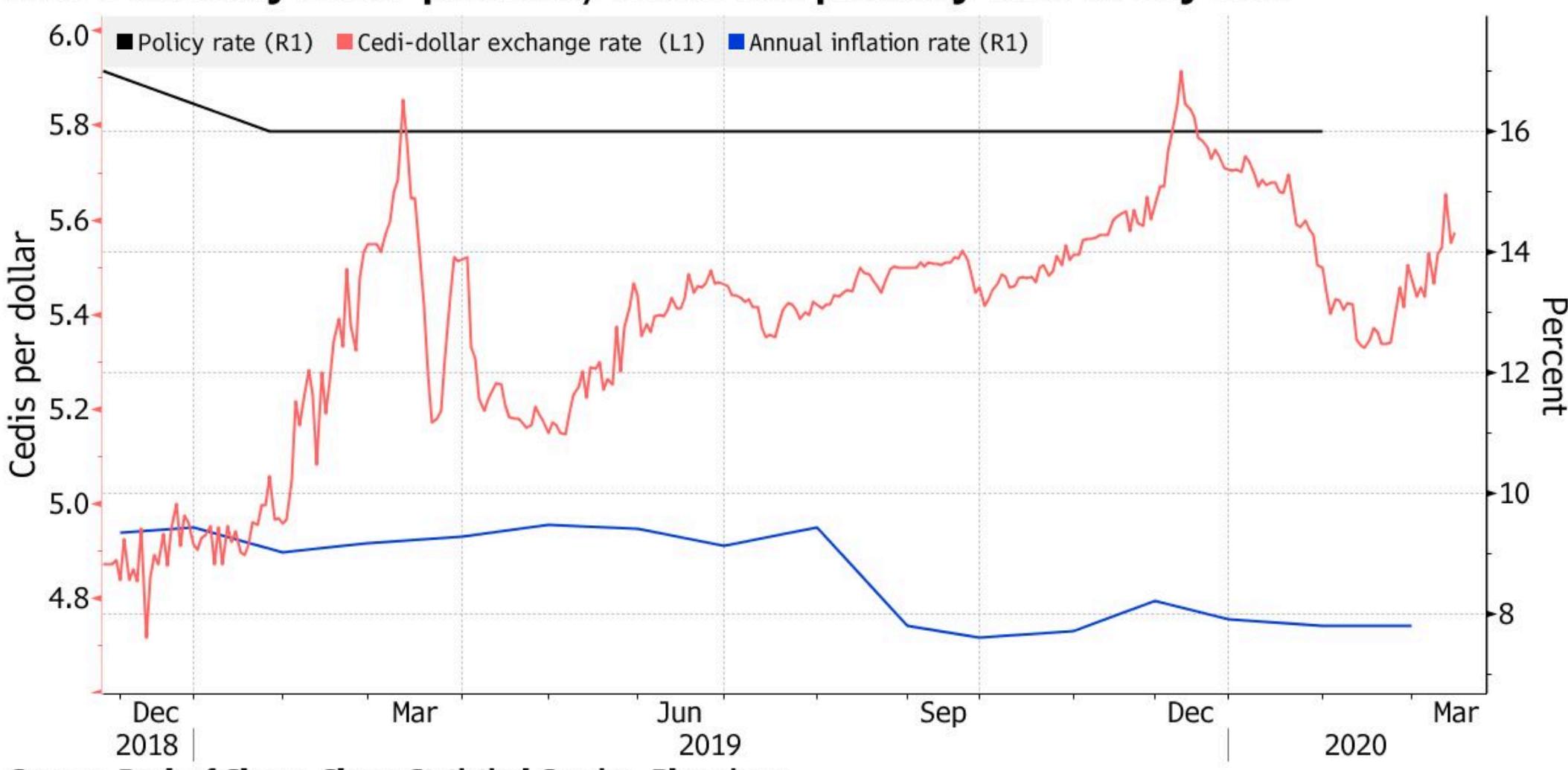
Markets are pricing in a 50 basis-point rate cut in South Africa



Source: Bloomberg

Potential Pause

With a currency under pressure, Ghana will probably hold its key rate



Source: Bank of Ghana, Ghana Statistical Service, Bloomberg

Double Whammy

Rupiah and Indonesian stocks were hit as virus fears rage on

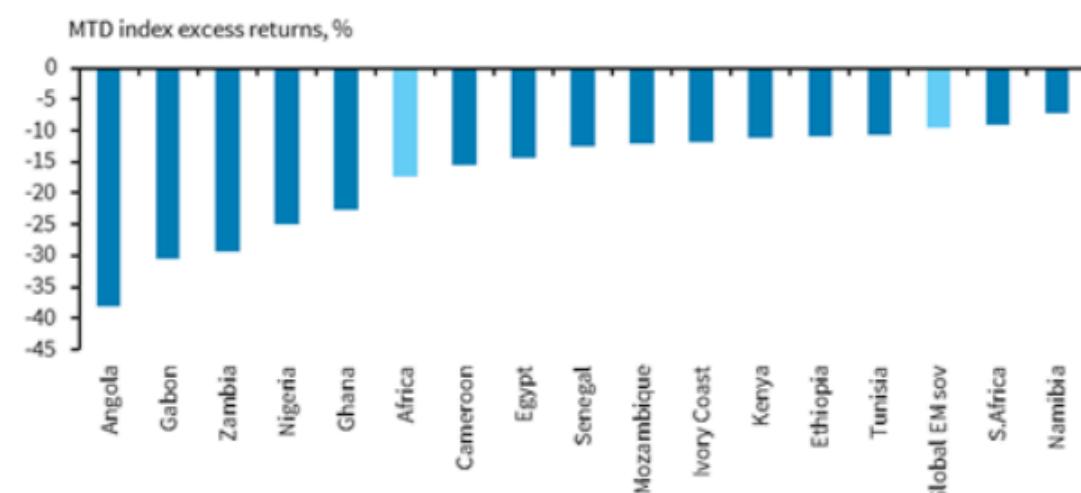


Source: Bloomberg

Credit strategy implications: Market moves reflect relative vulnerabilities

Looking at MTD moves in Africa credit, we believe the market moves (see Figure below) broadly reflect the relative vulnerabilities discussed above. Angola has been especially hard hit, which likely reflects investor concerns that the high debt burden and more limited external buffers than in the past (and relative to Nigeria) make the country particularly vulnerable to an extended low oil price environment, despite the IMF anchor and a proven track record of policy flexibility and implementation of necessary adjustments. Nigeria has so far lacked the latter and hence, while buffers are much more comfortable for the short term, investor concerns likely focus on the longer-term risks. Ghana has sold off somewhat less than Angola, Gabon and Nigeria, reflecting its lower dependence on oil. However, we note that it has still been severely hit and has significantly underperformed the rest of the African credit space, likely exacerbated by positioning and flow-related effects. As already highlighted in [EM sovereign credit: An oil-shock to the system](#), 10 March 2020, while Ghana is not without challenges in this environment, we believe its economic diversification should shelter it from the worst. Moreover, having already issued USD3bn of international bonds this year, coupled with a liability management exercise, it does not have the need to return to markets anytime soon. Hence, we think that once flows stabilise and volatility recedes, a buying opportunity may emerge.

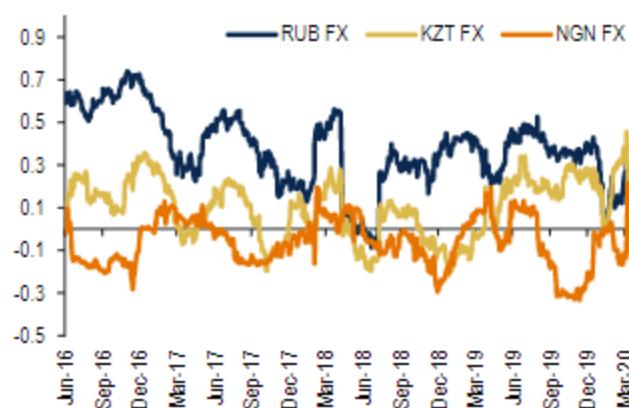
Market moves in Africa credit broadly reflective of relative vulnerabilities



Source: Bloomberg, Barclays Research

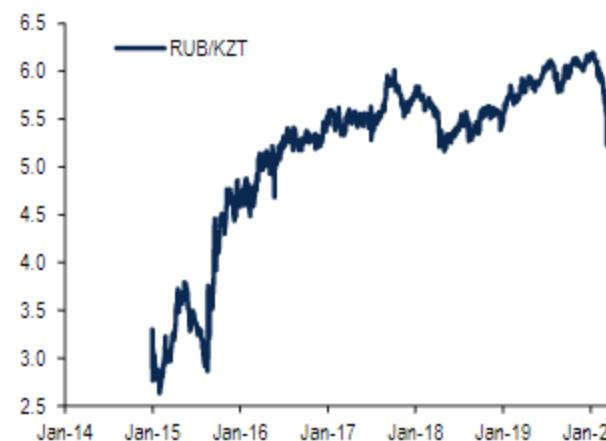
Given that both countries are net oil exporters (and Kazakhstan to the large extent depends on trade with Russia), KZT resilience can primarily be attributed to strong local supply in combination with the emergency hike (225bp). Kazakhstan was actually the very first EM country to tighten, which suggests some unease with the prospects of currency depreciation. On the other hand, there is an increasing chance of some emergency hikes in Russia (the markets currently price around 100bp in next three months).

Chart 4: KZT had relatively stable correlation to oil, but in the last 2 weeks the correlations have deteriorated as the central bank intervened



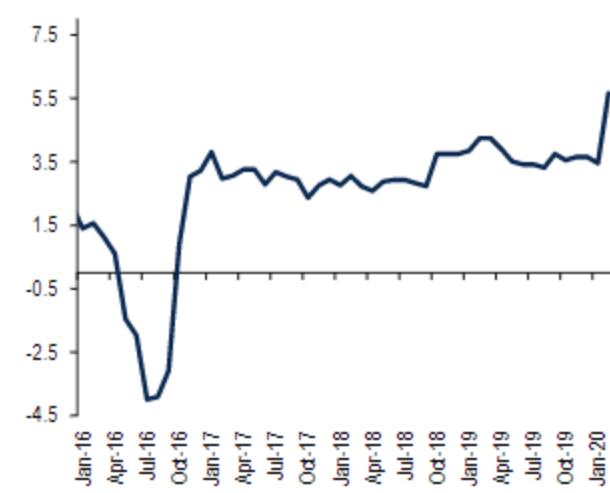
3m rolling correlations with Brent Source: BofA Global Research, Bloomberg

Chart 5: RUB/KZT sold off around 14% since the end-Dec



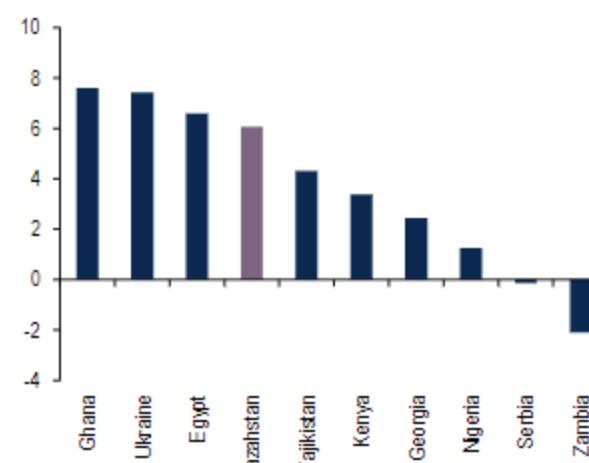
Source: BofA Global Research, Bloomberg

Chart 6: Real policy rate spiked on the back of emergency hike (225bp), which indicates some domestic concerns with the currency weakness



Source: BofA Global Research, Bloomberg

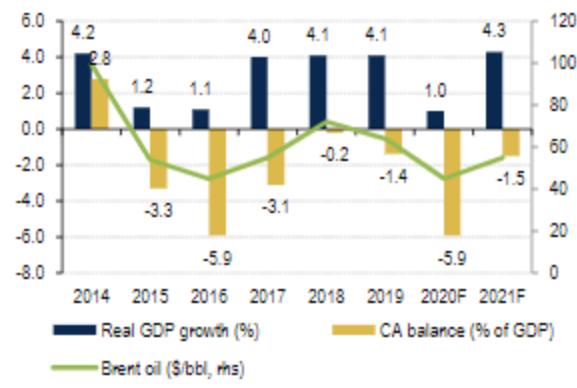
Chart 7: Real policy rates across EEMEA frontiers: Kazak yields are high, but large downside to the currency does not make it attractive



Source: BofA Global Research, Bloomberg

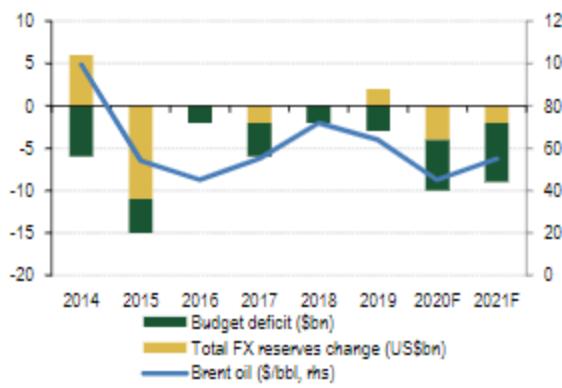
income deficit from higher previous oil prices as well as fall in export revenues. Such deep drop in current account inflows will likely require a material correction of the currency in order to stabilize net outflows. Additional FX weakness could also help to reduce the use of the National Oil fund, given that the obligatory transfer is done in KZT vs USD denominated revenues. On top of such fundamental factors we also point that additional FX demand could come from households, as new round of KZT weakness could also trigger renewed dollarization of deposits in the banking sector and/or outflow of capital from the system, similar to what was observed in 2018-2019.

Chart 2: Lower oil cuts into real GDP and CA outlook



Source: Bloomberg, BofA Global Research estimates

Chart 3: Fiscal is not as strong as it used to be



Source: Bloomberg, BofA Global Research estimates

Correction might not be granted

However, we also note that another round of KZT weakness cannot be taken for granted, as the country continues to face the same challenges, which constrained the capacity for FX adjustment during previous crises. In particular, we note that another round of KZT weakness could renew pressure on the asset quality of the local banking sector. On top of that, we also see material political importance of KZT stability, which could be a material point of concern in the current conditions of a political transition. As a result, we think that the National Bank could try to constrain and limit an overall FX adjustment by delivering deeper rate hikes and tightening domestic liquidity. However, we think that the capacity to protect the currency through monetary policy will likely be fairly limited by the remaining vulnerabilities in the banking sector. As a result, we think that in the absence of renewed weakness in oil prices, the National Bank will likely resume its easing cycle later this year.

Pain will increase with \$30/bbl

A stress test analysis under pessimistic \$30/bbl suggests that the economy may approach an outright recession, although we would still not expect any material negative growth rates. However, such weak oil prices will clearly increase devaluation pressures on the KZT, which would most likely prompt its deeper decline. Thus, we estimate that in the absence of sharp FX adjustment Kazakhstan's current account deficit could enter double digits under such scenario, which would require a significant drain on monetary and fiscal FX assets.

Strategy: stronger RUB/KZT

Another way to assess tenge is by looking into RUB/KZT levels. Since the oil-supply shock and oil drop to \$30/bbl, RUB has weakened almost 20%, while KZT remained more resilient with 7% depreciation versus USD. Despite higher historical correlations of KZT to oil compared to RUB (Chart 4), tenge has outperformed, which is likely to lead to at least 10% adjustment in terms of stronger RUB/KZT.

Numbers speak louder than words

Exhibit 1: Monthly inflows into equity markets (USD mn)

	EEMEA	S. Africa	Russia	Turkey	Czech R.	Hungary	Poland	Israel	Egypt	Saudi	UAE	Kuwait	Qatar
Feb-19	427	332	81	-40	8	23	46	-48	31	91	20	19	7
Mar-19	-1028	-65	-492	-124	-8	-15	-77	-14	14	108	-12	-7	-6
Apr-19	-546	-47	-262	-99	-5	-15	-57	-29	1	153	-1	5	3
May-19	473	-363	-672	-25	-18	-39	-97	-21	-48	2272	-40	-17	-17
Jun-19	-1222	-241	-661	-66	-13	-27	-42	1	-41	207	-42	1	-17
Jul-19	307	-242	-358	-114	-5	-25	0	29	-25	1377	-24	-17	-10
Aug-19	-3200	-596	-1180	-166	-27	-47	-123	-53	-52	-384	-69	-51	-29
Sep-19	-1775	-116	-43	-39	-4	-11	-6	3	-9	-1408	-19	-12	-6
Oct-19	-1441	-124	-228	-25	-6	-14	-32	-2	-12	-927	-6	40	-3
Nov-19	1225	197	434	78	17	29	48	60	28	6	48	27	20
Dec-19	-272	82	-170	-18	6	8	9	-11	21	-319	26	20	14
Jan-20	1482	381	687	149	25	33	82	82	32	-164	42	26	20
Feb-20	405	93	185	-64	14	7	11	86	8	16	10	30	2
Mar-20	-1246	-212	-498	-90	-15	-23	-38	-27	-20	-67	-23	-16	-10

Source: BofA Global Research, EPFR

Exhibit 2: Weekly inflows into equity markets (USD mn)

	EEMEA	S. Africa	Russia	Turkey	Czech R.	Hungary	Poland	Israel	Egypt	Saudi	UAE	Kuwait	Qatar
01-Jan-20	104	36	16	8	2	3	4	0	3	2	5	3	2
08-Jan-20	31	39	94	13	3	5	17	1	5	-137	7	3	4
15-Jan-20	601	102	337	33	7	10	36	21	9	-22	11	7	10
22-Jan-20	732	181	281	57	8	14	18	30	14	20	20	13	10
29-Jan-20	14	3	-41	38	5	2	7	29	1	-28	0	0	1
05-Feb-20	101	42	-17	18	5	6	8	23	4	3	5	8	2
12-Feb-20	591	176	220	2	9	12	19	34	13	4	14	20	5
19-Feb-20	110	-1	53	0	3	-1	2	15	-1	-2	1	9	0
26-Feb-20	-397	-124	-71	-84	-3	-10	-18	14	-8	11	-10	-7	-5
04-Mar-20	-1246	-212	-498	-90	-15	-23	-38	-27	-20	-67	-23	-16	-10

Source: BofA Global Research, EPFR

Exhibit 3: Monthly inflows into debt markets (USD mn)

	EEMEA	S. Africa	Russia	Turkey	Czech R.	Hungary	Poland	Israel	Egypt	Saudi	UAE	Kuwait	Qatar
Feb-19	2585	293	278	315	56	140	211	72	102	76	139	20	77
Mar-19	2575	352	233	278	44	117	189	75	92	92	151	22	72
Apr-19	835	119	61	46	15	42	84	30	28	25	43	6	15
May-19	25	22	-53	-21	-2	-7	39	21	-23	-34	-36	-5	-26
Jun-19	2040	294	177	160	27	69	164	76	72	85	99	16	72
Jul-19	3320	268	338	278	83	138	241	85	135	171	186	29	142
Aug-19	-779	44	-150	-117	-23	-55	-29	5	-61	-88	-88	-14	-69
Sep-19	1210	265	99	84	18	41	80	48	38	50	48	8	42
Oct-19	907	277	98	57	5	30	97	56	6	6	14	-2	3
Nov-19	711	261	122	44	-2	16	52	37	12	13	20	1	13
Dec-19	2037	304	282	140	36	74	105	39	78	103	120	11	78
Jan-20	3502	433	452	361	26	126	193	115	132	175	211	21	128
Feb-20	2464	487	316	56	50	74	131	88	78	96	110	11	74
Mar-20	-2201	-180	-212	-281	-56	-74	-101	-55	-95	-116	-131	-14	-83

Source: BofA Global Research, EPFR

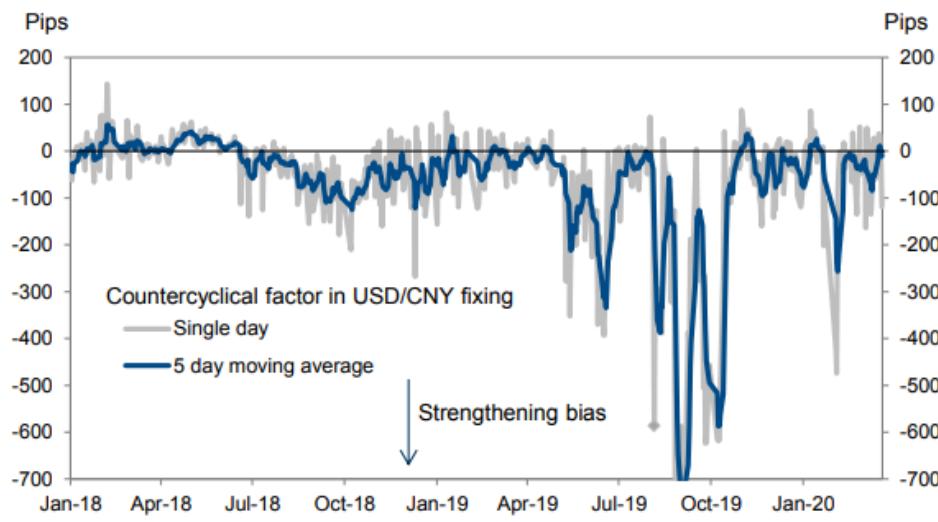
Exhibit 4: Weekly inflows into debt markets (USD mn)

	EEMEA	S. Africa	Russia	Turkey	Czech R.	Hungary	Poland	Israel	Egypt	Saudi	UAE	Kuwait	Qatar
01-Jan-20	529	71	83	34	9	18	33	14	17	25	33	3	18
08-Jan-20	708	76	79	56	10	29	48	22	28	38	45	5	30
15-Jan-20	894	112	131	72	11	32	35	30	40	53	63	6	38
22-Jan-20	1055	99	138	133	17	40	60	36	41	53	63	6	38
29-Jan-20	315	75	21	67	-21	7	17	13	6	6	7	1	4
05-Feb-20	171	63	27	4	8	-1	5	11	-1	-4	-4	-1	-1
12-Feb-20	950	197	107	51	11	28	45	25	30	39	45	5	30
19-Feb-20	1074	159	142	63	22	39	56	32	41	53	59	6	40
26-Feb-20	269	69	40	-62	8	8	25	20	8	8	9	1	5
04-Mar-20	-2201	-180	-212	-281	-56	-74	-101	-55	-95	-116	-131	-14	-83

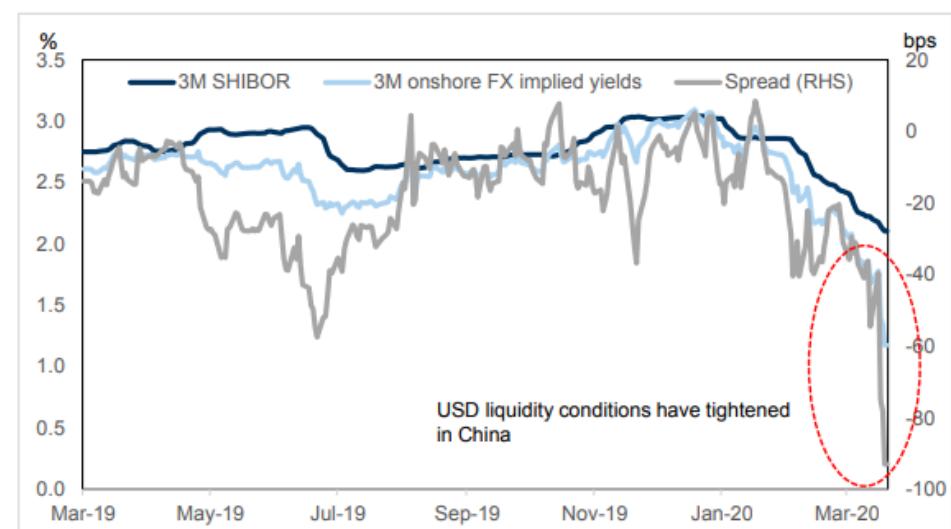
Source: BofA Global Research, EPFR



CHINA

Exhibit 2: Counter cyclical factor has not been strong recently indicating limited depreciation pressure


Source: Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 3: USD liquidity conditions have tightened in onshore China


Source: Bloomberg, Goldman Sachs Global Investment Research

Staying defensive amidst outflows from EM local markets

China – CNY to outperform NJA peers, while flush liquidity keeps bond yields low.

Last week, the PBoC cut RRR of 50-100bps for qualified banks and an additional 100bp cut for qualified joint-stock commercial banks, which released CNY 400bn and CNY 150bn of liquidity into the banking system, respectively. This injection resulted in flush domestic liquidity conditions, which pushed the 7-day repo rate lower to around 1.70%. USD/CNY rose to 7.10 this week as the broad USD strengthened, and CNY appreciated modestly on a trade-weighted basis. Overall outflow pressures were likely lower in China on the back of reduced outbound tourism, which could have contributed to the outperformance of CNY vs other currencies under the backdrop of USD strengthening. The PBOC has also leaned against CNY depreciation through a lower (i.e. stronger) CNY fixing, but this policy bias was not as strong as it was in Q3 last year (Exhibit 2). In sum, we think USD/CNY can creep higher in near-term on the back of a stronger USD, before easing back down in H2 2020 as Chinese activity growth rebounds. We adjust our forecasts higher to 7.15, 7.00, and 6.90 on a 3M, 6M and 12M outlook. We expect CNY to outperform NJA peers and are bullish on CNY bonds.

Asia

Gaurav Garg
+65-6657-4186
gaurav.garg@citi.com

Gordon Goh
+65-6657-4150
gordon.goh@citi.com

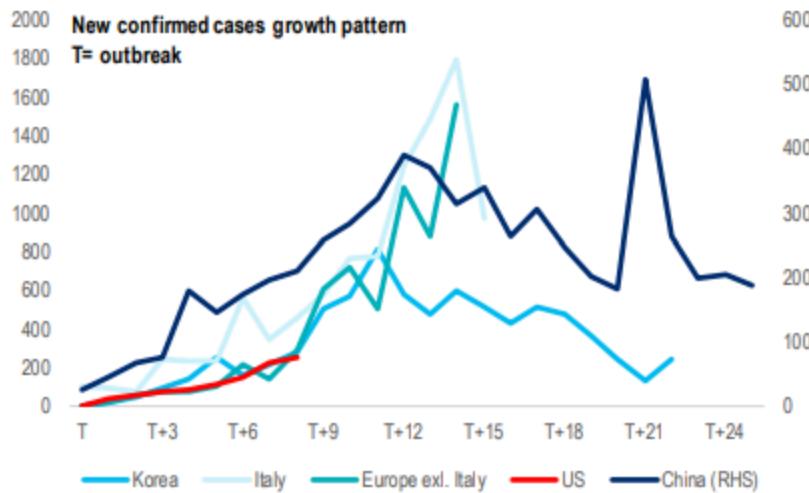
With thanks to Yaqi Zhou

China

Further renminbi outperformance likely. Global risk assets have come under a lot of pressure with rate of new confirmed COVID-19 cases rising at a worrying pace in Europe & US. Meanwhile, rate of new infections reported by China have continued to decline. This together with policy support is likely to drive faster pace of recovery in domestic activity / sentiment. While the hit to global supply chains may still take its toll, RMB's outperformance may continue on back of 1) gradual recovery of domestic economic activities; 2) drains on current account (like tourism expenses made overseas) to remain under check for a long time. This is likely to drive further strengthening of CFETS basket towards 95 (from 93.15). We retain overweight CNY overlay of +1% (versus underweight THB, -1%) in the EM bond portfolio.

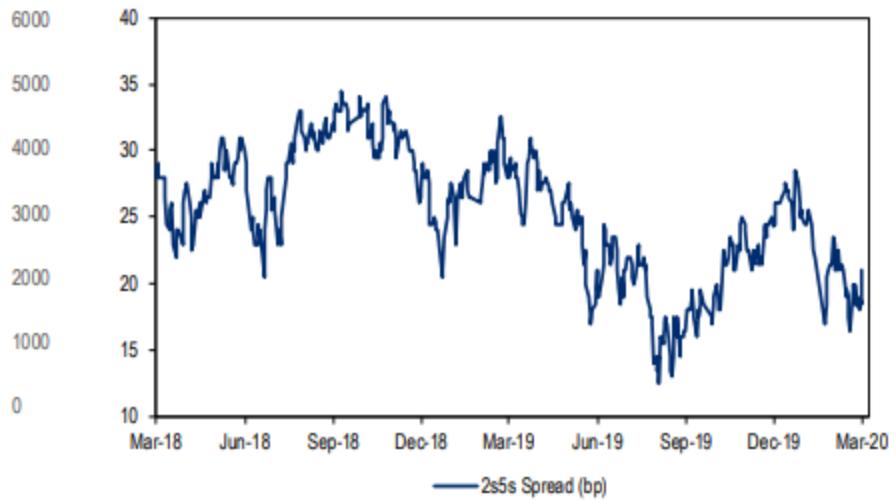
China yields curve likely to steepen. As the rate of new COVID-19 infections continue to drop in China, the economic activity shall continue to recover. Policymakers are likely to extend support to economic participants and help the economy get back on its feet. PBoC is expected to ensure comfortable liquidity conditions and overall accommodative bias to monetary policy. This proactive approach reflects in low cost of renminbi financing (7d repo fixing sub-2.40%). As lending activity picks up, PBoC is expected to ensure ample CNY liquidity via OMOs and/or RRR cuts, with potential for further lowering of policy rates – expect lower repo and MLF rates in March by ~10bp, likely before next round of LPR setting on Mar 20th. In the meantime, fiscal policies will also likely kick in to further boost economic recovery. The chances of NPC meeting getting back on schedule may rise with the domestic COVID-19 situation getting under control. We are positioned for a [steeper curve in China \(2s5s\)](#).

Figure 17. China: Rate of new COVID-19 infections have been coming off in China



Source: CEIC, WHO, CDC, Citi Research

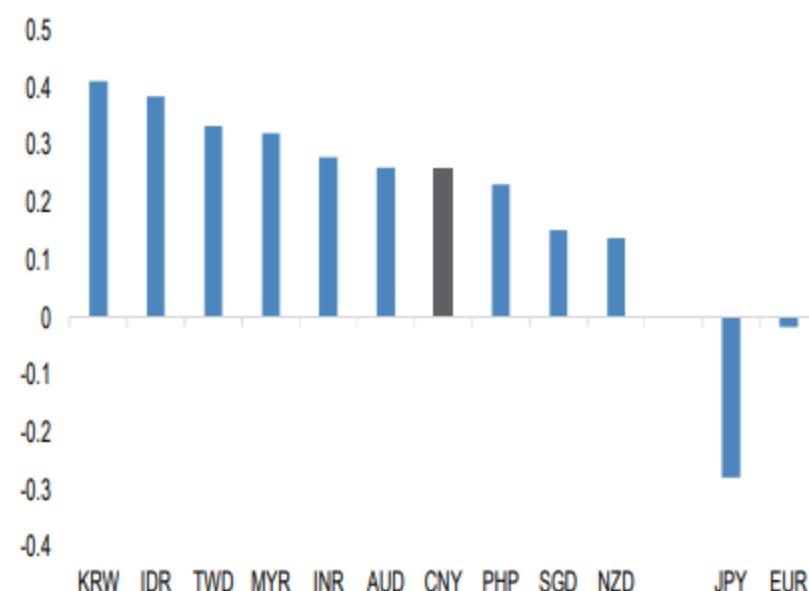
Figure 18. China: China ND-repo curve (2s5s) likely to steepen



Source: Bloomberg, Citi Research

Exhibit 8: USD/CNY outperforms most Asia pairs on risk-off days

Average daily changes for \$/CCY on risk off days, scaled by standard deviation, 2016-current



Source: J.P. Morgan, Bloomberg.

Note: Risk off days are defined as days with a negative global risk index value, constructed from 15 global market indicators including daily changes in UST10Y, S&P 500, gold prices and credit spread etc. The methodology follows the Fed [research paper](#) published in 2017

Emerging Markets FX

Exhibit 9: GBI-EM Model Portfolio

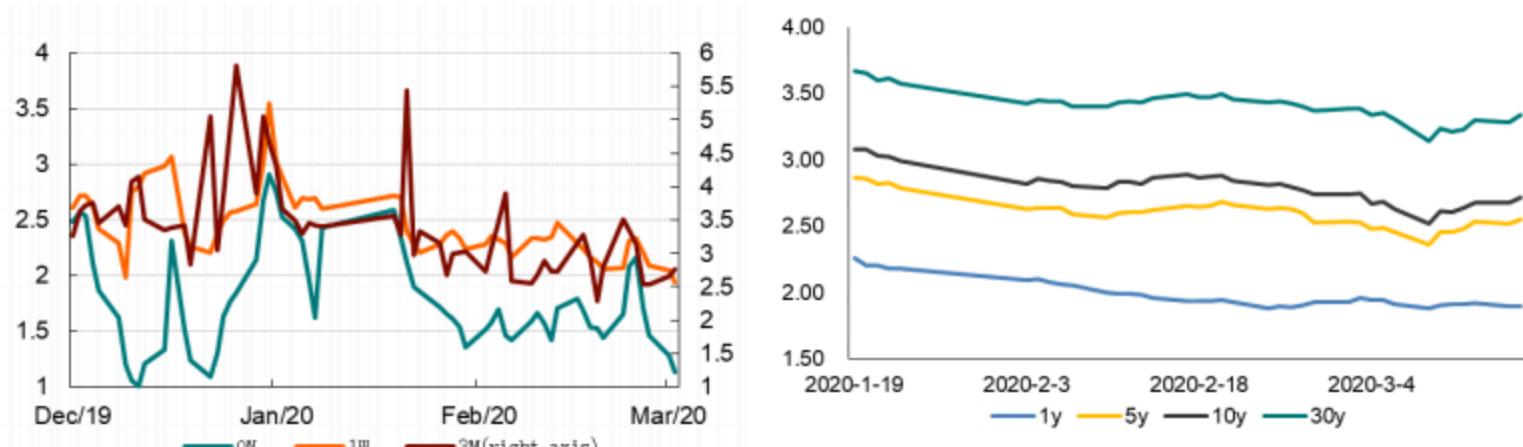
Exhibit 10: Outright FX trade recommendations

EM Asia	Entry Level	Target	Stop	Entry Date
Long CNH vs basket (0.5 AUD, 0.5 KRW) via 3m forwards	100.00	-	-	13-Mar-20
09-Jun-20 USD/TWD forward	29.80	-	-	09-Mar-20
Long 27-May-20 USD/THB forward	31.93	-	-	26-Feb-20
EMEA EM	Entry Level	Target	Stop	Entry Date
Long 10-Jun-20 USD/NGN via ndf	401.5	-	-	10-Mar-20
02-Apr-20 EUR/ZAR digital put (16.35), spot: 17.12	13.50	-	-	04-Mar-20
30-Apr-20 EUR/RUB 1x2 put spread (72.50, 70.00), spot ref: 73.95	0.44	-	-	04-Mar-20
Long USD/KZT 1m NDF	381.61	393.00	376.00	28-Feb-20
22-May-20 EUR/HUF call spread (340/345), spot ref: 336.66	0.54%	-	-	04-Feb-20
Long 26-May-20 EUR/RON forward	4.86	4.97	4.79	22-Nov-19
Long ILS vs Basket (0.5 EUR, 0.5 USD)	3.66	3.50	3.73	22-Nov-19
Latin America	Entry Level	Target	Stop	Entry Date
Sell 06-Mar-20 USD/CLP strangle (750,820)	1.94	-	-	06-Dec-19
Long PEN/CLP	233.10	242.00	220.00	22-Nov-19

Source: J.P. Morgan. * levels refer to the forward contract.

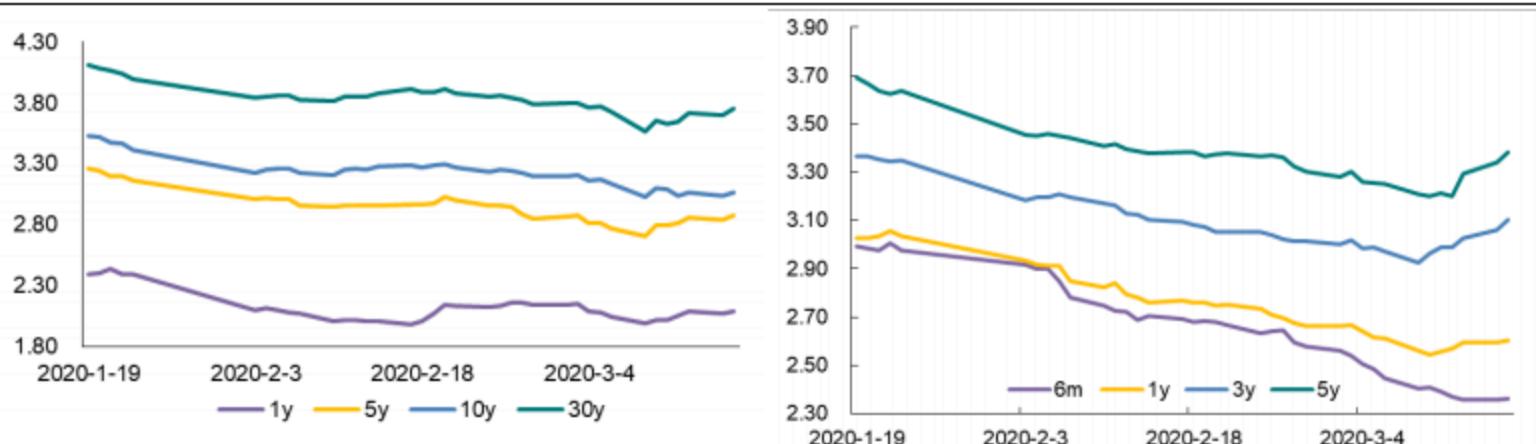


Repo rates (left) and the yields of CGBs (right) with various tenors over last three months



The yields of policy bank bonds (CDB, left) and AAA corporate bonds (right) with various tenors

over last three months





China Financial Market Briefing

Wednesday, March 18, 2020

Financial Markets Department

We provide professional trading and settlement agent service, investment consultancy service and other customized services in a timely manner.

Please contact:

Sales & Trading

He, Chengyang (Hayley)
021-20687239
hechengyang@abchina.com

Strategy: Fu, Xuan (Sabrina)
021-20687241
fuxuan@abchina.com

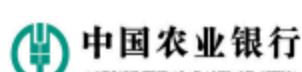
Money Market: Liu, Dawei
86-21-20687242
liudawei@abchina.com

Bond Market: Kang, Zhuoqun (Sharon)
021-20687247
kangzhuoqun@abchina.com

FX Market: Shi, Guang
021-20687228
shiguang@abchina.com

Strategy For Reference

- (1) Affected by the Fed's announcement to resume the commercial paper financing mechanism, the European and American stock markets rebounded sharply overnight, while the U.S. Treasury bond yields rebounded significantly, putting some upward pressure on China's bond yields. In terms of epidemic situation, overseas cases are still in a relatively rapid growth stage. Overall, the overseas epidemic situation is still severe.
- (2) Data show that the decline in passenger vehicle retail sales in March is expected to improve from February, but it still declined about 41% year-on-year. The current car market sales are still low, and it is expected to gradually recover from April to May.
- (3) There are media reports that the current real estate trust quota has not increased, and the regulator still emphasizes that the real estate trust quota cannot exceed the end of 2019. Despite the weak performance of economic data from January to February, the current regulatory authorities still maintain a strong determination of real estate policies, and there is no sign of relaxation for the time being.
- (4) With the funds brought in by the RRR cut and the MLF operations, market liquidity is likely to remain abundant this week.
- (5) As foreign investors have recently sold more bonds, and the previous day's MLF operation did not follow the U.S. Federal Reserve's rate cuts, the profit-taking behavior of Chinese security companies etc. has increased. The short-term oversupply in the bond secondary market has driven yields upward.
- (6) Conclusion: The continued rise in bond yields this week was mainly due to the profit taking behaviors and weaker-than-expected monetary policy. However, from the perspective of monetary policy and economic fundamentals, the bond market still has some room for yields to decline.



maintained at a relatively eased condition yesterday and the funding demand could be satisfied within a short time. As a result, the short-term repo rate significantly went down. Specifically, the overnight Shibor decreased by 15bp to 1.0830% and the 1W Shibor decreased by 30bp to 1.8960%. With the money injection of the target RRR cuts and MLF, the market liquidity may continue to be relatively ample in the near future.

Open Market Operations					
Tenor	Injection Volume	Rate(%)	Withdrawal Volume	Net Injection	
1W	-	-	-	-	-
2W	-	-	-	-	-
MLF	-	-	-	-	-
Total	-	-	-	-	-

Repo NCD(AAA)					
Tenor	Rate(%)	Tenor	Rate(%)	Tenor	Rate(%)
O/N	1.1376	-15	1M	1.9000	15
1W	1.9427	-11	3M	1.9968	-4
2W	2.1183	-3	6M	2.1163	2
1M	2.4151	-7	9M	2.3000	1
3M	2.7582	10	1Y	2.4000	0

Source: CFETS, WIND

■ Bond Market

Yesterday, we continued to see the obviously easing liquidity and upward shaping bond market yield. In early trading hours, the market sentiment was better, and the long end opened slightly low, but the yield was dragged up by the impact of the U.S. bonds failing to recover even after the U.S. stocks halting again. Specifically, the yield on the 10-year on-the-run CDB bond 190215 went up by 4.5bp to 3.1375%, while the yield on the 10-year on-the-run Treasury bond 190015 went up by 4.75bp to 2.7150%.

2

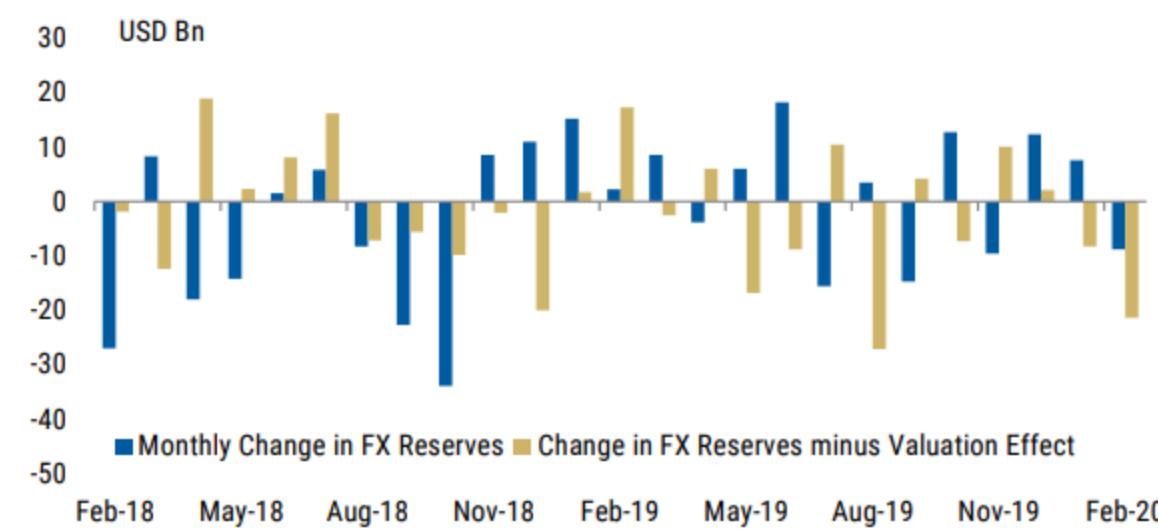


Recently, although the MLF interest rate was not cut as the market expected and thus indicated a relatively cautious policy attitude, the domestic market liquidity continued to remain eased. However, the bond market yield, under the influence of multiple domestic and foreign news, chose to continuously callback upward. Maybe because the bond market has accumulated gains too fast few weeks ago when risk aversion was the main power, there is a certain momentum of short-term pullback when the domestic epidemic is under control and the external impact is uncertain. However, in the case of the economic fundamentals being greatly affected and the general direction of policy easing expectations remaining unchanged, the momentum of the sharp correction is also slightly insufficient. We should be wary of the possibility of buying power from large amount of funds, in this easing liquidity environment, after the yield rises to a certain point.

China Government Bond				Policy Bank Bond (CDB)			CP/MTN (AAA)		
Tenor	Rate (%)	Change (bp)	Tenor	Rate (%)	Change (bp)	Tenor	Rate (%)	Change (bp)	
1Y	1.90	0	1Y	2.09	1	3M	2.25	-2	
3Y	2.25	0	3Y	2.65	1	6M	2.36	0	
5Y	2.55	3	5Y	2.88	4	9M	2.42	-2	
7Y	2.70	2	7Y	3.15	4	1Y	2.60	1	
10Y	2.71	4	10Y	3.07	2	3Y	3.10	4	

Note: CDB stands for China Development Bank. Source: CHINABOND, WIND

Exhibit 56: PBOC FX reserves change

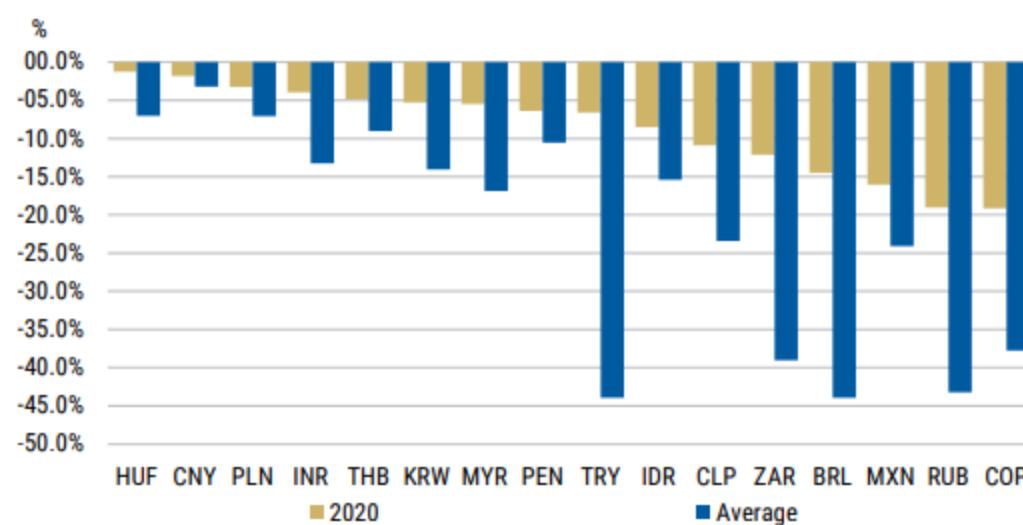


Source: Bloomberg, CEIC, Morgan Stanley Research

Stable FX reserves: PBOC FX reserves have been flat in the first two months of 2020 (i.e., around US\$3,106 billion). We estimate that the valuation impact is about US\$28 billion and the residual change could be explained by FX intervention. Given the economic challenge due to COVID-19, such intervention seems moderate and helps the stability of CNY.

Lower USD/CNY should USD weaken: Overall, we believe that a relative stable balance of payments could allow the PBOC to keep CNY in a reasonable range. More importantly, we note that CNY tends to outperform its EM peers during past EM sell-offs, which is in line with the PBOC's target to further internationalize the currency. With our view that USD will weaken on the back of Fed easing and the PBOC will keep CNY stable in basket terms, we believe that USD/CNY could move lower accordingly.

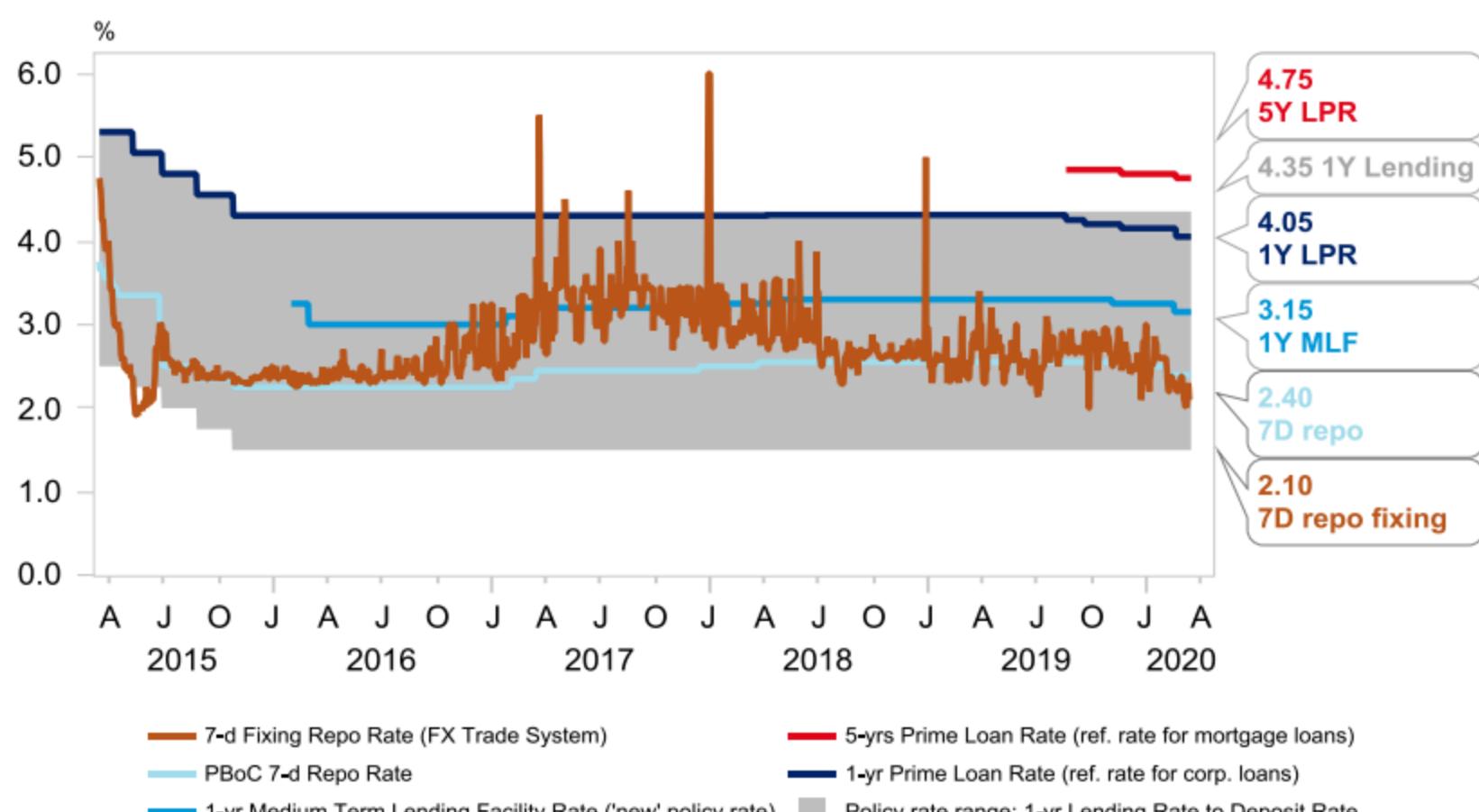
Exhibit 57: EMFX performance in 2020 versus previous EM sell-offs*



Source: Bloomberg, Morgan Stanley Research; *Previous EM sell-offs based on the average performance of EMFX in 2008, 2013, 2015 and 2018.

China: Key Policy Rates

Source: Macrobond, UOB Global Economics & Markets Research

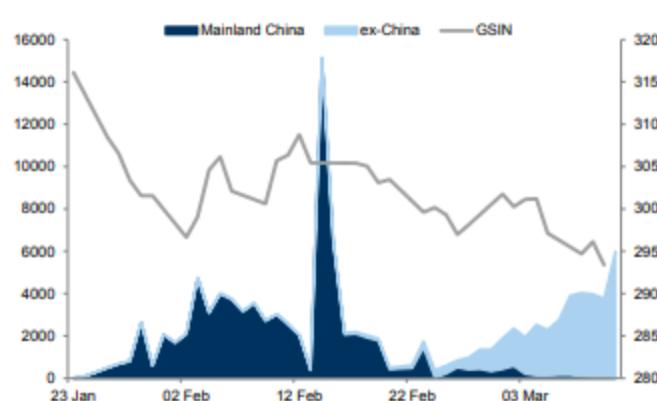


"Three Tranches"	RRR	"Two Preferential Treatments"	Effective RRR
First Tranche	12.5%	1. First and second tranche banks that have met the evaluation criteria for the targeted RRR cuts for inclusive finance - further RRR cuts of 0.5 percentage point or 1.5 percentage points.	11.0%
Second Tranche	10.5%	2. Banks that serve counties with local lending accounts for a certain ratio of the deposit increase: further RRR cut of 1 percentage point.	10.5% 10.0% 9.0%
Third Tranche	7.0%	Not applicable for "Two Preferential Treatments"	7.0% 6.0%
Others	6.0%		6.0%

Note:

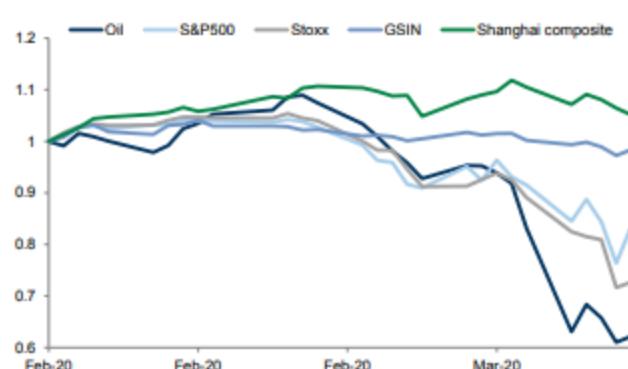
- First tranche applies to the large banks, including the six large commercial banks.
- Second tranche applies to the medium-sized banks, including joint-stock commercial banks and city commercial banks.
- Third tranche applies to small banks, including rural credit cooperatives, rural cooperative banks, village banks and rural commercial banks operating and providing services to counties.
- Others are finance companies, financial leasing companies and auto financing companies.
- The first preferential policy does not apply to the third tranche.
- The second preferential policy does not apply to the first two tranches.
- PBOC cut extra 100bp in Sept. 2019 just for the qualified city commercial banks.
- Mar. 13: All First Tranche banks guaranteed 1.5ppt cut.
- Mar. 13: For the 1st "Preferential Treatment", after the 2019 assessment, some previously unqualified banks qualified for 0.5 ppt cut, those previously qualified for 0.5ppt cut upgraded to 1.5ppt cut.
- Mar. 13: Joint-stock banks in the Second Tranche qualified for 0.5ppt cut get 1ppt cut (total 1.5ppt).

Exhibit 1: With virus cases spreading ex-China, the selling pressure on base metals resumed



Source: Goldman Sachs Global Investment Research

Exhibit 2: Metals have held up well relative to oil and ex-China equities, supported by improving China



Source: Goldman Sachs Global Investment Research

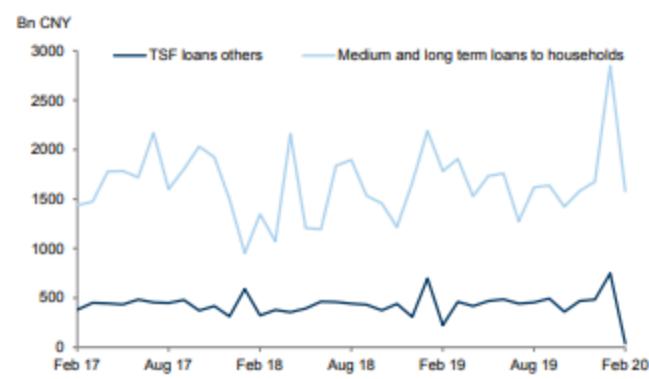
Our base case is for continued improvement in Chinese growth. Short-term indicators of Chinese activity have been improving and the focus of the government is now likely to shift to boosting growth to meet targets. While credit numbers have been weak in February, this was primarily due to a drop in medium to long term credit to households as property transactions came to a halt. Importantly, our economists expect credit to rebound strongly in March. At the same time, we are likely to get some clarity on infrastructure stimulus. Grid, 5G network and EV infrastructure, which are all base metal heavy, could get a boost.

Exhibit 3: China has been gradually recovering, with steel demand bouncing back



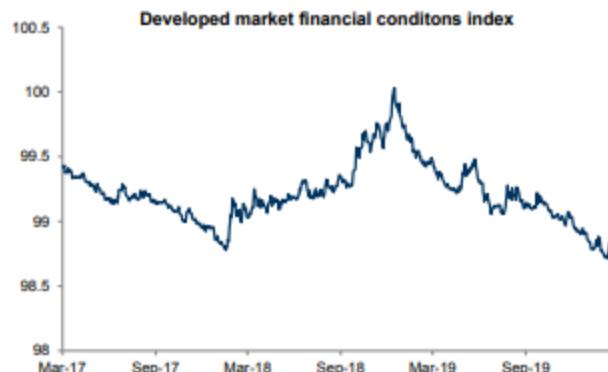
Source: SMM, Goldman Sachs Global Investment Research

Exhibit 4: Credit was weaker in February due to the collapse in demand but is expected to rebound strongly in March as per our economists

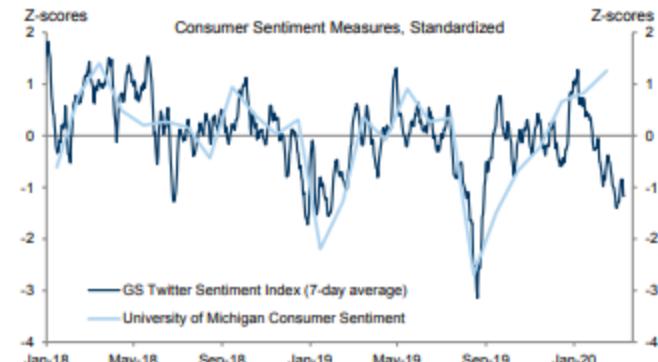


Source: Haver Analytics, Goldman Sachs Global Investment Research

However, for ex-China, we see upcoming data turning much weaker as the virus-related effects start to become more visible. The number of quarantines and restrictive travel measures has picked up in severity with Italy, France and Spain in lockdown and the United States implementing a travel ban on Europe. Financial conditions in DMs have also tightened materially. Credit spreads have tightened at the fastest pace since the GFC. Lower oil prices are also likely to hurt metal intensive capex in the US and other producer countries. Finally, our FX strategists expect many EM currencies to remain under pressure which, all else equal, would lead to metal cost deflation in dollar terms.

Exhibit 5: DM financial conditions have tightened very quickly

Source: Goldman Sachs Global Investment Research

Exhibit 6: Consumer confidence in the US is on track to deteriorate

Source: Goldman Sachs Global Investment Research

Therefore, the near-term path for base metals is likely to be decided by the interplay of prospects of Chinese stimulus and continued negative news from ex-China. In our view, this will create a volatile and choppy downtrend for all classes. While steel and iron ore are more levered to domestic construction and infrastructure, base metals tend to be more closely linked with manufacturing, which is heavily linked to the global industrial cycle through exports and supply chain links. For example, 30% of copper intensive home appliances tend to be exported. In fact, metals prices have a much better relationship with the global manufacturing cycle vs domestic construction activity in China. To add to the above, our economists do not expect a massive GFC-sized stimulus in China as the government policy approach has shifted from growth stability to reaching a pragmatic mix between growth and financial stability. This means that risk of an overshoot like in 2008/09 or 2015/16 looks less likely, in their view.

Exhibit 7: Metal prices are more linked to the global industrial cycle...

Source: Haver Analytics, Goldman Sachs Global Investment Research

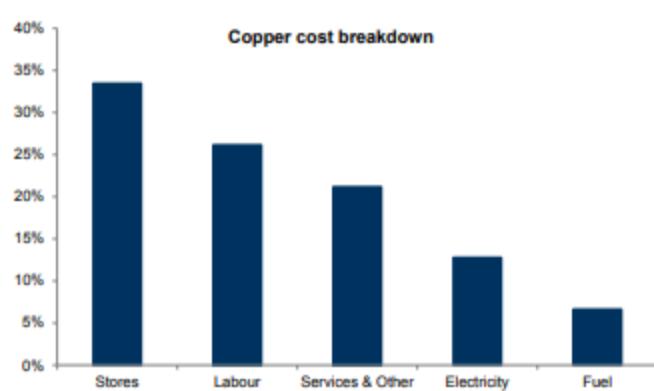
Exhibit 8: ... than to Chinese domestic construction activity

Source: Haver Analytics, Goldman Sachs Global Investment Research

In addition to this, we see material cost deflation coming to the sector from lower oil and weaker producer currencies. For copper, for example, 7% of costs are fuel and around 26% is labor force. Oil has lost 50% YTD, and local producer currencies have dropped 10%. This alone translates into cost deflation of around 5%. The case for power cost deflation is less obvious as the coal price has held up despite lower oil as it already was at a very depressed level prior to the outbreak. Going forward, however, we see

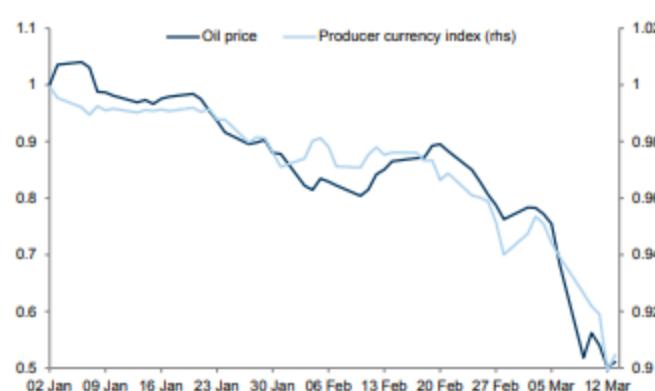
weaker demand leading to downside risks in coal too. For stores and components, the case for deflation is less clear as supply disruptions might actually increase the cost of some intermediate products, for example alumina. Finally, lower prices tend to incentivize companies to reduce costs through a focus on productivity vs growth and delaying some expenses. Overall we expect cost deflation to be 5-10% across the metals space this year.

Exhibit 9: Copper cost component breakdown



Source: Goldman Sachs Global Investment Research

Exhibit 10: Oil price and weaker producer currencies lead to considerable cost deflation



Source: Bloomberg, Goldman Sachs Global Investment Research

Copper

Going into this year, we were bullish copper due to expectations of a sizable deficit and low stocks. We revised down our China demand numbers but maintained this bullish view after the coronavirus outbreak in China assuming that the virus would be contained to Q1. However, with the virus now spreading rapidly ex-China, policymakers urgently addressing growing liquidity issues and recessionary risks rising, we view the demand shock as large enough to result in a sizable surplus for copper. We now expect a 2.5% copper ex-China demand contraction vs 1.5% growth we had envisioned before. This implies a 400 kt negative demand shock and a surplus of 260 kt for 2020 vs the 140 kt deficit we previously expected.

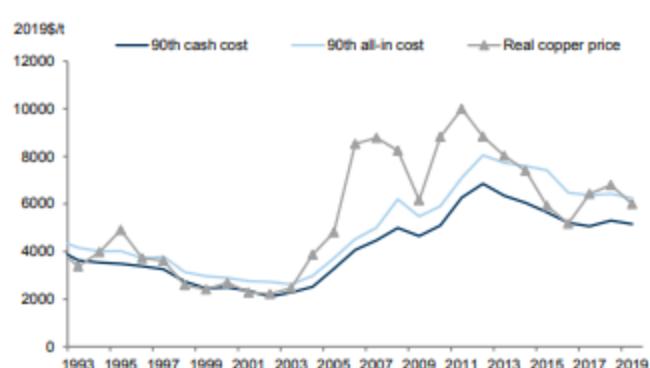
This surplus means the copper market will likely miss the window to get tight before the next supply wave of 2020-2022. During bear markets, copper tends to hit the 90th percentile of the total cash cost curve, which last year was \$5,150/t. Assuming 5% deflation this year, costs would be around \$4,900/t. In our base case, we assume the world economy bounces back strongly in Q3-Q4, consistent with our economists' current baseline scenario, and pressure on metal prices is reversed. We change our copper price 3, 6 and 12m targets from \$5,900/t, \$6,200/t and \$6,500/t to \$4,900/t, \$5,600/t and \$6,000/t. In the case that the recovery is not v shaped, we see risk that prices could temporarily go even lower.

Exhibit 11: There is a number of large projects set to come online over the next two years

Country	Mine	2020-22 growth
Indonesia	PT Freeport	448
DRC	Kamoa-Kakula	250
Chile	Quebrada Blanca	175
Peru	Mina Justa	153
Chile	Spence	144
Mongolia	Oyu Tolgoi	115
China	Qulong	70
Panama	Cobre Panama	65
Papua New Guinea	Ok Tedi	62
		1482

Source: Wood Mackenzie, Goldman Sachs Global Investment Research

Exhibit 12: During bear markets copper tends to trade near 90th percentile of the total cash cost curve

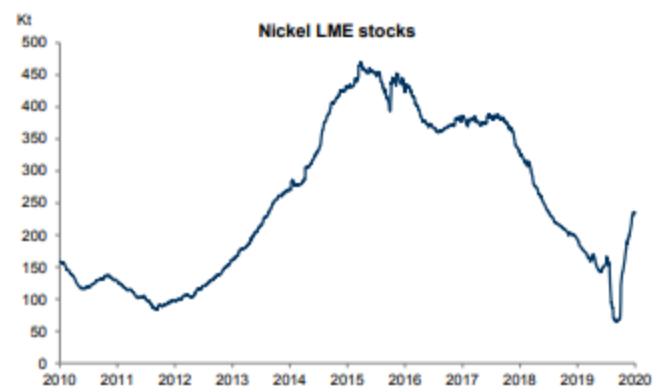


Source: Wood Mackenzie, Goldman Sachs Global Investment Research

Nickel

At the same time, we were also bullish nickel due to its positive exposure to EVs and the prospect of future deficits of battery grade nickel. Similar to copper, for 2020 we now project a 2% contraction in nickel demand ex-China and Indonesia vs 2.4% growth we had expected before. This implies an additional 40 kt weaker balance, taking our expected 2020 surplus to 90 kt. This large surplus coupled with the uncertain macro environment means that investment and hedging activity, which was a key bridge between a bright EV outlook and spot prices, is likely to moderate. Nickel stocks are likely to continue to go higher, in our view, further depressing sentiment. For nickel, we think cost support level would be all-in price for Indonesian NPI projects, which we estimate to be around \$10,000/t. We also change our nickel price 3, 6 and 12m targets from \$13,500/t, \$14,500/t and \$15,500/t to \$10,000/t, \$11,500/t and \$13,000/t.

Exhibit 13: With a considerable surplus expected in 2020, the build in inventories could continue



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 14: All-in cost of Indonesian NPI is around \$10,000/t

Operation	Output	Cash cost	All-in cost
Weda Bay	35	7498	9887
Tsinghsan Indonesia	300	7791	8684
Virtue Dragon	124	8025	9893
Harita	25	8548	10374

Source: Wood Mackenzie, Goldman Sachs Global Investment Research

Aluminium

Aluminium has shown resilience compared to other industrial metals in recent weeks. That is likely because it was already much closer to cost support relative to other metals, at least ex-China. SHFE, where smelter margins were much better, has actually

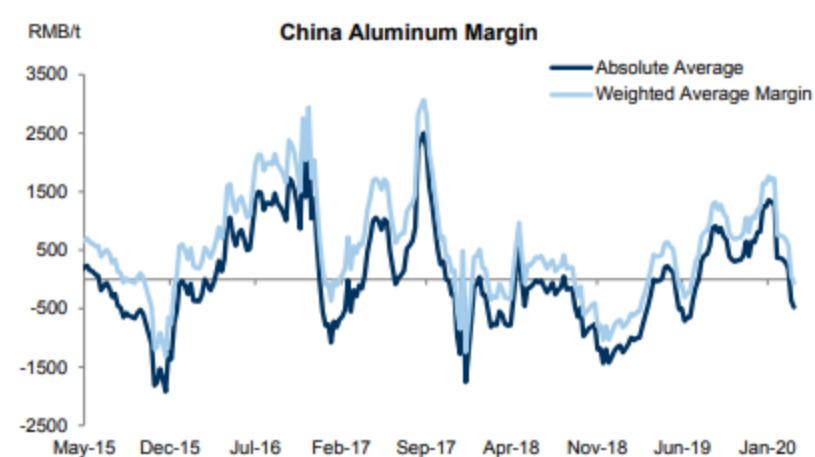
underperformed prices at the LME. Nevertheless, margins are still much better than they were in late 2018 while the market is much looser and the demand picture is significantly worse. Aluminium is also likely to get some deflation from lower coal and alumina prices as Chinese refinery capacity comes back. At lower prices, we may see some smelter closures in Europe or Australia coupled with delays in Chinese smelter ramp-ups but we would not expect these to be material enough to save the market from a sizable surplus. As such, we downgrade our 3/6/12m aluminium price targets from \$1,700/1,650/1,675/t to \$1,575/1,600/1,700/t.

Exhibit 15: European aluminium margins have contracted but remain above 2018-2019 lows...



Source: Goldman Sachs Global Investment Research

Exhibit 16: ...and so have Chinese margins



Source: SMM, Goldman Sachs Global Investment Research

Zinc

Zinc prices have been tumbling since April 2019 on a boom in zinc mine supply, a boost to smelter margins and a steep drop in zinc demand. The market finally moved to a surplus in January this year, later than expected due to production disruptions. The switch was driven by a ramp-up in mine supply and elevated smelter margins, and further exacerbated by the demand shock and transportation disruptions due to the coronavirus outbreak. As a result, China's social stocks of zinc climbed quickly to 380 kt by early March, the highest level in three years. We now project an even more sizable surplus in China and the rest of the world given our economists' sharp revisions to global GDP growth, and reduce our 3/6/12m zinc price targets to \$1,760/1,850/2,000/t from \$1,950/1,850/2,050/t previously.

Exhibit 17: Zinc stock in China has surged since January

Source: WIND, Goldman Sachs Global Investment Research

Exhibit 18: Zinc smelter margins remain very strong

Source: WIND, Goldman Sachs Global Investment Research

Appendix

Exhibit 19: GS Metals forecasts

\$/tonne	Goldman Sachs metals and bulks price forecasts						2019	2020	2021	3m	6m	12m
	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020						
\$/oz	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	2019	2020	2021	3m	6m	12m
Copper	5,808	5,891	5,700	5,000	5,500	5,800	5,500	6,000	6,000	4,900	5,600	6,000
Aluminum	1,765	1,756	1,700	1,600	1,625	1,650	1,644	1,740	1,831	1,575	1,600	1,700
Zinc	2,353	2,387	2,000	1,800	1,850	1,900	1,888	2,000	2,163	1,760	1,850	2,000
Nickel	15,586	17,434	12,500	10,500	11,500	13,000	11,875	13,625	14,625	10,000	11,500	13,000
Iron Ore	102	88	85	79	90	85	95	85	75	80	90	75
Gold	1,450	1,500	1,600	1,700	1,750	1,750	1,391	1,700	1,800	1,700	1,750	1,800
Silver	16.2	17.5	18.0	18.5	18.8	18.8	16.0	18.5	19.0	18.5	18.8	19.0

All forecasts are period averages except for 3m, 6m, 12m which are end of period targets.

Source: Goldman Sachs Global Investment Research

