

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

<https://www.nber.org/papers/w24224.pdf>

<https://www.nber.org/papers/w24224>

Shadow Funding Costs: Measuring the Cost of Balance Sheet Constraints

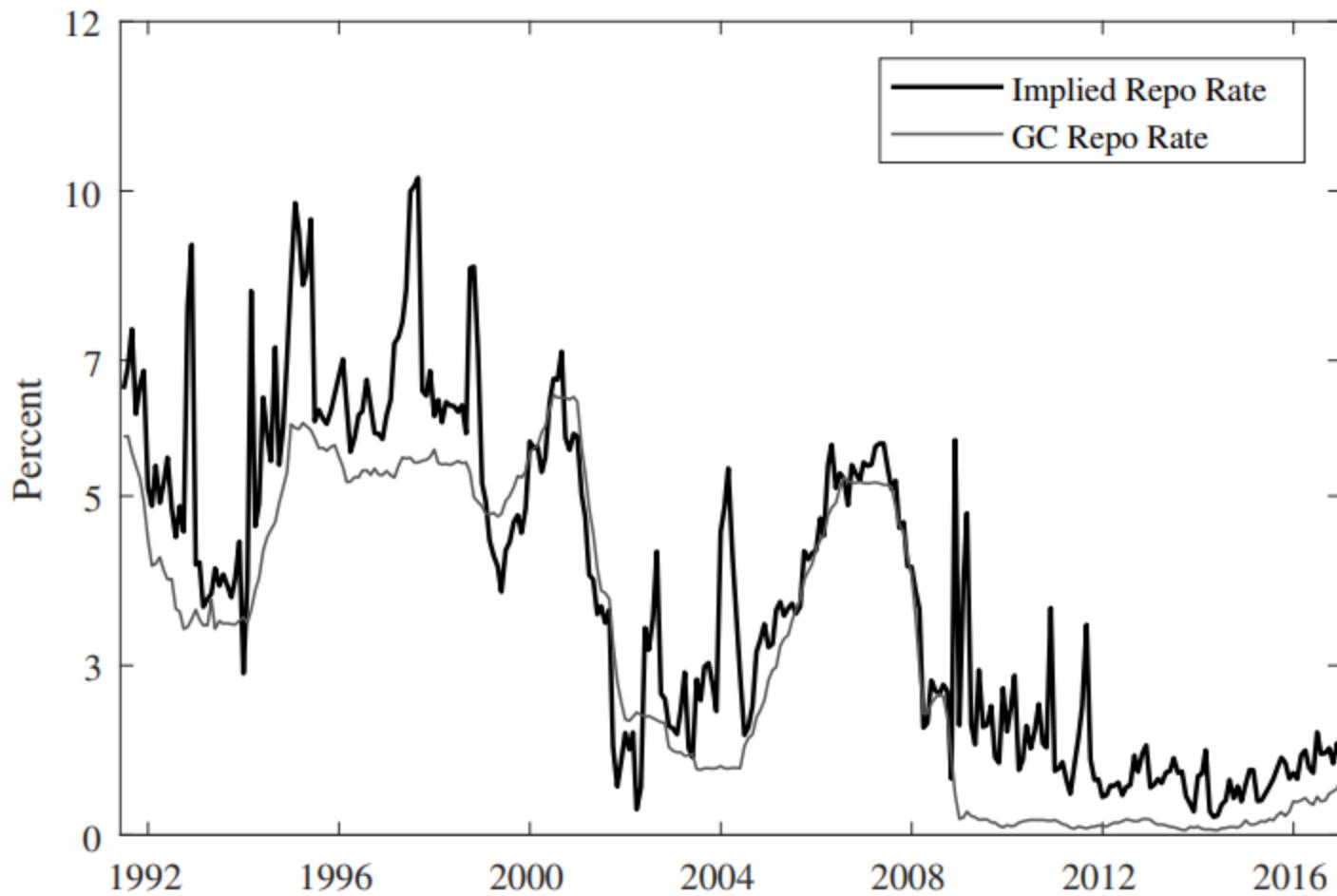


Figure 1. The Implied Repo and Term Repo Rates. This figure shows the implied repo rate from five-year Treasury note futures contracts and the corresponding term general collateral Treasury repo rate. The rates shown are monthly averages of daily rates.

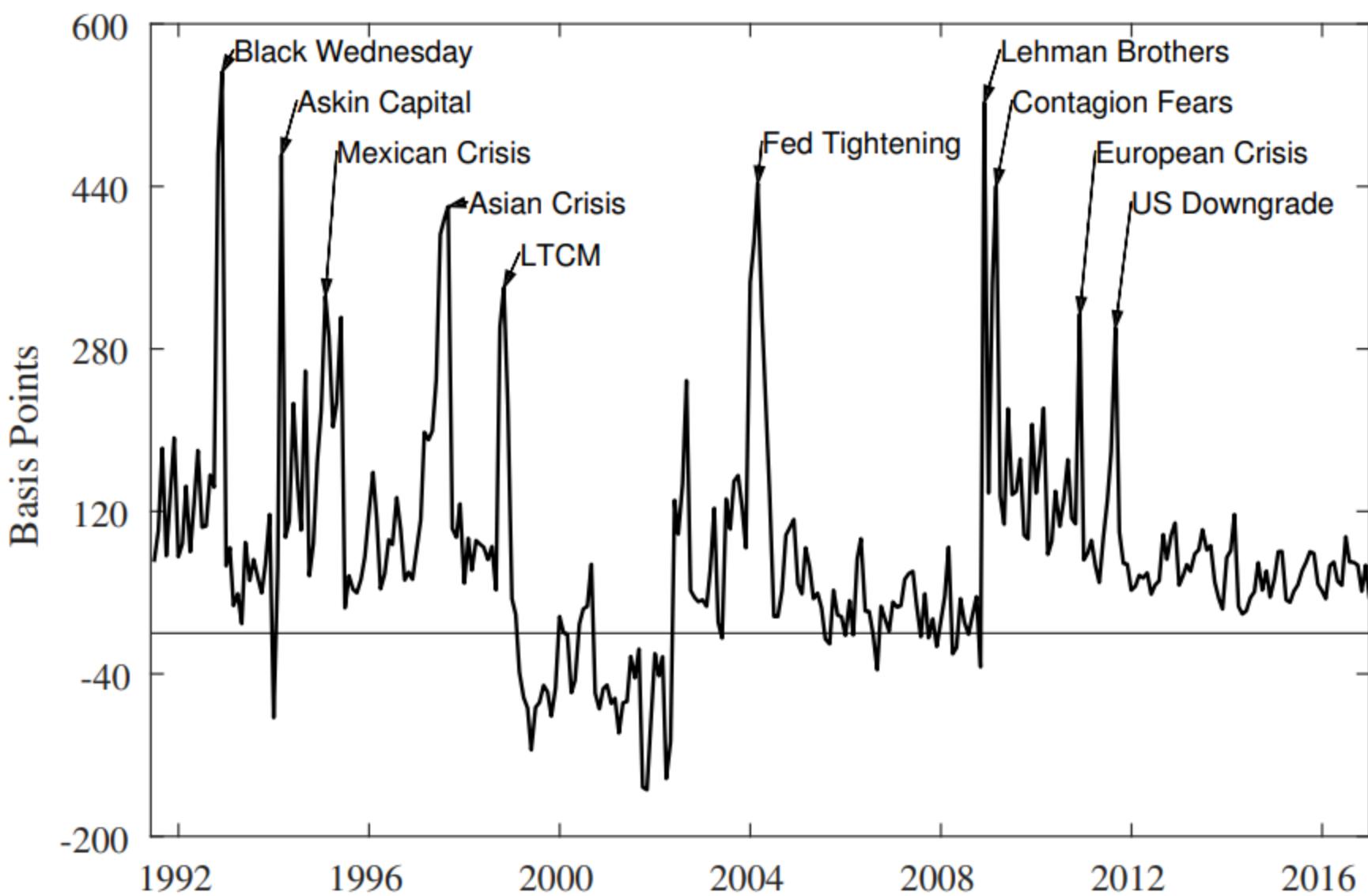


Figure 2. Balance Sheet Costs. This figure plots the time series of balance sheet costs which are computed as the difference between the implied repo rate and the corresponding term general collateral Treasury repo rate. Key financial market events are superimposed on the plot. The balance sheet costs are expressed in basis points and are shown as monthly averages of daily values.

1

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)

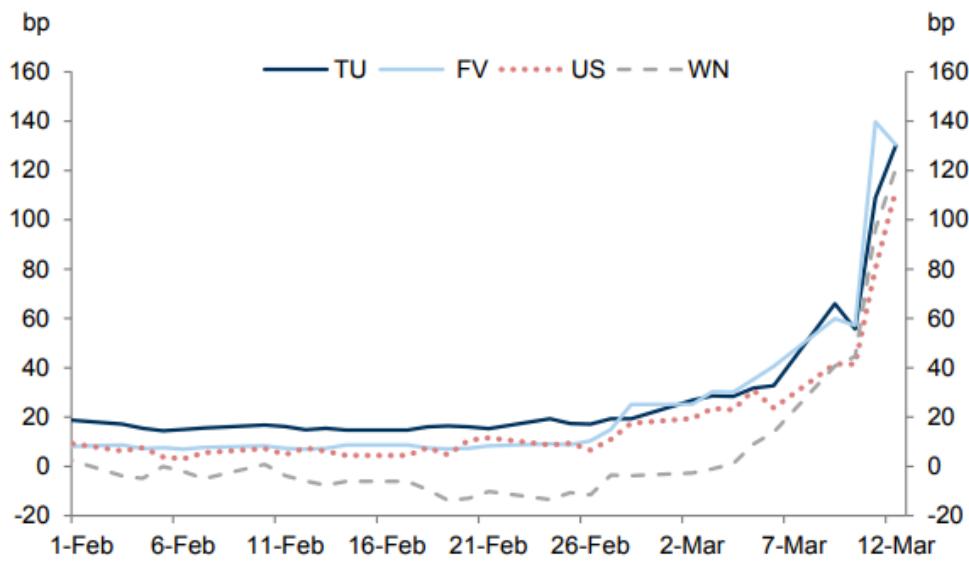
¹ <https://www.nber.org/papers/w24224.pdf>
<https://www.nber.org/papers/w24224>

WHICH HEDGE FUND IS BLOWING UP TODAY?



<https://wheeldecide.com/index.php?c1=Brevan&c2=Point72&c3=Millennium&c4=Moore&c5=Cerberus&c6=Element&c7=Shinebox+LLC&c8=Appaloosa&c9=LMR&c10=MLP&c11=Citadel&c12>All+of+Them&c13=Capula&c14=Fortress&t=Which+Hedge+Fund+is+Blowing+Up+Today%3F&time=5>

Exhibit 1: The collapse in market liquidity has manifested in several corners of the market. Futures-CTD bases are in many cases at post-2008 crisis highs
Treasury futures CTD implied repo versus fed funds



Source: Goldman Sachs Global Investment Research

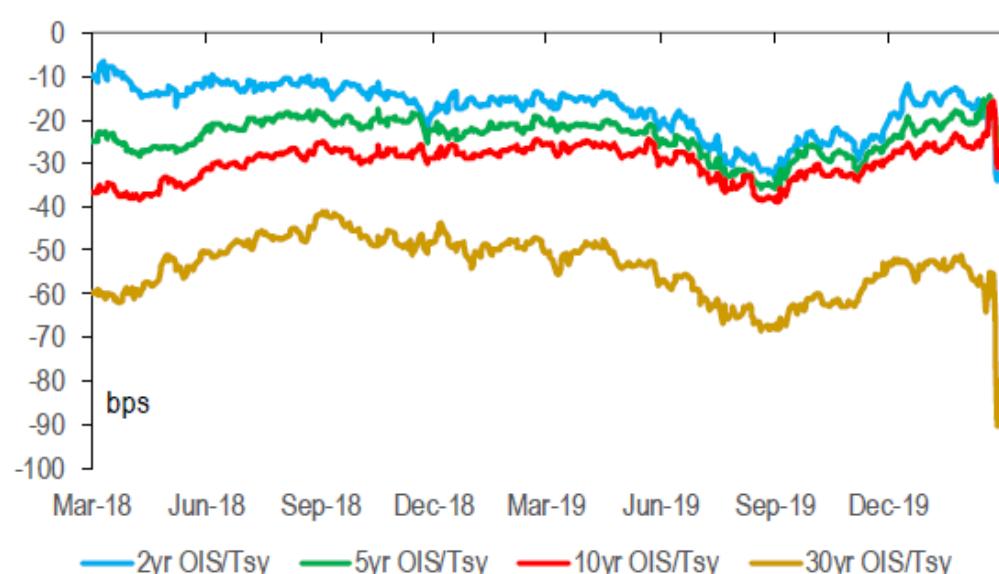
Exhibit 2: Yield dispersion of Treasuries across the curve has picked up markedly, and is also at post-2008 crisis highs
Root Mean Square Error (RMSE) of the Treasury yield curve



Source: Bloomberg, Goldman Sachs Global Investment Research

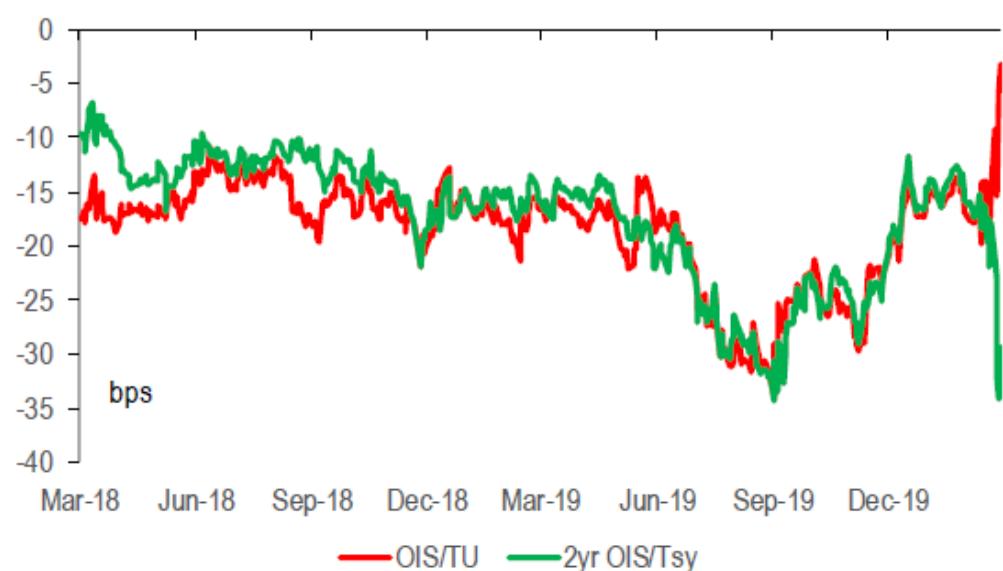


Figure 1. "Cash UST is trash" – cash relative to swaps



Source: Citi Research, Bloomberg

Figure 2. "Cash UST is trash" – cash relative to futures



Source: Citi Research, Bloomberg

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Ticker	Net	Close	Implied	+/-bp	OIS Basis
EURUSD	-0.01	1.1285			
EURON	+0.04	.500	-.645	-14.04	-18.74
EURTN	+1.18	.522	-.732	-15.71	-27.43
EURSN	-1.03	1.625	-.813	-17.50	-35.48
EUR1W	-0.56	3.82	-.966	-7.36	-47.22
EUR2W	-0.63	7.13	-1.147	-11.12	-65.72
EUR3W	-0.60	11.35	-1.384	-15.49	-88.29
EUR1M	-1.16	16.71	-1.351	-11.32	-85.92
EUR2M	+0.02	29.05	-1.263	-8.37	-76.49
EUR3M	-2.72	42.18	-1.181	-3.56	-66.28
EUR4M	-1.85	52.63	-1.155	-3.10	-62.19
EUR5M	-1.78	63.01	-1.108	-1.94	-56.51
EUR6M	-2.21	73.75	-1.088	-2.31	-54.09
EUR7M	-1.71	83.89	-1.079	-2.57	-51.69
EUR8M	-2.29	94.55	-1.059	-1.60	-48.83
EUR9M	-3.62	105.12	-1.036	-0.36	-45.80
EUR10M	-3.58	120.78	-1.072	0.66	-48.70
EUR11M	-6.80	132.18	-1.050	1.26	-46.01



Today



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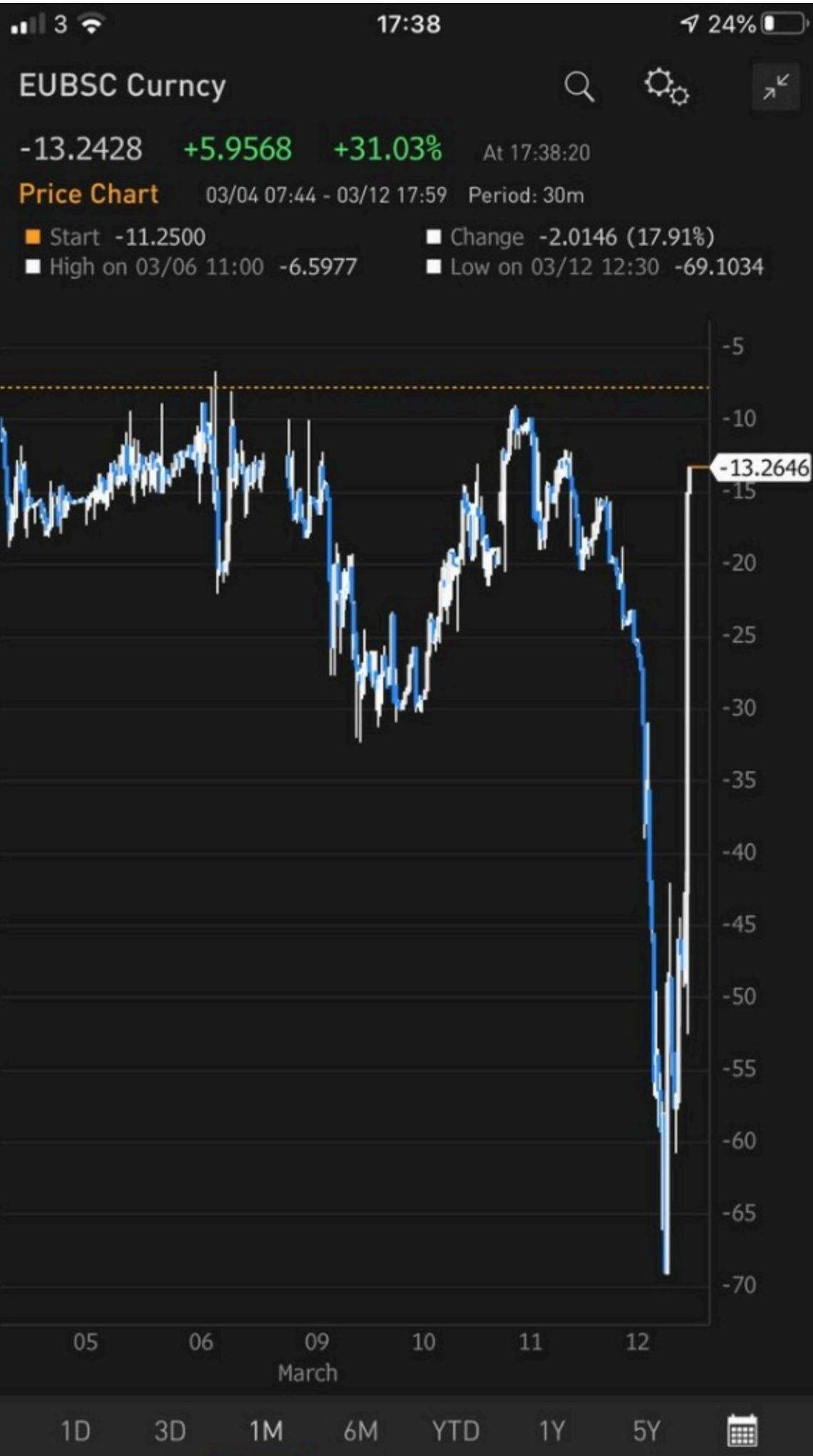
Alerts



Menu

Bloomberg





"Today was a one-way vol collapse (1m TY vols down 40 norms) as the market traded heavily risk-on: 10y Treasuries sold off 20bps from 5pm yesterday, the curve steepened 18bp in 10s2s, and stocks gained 9%. OTC vols came down everywhere to steepen the term structure (-7 norms in 1m10y, -3 in 1y10y, -0.5 in 10y10y) except in a pocket around 1y1y which gained 4 norms. On the exchange we saw selling in FV May 136.25 puts (40k contracts), and a significant amount trading in EDM0 put spreads. Bid-offer on the exchange responded to today's risk-on moves and tightened slightly, but is still extremely wide with only a handful of sectors printing – only the whites (front out to Z0) are trading in Eurodollar options"

Price Chart 1D 03/12 05:00 - 03/13 04:59 Period: 1m

■ JYBSC Curncy -90.0000
■ Close on 03/11 -38.2500
■ High on 06:00 -37.8750

■ Low on 21:48 -90.0000
■ Change 0.000 (0.000%)



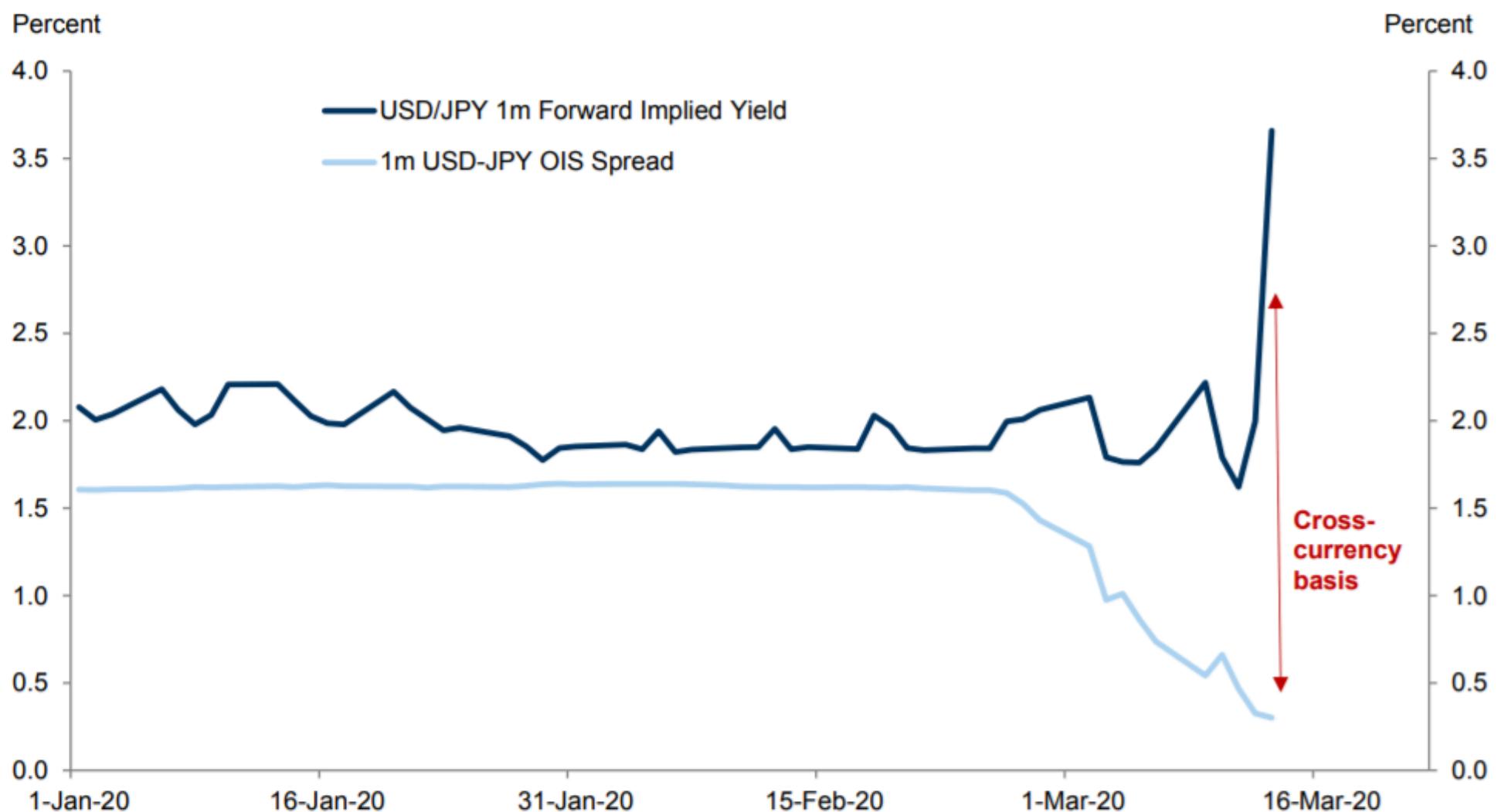
■ **Dollar funding squeeze broadens.** USD funding markets have been increasingly dislocated through the week. In addition to the deep inversion of the OIS curve at the very front end that we discussed [last week](#), the banking system's demand for reserves has risen sharply. Factors contributing to the surge in reserve demand include the sharp market moves and elevated level of volatility (e.g., from margin calls, reserves), potential [drawing of credit lines](#) by corporates, as well as elevated end-user demand. Term repo-OIS spreads have widened, as have CP-OIS spreads. Cross-currency bases also gapped wider, possibly on account of difficulty accessing funding from other venues, and the stepping back by banks and asset managers that typically provide FX funding. In response to signs of broad dollar funding issues, the NY Fed announced yesterday that it will boost the amount of liquidity (and

reserves in the system) over the next month in two ways. First, there are to be a slate of weekly term 1m and 3m repo operations over the remainder of the monthly schedule with a minimum size of \$500bn each ([full schedule here](#)). While such large offer sizes should help satisfy dollar funding needs, intermediation rigidities may constrain the extent to which reserves can flow through the system.

Second, the ongoing \$60bn of monthly reserve management purchases in bills will now be spread across a range of Treasury maturities through mid-April. Outright purchases do not suffer from potential intermediation bottlenecks the way reserve injections via repo operations might, but the Fed isn't increasing quantity of purchases. Overall, we think the measures will likely be helpful in bringing down funding spreads, though if as it appears, "balance sheet" is constrained, the relief may be only partial, and not available to some markets (FX and cross-currency swaps, for example). One place we might start to see a normalization in addition to repo spreads is in the Treasury-futures basis, which had become extremely dislocated (Exhibit 1). Going forward, if the current liquidity injections via term repo prove insufficiently effective, we suspect the Fed may have to try other options, such as a Term Auction Facility (TAF), where in the past the Fed has accepted a broader range of collateral (all discount window-eligible assets) and counterparties (all depository institutions). This might prove to be a more efficient venue for providing supplying term funds to markets.

Chart of the Week

A sharp widening in the USD-JPY cross-currency basis offset the narrowing in the rate differential



Source: Bloomberg, Goldman Sachs Global Investment Research

- **Fed operations only a partial salve to UST liquidity stress.** 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-2008 crisis highs (Exhibit 2). 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. The large term repo operations announced by the Fed do not directly address this issue, though flooding the system with reserves should allow for some improvement, at least to the extent of intermediation capacity/appetite. The Fed's second tweak, namely switching from its reserve management purchases from bills to coupons across the curve is arguably more helpful as it frees up intermediation capacity by taking some off-the-runs off dealer balance sheets. However, the program is scheduled to end in April, and not sufficient in our view to address the cracks in market microstructure. We believe that the Fed will likely have to announce additional measures—either buybacks in coordination with Treasury to "backstop" off-the-runs (which would be more akin to switches), or perhaps a term securities lending facility where it loans out liquid USTs in exchange for less liquid collateral, or even outright purchases. Until such measures are taken, and/or volatility declines, dislocations are likely to remain. As an example, 30y USTs are about 78bp cheaper than matched OIS, an all-time record (ultra-long invoice spreads are also extremely cheap; Exhibit 3)—ordinarily, we would view these levels as extremely attractive, though we would wait for some market stabilization before initiating longs (we had been short spreads over the past month).

Derivatives Strategy

Cross Market Volatility Report

Short Dated Swaptions

Mat/Und	Current	Implied (bps/day)					Realized Vol
		Chg	Min	Avg	Max	6M	
3Mx1Y						5.6	4.6
3Mx2Y						5.5	4.7
6Mx1Y						5.4	4.7
6Mx2Y						5.5	4.8
6Mx5Y						6.8	5.4
6Mx7Y						7.5	5.7
6Mx10Y						8.3	6.1
6Mx30Y						10.1	7.0



Other Vols (% per year)

Mat/Und	Current	Chg	6M			
			Min	Avg	Max	Realized Vol
VIX	75.5	60.3	11.5	17.3	75.5	
3M Gold vol	22.5	9.3	9.8	12.3	22.5	
3M EUR/USD vol	11.4	5.8	4.2	5.2	11.4	
3M USD/JPY vol	16.9	10.5	4.8	6.1	16.9	

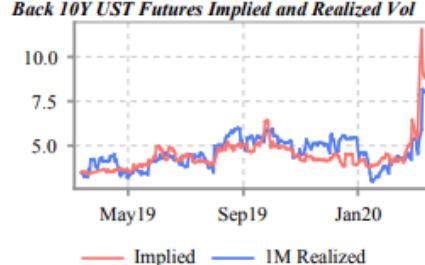
Drivers

Mat/Und	Current	6M			
		Chg	Min	Avg	Max
Vol of Funds*	6.4	2.1	0.8	2.6	6.6
ED2/ED curve	-4.5	43.5	-46.5	-21.5	2.5
Euribor 2/6 curve	-6.5	3.0	-9.5	-0.7	6.0
2s10s US swap curve	35.2	-74.4	59.2	158.5	187.3
OAS	102.9	51.5	34.5	44.7	102.9
Vol supply					
MBS duration	2.2	-0.5	1.1	2.5	3.1

* Vol of First Constant Mat. ED Contract

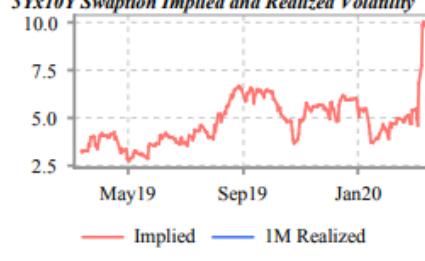
Exchange Traded Options

Mat/Und	Current	Implied (bps/day)					Realized Vol
		Chg	Min	Avg	Max	6M	
Back FV	7.7	2.9	3.6	4.5	8.8	7.1	5.3
Back TY	8.8	4.2	3.8	4.7	11.5	8.0	5.8
Back US	9.2	4.4	3.7	4.6	12.3	10.7	7.2
Back ED	4.1	0.0	1.4	2.8	5.6	6.3	4.8
Back E1	4.2	-1.5	3.3	4.4	6.1	5.2	4.8
Back E2	6.0	0.4	3.8	4.7	6.5	5.9	5.1
Back LE	2.1	0.6	.4	.9	2.1	2.7	1.6
Back SS	2.6	0.2	1.3	2.0	2.9	39.3	3.3



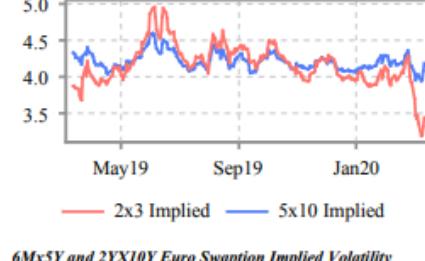
Long Dated Swaptions

Mat/Und	Current	Implied (bps/day)					Realized Vol
		Chg	Min	Avg	Max	6M	
2Yx2Y						6.9	5.5
2Yx5Y						8.2	6.1
5Yx5Y						10.2	7.1
1Yx10Y						8.6	6.3
2Yx10Y						9.2	6.6
3Yx10Y						9.8	6.9
5Yx10Y						10.6	7.3
10Yx10Y						11.5	7.8



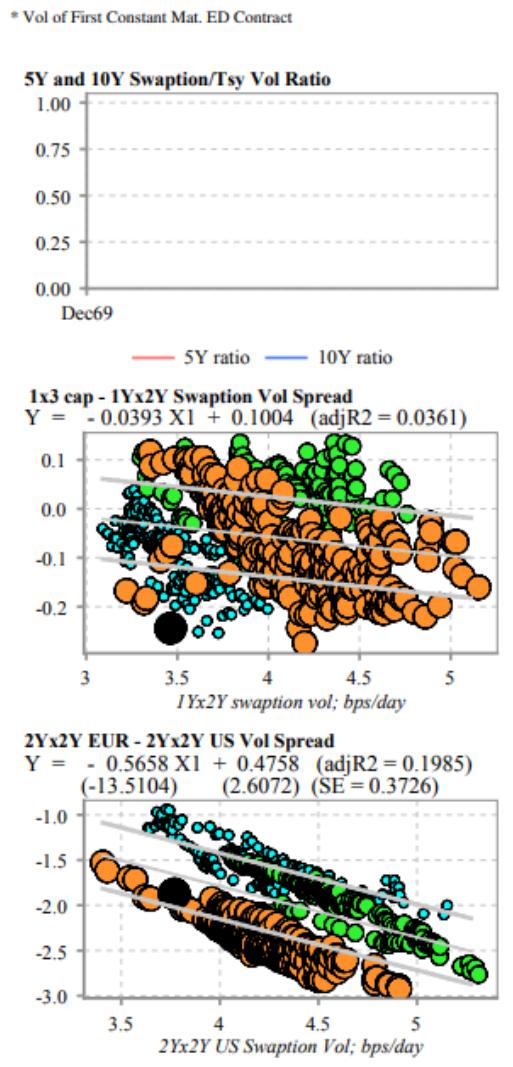
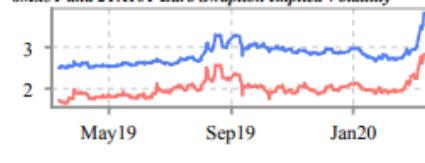
Libor Cap Volatility

Mat/Und	Current	Implied (bps/day)					Realized Vol
		Chg	Min	Avg	Max	6M	
1x2	2.9	-1.6	2.9	3.8	4.6		
2x3	3.4	-0.9	3.2	4.1	4.5		
3x5	3.9	-0.4	3.7	4.2	4.5		
5x7	4.2	-0.1	3.9	4.2	4.4		
5x10	4.2	0.0	3.9	4.2	4.4		
7x10	4.2	0.0	4.0	4.1	4.3		
10x20	4.0	0.0	3.8	3.9	4.0		



European Swaption Volatility

Mat/Und	Current	Implied (bps/day)					Realized Vol
		Chg	Min	Avg	Max	6M	
6Mx2Y	1.7	0.1	1.0	1.3	1.8	2.2	1.6
6Mx5Y	2.8	0.6	1.8	2.0	2.8	2.2	2.3



US Fixed Income Rates Strategy

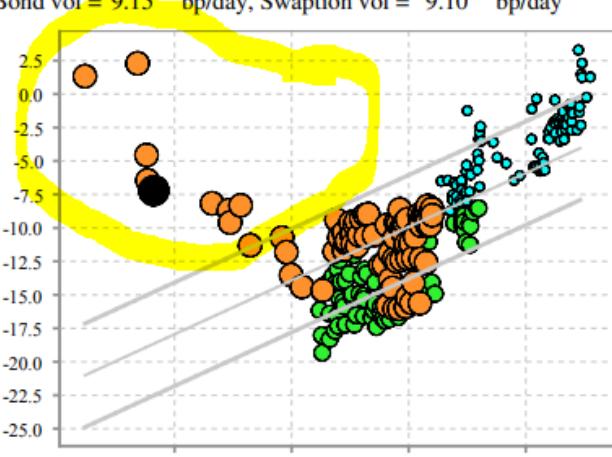
New York
Mar 12, 2020

USD Conditional Swap Spread Report

Jun20 Bond Isopremium Line

FRONT Bond CTD Swap Spread (bp), (beta = 7.1 ,r2 = 32.5 %)

Bond vol = 9.15 bp/day, Swaption vol = 9.10 bp/day



Sep20 Bond Isopremium Line

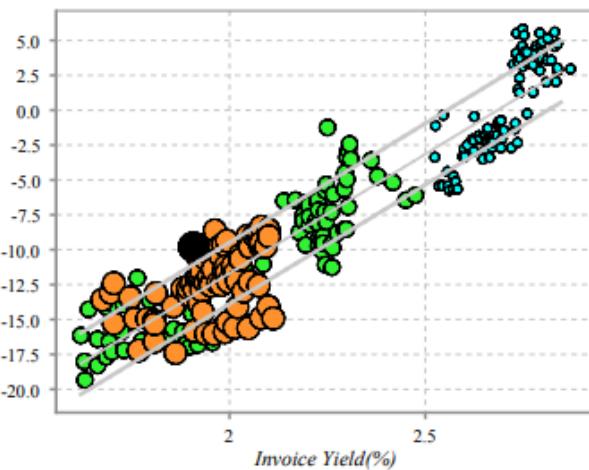
BACK Bond CTD Swap Spread (bp), (beta = 7.1 ,r2 = 28.5 %)

Bond vol = bp/day, Swaption vol = 7.42 bp/day</div

USD Conditional Swap Spread Report

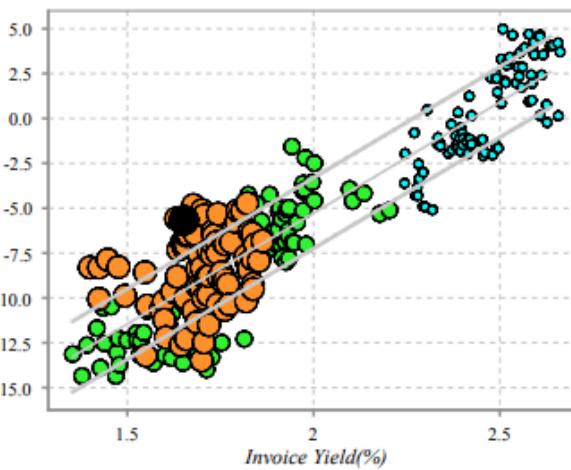
Mar20 Bond Isopremium Line

FRONT Bond CTD Swap Spread (bp), (beta = 16.5, r² = 87.6 %)
Bond vol = 3.78 bp/day, Swaption vol = 3.79 bp/day



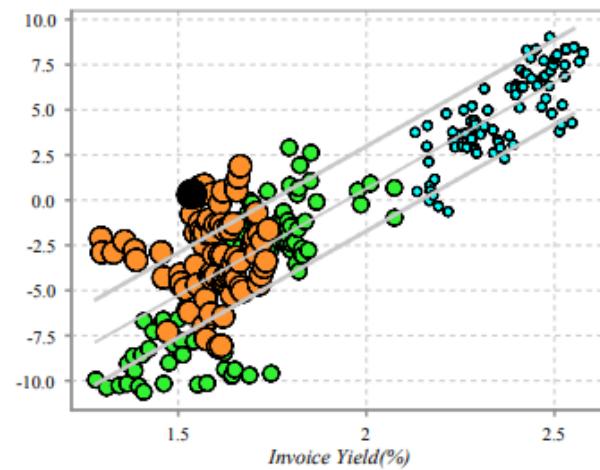
Mar20 Note Isopremium Line

FRONT Note CTD Swap Spread (bp), (beta = 11.9, r² = 82.1 %)
Note vol = 3.88 bp/day, Swaption vol = 3.73 bp/day



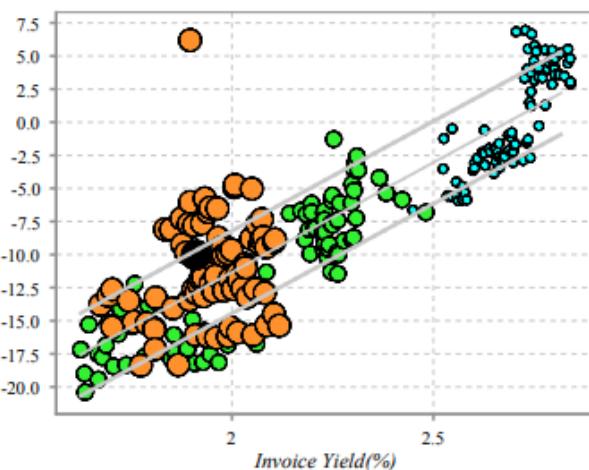
Mar20 5-Year Isopremium Line

FRONT 5-Year CTD Swap Spread (bp), (beta = 11.4, r² = 73.7 %)
5-Year vol 3.69 bp/day, Swaption vol = 3.54 bp/day



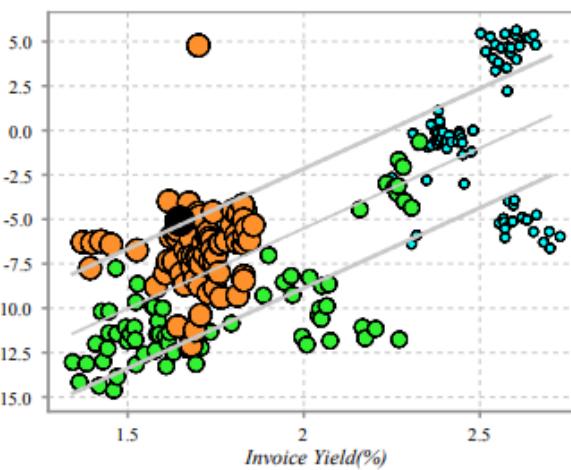
Jun20 Bond Isopremium Line

BACK Bond CTD Swap Spread (bp), (beta = 16.0, r² = 75.8 %)
Bond vol = 3.95 bp/day, Swaption vol = 3.92 bp/day



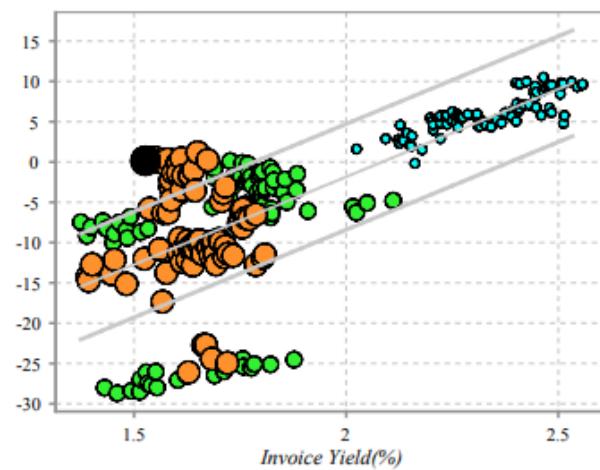
Jun20 Note Isopremium Line

BACK Note CTD Swap Spread (bp), (beta = 7.8, r² = 47.8 %)
Note vol = 3.99 bp/day, Swaption vol = 3.87 bp/day



Jun20 5-Year Isopremium Line

BACK 5-Year CTD Swap Spread (bp), (beta = 21.6, r² = 50.7 %)
5-Year vol 3.79 bp/day, Swaption vol = 3.70 bp/day



New York
Short-Dated Swaption Volatility Report
For Business: Fri, Mar 13, 2020
Produced: Thu, Mar 12, 2020 19:54:08

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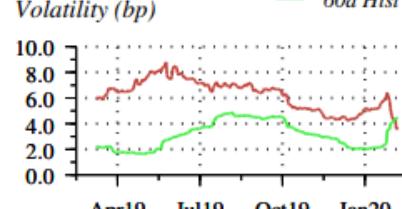
Page 74

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Short-Dated Swaption Volatility Report

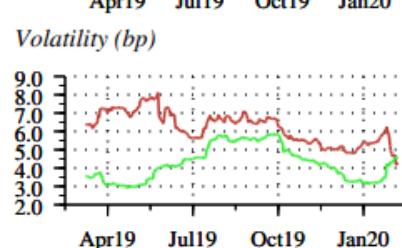
Options on 1yr Swaps

Mat	% Mat	Implied Vol. bp	5d		Historical BP Vol.		
			Chg	Chg	10d	20d	60d
1m	171.10	4.83	-0.51	2.24	7.42	5.90	4.41
3m	142.83	3.68	-0.63	0.80	*1dc	1wc	2wc
6m	127.02	3.11	-0.53	-0.09	5.90	8.86	11.07
12m	117.43	3.10	-0.23	-0.54			



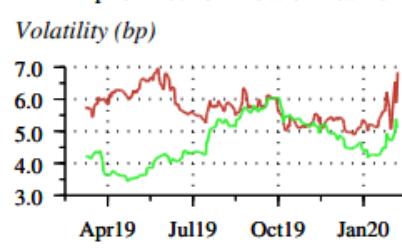
Options on 2yr Swaps

Mat	% Mat	Implied Vol. bp	5d		Historical BP Vol.		
			Chg	Chg	10d	20d	60d
1m	196.99	5.56	-0.25	2.06	7.01	5.47	4.50
3m	155.01	4.30	-0.36	0.74	*1dc	1wc	2wc
6m	125.16	3.57	-0.31	-0.06	5.47	7.51	9.89
12m	107.27	3.46	-0.01	-0.38			



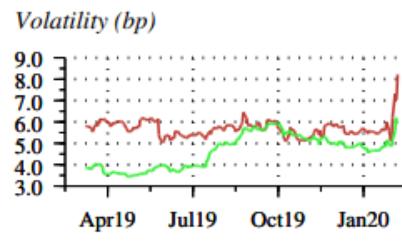
Options on 5yr Swaps

Mat	% Mat	Implied Vol. bp	5d		Historical BP Vol.		
			Chg	Chg	10d	20d	60d
1m	202.64	8.42	2.25	4.29	8.81	6.47	5.11
3m	163.75	6.84	1.67	2.74	*1dc	1wc	2wc
6m	134.55	5.76	1.22	1.69	6.47	6.11	7.91
12m	106.65	4.89	0.68	0.76			



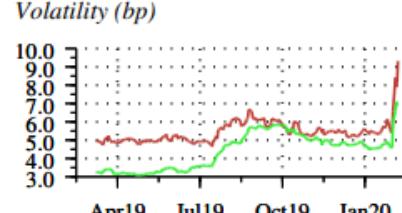
Options on 10yr Swaps

Mat	% Mat	Implied Vol. bp	5d		Historical BP Vol.		
			Chg	Chg	10d	20d	60d
1m	194.72	10.04	3.99	5.82	11.15	7.98	5.91
3m	160.33	8.22	3.04	4.08	*1dc	1wc	2wc
6m	136.78	7.02	2.34	2.93	7.98	5.56	7.29
12m	111.56	5.82	1.35	1.72			

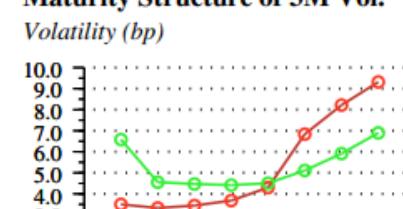


Options on 30yr Swaps

Mat	% Mat	Implied Vol. bp	5d		Historical BP Vol.		
			Chg	Chg	10d	20d	60d
1m	239.56	12.03	6.00	7.93	13.93	9.92	6.90
3m	188.34	9.31	4.13	5.33	*1dc	1wc	2wc
6m	157.83	7.71	3.03	3.80	9.92	6.94	7.64
12m	128.27	6.21	1.76	2.32			

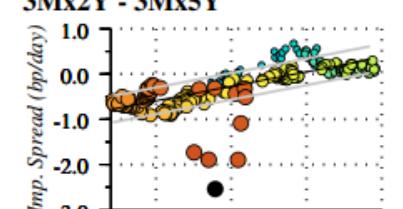


Maturity Structure of 3M Vol.



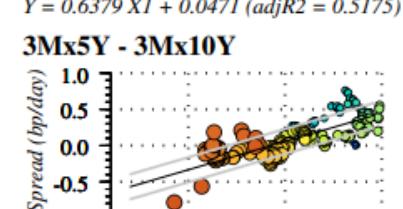
$$Y = 0.6379 X_1 + 0.0471 \text{ (adjR}^2 = 0.5175\text{)}$$

3Mx2Y - 3Mx5Y



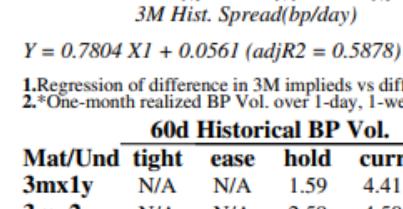
$$Y = 0.7804 X_1 + 0.0561 \text{ (adjR}^2 = 0.5878\text{)}$$

3Mx5Y - 3Mx10Y



$$Y = 0.7057 X_1 + 0.0549 \text{ (adjR}^2 = 0.6770\text{)}$$

3Mx10y - 3Mx30Y



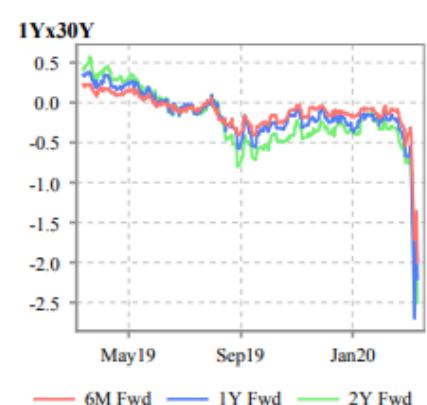
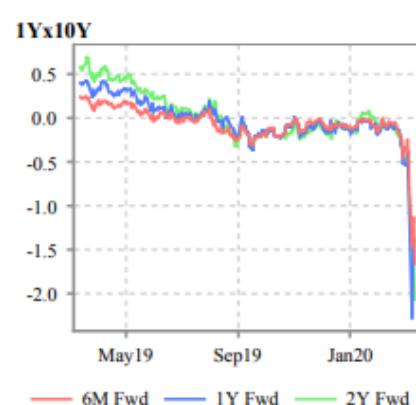
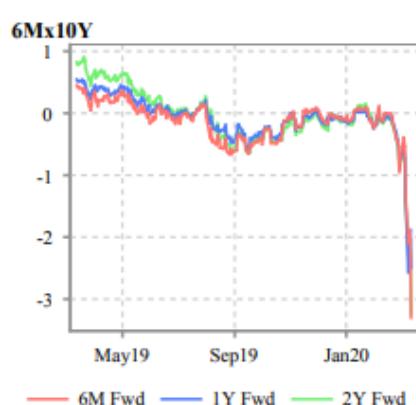
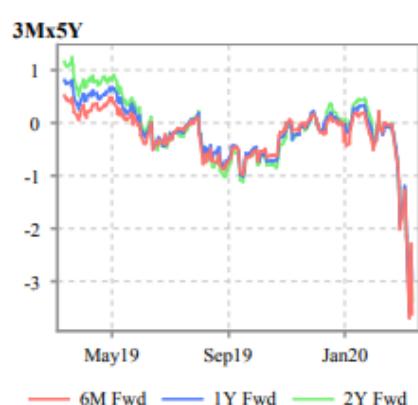
$$Y = 0.7057 X_1 + 0.0549 \text{ (adjR}^2 = 0.6770\text{)}$$

1.Regression of difference in 3M implied vs difference in 3M historicals.
2.*One-month realized BP Vol. over 1-day, 1-week and 2-week change.

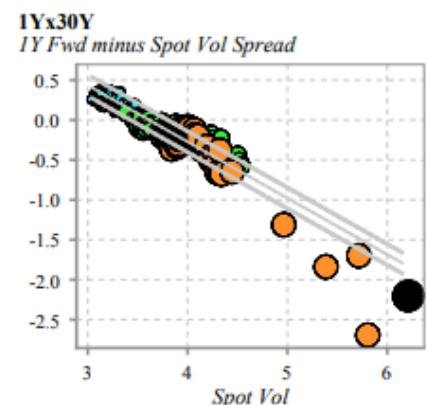
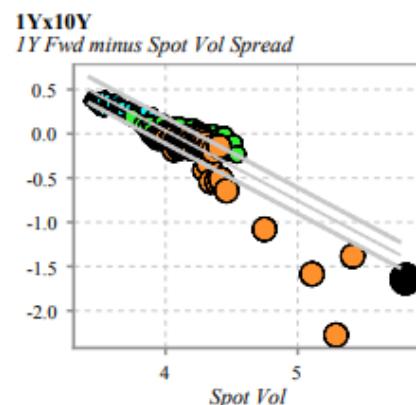
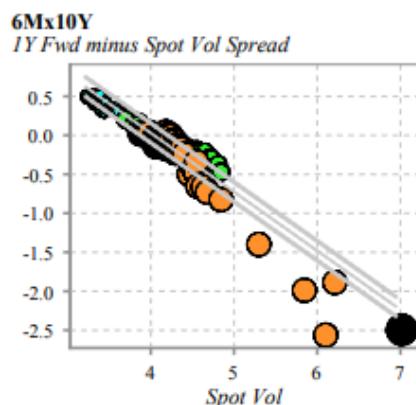
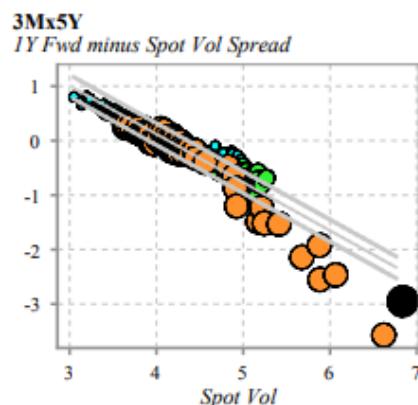
Derivatives Strategy

Long Dated Forward Volatility Report

Forward minus Spot Volatility Spreads



1Y Forward minus Spot Volatility Spread vs. Spot Vol

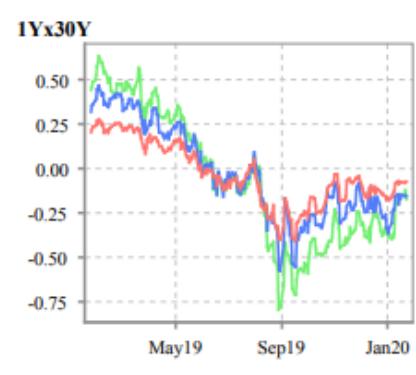
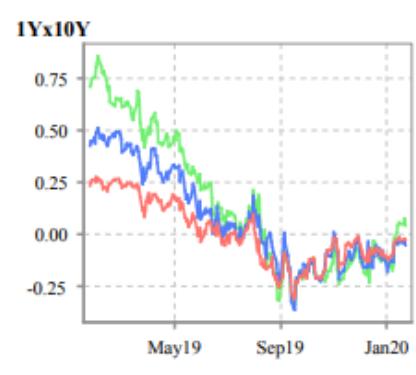
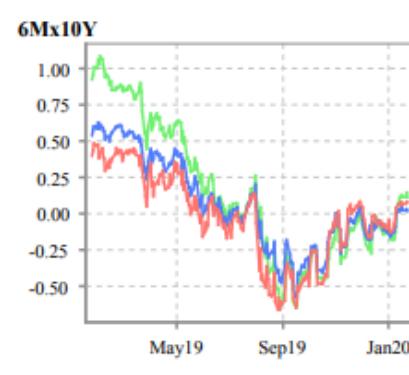
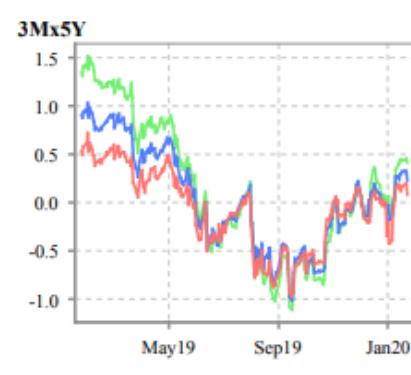


Richness/Cheapness of Forward Vol					
Forward	Spot	2Y Beta (Fwd vs. Spot)	Fwd/Spot Sprd *(dbp)	2Y Avg (dbp)	2Y Z-score
6Mx5Yx5Y	5Yx5Y	1.08	-1.0	-0.3	-11.1
6Mx5Yx10Y	5Yx10Y	1.03	-0.7	-0.1	-10.2
1Yx5Yx5Y	5Yx5Y	1.10	-1.2	-0.4	-8.8
1Yx5Yx30Y	5Yx30Y	0.92	-0.4	0.2	-7.5
6Mx1Yx10Y	1Yx10Y	0.57	0.8	1.8	-5.7
6Mx6Mx10Y	6Mx10Y	0.17	2.5	3.5	-4.4
1Yx1Yx10Y	1Yx10Y	0.40	1.8	2.6	-3.1
1Yx6Mx10Y	6Mx10Y	0.15	3.5	3.6	-0.7

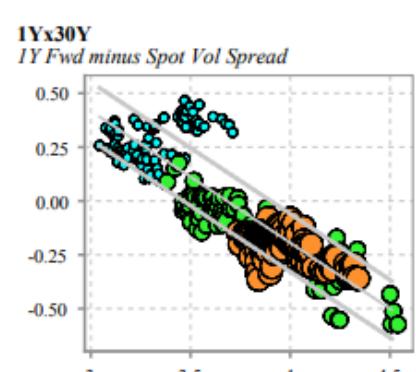
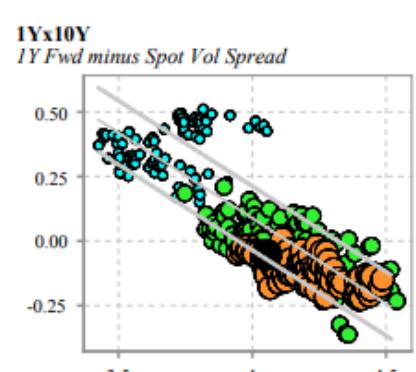
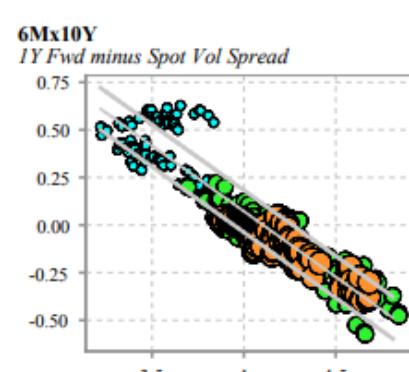
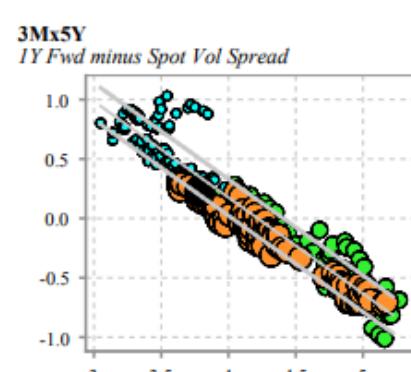
Derivatives Strategy

Long Dated Forward Volatility Report

Forward minus Spot Volatility Spreads



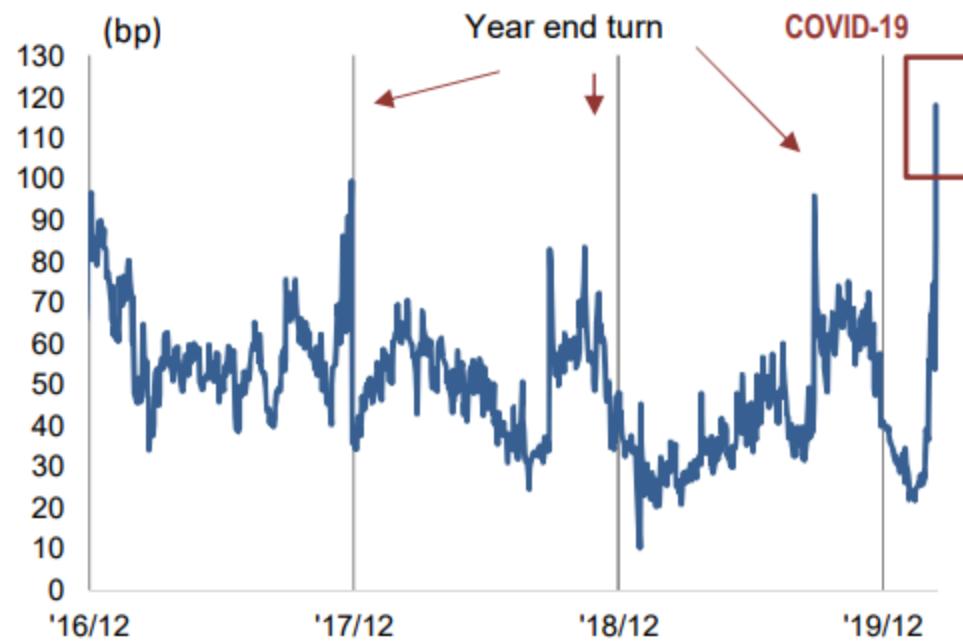
1Y Forward minus Spot Volatility Spread vs. Spot Vol



Richness/Cheapness of Forward Vol					
Forward	Spot	2Y Beta (Fwd vs. Spot)	Fwd/Spot Sprd *(dbp)	2Y Avg (dbp)	2Y Z-score
1Yx1Yx10Y	1Yx10Y	0.69	1.2	1.5	-1.4
1Yx6Mx10Y	6Mx10Y	0.33	2.7	2.9	-1.2
6Mx1Yx10Y	1Yx10Y	0.80	0.8	0.9	-1.0
1Yx5Yx5Y	5Yx5Y	1.05	-0.3	-0.2	-0.7
6Mx5Yx10Y	5Yx10Y	1.01	-0.1	0.0	-0.6
1Yx5Yx30Y	5Yx30Y	0.92	0.2	0.3	-0.6
6Mx5Yx5Y	5Yx5Y	1.05	-0.2	-0.2	-0.5
6Mx6Mx10Y	6Mx10Y	0.38	2.5	2.7	-0.5

Exhibit 9: More attractive 3M JGB\$ASW did not help...

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



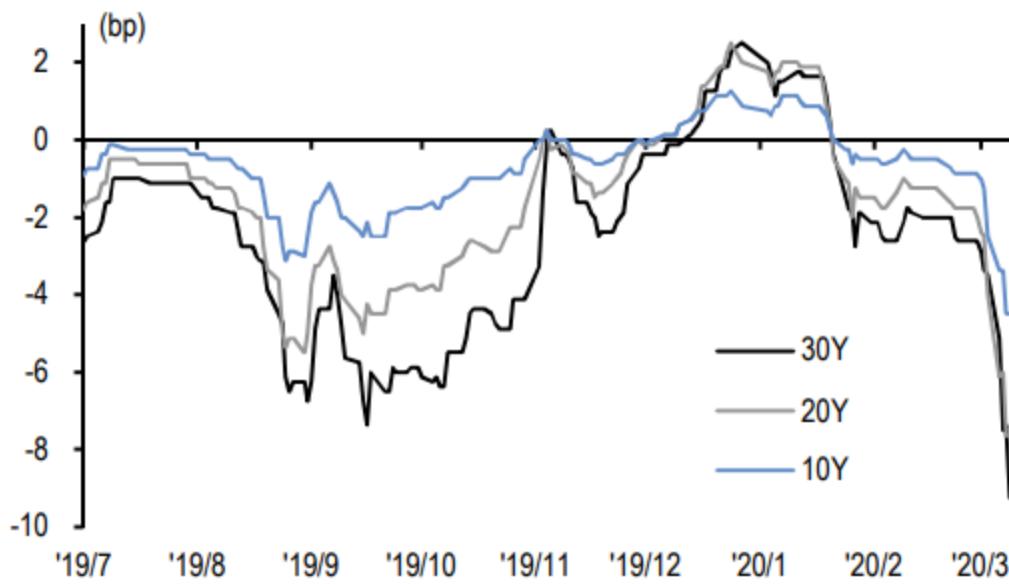
Source: Bloomberg, J.P. Morgan

1. LCH-JSCC clearing spreads dipped to historical lows

LCH-JSCC clearing spreads hit historical lows across curve (Exhibit 5). We envisage that part of this reflects higher demand from foreign investors to receive swaps, but lack of liquidity in LCH-clearing space probably played a bigger role. As we have flagged before, many non-U.S. based macro funds started registering with JSCC by affiliation in recent years (see [list](#) in Japanese only). On the other hand, U.S. based investors are still required to clear through LCH, the only clearing house for JPY swaps approved by CFTC. Although CFTC announced its plan to allow clearinghouses outside the U.S. to be used back in September 2018, no material reforms have been done to date. We suspect that liquidity of LCH-clearing swap

structurally has declined as non-US based investors migrated to JSCC space, making LCH-clearing swap structurally more volatile especially in a week like this.

Exhibit 5: LCH-JSCC clearing spreads dipped to historical lows
LCH-JSCC spread for 10Y, 20Y and 30Y JPY swap (bp)



Source: Bloomberg

2. JGB futures calendar spread moved 50sen intraday on Thursday

Today (March 13) was the last trading day for March 2020 JGB futures contract (JBH0). It is usual for the calendar spread to be more volatile towards the end of rollover period, but we have seen one of the most violent movements for this roll-over with calendar spread moving in the range of -20sen and -70sen intraday on Thursday (Exhibit 6). Direction of our call for a bearish bias on the calendar spread two weeks was correct (see [report](#)), but the magnitude of the movement was beyond our expectation. Lack of liquidity is the obvious culprit for this, but dominance of long rollovers played a role as well. As shown in Exhibit 7, foreign investors finally started to add net-long positions in JGB futures from the first week of March (the latest data available) after staying neutral for an extended period. We envisage that they probably added more this week as well, so demand for long rollovers must have picked up substantially in a short period.

Exhibit 6: Calendar spread for March 2020 rollover moved 10x more than December 2019 rollover...

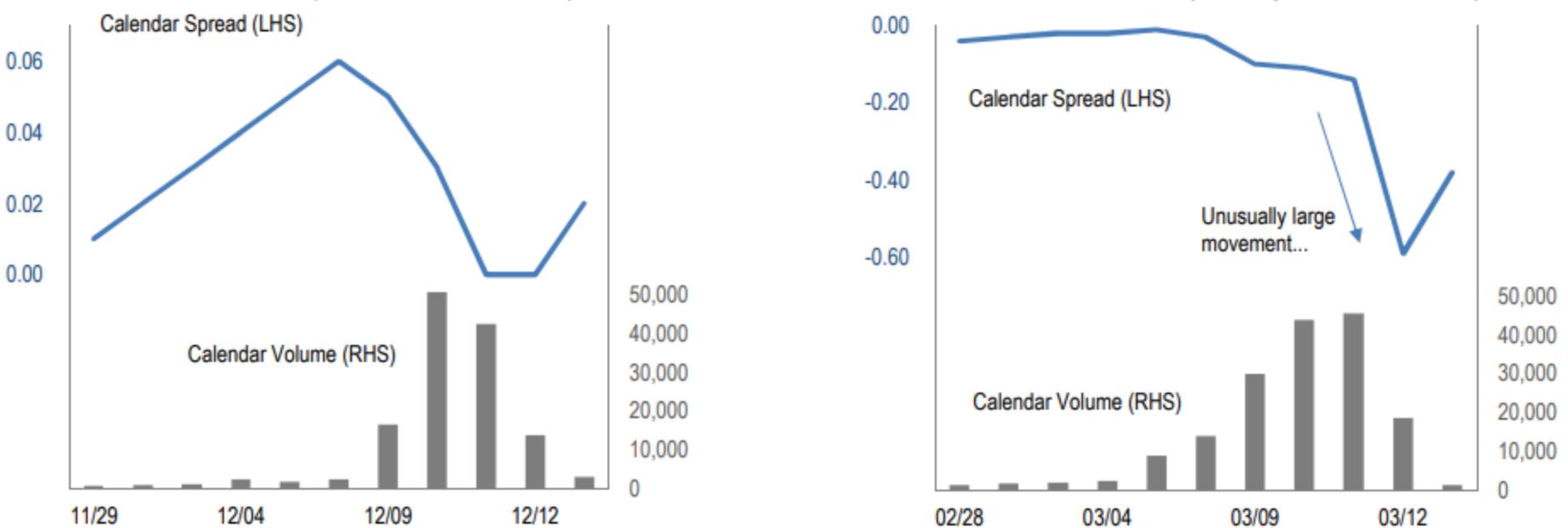
Daily calendar spread for December 2019 and March 2020 rollover (bp) with transaction volume (contracts)

December 2019 contract <JBZ9-JBH0> (sen, contracts)

Our Forecast was Bullish: -2 to 4 sen (0 sen as of November 28)

March 2020 contract <JBH0-JBM0> (sen, contracts)

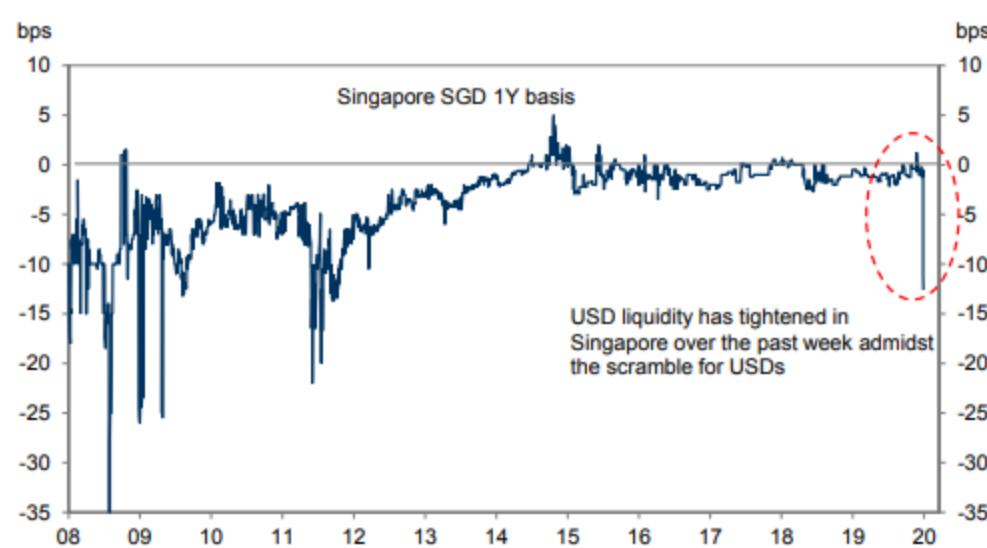
Our Forecast was Bearish: -7 to 2 sen (February 27th close= -2 sen)



Source: J.P. Morgan

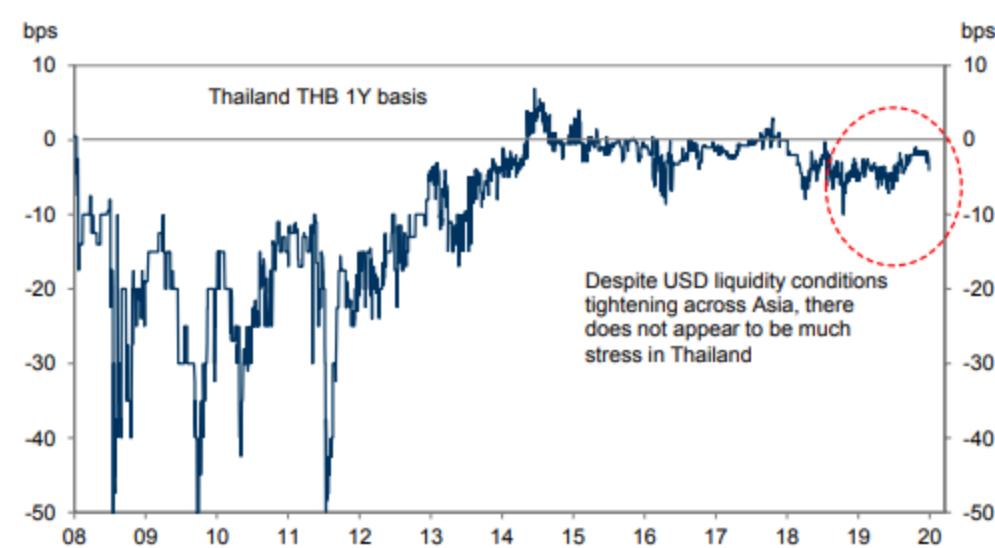
having been around -1bp to -3bp for the past five years (Exhibit 7). We think this is a reflection of onshore banks (in Singapore) looking to build USD cash positions via doing buy/sell USD/SGD FX swaps. This in turn pushed USD/SGD forward points lower, which results in lower SGD basis swaps. Meanwhile, USD liquidity conditions in Thailand appear ample with THB 1Y basis swaps fairly stable (Exhibit 8). The price actions in the SGD and THB basis swaps market are consistent with the feedback we have heard from local dealers that it is tighter in Singapore but ample in Thailand.

Exhibit 7: USD liquidity has tightened in Singapore this past week after having been stable for several years.



Source: Bloomberg, Goldman Sachs Global Investment Research

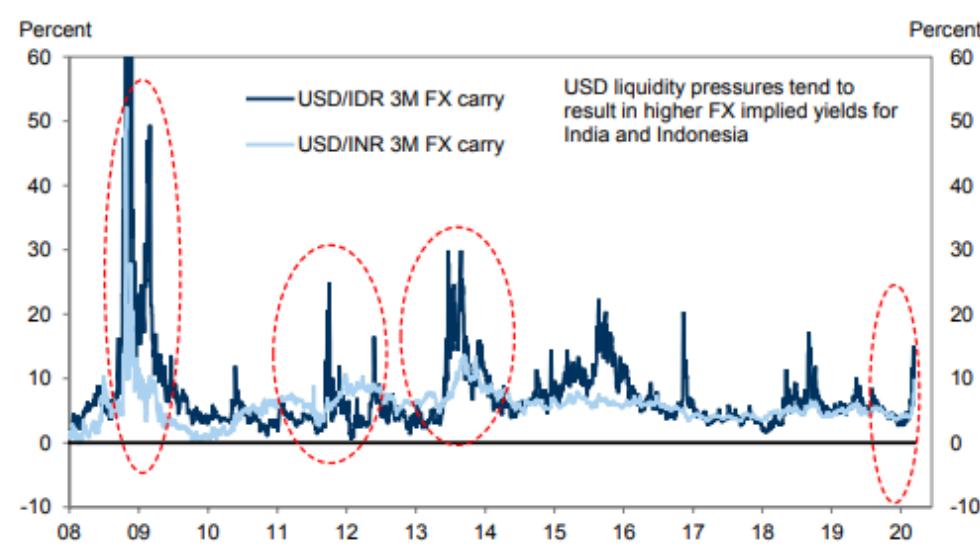
Exhibit 8: USD liquidity conditions remain sanguine in Thailand with limited signs of stress so far



Source: Bloomberg, Goldman Sachs Global Investment Research

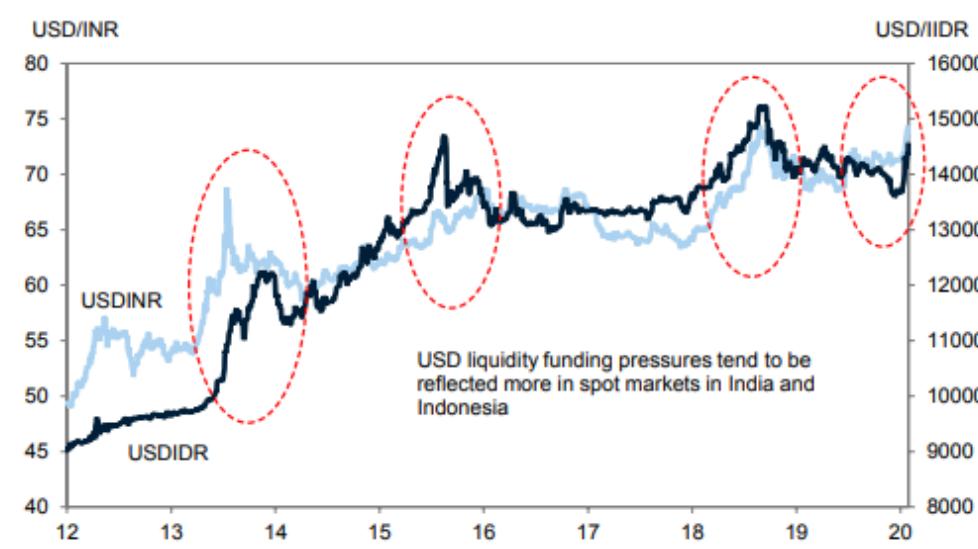
Within high yield markets, tightness in USD funding markets generally results in a spike in onshore FX implied yields and higher spot, as opposed to a decline in implied yields (more on this below under "Economic structures and how a tightening in USD liquidity impacts the respective basis swaps markets.") So far, onshore FX implied yields have not risen significantly in Indonesia and India, as they did in 2011 and 2013 (Exhibit 9). However, spot USD/IDR has been creeping higher, as locals and foreign investors (long IDR assets) buy USD/IDR via the spot market. There have been notable outflows from the Indonesian bond (-USD3.3bn YTD) and equity (-USD 500mn) markets, which is pressuring the spot market.

Exhibit 9: FX implied yields in USD/IDR and USD/INR spiked sharply in 2011 and 2013, but have moved less in this episode.



Source: Bloomberg, Goldman Sachs Global Investment Research

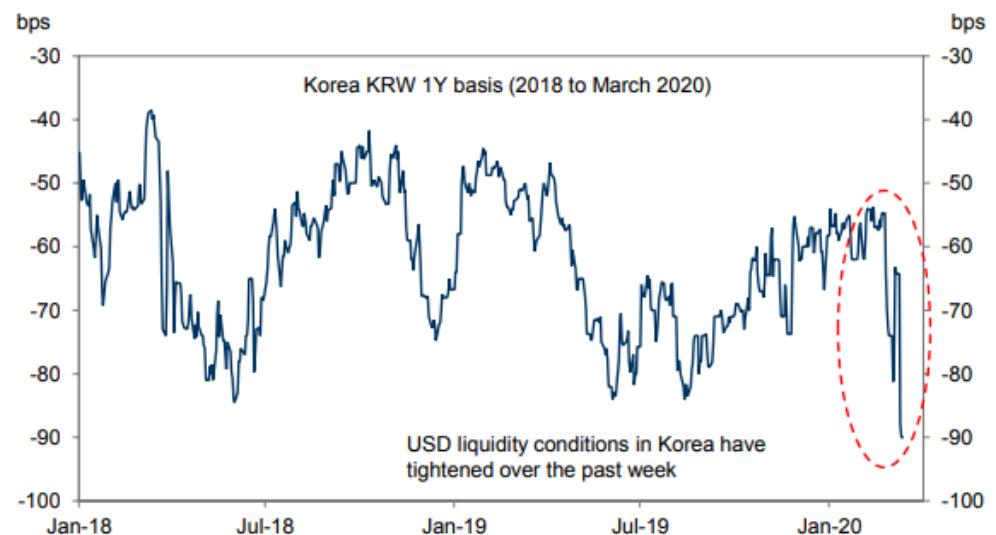
Exhibit 10: USD funding stress is generally reflected more in FX spot market for Indonesia and India



Source: Bloomberg, Goldman Sachs Global Investment Research

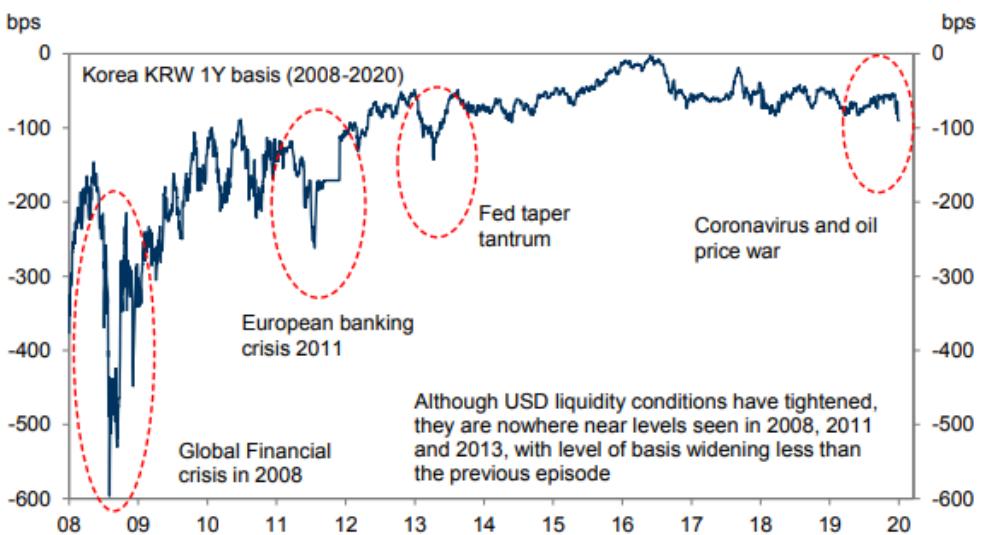
Fed taper tantrum in 2013 (when 1Y hovered around -100bp to -200bp). Notably, since 2008, South Korea has been reducing its short-term external debt, while FX reserves were rising, which meant that each subsequent period of USD liquidity squeeze was more moderate than the previous one since 2008 (Exhibit 2).

Exhibit 1: USD liquidity conditions in Korea have tightened this past week



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 2: The USD liquidity tightening we have seen in Korea so far is still moderate compared to previous episodes



Source: Bloomberg, Goldman Sachs Global Investment Research

USD liquidity conditions in Hong Kong and Taiwan have also shown signs of tightness, as reflected by widening in HKD 1Y and TWD 1Y basis swaps. We observed that the drop in HKD and TWD basis has been fairly sharp just this past week. Up until the start of this year, USD liquidity conditions in Hong Kong appeared fairly ample with HKD 1Y basis actually narrowing in the second half of 2019 (Exhibit 3). Meanwhile, USD liquidity conditions in Taiwan have also generally been ample in 2019, driven by some repatriation flows from overseas investments. However, the tightness in onshore USD liquidity conditions began to emerge this week (Exhibit 4).

Exhibit 3: HKD basis swaps have also begun to widen this week reflecting signs of USD funding stress

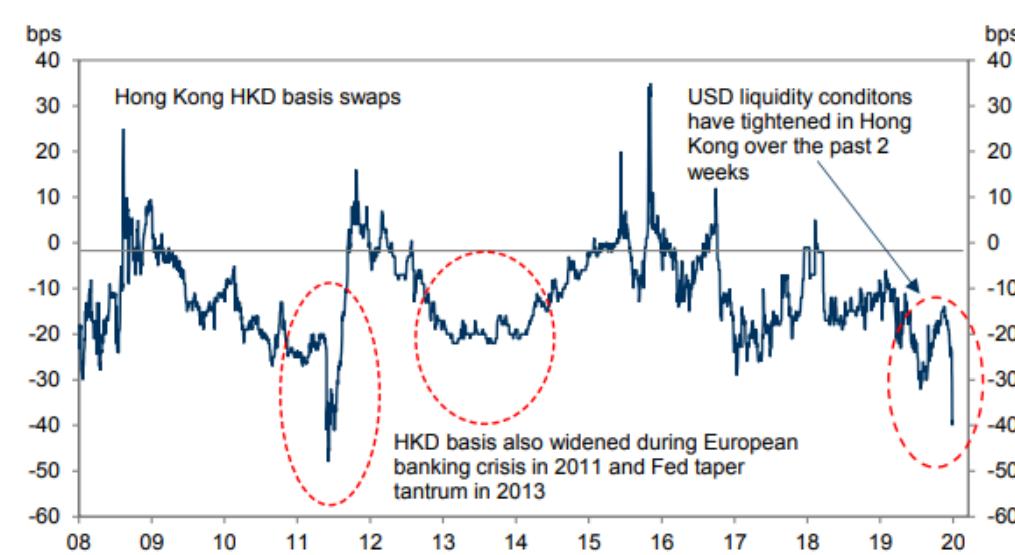
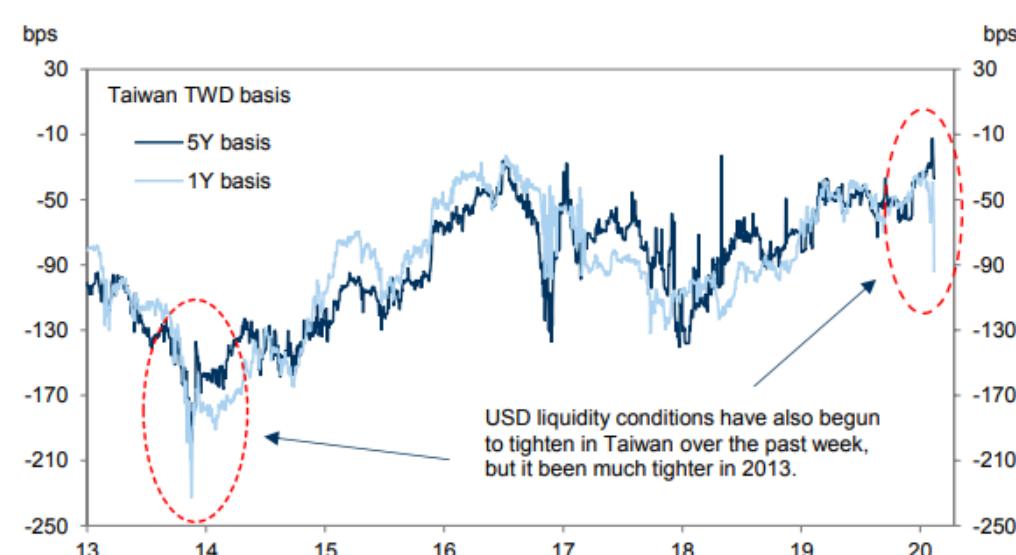


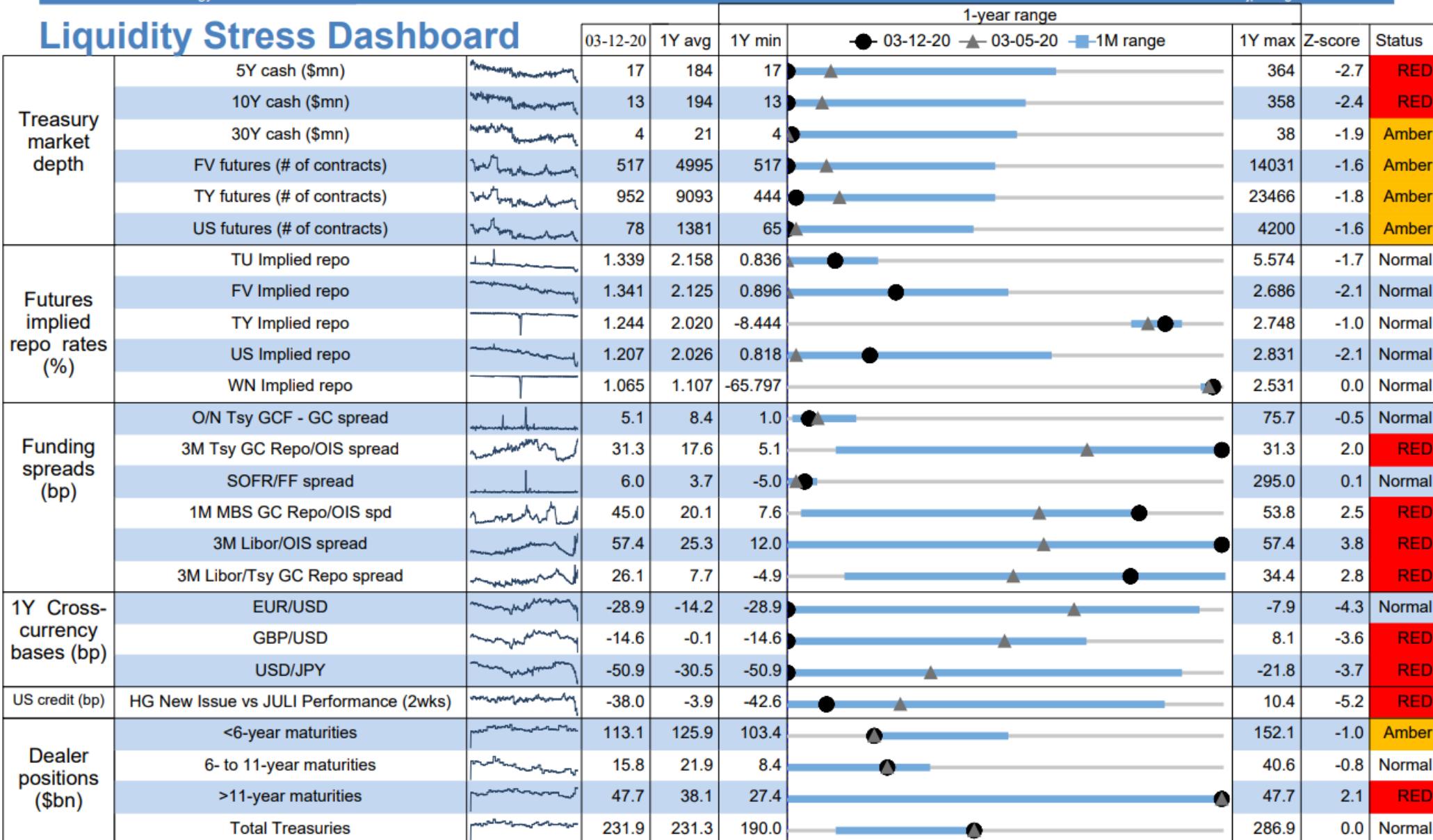
Exhibit 4: Widening in TWD basis swaps also reflects tightness in onshore USD funding markets

Synthetic TWD basis swap constructed using rate differentials and forward points



There is no liquid basis swaps market in China. Therefore, we observe the spread between the onshore 3M FX implied yield less 3M SHIBOR. If the onshore FX implied yields fall deeply below SHIBOR rates, then we think this is reflecting USD/CNY FX forward points moving lower driven by a tightening of USD liquidity conditions, as opposed to an improvement in domestic currency liquidity conditions, which is why we subtract 3M SHIBOR from the 3M implied yield. (We explain more below why a tightening in USD liquidity conditions leads to lower FX forward points.) We observe that both 3M onshore FX implied yields and 3M SHIBOR rates have been declining since the start of this year. However, the drop in implied yields has been sharper, as reflected by the deeper negative spread (grey line in Exhibit 5). This indicates that USD liquidity

Liquidity Stress Dashboard

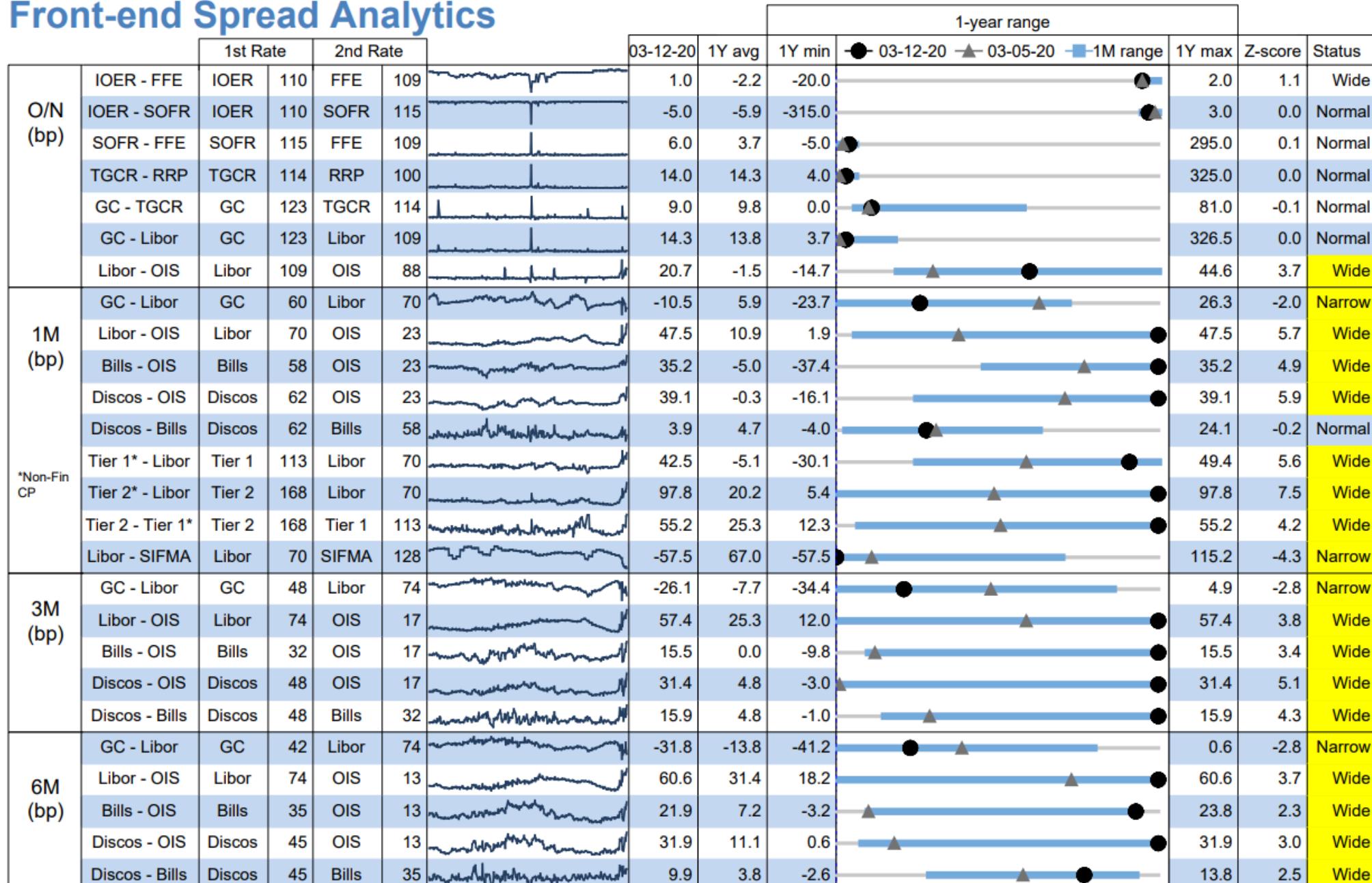


Notes:

- 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) 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.
- 3) 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.
- 4) 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 dollar-roll implied repo rate and the 1-month MBS GC repo rate, and option-adjusted bases net of carry for FV and TY Treasury futures contracts. O/N GCF data are lagged by 1 day.
- 5) Status: "Normal" means the current value is within 1-standard deviation of the 1-year average, "Amber" means the current value is greater than 1-standard deviation from the 1-year average, and "RE" - rd deviations from the 1-year average. For Treasury market depth and cross-currency bases, the status will be "Amber" and "RED" only if the Z-score is less than 1 or 2, respectively.

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Front-end Spread Analytics

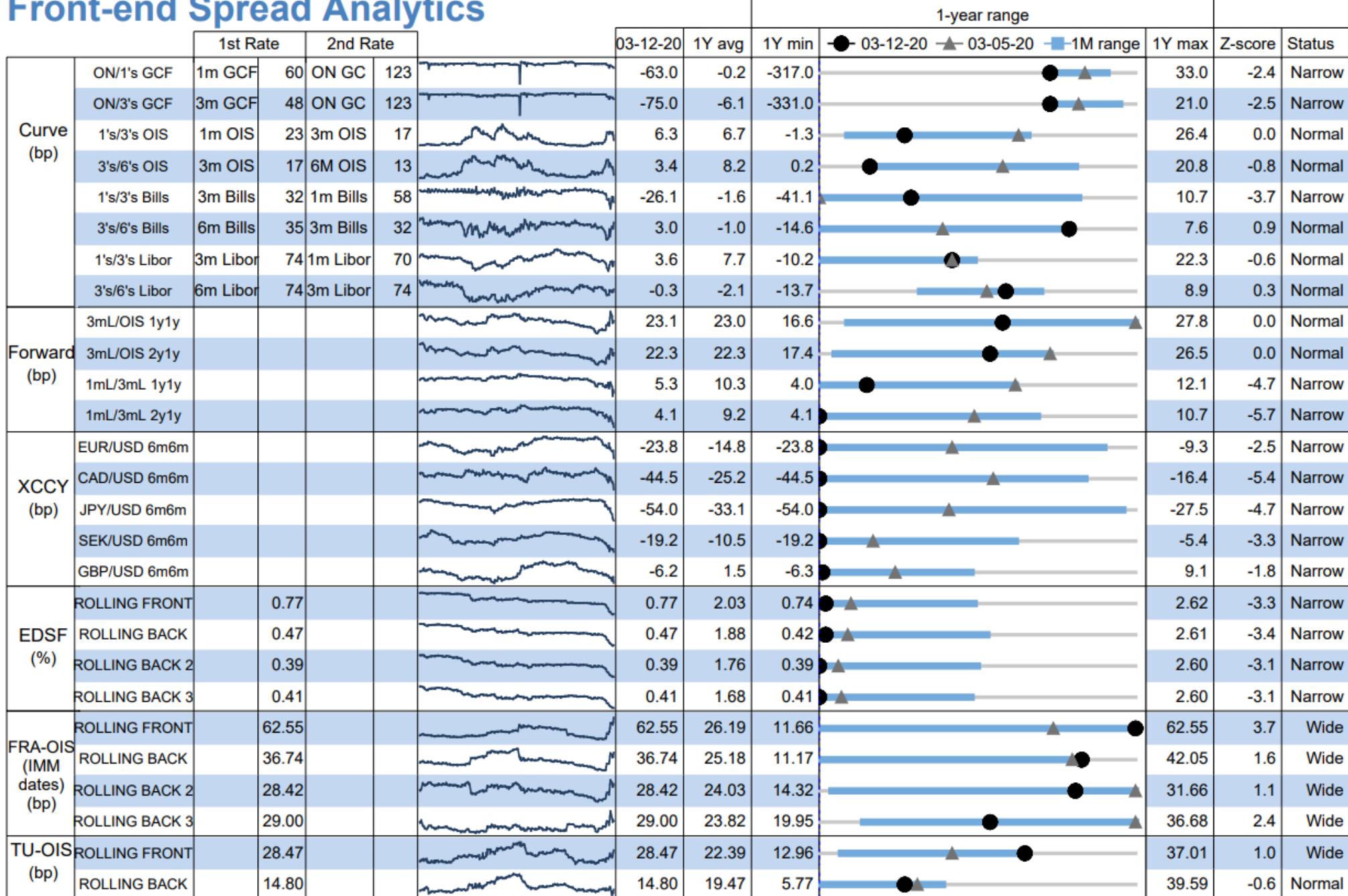


Notes: (1) The dark blue line charts are 1-year time series. The bar chart depicts the range spanning from the 1-year minimum to the 1-year maximum. The blue bars indicate the 1-month range, and the black dot is the current value, while the grey triangle is the 1-week-ago value. (2) Status: "Normal" 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). 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, Bills, Discos, CDs, 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.

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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, 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.

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New York
COB: Mar 12, 2020

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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.

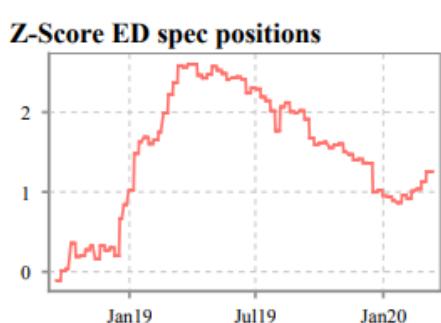
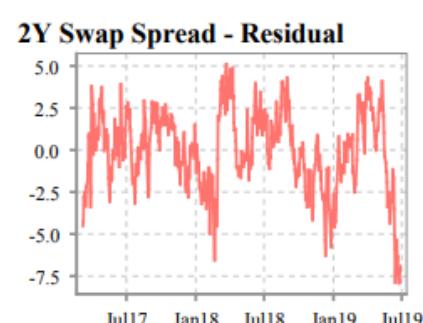
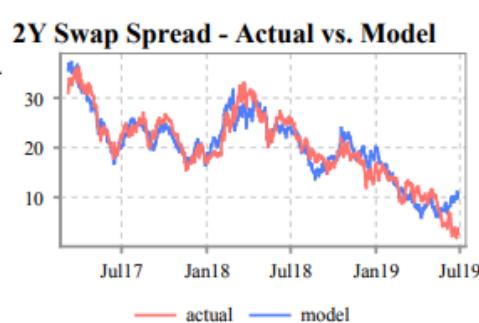
Tier 2 Non-Fin CP-Tier 1 Non-Fin CP: This spread is a measure of how cheap A-2/P-2 corporate CP issuers trade relative to A-1/P-1 corporate CP issuers. A positive spread implies A-2/P-2 corporates are trading cheap to A-1/P-1 corporates. The Non-Fin CP rates are from the Fed's H.15 report.

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.

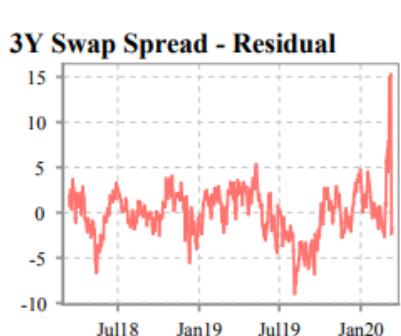
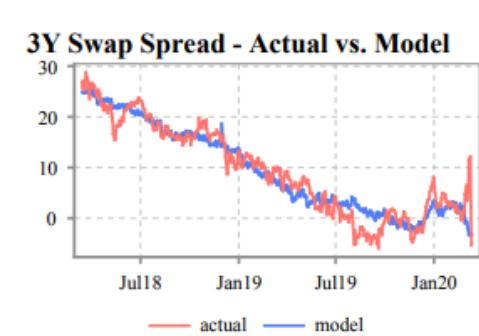
ONs1s and ONs3s GCP, 1s3s and 3s6s Bills, 1s3s and 3s6s Libor: These are spreads based on the steepness of the GCF repo, Bills, and Libor curve respectively, and are generally indicative of term and liquidity premiums that counterparties would have to pay to fund further out the curve. The wider the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

Front End Swap Spread Models

2Y Swap Spread Model		
	Coefficient	Current Value
Intercept	39.031	24.8
3M GC/FF sprds; bp	-0.674	-16.6 0.0
EM FX volatility; %	0.007	0.1 12.9
FRA/OIS; bp	0.718	49.6 38.1
T-Bills outstanding; \$bn	-0.016	-17.0 2552.6
R^2(%)		89.1
Std Error		2.4
2Y Swap Spread (bp)		-0.5
Fair value (bp)		0.0

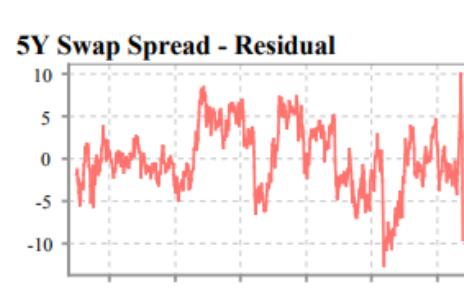
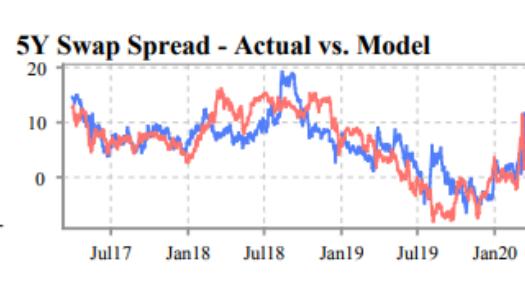


3Y Swap Spread Model		
	Coefficient	Current Value
Intercept	14.943	3.3
Dealer inventory*; \$bn	-0.027	-6.9 231.9
TU implied/term repo sprd; bn	0.007	2.2 87.2
Prime MMF AUM x WAM; \$tn days	-1.211	-30.5 26.9
EM FX index (EMCI)	0.358	5.5 55.7
R^2(%)		91.0
Std Error		2.7
3Y Swap Spread (bp)		-5.0
Fair value (bp)		-3.3



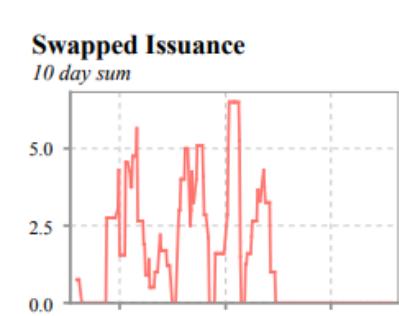
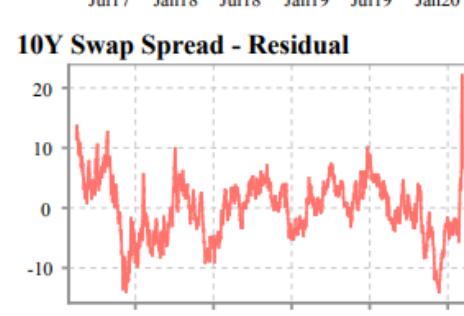
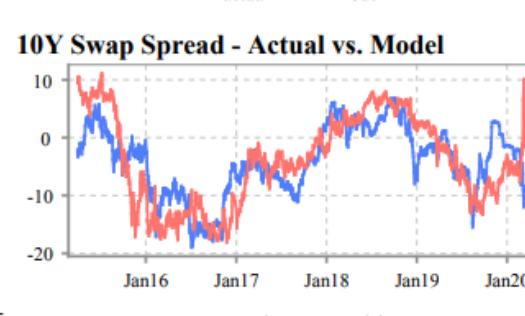
Swap Spread Models

5Y Swap Spread		
	Coefficient	Current Value
Intercept	-128.760	-7.4
3M GC/OIS; bp	-0.424	-13.8 31.3
EM FX VOL; %	3.176	23.8 12.9
1Y ahead Budget; \$bn	-0.036	-5.8 -729.6
% gross issuanceâ	4.061	6.8 21.3
R^2(%)		61.8
Std Error		3.8
5Y Swap Spread (bp)		2.1
Fair value (bp)		11.6

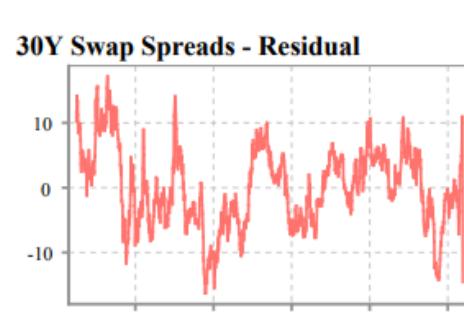
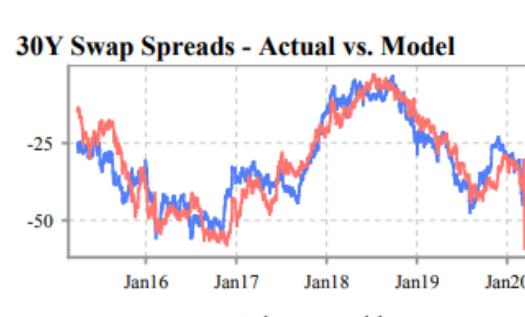


Swap Spread Fair Value Table		
Term	Current Level	Fair Value
2Y	-0.5	0.0
3Y	-5.0	-3.3
5Y	2.1	0.0
10Y	-1.7	-8.4
30Y	-59.2	-44.6

10Y Swap Spread		
	Coefficient	Current Value
Intercept	198.789	9.9
1Y ahead budget deficit; \$bn	0.025	21.0 -994.5
VA hedging demand; \$bn 20s	-0.243	-37.6 124.8
EM FX volatility; %	0.408	3.5 12.9
Treasury debt WAM; months	-2.248	-7.9 70.1
R^2(%)		60.0
Std Error		4.8
10Y Swap Spread (bp)		-1.7
Fair value (bp)		-8.4



30Y Swap Spread		
	Coefficient	Current Value
Intercept	451.907	20.6
10s/30s Tsy crv; %	-49.875	-30.6 0.6
1Y ahead budget deficit; \$bn	0.043	28.8 -994.5
VA hedging demand; \$bn 20s	-0.240	-24.4 124.8
Treasury debt WAM; years	-5.639	-17.8 70.1
R^2(%)		82.1
Std Error		6.0
30Y Swap Spread (bp)		-59.2
Fair value (bp)		-44.6



Note: Models based on 3-year regression for 5Y and 5-year regression for 10Y and 30Y. For more details, see Interest Rate Derivatives, US Fixed Income Markets 2018 Outlook, 11/22/17.

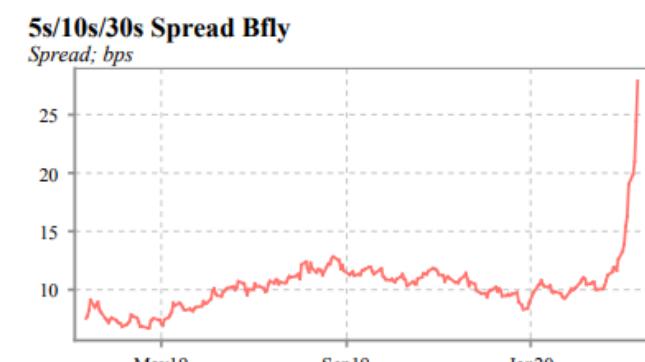
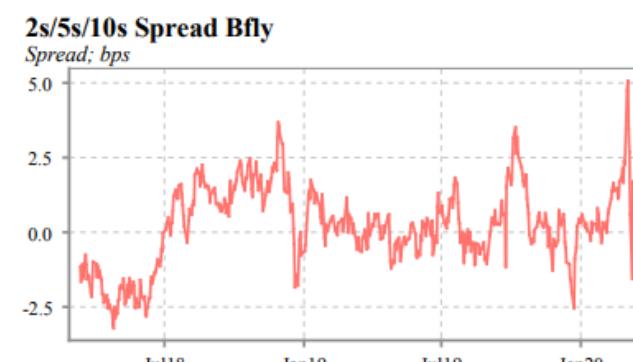
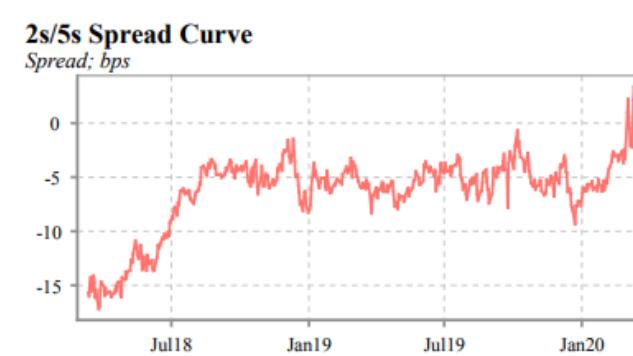
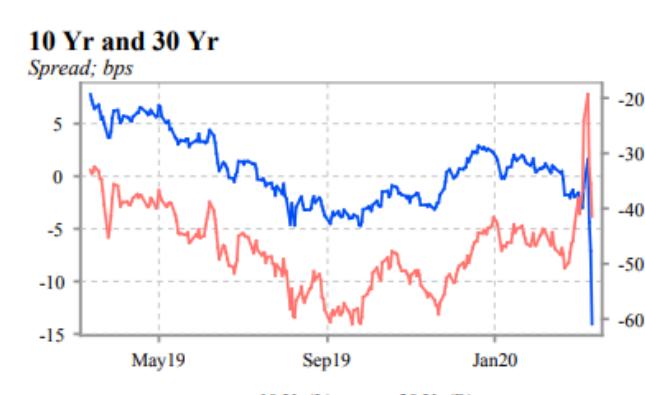
* Historical data from Blue Chip estimates, and forecasts from J.P. Morgan. Adjusted for the share of total marketable debt in notes and bonds.

† Three month trailing gross issuance of 5s as a share of all Notes and Bonds.

Derivatives Strategy

Off-the-run Swap Spread Report

Spreads	1-day		1-wk		1-mo		3-month		
	Spot	Chg	Chg	Chg	Repo	Carry	Slide	Total	6M Avg
1 Year	5.6	-0.8	-9.1	0.4	0.48	-10.4	-4.7	-15.1	-3.7
2 Year	-5.3	0.7	-10.1	-7.7	0.55	-4.5	-1.8	-6.3	-2.1
3 Year	-9.1	1.0	-13.5	-10.8	0.55	0.5	-0.4	0.1	-1.8
5 Year	-2.5	0.1	-7.0	-2.2	0.55	1.2	0.9	2.1	-1.4
7 Year	-3.6	-1.0	-3.0	2.0	0.57	-0.9	-0.3	-1.2	-1.0
10 Year	-3.8	-3.1	-2.4	2.5	0.62	-0.4	0.0	-0.4	-0.7
20 Year	-29.4	-7.6	-8.7	-11.4	0.48	-0.7	-1.1	-1.8	-1.2
30 Year	-60.9	-13.2	-21.1	-28.4	0.55	-1.6	2.0	0.4	-0.5



Curves	1-day		1-wk		1-mo		2-Year		
	Spot	Chg	Chg	Chg	High	Low	Avg	Z	
2s/3s	-3.9	0.3	-3.3	-3.1	1.7	-5.5	-2.1	-1.4	
2s/5s	2.7	-0.6	3.2	5.5	3.4	-16.1	-6.0	2.9	
2s/10s	1.5	-3.8	7.8	10.3	5.3	-27.6	-12.6	3.4	
2s/30s	-55.6	-13.9	-10.9	-20.7	-20.6	-55.6	-33.4	-4.0	
3s/5s	6.6	-0.9	6.5	8.6	7.5	-10.9	-3.9	4.6	
3s/10s	5.3	-4.1	11.1	13.3	9.4	-22.3	-10.5	4.5	
5s/10s	-1.3	-3.2	4.6	4.8	1.9	-11.7	-6.6	3.1	
5s/20s	-26.9	-7.7	-1.8	-9.2	-6.3	-26.9	-13.6	-3.0	
5s/30s	-58.4	-13.3	-14.1	-26.2	-16.5	-58.4	-27.4	-5.0	
7s/10s	-0.2	-2.0	0.6	0.5	2.6	-4.2	-1.4	1.1	
10s/30s	-57.1	-10.1	-18.7	-31.0	-9.0	-57.1	-20.8	-5.2	
20s/30s	-31.5	-5.6	-12.3	-17.0	-8.6	-31.5	-13.8	-5.8	

Butterflies	1-day		1-wk		1-mo		2-Year		
	Spot	Chg	Chg	Chg	High	Low	Avg	Z	
2s/3s/5s	-5.2	0.6	-4.9	-5.8	3.3	-5.8	0.9	-6.0	
2s/5s/10s	2.0	1.3	-0.7	0.4	5.1	-3.2	0.3	1.3	
2s/5s/30s	30.5	6.3	8.6	15.8	30.5	2.5	10.7	5.0	
2s/10s/30s	29.3	3.1	13.2	20.6	29.3	-6.0	4.1	5.0	
3s/5s/10s	3.9	1.1	1.0	1.9	4.9	-1.2	1.3	2.7	
5s/7s/10s	-0.4	0.5	1.7	1.9	0.4	-4.4	-1.9	1.6	
5s/10s/20s	12.2	0.7	5.5	9.4	12.2	-5.7	0.2	3.9	
5s/10s/30s	27.9	3.5	11.6	17.9	27.9	0.4	7.1	5.1	
10s/20s/30s	2.9	0.6	3.0	1.5	7.7	-3.7	3.4	-0.2	
10s/25s/30s	-28.2	-2.4	-7.0	-14.5	-0.9	-30.3	-8.6	-4.5	
20s/25s/30s	-15.4	-0.1	-3.8	-7.5	-1.5	-17.9	-5.1	-5.1	

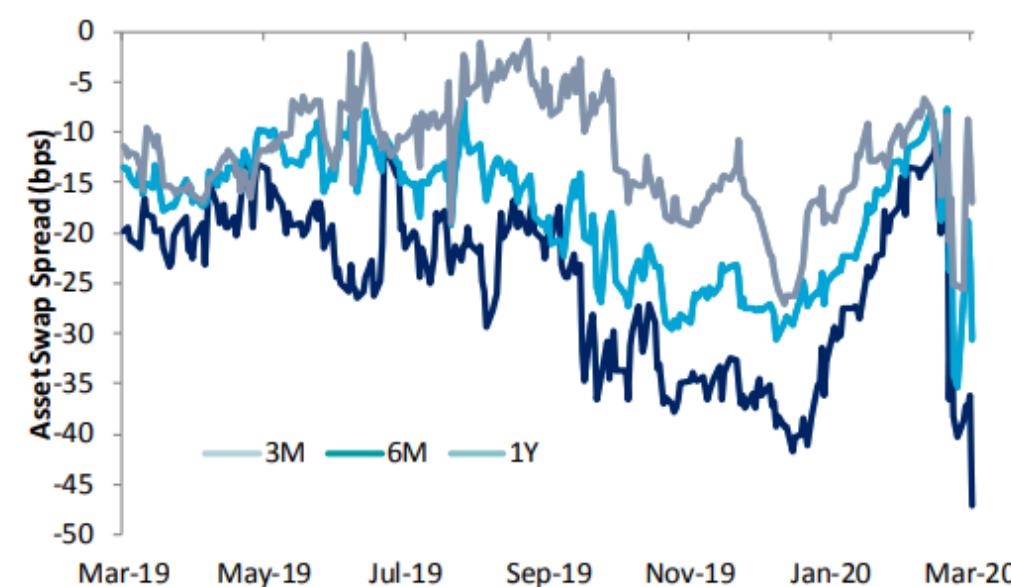
Appendix IV: Front End Monitor

Figure 54. Basis monitor

Expiry	Tenor	3m LIBOR - OIS			3s1s LIBOR			6s3s LIBOR				
		03/13/20	1y Z-Score	Regression with 2y Swap Spreads	03/13/20	1y Z-Score	Regression with 2y Swap Spreads	03/13/20	1y Z-Score	Regression with spot 6s3s		
		Correlation	Beta	Residual		Correlation	Beta	Residual		Correlation	Beta	Residual
3m	3m	47.3	2.7	-62% -1.16 14.8 (2.3)	18.4	0.7	-65% -0.88 -1.7 (-0.4)	6.5	-0.2	-24%	-0.07	-0.1 (-0.1)
6m	6m	32.4	2.7	-13% -0.09 7.5 (2.5)	14.0	0.9	0% 0.00 1.8 (0.9)	8.0	2.1	9%	0.02	1.5 (2.1)
1y	1y	26.7	1.6	-10% -0.05 3.1 (1.4)	5.5	-4.3	-5% -0.01 -5 (-4.4)	9.6	3.3	-2%	-0.01	2.5 (3.3)
2y	1y	25.3	2.0	2% 0.01 3.3 (2.1)	4.6	-5.0	-6% -0.01 -4.8 (-5.1)	10.2	3.6	-11%	-0.02	2.5 (3.6)
3y	1y	25.4	1.9	-3% -0.01 3 (1.9)	4.6	-4.8	-26% -0.06 -4.9 (-5.4)	10.6	3.3			
4y	1y	25.0	1.4	-7% -0.03 2.2 (1.3)	4.6	-4.7	-33% -0.07 -5.1 (-5.5)	12.0	1.6			
5y	5y	24.4	1.1	14% 0.06 2.3 (1.4)	5.9	-3.8	-35% -0.08 -4 (-4.6)					
15y	15y	21.6	-0.3	34% 0.20 0.6 (0.3)	7.2	-3.7	30% 0.07 -3.5 (-3.4)	11.8	1.1			

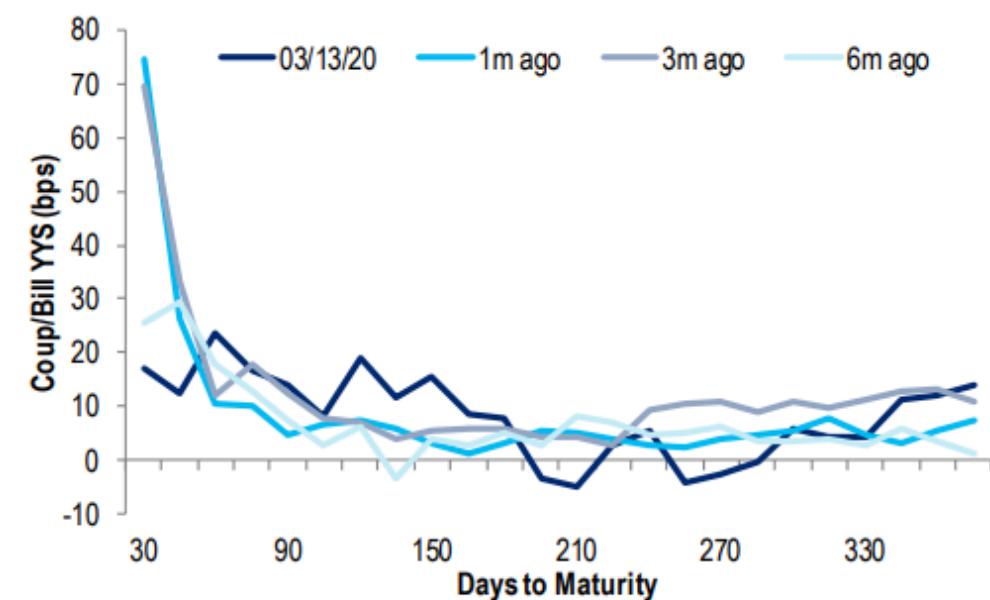
Source: Citi Research, +ve residual value suggests that the basis is wide, -ve suggests that the basis is tight. Value in parenthesis is the standard deviation of the last value compared to its 1-year history.

Figure 55. Historical time series of ASW of OTR 3m, 6m and 1y bills



Source: Citi Research

Figure 56. Term Structure of Coup/Bill Yield Spread at different times



Source: Citi Research

Figure 57. Eurodollar curve monitor

Curves	03/13/20	Z-scores			Regression*		
		1m	6m	12m	Correlation	Beta	Residual
Eurodollar Futures							
Z0/Z1	14.1	1.8	3.5	2.8	30%	0.05	20.7 (3.7)
Z1/Z2	23.5	2.3	5.1	4.4	23%	0.02	16.6 (5)
Z2/Z3	13.9	1.9	4.0	1.1	70%	0.06	8.4 (3.5)
Z3/Z4	13.6	1.5	2.6	0.6	77%	0.05	5.3 (3.2)
Z4/Z5	12.4	0.9	1.1	0.4	51%	0.02	2.2 (1.6)
Eurodollar Packs							
White/Red	20.9	2.1	4.6	3.9	19%	0.02	18.6 (4.4)
Red/Green	19.7	2.3	5.0	3.4	42%	0.03	12.9 (4.7)
Green/Blue	13.3	1.7	3.4	0.7	73%	0.05	6.6 (3.1)
Blue/Gold	13.6	1.3	2.3	0.7	72%	0.04	4.5 (2.9)
Constant Maturity Eurodollar							
1y/2y	18.2	2.1	3.6	3.6	-51%	-0.09	13.6 (2.8)
2y/3y	17.2	2.1	4.2	3.1	-22%	-0.02	8.1 (2.7)
3y/4y	10.3	1.1	2.0	0.3	61%	0.04	4.8 (2.2)
4y/5y	11.0	0.6	0.7	-0.3	72%	0.05	3.3 (1.9)

Source: Citi Research

*Notes: 1. Regression of each curve is against the longer leg of the curve. -ve residual value suggests that the curve is too flat and +ve suggests it is too steep.
2. Constant Maturity Eurodollars are computed using linear interpolation between Eurodollar futures.

Figure 58. Eurodollar fly monitor

Flies	1:2:1 Butterflies				PCA Butterflies			
	03/13/20	1y Z-score	Correlation	Beta	Residual	1y Z-Score	Residual	Weights
Eurodollar Futures								
Z0/Z1/Z2	-9.4	0.3	34%	0.03	4.5 (1.3)	-2.3	-5.9	0.7:2:1:3
Z1/Z2/Z3	9.5	5.3	-68%	-0.04	8.1 (5.3)	3.4	4.4	0.8:2:1:1
Z2/Z3/Z4	0.3	2.0	34%	0.01	2.9 (2.8)	0.8	0.6	0.8:2:1:2
Z3/Z4/Z5	1.2	0.6	75%	0.03	3.2 (2.9)	2.3	2.5	0.9:2:1:1
Eurodollar Packs								
W/R/G	1.1	2.8	-11%	-0.01	5.8 (2.6)	-0.7	-1.1	0.8:2:1:2
R/G/B	6.5	5.1	-56%	-0.02	6.2 (4.8)	3.4	4.1	0.9:2:1:1
G/B/Go	-0.3	0.6	61%	0.02	2 (2.3)	0.6	0.5	0.9:2:1:1
Constant Maturity Eurodollar								
1y/2y/3y	1.0	3.2	-36%	-0.04	8.4 (2.5)	-0.4	-0.5	0.5:2:1:5
2y/3y/4y	6.8	3.3	-81%	-0.06	3.5 (2.2)	0.9	1.2	0.8:2:1:1
3y/4y/5y	-0.6	2.3	-18%	0.00	1.5 (1.9)	1.3	0.9	0.9:2:1:1

Source: Citi Research, W=White, R=Red, G=Green, B=Blue, Go =Gold and P=Purple
Notes: 1. Correlation, beta and residuals are computed by regressing the fly against its belly. -ve residual value suggests that the fly is rich, +ve suggests that it is cheap.
3. Note that PCA butterflies are created such that there is no correlation and beta with belly of the fly.

WHICH HEDGE FUND IS BLOWING UP TODAY?



Bridgewater Associates

+ Add to myFT

Dalio caught flat-footed with big losses at Bridgewater fund

Billionaire investor's Pure Alpha Fund down 20% after coronavirus-induced market turmoil



Ray Dalio: "We're disappointed because we should have made money rather than lost money in this move the way we did in 2008."
© Reuters

Jennifer Abdn and Ortenca Aliaj in New York and Miles Kruppa in San Francisco AN
HOUR AGO

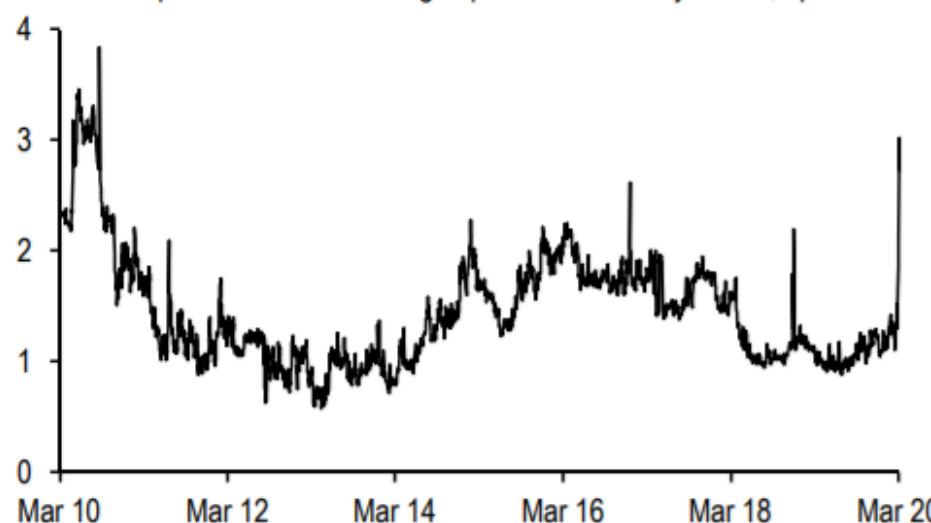
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Billionaire investor Ray Dalio said his Bridgewater Associates, the world's largest hedge fund, was caught flat-footed during this month's [coronavirus-led market turmoil](#), as its marquee strategy dropped about 20 per cent for the year following sharp reversals in stocks, bonds, commodities and credit.

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Exhibit 6: Dispersion along the Treasury curve has risen to its highest level since 2010

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 7: Near off-the-run 30s underperformed current 30s by 5bp over the past week alone, indicating a preference for liquidity that we have not observed since the taper tantrum and the financial crisis

Current/triple old 30-year Treasury matched-maturity swap spread curve; bp



Source: J.P. Morgan

Clearly, policymakers had taken note, as the New York Fed [announced](#) changes to its TOMO and POMO schedule for the coming month. **First**, it modified the reserve management purchase program: since October, the Fed has purchased \$60bn T-bills per month to permanently raise reserve balances. The New York Fed will purchase across a range of maturities to roughly match the maturity composition of Treasury securities outstanding, consistent with the way it reinvests paydowns of agency debt and MBS: the weighted average maturity of purchases will be about 6 years.

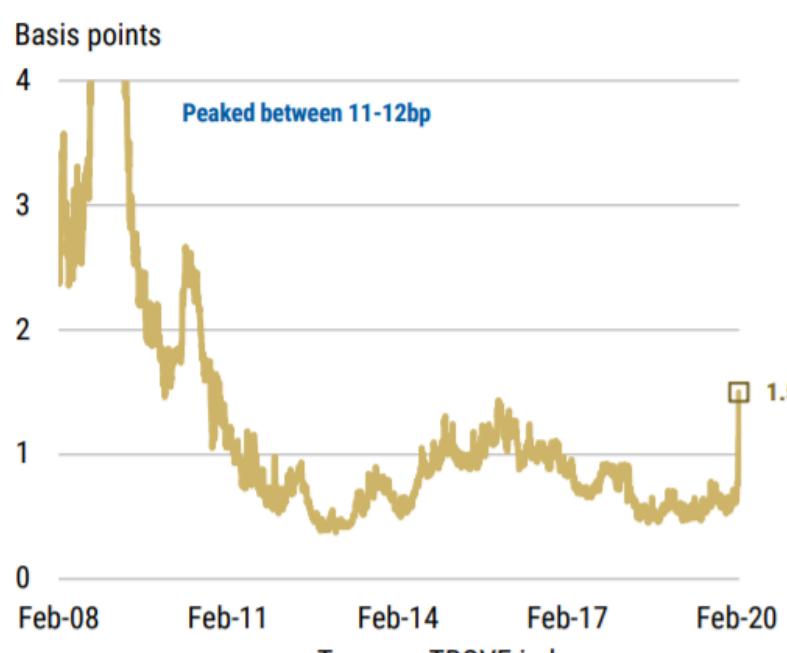
Second, the New York Fed will offer \$500bn 1- and 3-month term repo operations on a weekly basis, in addition to overnight and two-week term operations. The New York Fed took even more aggressive steps, [pulling forward](#) its schedule and making \$33bn in purchases today. It left the option to make further changes to its calendar on Monday. **Exhibit 8** shows the Fed has already bought its full allotment of Treasuries in the intermediate and long end of the curve. **Thus, if form holds, the Fed will likely focus on T-bills, short coupons, TIPS, and FRNs in the coming days. Of these, FRNs are particularly dislocated: DMs on 2-year FRNs widened 7bp today and remain close to historically wide levels.**

Morgan Stanley | RESEARCH

IDEA

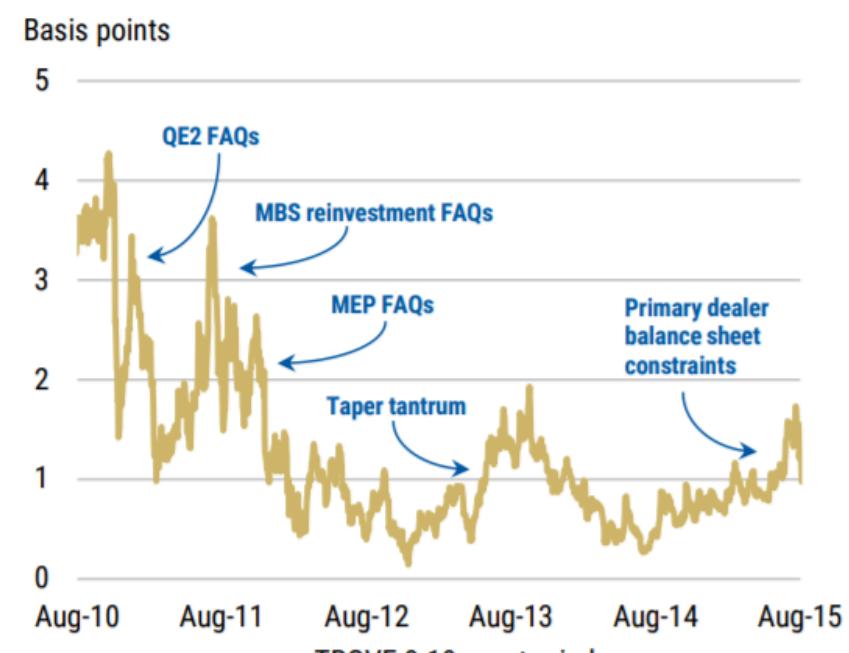
We track the success of the Fed in removing market dislocations using our Morgan Stanley Treasury Relative Opportunity Value (TROVE) index (available on Bloomberg as MSTVI index).¹ The index has widened the last few days (see **Exhibit 12**) suggesting many Treasuries are dislocated vs. their "fair value" as measured from the Treasury spline. It remains to be seen how successful the Fed's operations are in lowering the value of the TROVE index.

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

JPMorgan Trading Platform for Wealthy Clients Froze During Rout

By Sridhar Natarajan and Michelle F. Davis

(Bloomberg) -- JPMorgan Chase & Co.'s wealthy clients suddenly found themselves shut out from trading at the height of this week's drama in stock markets -- just as prices cratered into the worst rout since 1987.

An electronic-trading platform used for catering to wealth-management clients broke down Thursday afternoon as the Dow tumbled by roughly 1,600 points, ending in a historic 10% drop, according to people with knowledge of the matter. The outage hit the group's Morcom electronic trading platform, which employees use to place orders on behalf of wealthy clients, the people said, asking not to be named because the information isn't public.

The system was overwhelmed by unprecedented volume, one person said. Brokers received instructions to reroute orders for cash equities and derivatives trades through manual means such as so-called paper tickets, according to a message seen by Bloomberg. The outage began mid-afternoon and was fully resolved after regular market hours. It worked smoothly Friday, one person said.

US Treasury market holds its breath after high drama

Intermediation broke down after off-the-run bonds were dumped on banks



Risk.net montage

Robert Mackenzie Smith

 @robmacksmith

13 Mar 2020

The US Treasuries market was brought to its knees yesterday as banks struggled to handle a wave of selling from clients. Amid reports that asset managers were dumping bonds cheaply in a desperate search for cash – and rumours of a major liquidation of futures versus cash bond positions – the Federal Reserve Bank of New York sought to restore some order, making \$1.5 trillion in term repo available before the end of the week.

The intervention brought some relief but liquidity was “still terrible” at the close of trading, according to a rates trader at one broker-dealer, raising questions about whether the problems could be contained – and what was causing them.

“If the US Treasury market is functioning with friction, then that needs to be corrected immediately. If you’re having trouble trading Treasuries, then that’s

only going to be exacerbated in other fixed income markets. Treasuries are the lifeline for the financial industry," says Gautam Khanna, a senior portfolio manager at Insight Investment.

Prior to the Fed's response, spreads between the five-year on-the-run Treasury and its off-the-run equivalent had been as wide as 7 basis points – a slight improvement on the [previous day's](#) 11bp gap. The spread between the two is normally measured in fractions of a basis point.

"This is pretty uncharted territory," says Noah Wise, a portfolio manager at Wells Fargo Asset Management. "We've not seen anything like this for quite some time, perhaps since Long-Term Capital Management."

Other tenors saw spreads of between 5bp and 8bp. "That's a crazy spread. US Treasuries are not meant to have pricing errors that big," says a US rates strategist at a European bank.

Sliding prices for off-the-run bonds appeared to be driven by desperation selling, as collapsing equity markets prompted investors to take profits where they could, or left them needing cash to meet margin calls.

The US rates strategist says his bank saw one client sell at a price that was 10bp off-market. "I reckon there are worse out there," he says.

Liquidity had already been deteriorating in the days leading up to March 12. According to Tradeweb, liquidity in 30-year off-the-run US Treasuries had been ebbing away since the beginning of the month, and evaporated more rapidly this week (see figure 1).

1. US Treasuries 30Y Sector Liquidity Indexes

14

12

10

8

6

4

2

0



● 1st and 2nd olds ● Current

Source: Tradeweb

Yesterday was particularly challenging, says a rates trader at a broker-dealer: "Markets are so wide in Treasuries and dealers won't even trade with you. I am worried about the complete lack of liquidity in Treasuries and naturally that makes it hard to price anything else."

The Federal Reserve heard that message. In an attempt to tackle what it **described** as "highly unusual disruptions in Treasury financing markets," the central bank's New York branch expanded its \$60 billion reserve management

Share

purchases to include securities across the US Treasury curve, instead of just buying T-bills – bonds with a maturity of a year or less. In addition, term repo operations scheduled for March 12 and 13 offered \$1.5 trillion, with a further \$4 trillion on offer in instalments through to mid-April.

Trump, Treasuries, turmoil

The meltdown in Treasuries over the past few days has been blamed on a range of factors, including a lack of bank balance sheet capacity and a blowout in the basis between US Treasuries and futures.

The equity market's reaction to President Trump's unexpected travel ban announced on March 11 made things more difficult. Plummeting stocks spawned a further wave of deleveraging and selling of liquid assets in order to close out positions and free up cash to pay margin calls, say participants.

"The remarks President Trump made last night on the travel ban were certainly not well received [by the market]," says Deborah Cunningham, chief investment officer at Federated Investors.

Unpicking the events will take some time and will not be explained easily, traders warn: "Anybody that claims they know 100% what's going on is being untruthful. This is very complicated," says the head of the financing desk at a primary dealer.

Clients were said to have loaded up on futures versus off-the-run Treasury positions in recent weeks, financed through the repo market. This sees an investor buy a bond with financing from the repo market, and hedge it with a short futures position. The bond can be delivered into the sold futures position at expiry, limiting the downside.

The futures have lighter balance sheet usage than the cash bond, so this trade generally sees the sold future trading higher than the bond price. The differential between the

“ This is pretty uncharted territory.

cash earned from selling the future minus buying the bond is known as the implied repo rate. When the implied repo rate is higher than the actual repo rate, as it often is, there is an arbitrage if you hold the position to maturity.

According to a JP Morgan note on March 10, this trade had expanded recently as banks have adopted a "use it or lose it" policy when allocating balance sheet capacity to clients. According to the note, the limited downside for the bond-futures trade makes it an attractive way for clients to use available capacity – ordinarily, at least.

It's unclear what first triggered the initial selling of Treasuries on March 11. But once it began, futures prices pushed beyond bond prices – in other words, the implied repo rate began to rise. Given the trade sees investors short futures and long bonds, this would have created mark-to-market pain.

The trade can require a strong stomach, says the rates trader: "You have to hold onto the position and be able to finance it, and mark-to-market can cause an unlimited amount of pain. Notes/bonds can get cheaper and the future richer even though it will eventually converge."

Investors that were unwilling or unable to bear mark-to-market losses might be forced to liquidate their position, as one large fund was rumoured to have done yesterday.

"I would say it's the movement in the cash versus the futures that's causing an unwind in these positions and a spike in implied repo," says the rates strategist at the second European bank.

We've not seen anything like this for quite some time, perhaps since Long-Term Capital Management

Noah Wise, Wells Fargo Asset Management

“Dealers appear to be full”

Unwinding the trade would see Treasuries sold into the market. But dealers were already chock-full of bonds they had acquired from investors in previous days – as clients had sought to finance margin calls or lock in profits from rising bond prices.

That is the message asset managers took from the day's trading, anyway.

“Many of the dealers appear to be full in terms of how much risk they're willing to take on their balance sheet,” says Insight's Khanna.

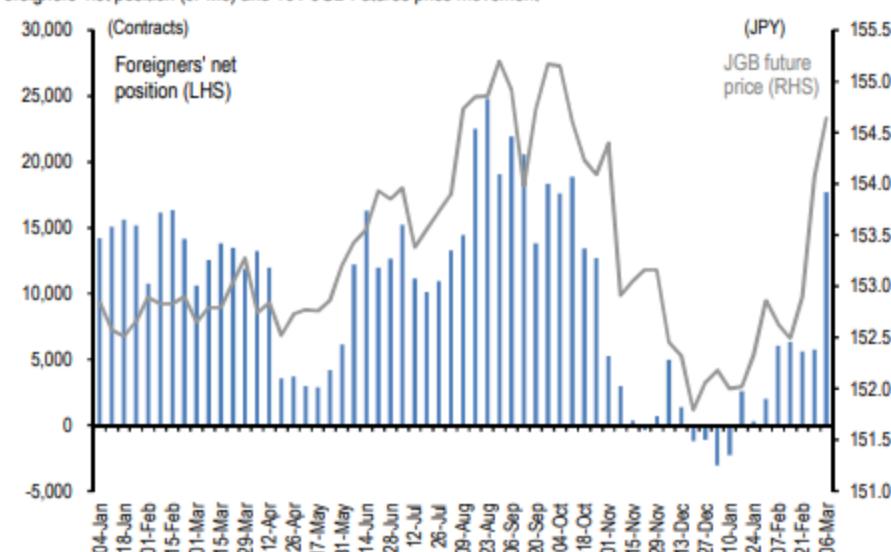
This scenario was also sketched out in a Bank of America research note on March 12, which said the unwind of investors' leveraged futures versus Treasury positions “would essentially result in a Treasury ‘supply shock’ as these funds reduce their positions and force dealers to sell those positions in a very illiquid market”.

“Significant position reduction from one large, leveraged UST investor would likely lead to a cascading effect whereby US Treasury yields rise sharply and force liquidations from other similar investors,” the note added.

Dealers normally finance Treasury purchases in the repo market. To facilitate this trading, they were forced into the overnight repo market.

New York Fed data shows primary dealers had cut back their overnight funding needs by approximately \$200 billion between last September's repo spike and the turn of the year, before borrowing began to creep back up again. The [latest data](#) from the central bank shows overnight repo exploding by \$190 billion in just one week to March 4.

Exhibit 7: Foreigners started adding net longs in the first week of March
Foreigners' net position (JPMe) and 10Y JGB Futures price movement



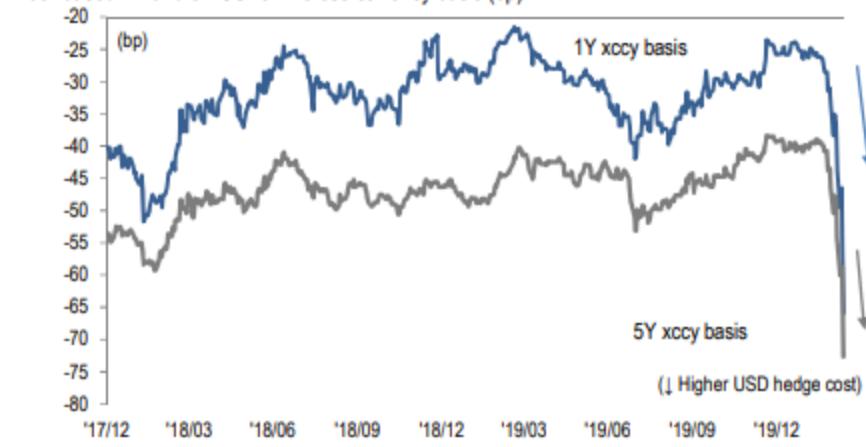
Source: J.P. Morgan

Note: We arbitrary set March 2014 as the base point

3. USDJPY cross-currency basis widened even further

As we flagged last week, USDJPY cross-currency basis market has had one of the worst hits in the last few years (Exhibit 8). Widening of the short-end is most likely led by domestic demand to add FX hedge on existing foreign bond positions while that of the intermediate sector is most likely attributable to stop-loss of paid carry positions from various players. We highlighted last week that attractive JGB\$ASW may draw some USD-holders to take the opposite side, but that has not materialized even with a pick of almost 120bp (Exhibit 9). Given how various credit spreads have widened of late, it is increasingly difficult for this to play out. In particular, our US derivatives strategist team highlights that recent collapse of treasury cash/futures basis may incentivize some money to shift away from CP and FX forwards into long future basis positions (see [report](#)). USDJPY cross-currency basis market will likely stay under pressure until the market calms down.

Exhibit 8: Sharp widening that we have not seen in years...
Libor-based 1Y and 5Y USDJPY cross-currency basis (bp)

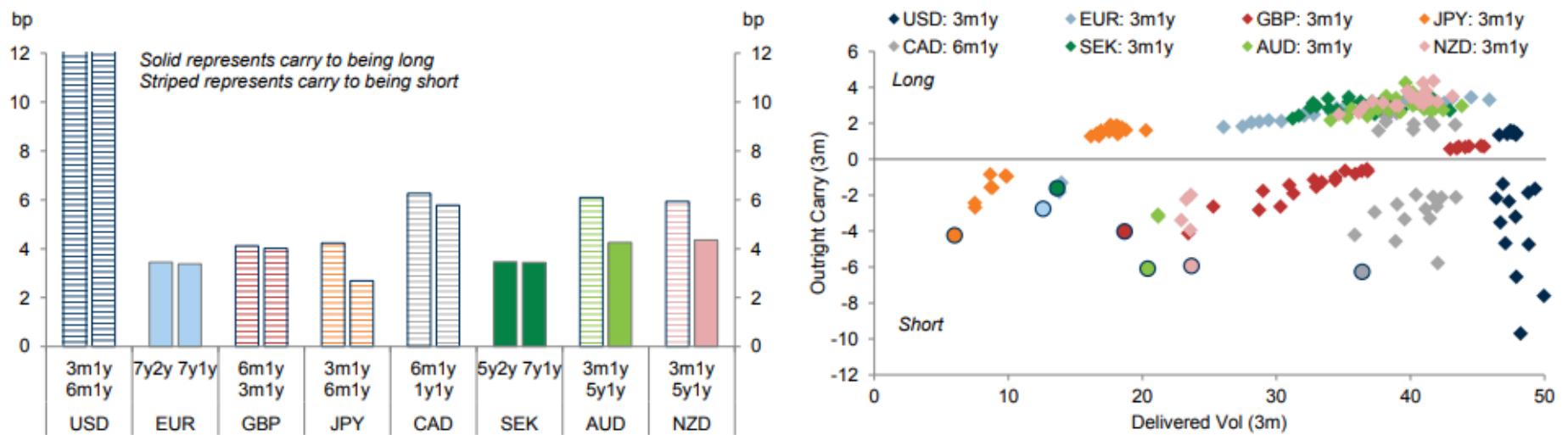


Source: Bloomberg, J.P. Morgan

Carry/Rolldown Monitor

Outright Carry

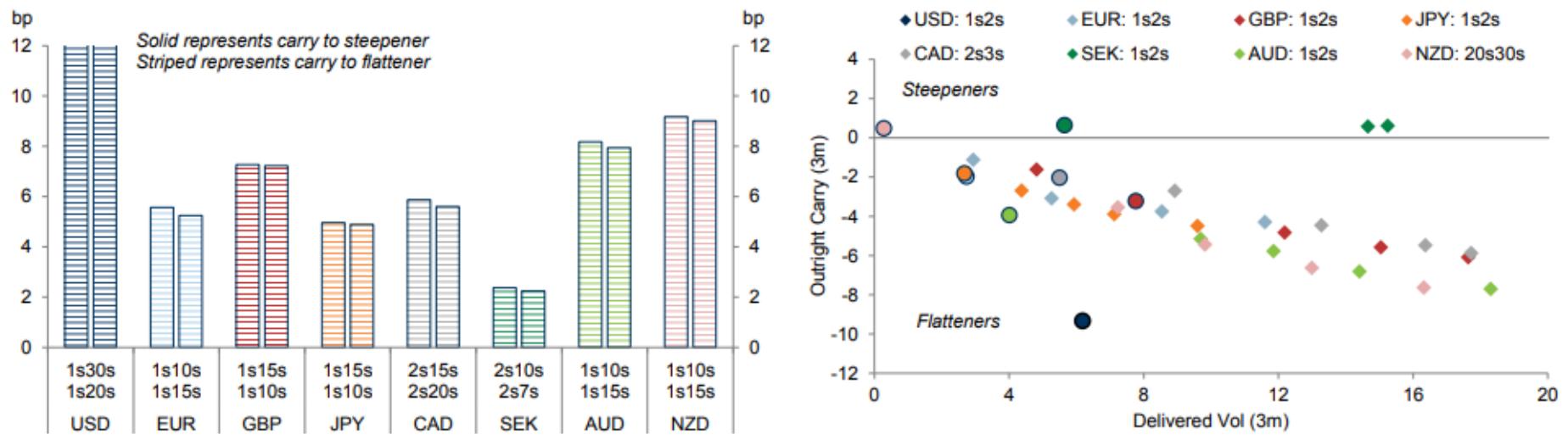
Bar chart shows top two carry points by currency, with solid reflecting carry to a long position and striped carry to a short position. Scatter illustrates top 25 carry/vol points by currency, with top point by currency noted



Source: Goldman Sachs Global Investment Research

Curve Carry

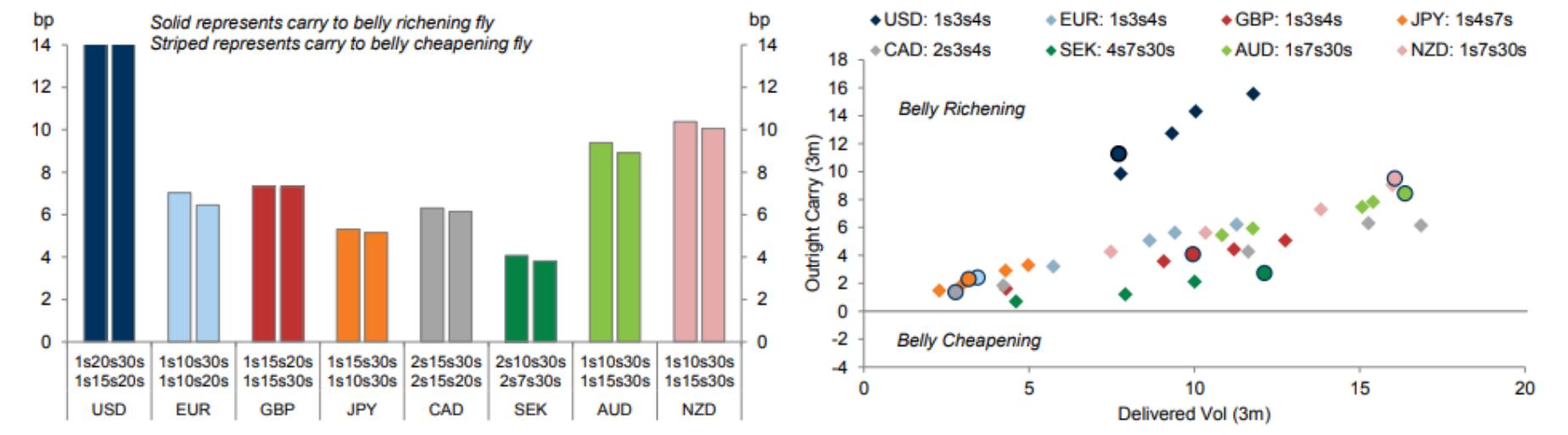
Bar chart shows top two carry curves by currency, with solid reflecting carry to a steepening position and striped carry to a flattening position. Scatter illustrates top 5 carry/vol curves by currency, with top curve by currency noted



Source: Goldman Sachs Global Investment Research

Fly Carry

Bar chart shows top two carry flies by currency, with solid reflecting carry to a belly-richening fly and striped carry to a belly-cheapening fly. Scatter illustrates top 5 carry/vol flies by currency, with top fly by currency noted



Source: Goldman Sachs Global Investment Research

Shinichiro Kadota	+81 3 4530 1374	shinichiro.kadota2@barclays.com	BSJL, Japan
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#liquiditysqueeze

Xccy basis

Dollar funding squeeze and CB swap lines

Recent market turmoil from COVID-19 has resulted in increased dollar funding stress, both onshore (LOIS) and offshore (basis). Monetary easing by global central banks are the *indirect* first line of defense to counter such dislocations but should funding stresses escalate, *direct* response with CB swap line via adjusting its availability, duration, and price could be considered, although there are potential limitations to its broad effectiveness.

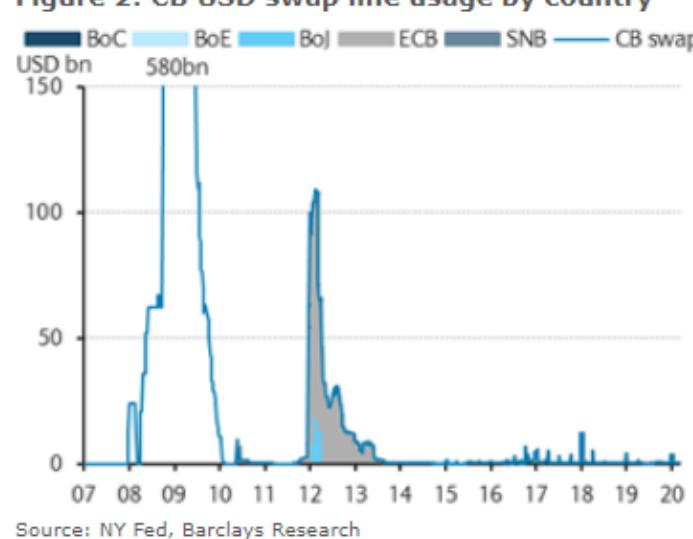
The recent market turmoil from COVID-19 has resulted in increased dollar funding stress, as evident in widening LOIS in the onshore markets and short-term xccy basis in the offshore markets (Figure 1). These dynamics likely reflect liquidity preference and regulatory balance sheet constraints due to sharp risk-off moves, which reduce the available USD supply and arbitraging capability of dealers. Indeed, in the last week, institutional investors and corporate treasurers have begun building up precautionary cash balances. These have largely been directed to gov-only money funds where balances have risen by more than 5% since last Wednesday (\$70bn). As these funds do not invest in short-term unsecured bank credit, this extra cash is not flowing into bank CP or wholesale CDs. We caution that such an aversion-led rise in funding costs (eg, basis widening) is potentially boundless until all liquidity demand is met, in contrast to investment-driven basis widening where relative carry attractiveness determines the natural limit to widening. COVID-19 concern is likely to remain high and another bout of funding stress with further widening in LOIS and basis cannot be ruled out, especially with the upcoming March turn.

Figure 1: USD LOIS and xccy basis



Source: Bloomberg, Barclays Research

Figure 2: CB USD swap line usage by country



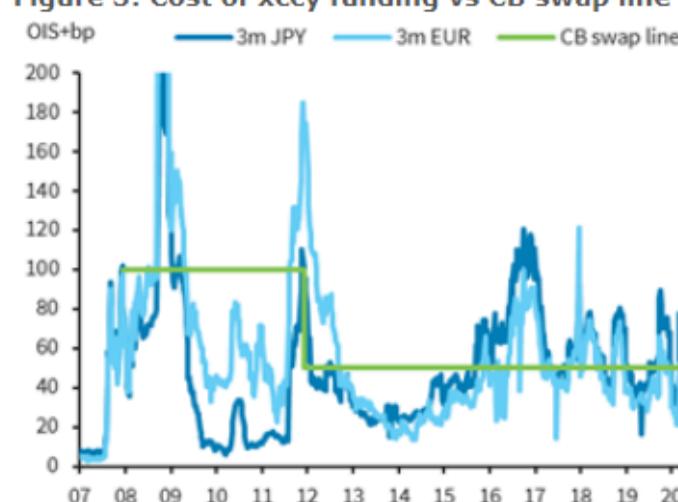
Source: NY Fed, Barclays Research

Under escalating funding stress, monetary easing by global central banks is the likely the first-line of defense, which should *indirectly* stabilize international dollar funding markets (ie, tighten basis) via support to risk sentiment and resultant relaxation of balance sheet constraints. However, in case of more acute and prolonged stress, *direct* policy response could be considered – namely, central bank (CB) liquidity swap lines. Such cross-currency liquidity facilities were originally established in 2007 in response to heightened international funding market stress with subsequent extensions, then later reestablished in 2010 and eventually made standing facilities in 2013 (see Appendix for its history).

CB liquidity swap lines were actively utilized during periods of significant funding stress such as GFC and European debt crisis; however, the usage shrank from late 2013 with the easing of tensions in Europe (Figure 2). Its balance remained minimal despite its cheaper funding costs (ie, USD OIS +50bp) than in the markets, especially during persistent basis widening in 2014-16 and year-end seasonality (Figure 3). The limited draw was due to discouraged usage (or stigma), in our view. Causes of basis widening in those periods, such as regulatory adjustment (leverage ratio, etc), USD supply reduction as a result of US MMF reform, and cross-border investment rather than market stress, did not meet the purpose of these facilities, which are set up as contingency backstop to "address stress in US dollar funding markets," thereby discouraging banks to tap on such emergency CB liquidity lines^[1].

However, should risk aversion and funding stress escalate, central banks could aim to ease stress by adjusting *availability*, *duration* and/or *price* of CB swap lines. In terms of *availability*, CB could open the valve (ie, not discourage the use) of swap lines in the face of further concurrent widening of USD LOIS and xccy basis on deteriorating risk sentiment. Signaling and clarifying justifiability of CB swap usage under stress (ie, reduce stigma/discouragement) as the backstop could ease concerns about the availability of USD liquidity, which may mitigate excessive cash hoarding by banks and dealers. This could help cap the scope for basis widening, albeit likely at a higher level than its cost of USD OIS+50bp unless all marginal liquidity demand is met with CB swap. In terms of *duration*, central banks could reintroduce longer-tenor USD operations (eg, 3m) in addition to the current 1w operations. 3m operation was last drawn by the ECB in April 2014 and the duration has been mostly 1w since then, except for 3w operations over the year ends (Figure 4). Cutting the *price* of CB swap lines (ie, reducing the rate from current USD OIS +50bp) may be more difficult as it would then offer dollar liquidity at a cheaper *penalty* rate than for domestic banks via the Fed's discount windows (set at 50bp over the top of the fed funds target band).

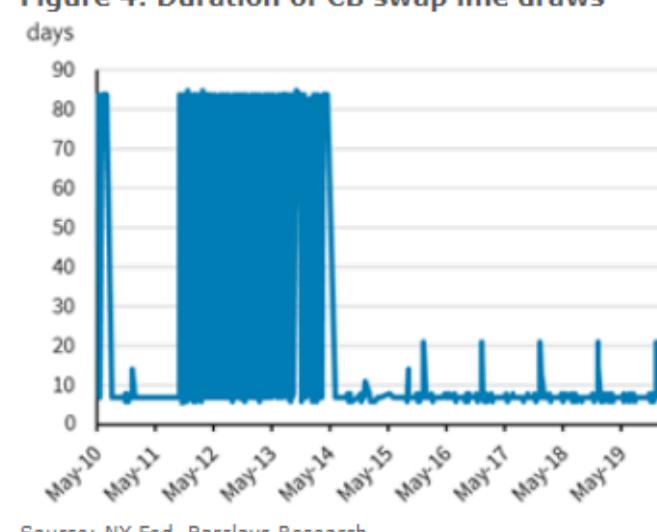
Figure 3: Cost of xccy funding vs CB swap line



Note: JPY and EUR calculated from xccy basis, adjusted for LOIS.

Source: Bloomberg, Barclays Research

Figure 4: Duration of CB swap line draws



Source: NY Fed, Barclays Research

There are potential limitations to the effectiveness of CB swap lines even if utilized freely. While CB swap lines have been effective at easing dollar funding stress for primary dealers, especially for French and Japanese banks in the past, positive spillover effects beyond banking sectors is dependent on their liquidity transmission to other sectors, including nonfinancial corporations and non-bank financial institutions. Hence, CB swap lines may help ease interbank funding stress but not prevent distress events outside the banking sector^[2]. This may particularly limit the effectiveness of CB liquidity lines given the post-GFC environment of the relatively well-capitalized banking sector under rigorous regulation in contrast to potentially excessive leverage in corporate sectors. In this light, central banks' support to loan transmissions, such as BoE's decision to support loans to SMEs and reduce the countercyclical buffer, are also essential in augmenting the CB liquidity support. ECB adopted similar measures to support the lending to SMEs as it made the terms and conditions of its existing Targeted Long Term Refinancing operations (TLTRO) more generous and adopted temporary measures to provide capital and operational relief that should increase banks' capacity for lending. The Fed decided to conduct enormous 1m and 3m term operations and, in a bid to improve Treasury market liquidity, the Fed will shift from buying bills to coupons in its reserve management purchases. These Fed actions helped ease some widening pressures in USDJPY basis initially, but widening pressures re-emerged with further risk aversion. We expect the BoJ to enhance its loan support program next week.

Further blow-up in basis cannot be ruled out and volatility is likely to remain high in the near term. With regards to the medium term outlook for xccy basis, we expect 3m USDJPY basis to eventually tighten back to the -10 to -30bp range, which has held in the recent years outside the seasonal year-end volatility, as USD availability and arbitrageur flows resume once risk aversion fades. JGBs' relative attractiveness increased with the recent flattening in global yield curves and wider basis, reducing FX-hedged yields of foreign bonds (Figure 5); hence, USD funding demand linked to US asset investment is unlikely to pick up. Short-term EURUSD basis initially experienced less widening pressures but those pressures have strengthened more recently. We think it should follow general USD funding dynamics, similar to USDJPY basis. We therefore expect it to move into the -10bp to -30bp range eventually. In the euro liquidity market there are a few signs of building up precautionary cash balances but there is no evidence of stress. Banks' issuance activity in the French commercial paper market has declined compared to the same period last year, probably reflecting a reduction in the demand from MMFs. We suspect that fund managers have started to adopt a precautionary approach, thereby increasing the amount of cash in anticipation of possible cash withdrawal in the coming weeks especially by corporates. It is interesting to note that over the last few weeks €STR volumes have moved on an upward trend (from about €30bn in mid- February to €45 currently; Figure 6): as the only €STR eligible transactions are overnight unsecured deposits from financial institutions (especially non-banks) held at the €STR reporting banks, we do not rule out that such moves could be related to the increase in cash holding for precautionary reasons. The increase in volumes has not significantly affected the fixing that has crept down from depo rate -3.6bp to depo rate -4.3bp.

Figure 5: Deterioration in FX-hedged foreign bond yield for Japanese investors



Note: FX-hedging based on 3m FX fwd.

Source: Bloomberg, Barclays Research

Figure 6: Sharp increase in the €STR volumes



Source: ECB, Barclays Research

Appendix: History of central bank CB liquidity swap lines

Date	Event
12 Dec 07	Reciprocal currency arrangements established b/w Fed, ECB and SNB for up to 6m
Sep/Oct 08	Agreement lines expanded to BoJ, BoE, BoC, RBA, Danmarks Nationalbank, and Norges Bank in Sep 08; then to BCB, Banxico, BoK, and MAS in Oct 08
Feb/Jul 09	Agreement extended until Oct 09, then to Feb 10 (terminated thereafter)
9 May 10	USD liquidity swap lines reestablished b/w Fed, BoC, BoE, ECB, and SNB through Jan 11 (BoJ joins later)
21 Dec 10	USD liquidity swap line extended through Aug 11
29 Jun 11	USD liquidity swap line extended through Aug 12
30 Nov 11	Cost of USD liquidity swap lowered from 100bp+USD OIS to 50bp+ USD OIS and line extended through Feb 13; bilateral liquidity swap arrangements established
13 Dec 12	USD liquidity swap line extended through Feb 14
31 Oct 13	USD liquidity swap lines converted to standing arrangements

Source: NY Fed, Barclays Research

[1] Each central bank maintains the right to approve or deny requests for draws at any time

[2] For example, French banks reduced their USD assets in response to USD funding problems in the previous stress episodes.



Suggested Functions

HP Analyze a currency's historical prices

CHAR See the Bloomberg charts homepage

Global Macro Strategy

Impact of Oil on Rates and FX

Oil prices have fallen 45% since the start of the year. Typically this is associated with lower long-term yields, led by lower breakevens, as well as 5s30s flatteners; weak COP and NOK; strong JPY; and wider XCCY basis swaps.

- **Global Rates:** In the US Treasury, German Bund and UK gilt markets we find that significant downward shocks to oil prices, both supply concern-driven and demand concern-driven, tend to be associated with moves lower in longer-maturity yields and a flattening bias for the 5s30s curve.
- **Global Inflation:** During historical oil market sell-offs: (1) US breakevens are more affected than Europe, the UK, and Japan; (2) Real yields moves are mixed, depending on the type of oil shock; (3) Breakevens moves account for nearly 100% of the nominal moves during major oil price declines; and (4) The 2008 decline is comparable to the recent decline in breakevens.
- **Foreign Exchange:** We propose a three-stage framework for assessing currencies: 1) The initial price shock; 2) The central bank/policy-maker response; and 3) The subsequent growth impact. The oil exporters COP, RUB, CAD, and NOK are the most highly sensitive to changes in oil prices. The safe-haven JPY typically appreciates when oil prices fall as risk sentiment in broader markets weakens too. FX implied volatility has picked up for those currencies.
- **GCC Rates/FX:** GCC rates/FX markets have not adjusted as much as credit markets. As such, we think that both FX forwards and swap spreads differentials versus the US have the potential to move higher should oil prices remain subdued, and as the sovereigns rely on asset drawdowns which reduce their NFA positions.
- **Cross-Currency Basis (XCCY):** In the context of a similar period from 2H15 to early 2016, XCCY basis swap spreads might continue to widen in the near term, but we expect them to stop short of 2016 levels, given that FX-hedged UST positions no longer provide attractive yields, and the Fed has been supplying ample funding in a bid to ensure that financial institutions continue to fulfill their functions as dollar intermediaries.

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Cross-Currency Basis (XCCY)

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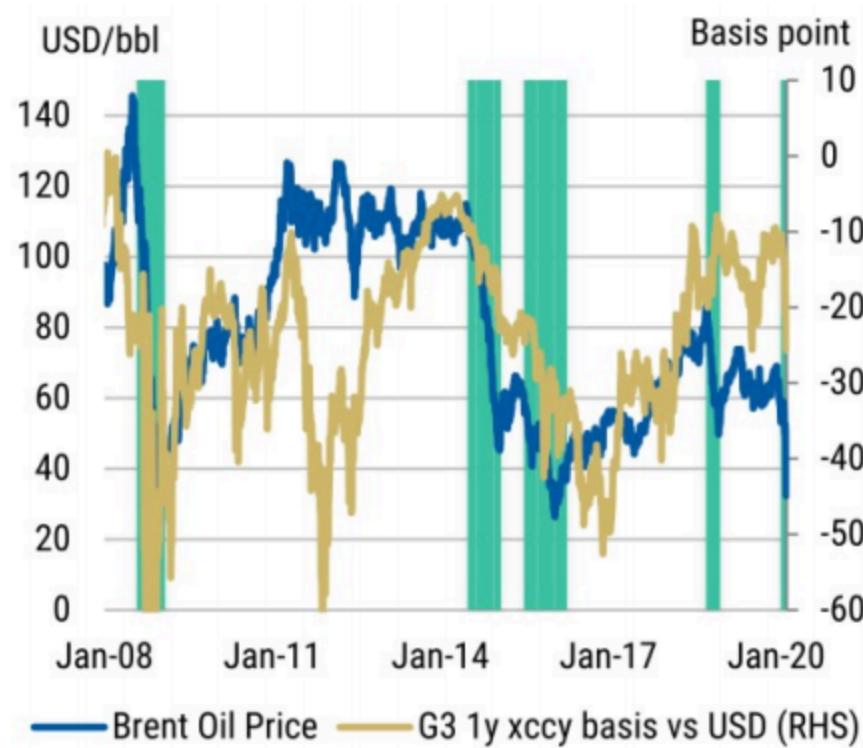
How will lower oil prices impact the USD funding market?

Cutting straight to the conclusion, we envisage only an indirect impact. History does indeed show a certain amount of correlation between oil prices and cross-currency basis swap spreads or LIBOR-OIS spreads ([Exhibit 54](#) and [Exhibit 55](#)), but relationships do not necessarily hold steady over the longer term, and **it is also important to recognize that such indicators of funding tightness (or otherwise) may not necessarily agree with one another ([Exhibit 55](#)).**

When considering declines in oil prices, it is first important to ask whether they stem from supply-side or demand-side factors, with the latter tending to be more problematic in as much as they will generally point to heightened recession risk and a deterioration in financial conditions. One might then observe a certain amount of "spurious" correlation between lower oil prices and funding-related indicators as a consequence of temporary anomalies and distortions in the credit and funding markets.

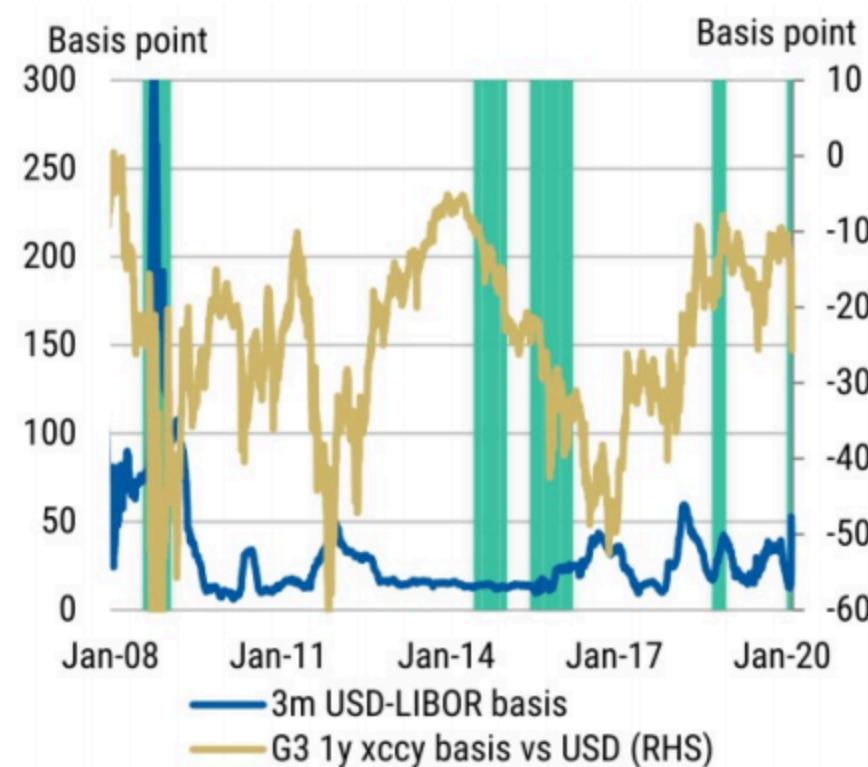
Below we review what happened in the USD funding market during each of the three most recent significant declines in oil prices as identified in this report's [Global Rates](#) section. Those declines attributable to supply-side factors have not necessarily been accompanied by significant tightening of financial conditions, and as such have sparked little concern about USD funding availability or liquidity

Exhibit 54: Brent oil price versus G3 XCCY basis versus USD



Source: Morgan Stanley Research; Note that G3 XCCY basis suggests the average of USD/JPY, EUR/USD, and GBP/USD basis. Green area suggests the period when the oil price had fallen substantially.

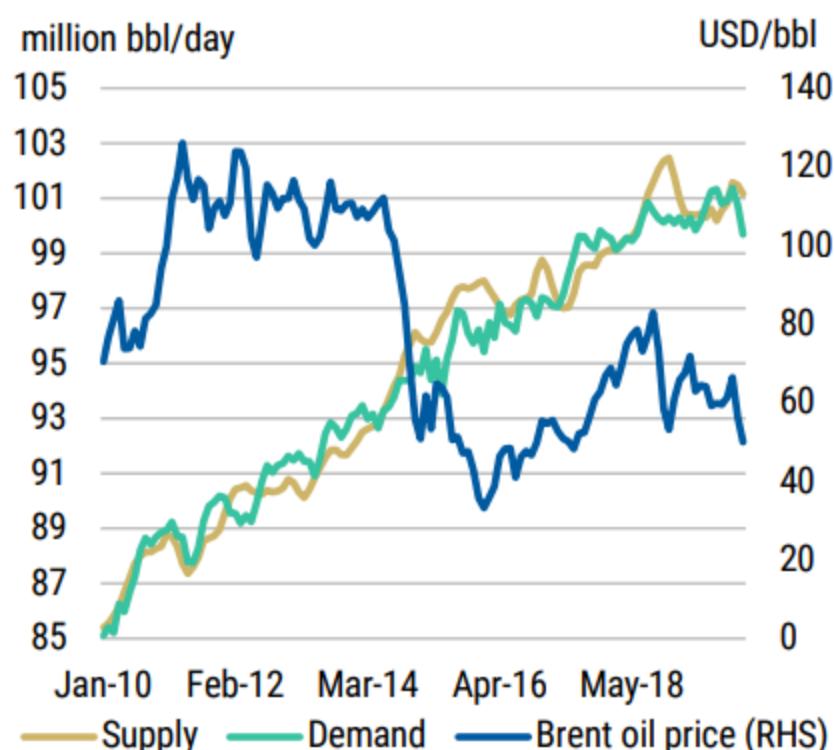
Exhibit 55: G3 XCCY basis versus USD versus 3m LIBOR-OIS spread



Source: Morgan Stanley Research; Note that G3 XCCY basis suggests the average of USD/JPY, EUR/USD, and GBP/USD basis. Green area suggests the period when oil price had fallen substantially.

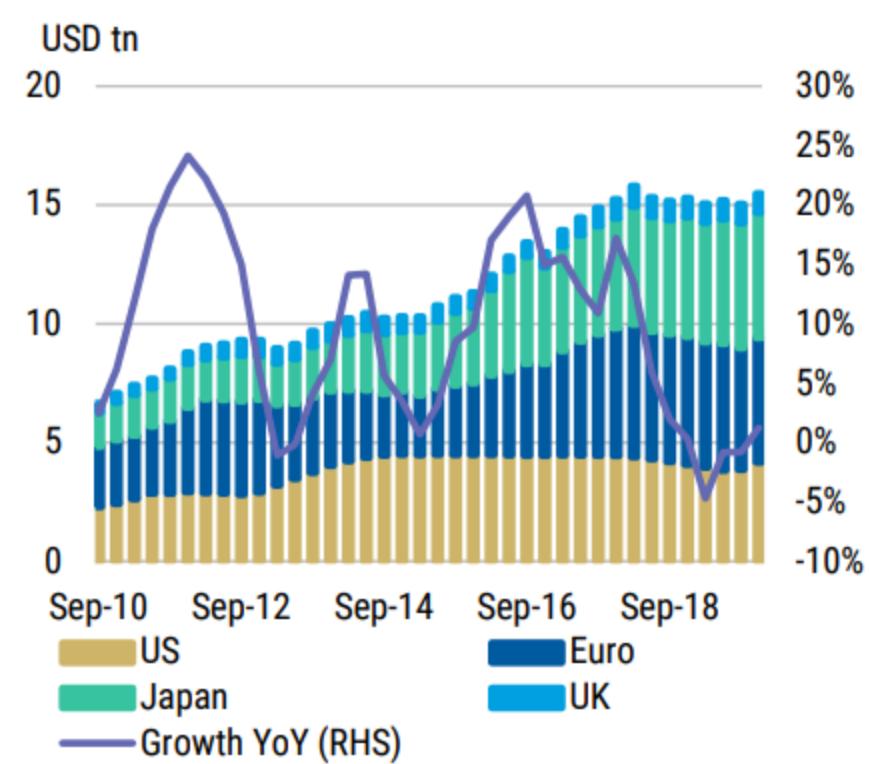
Funding availability did not appear to be a major concern around that time, however. Both xccy basis spreads and LIBOR-OIS spreads held relatively steady over the period in question ([Exhibit 55](#)), suggesting that neither nonfinancial businesses nor financial institutions were having all that much difficulty procuring USD funding. This lack of anxiety is all the more understandable when one considers that the global economy was in sound shape and liquidity was also in abundant supply (with the Fed continuing to expand its balance sheet through the end of 2014; [Exhibit 57](#)).

Exhibit 56: Energy supply/demand versus Brent oil price



Source: EIA, Morgan Stanley Research

Exhibit 57: G4 central banks' balance sheet size and its YoY growth



Source: Haver Analytics, Morgan Stanley Research

Cross-currency basis swap spreads did indeed widen to some extent as oil prices fell, but the more relevant factors are likely to have been (1) the ECB's September 2014 deposit rate cut to -20bp and (2) the BoJ's November 2014 acceleration in the pace of its JGB purchases from ¥50 trillion to ¥80 trillion per year. Simply put, these easing measures caused European and Japanese investors to start exporting capital as they bought up US assets for their higher yields ([Exhibit 58](#) and [Exhibit 59](#)).

Cross-currency basis swap spreads did indeed widen to some extent as oil prices fell, but the more relevant factors are likely to have been (1) the ECB's September 2014 deposit rate cut to -20bp and (2) the BoJ's November 2014 acceleration in the pace of its JGB purchases from ¥50 trillion to ¥80 trillion per year. Simply put, these easing measures caused European and Japanese investors to start exporting capital as they bought up US assets for their higher yields ([Exhibit 58](#) and [Exhibit 59](#)).

With the greenback strengthening as a result and FX hedging costs still low as a consequence of the Fed sticking with a near 0% policy rate ([Exhibit 60](#)), cross-currency basis swap spreads appear to have faced widening pressure as European and Japanese investors entered new FX-hedged USD asset positions and/or hiked their hedge ratios for existing holdings (see [Keep Risk Hedges On](#)).

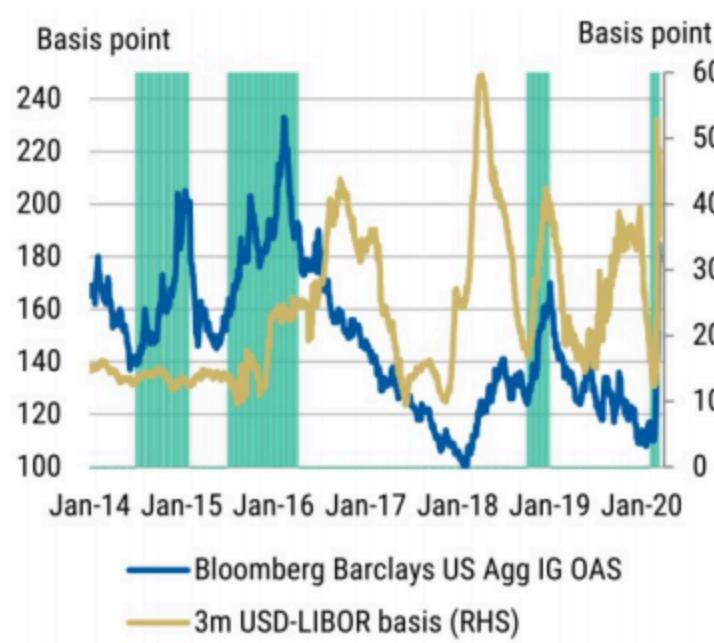
In other words, the decline in oil prices appears to have had little if any direct impact, **with cross-currency basis swap spreads instead widening on the back of heightened demand for USD funding fueled by the proceeds of monetary easing and associated capital exports.**

The 2H18 decline in oil prices was part of a broader correction in global risk markets triggered by the Fed's "excessive" monetary tightening. LIBOR-OIS spreads widened ahead of the year-end turn and credit spreads also faced a certain amount of widening pressure, but cross-currency basis swap spreads remained extremely stable ([Exhibit 62](#) and [Exhibit 63](#)).

Looking at this from a short-term funding perspective, we note that whereas LIBOR-OIS spreads are a barometer for the USD funding supply/demand balance among (predominantly non-US) banks, cross-currency basis swap spreads are more of a yardstick for the supply/demand balance among end investors (see [USD Funding into Year-End](#)).

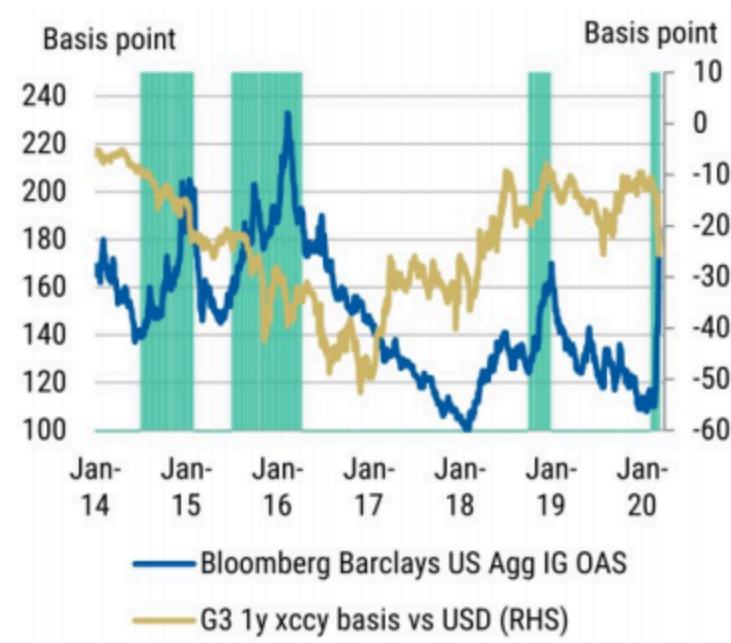
Our impression is that with capital exporters facing unattractively high FX hedging costs around that time, they would have been in little hurry to hike their hedge ratios or buy new US assets on an FX-hedged basis ([Exhibit 60](#)). The net upshot is that the "divergence" of LIBOR-OIS spreads from cross-currency basis swap spreads was a reflection of relatively strong demand for USD funding among banks but only weak demand among end investors.

Exhibit 62: Credit spread and LIBOR-OIS spread

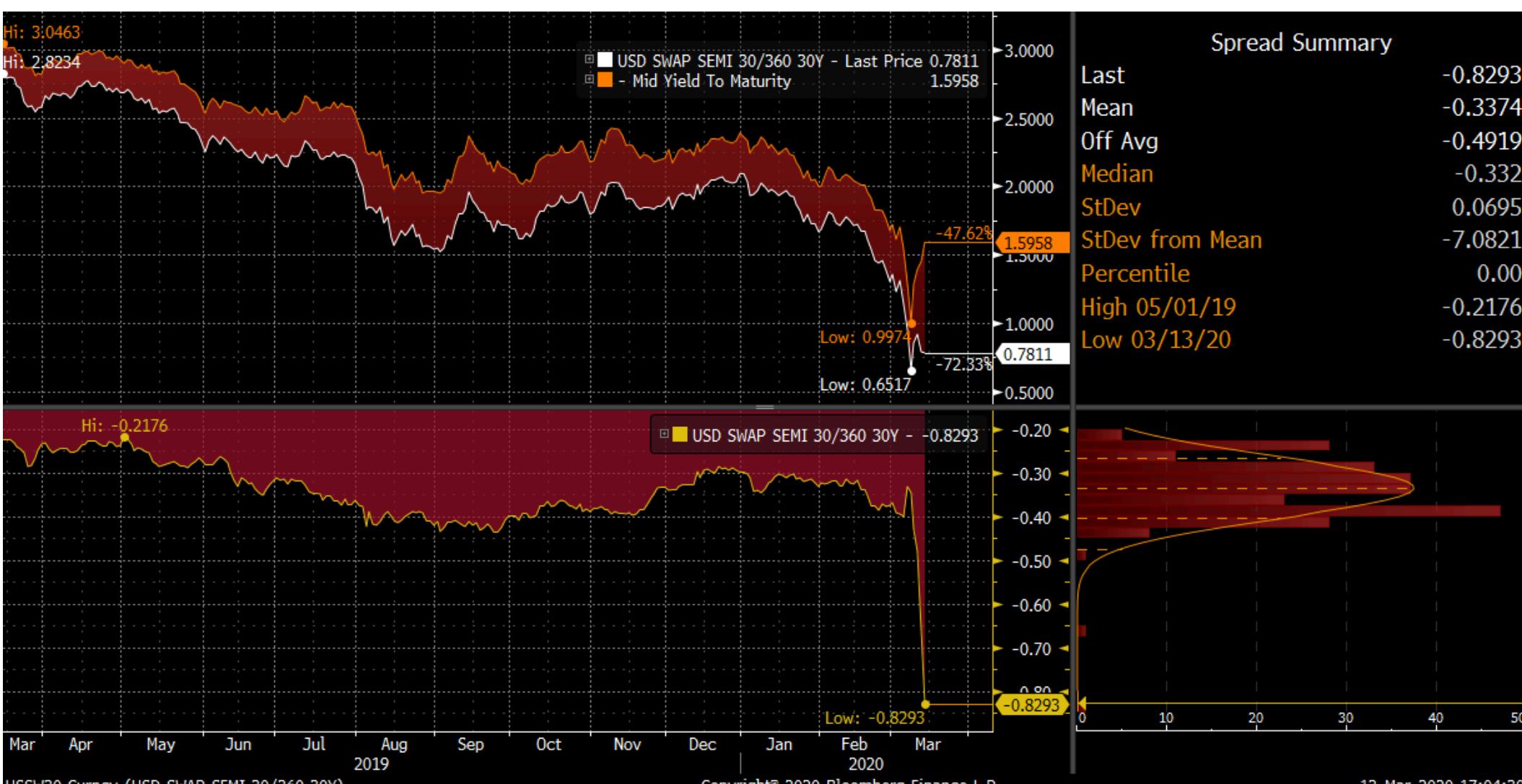


Source: Morgan Stanley Research

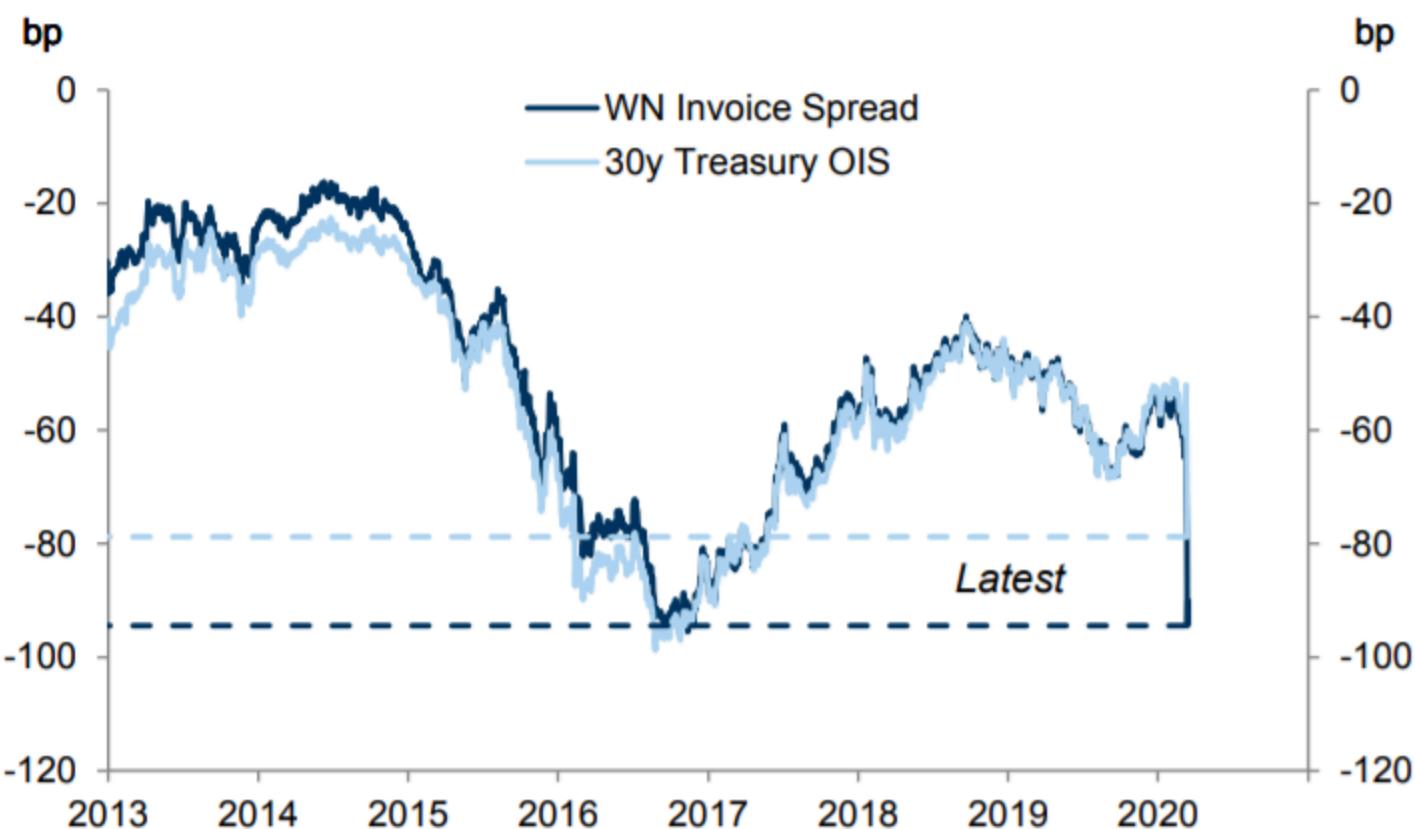
Exhibit 63: Credit spread and G3 XCCY basis



Source: Morgan Stanley Research; Note that G3 XCCY basis suggests the average of USD/JPY, EUR/USD, and GBP/USD basis. Green area suggests the period when the oil price had fallen substantially.



**Exhibit 3: Treasury market dislocations were also visible in swap spreads, with long end spreads hitting all-time lows
30y and ultra-long OIS spreads**



Source: Goldman Sachs Global Investment Research



USD FRA-OIS SPRD 3M ... MAvg

T=78.25 +12.625 +19.24% 22:49

GBP FRA-OIS SPRD 3M... MAvg

T=39.00 +11.2607 +40.59% 22:25

CAD FRA/OIS SPRD 3M ... MAvg

T=79.75 +9.75 +13.93% 22:48

EURUSD BS (3M VS 3M...) MAvg

T=-66.00 -53.00 -407.69% 22:33

GBP-USD BS (3M V 3M...) MAvg

T=-44.625 -28.00 -168.42% 22:26

JPY-USD BS(3M v 3M) ... MAvg

T=-10.70 +62.05 +85.29% 20:56

Repo vs OIS 3M USD MAvg

T=43.05 -1.10 -2.49% 22:49

US T Bill vs 3m CP MAvg

T=94.59 22:49

LIBOR Panel 5YR CDS ... MAvg

T=94.5858 22:49

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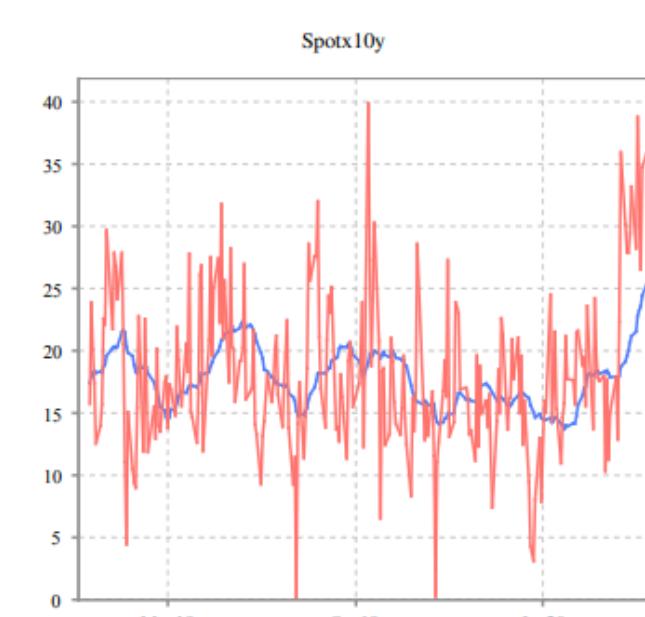
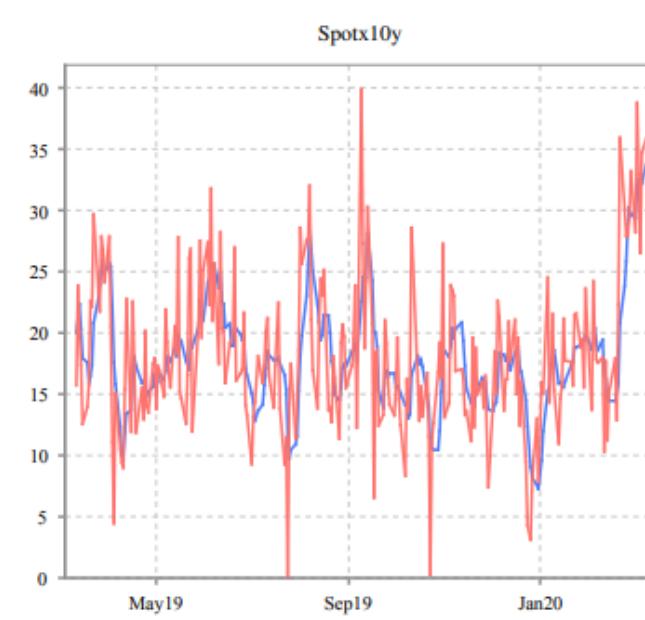
USD Swap Trading Volume

Forward Term	Maturity								Total**
	1-yr	2-yr	3-yr	5-yr	7-yr	10-yr	20-yr	30-yr	
Spot notional*	11.67	27.26	5.06	40.09	9.55	35.87	7.07	12.20	119.87
1 week Avg	24.36	31.33	7.16	45.29	12.34	33.75	6.68	10.94	120.75
1 month Avg	14.77	24.69	5.25	30.84	9.41	24.14	4.50	7.47	84.64
6-mo notional*	1.10	4.39	0.00	0.31	0.02	0.54	0.01	0.08	1.96
1 week Avg	3.17	2.84	0.44	0.89	0.11	0.94	0.36	0.29	4.04
1 month Avg	2.69	2.49	0.21	1.12	0.06	0.42	0.12	0.13	2.48
1-yr notional*	0.54	1.77	0.24	0.77	0.40	0.70	0.10	0.46	3.36
1 week Avg	4.95	2.68	0.32	0.99	0.14	1.06	0.13	0.39	4.17
1 month Avg	4.97	1.94	0.14	0.70	0.06	0.56	0.04	0.19	2.51
2-yr notional*	1.25	0.63	0.23	0.24	0.00	0.45	0.00	0.63	2.71
1 week Avg	4.87	1.80	0.22	0.59	0.17	0.58	0.03	0.33	2.94
1 month Avg	3.82	1.54	0.31	0.62	0.08	0.33	0.03	0.19	2.10
5-yr notional*	0.00	3.02	0.00	1.67	0.00	1.35	0.05	0.51	4.36
1 week Avg	1.83	2.61	1.21	3.31	0.02	0.71	0.64	0.39	5.85
1 month Avg	1.53	1.95	0.32	2.02	0.04	0.36	0.22	0.18	3.00
10-yr notional*	1.00	0.25	0.00	0.97	0.42	1.55	0.35	0.15	3.60
1 week Avg	0.79	0.67	0.13	1.09	0.08	1.27	0.36	0.17	3.32
1 month Avg	0.20	0.30	0.19	0.90	0.02	0.69	0.17	0.07	1.83
Total notional*	15.55	37.31	5.53	44.05	10.39	40.44	7.58	14.03	135.86
1 week Avg	39.97	41.94	9.47	52.15	12.85	38.32	8.20	12.52	141.06
1 month Avg	27.99	32.92	6.42	36.18	9.66	26.50	5.08	8.23	96.56

*Notional amount in \$bn

** 10-yr equivalents

Source: J.P. Morgan, DTCC

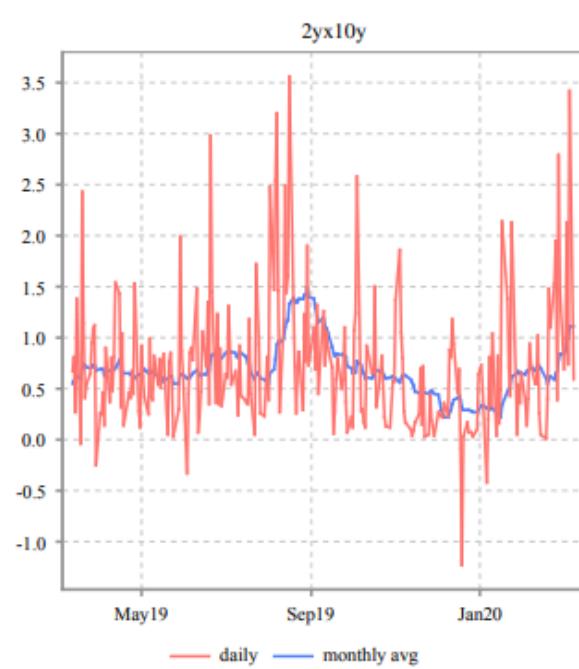
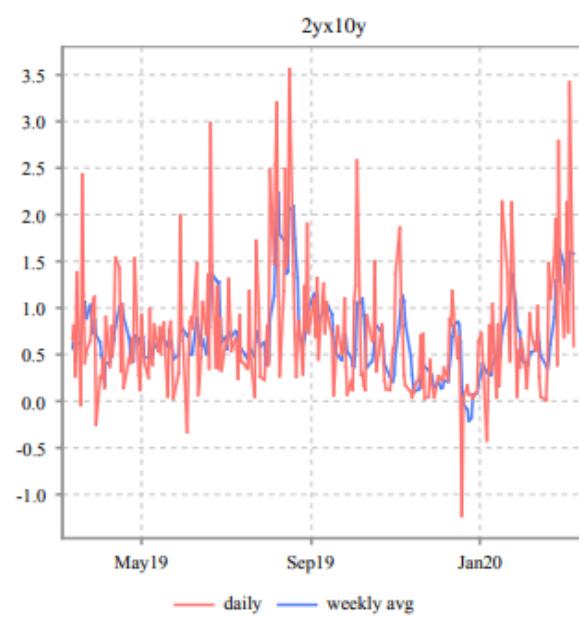


USD Swaptions Trading Volume

Expiry	Maturity							
	1-yr	2-yr	3-yr	5-yr	7-yr	10-yr	20-yr	30-yr
1m Notional*	1.01	-0.02	0.00	0.29	0.00	0.39	-0.07	-0.01
1 week Avg	3.31	1.38	0.59	0.29	0.00	1.04	0.38	0.95
1 month Avg	0.51	0.29	0.03	0.27	0.01	0.66	0.14	0.22
3m Notional	-0.25	1.38	0.00	0.10	0.17	0.38	0.20	-0.06
1 week Avg	1.47	1.51	0.71	0.72	0.14	2.49	0.76	1.51
1 month Avg	1.19	0.44	0.14	0.35	0.02	1.00	0.16	0.33
6m Notional	-1.50	0.00	0.11	0.18	0.00	0.77	0.00	-0.04
1 week Avg	-0.16	0.81	0.15	0.49	0.07	0.90	0.04	0.01
1 month Avg	1.16	0.38	0.06	0.32	0.01	0.45	0.03	0.10
9m Notional	-0.55	0.00	0.00	-0.01	0.00	0.06	0.00	0.00
1 week Avg	-0.32	0.06	0.10	0.19	-0.05	-0.07	0.00	0.01
1 month Avg	-0.33	0.05	0.01	0.10	0.00	-0.03	0.00	0.00
1y Notional	-0.60	0.39	0.00	0.00	0.00	0.59	0.24	0.42
1 week Avg	1.85	0.62	0.49	0.11	0.05	2.44	0.37	0.92
1 month Avg	1.68	0.59	0.09	0.30	0.03	1.00	0.06	0.27
2y Notional	0.00	0.00	0.00	0.12	0.04	0.88	0.11	0.17
1 week Avg	0.72	0.29	0.05	0.32	0.20	1.35	0.09	0.28
1 month Avg	0.01	0.50	0.04	0.29	0.03	0.63	0.07	0.12
3y Notional	0.00	0.00	0.00	0.15	-0.01	0.14	-0.12	0.27
1 week Avg	-0.10	0.33	0.00	0.02	0.00	0.22	0.01	0.36
1 month Avg	-0.19	0.18	0.02	0.04	0.00	0.11	-0.01	0.07
5y Notional	0.00	0.00	0.00	0.03	0.00	0.26	0.11	0.08
1 week Avg	0.00	0.02	0.02	0.21	0.00	0.99	0.05	0.39
1 month Avg	0.03	0.01	0.00	0.19	0.00	0.45	0.03	0.08
7y Notional	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
1 week Avg	0.04	0.04	0.00	0.01	0.00	0.24	0.02	0.00
1 month Avg	0.03	0.02	0.00	0.01	0.00	0.11	0.03	0.01
10y Notional	0.00	0.00	0.00	0.00	0.00	-0.04	0.04	0.00
1 week Avg	0.10	0.02	0.00	0.00	0.00	0.48	0.18	0.33
1 month Avg	0.11	0.04	0.00	0.03	0.00	0.36	0.05	0.07

*Notional amount in \$bn

Source: J.P. Morgan, DTCC



Deutsche Bank
Research



Global

Rates Volatility Products
Special Report

Date
11 March 2020

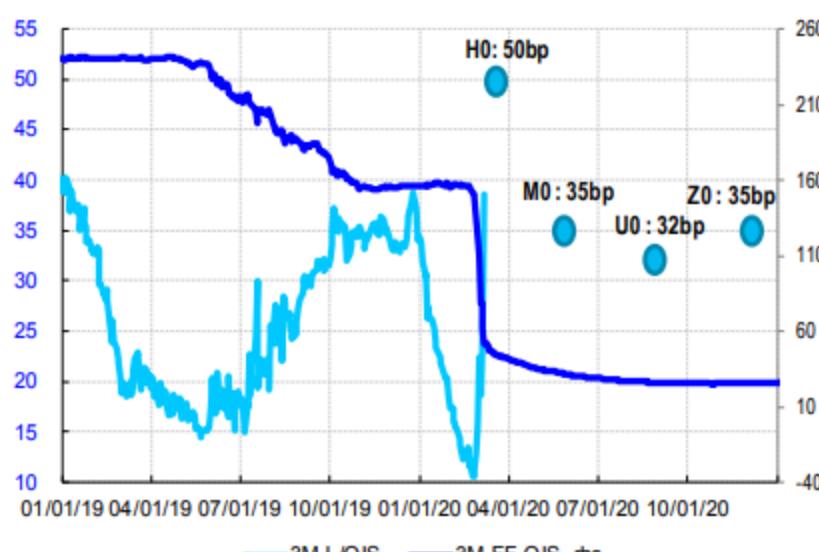
Tropic of Chaos

Monday's price action was a response to the sequence of two disconnected exogenous shocks by the market with weakened robustness. The accelerate phase of the market downturn started with a demand shock two weeks ago and was followed by a positive supply shock in energy before the markets could be convinced that monetary policy could provide temporary stability for risk.

The epicenter of new risk opened by the oil shocks resides in credit. Monday's reaction was an unprecedented move across all market sectors triggering multiple circuit breakers on the exchanges. With 10Y UST decline exceeding 40bp intraday, the distance of the 10Y rate from zero shrunk below one standard deviation with probability of not remaining above zero increasing above 20%. The change in IG index was a 12-sigma event, contested only by the first day's reaction to Lehman default (16-Sep-2008).

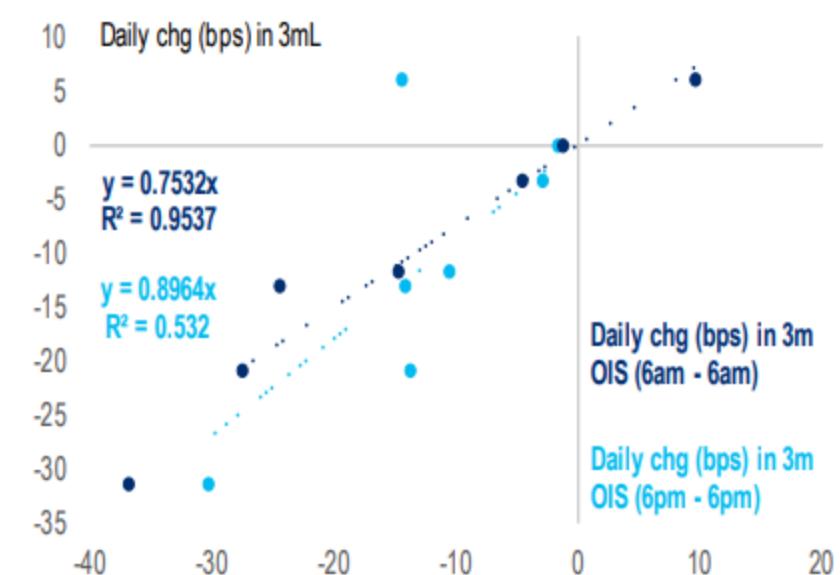
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Figure 23. L/OIS vs Fed policy rate trajectory, realized and expected by forwards



Source: Citi Research, Bloomberg

Figure 24. OIS to LIBOR pass-through, using 6am -6am (t to t-1) vs 6pm-6pm (t-1 to t-2)



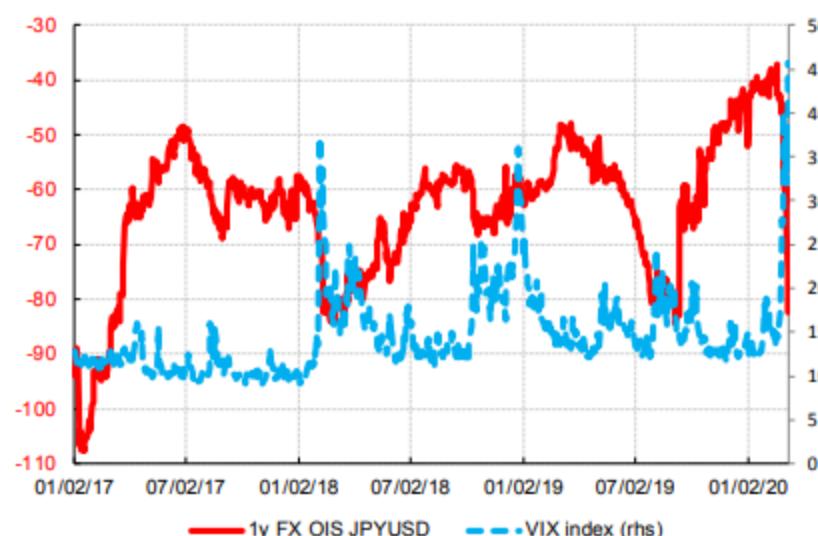
Source: Citi Research, Bloomberg

FX OIS basis: More room to fall in the near term

It is typical for FX OIS basis to widen/strengthen on risk off, as we tend to see increased USD demand from foreign banks on liquidity worries. The recent widening in FX OIS basis was much more than what was suggested by the macro backdrop (Figure 25). Some of this is related to yen investors' tendency to roll their hedges around this time (see JPY section). We also attribute the widening on crowded paid positions in XCCY (Figure 26). The market is also grappling with the fear that there is no natural backstop USD lender (reserve managers, US banks) as long as volatility remains high. Indeed, there appears to be barely any change in foreign ccy supplied by non-yen investors as of late, as Fujiki-san notes in the JPY section. Without a natural countercyclical USD lender, FX OIS can continue to widen in the near term.

In the midst of the crisis, only central banks can act as a countercyclical lender. If the Fed expands its repo facility, we expect FX OIS to tighten, as it did post September 2019. We can also see other CBs expanding their FX swap with the Fed. Since October 2013, the Fed has had standing arrangements with the BOC, BOE, ECB, SNB, and BOJ whereby foreign central banks can receive USD at OIS+50bp vs their ccy.³ The tenor of these loans are at foreign CBs' discretion – and the typical tenor has been 1wk so far. We have seen longer-term FX swaps (up to 3mo swaps) during 2010-2011 and also saw \$3.7bn 21-day FX swaps pulled by the ECB as recently as December 2019. Since the last Euro crisis of 2010-2011, the usage has been quite low (Figure 27).

Figure 25. As macro risk flared up, FX OIS basis widened, especially in the front end



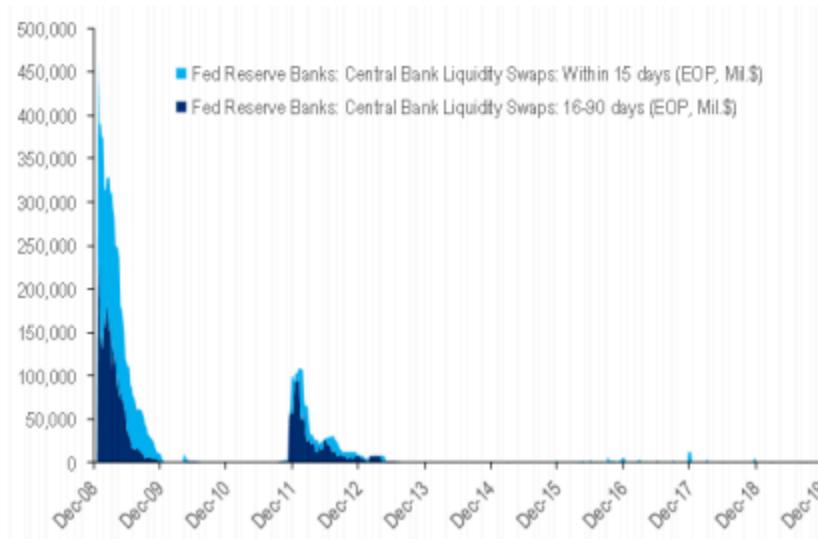
Source: Citi Research, Bloomberg

Figure 26. Widening this time was much more severe from crowded positioning



Source: Citi Research, Bloomberg

Figure 27. FX swap usage by tenors



Source: Citi Research, Bloomberg

Figure 28. 1M JPYUSD FX OIS basis – wide but have seen wider before



Source: Citi Research

XCCY basis: Tying it all together

As we discussed in the past,⁵ XCCY is a residual term that is endogenously determined by FX OIS basis and FRA/OIS:

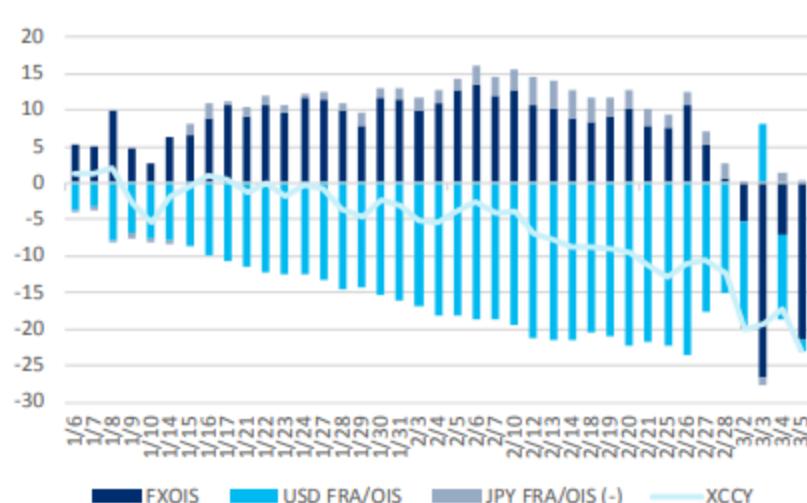
$$XCCY \text{ basis}_{JPYUSD} = FX \text{ OIS basis}_{JPYUSD} + USD \text{ FRAOIS} - JPY \text{ FRAOIS}$$

Much of XCCY volatility is determined by FX OIS and USD FRA/OIS rather than JPY FRA/OIS. As we note above, assuming that risk off continues, we have a wider bias on both FX OIS (lower) and USD FRA/OIS (higher). We think that widening risk in USD FRA/OIS is more definite (as it is driven by the inevitability of ZLB) and limited (as much of it is priced in). Hence, in the near term (without any intervention from CBs), we think that downside risk in FX OIS is greater than upside risk in USD FRA/OIS, to bring XCCY wider (lower) in the near term. If we see a dovish signal from CBs toward funding markets, we expect FX OIS and XCCY basis to revert tighter (higher). This inflection point is either going to be driven by CB intervention

⁵ [Global Rates Focus - FX basis quarterly: The new interest rate parity](#)

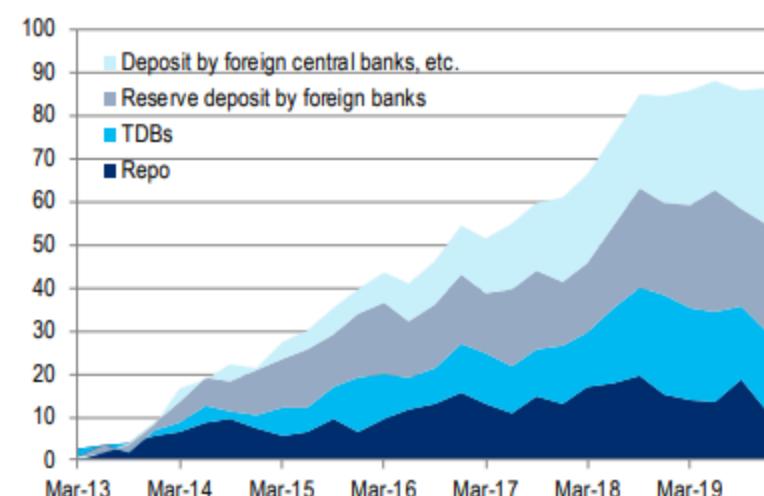
or stability in macro markets. Paying XCCY still seems like catching a falling knife at this point. We will be looking for an opportunity to pay at better levels.

Figure 29. 3m XCCY factor analysis (changes since end-2019, bp)



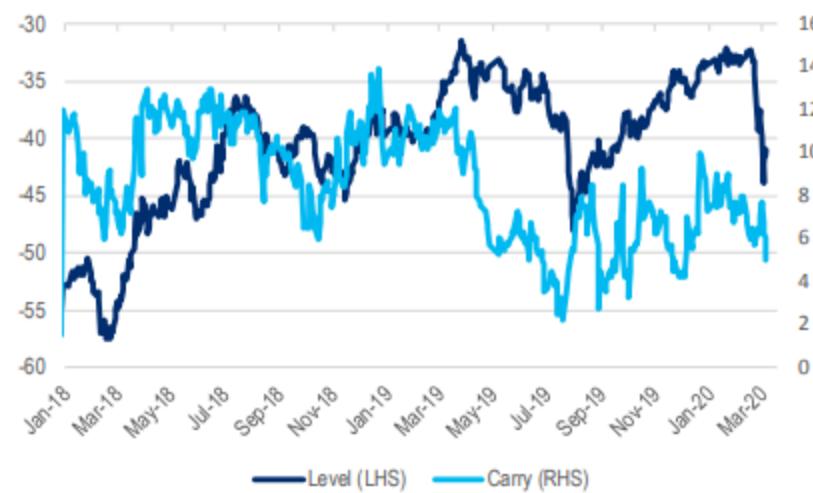
Note: FXOIS approximated as XCCY basis + (USD FRA/OIS) - (JPY FRA/OIS).
Source: Citi Research.

Figure 30. Short-term yen-denominated assets held overseas (change from 2012 average, \$trn)



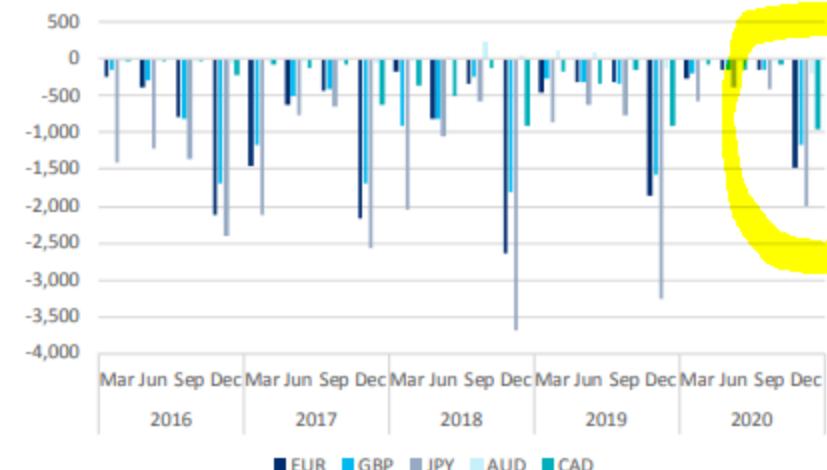
Source: JSDA, BoJ, MoF Japan, Citi Research.

Figure 31. 1y1y XCCY basis carry (bp)



Source: Citi Research.

Figure 32. Quarter-end turn pricing (average for each quarter through 2019, factoring in current market for 2020, adjusted for number of calendar days, bp)



Source: Citi Research.

Receiving demand simply higher in longer maturities

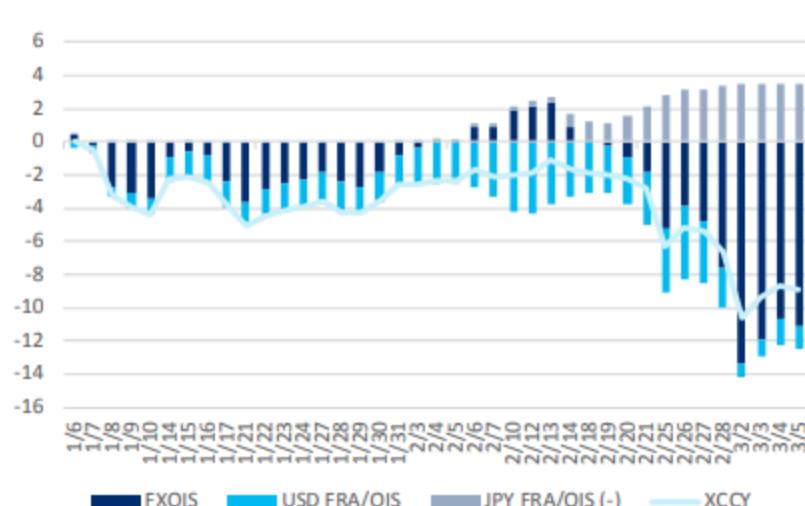
In longer maturities, market liquidity is concentrated on the XCCY basis. So we think that the widening indicates nothing more than that there was simply strong demand for receiving.

There are two main pillars on the side of demand from Japanese investors, with one being cases of full hedging for credit security investment etc. It is well known that as IG issuance grows, particularly at the start of the year, demand from Japanese investors also tends to increase. However, MoF and BoJ statistics show that Japanese investors turned net sellers of US corporate bonds, etc. at the end of the last year. There was ongoing net buying as interest rates fell in 2016 as well, but it slowed in the second half of the year as interest rates rose, and demand was weak in January-March 2017. We think that a similar pattern has applied recently. The market to which investors allocate funds will continue to depend greatly on the market environment. However, if credits widen, then investors will be able to pay

basis costs in a low-interest-rate environment. We expect a close linkage to credit securities.

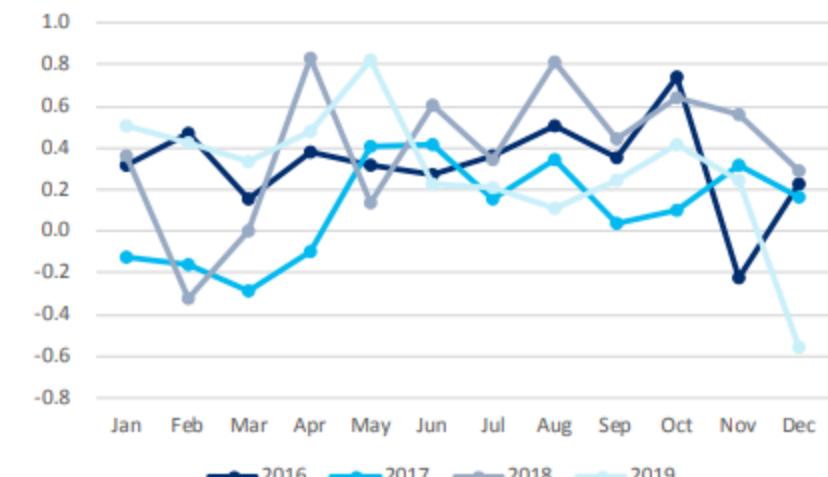
The other is to use a funding method for long-term foreign currency balance sheet, and most players doing this are banks. The BoJ's Financial System Report states that "the 'stability gap,' the difference between the amount of illiquid loans and that of stable funding through client-related deposits, medium- to long-term FX and currency swaps, and corporate bonds including TLAC bonds, is a useful indicator." In reverse, the dependence on the high-cost XCCY is the part that cannot be covered with deposits and corporate bonds. As shown by Figure 36, attracting deposits was the focus in 2015 and into 2016, but this has been relatively stable since then. While lending continues to grow, the balance of TLAC bonds, etc. is growing due to regulatory needs, and we think that this is reducing the reliance on XCCY.

Figure 33. 10y XCCY factor analysis (changes since end-2019, bp)



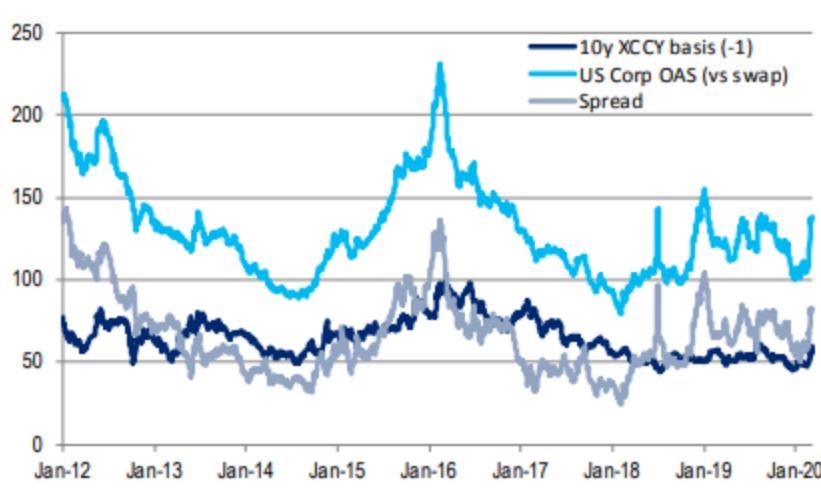
Note: FXOIS approximated as XCCY basis + (USD FRA/OIS) - (JPY FRA/OIS).
Source: Citi Research.

Figure 34. Monthly net purchases of USD-denominated bonds (excluding sovereign, \$trn)



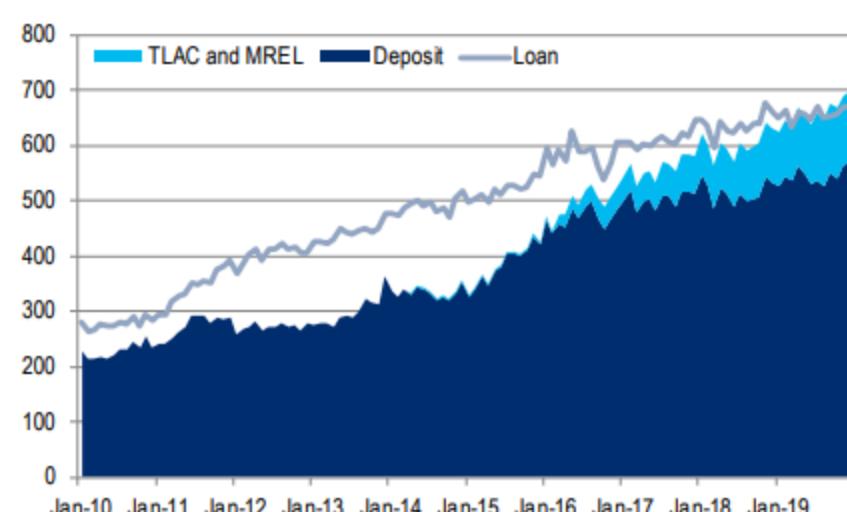
Source: BoJ, Citi Research.

Figure 35. Comparing IG Corp OAS and XCCY basis



Source: Bloomberg, Citi Research.

Figure 36. Outstanding foreign currency TLAC/MREL issued by Japanese banks (\$bn)

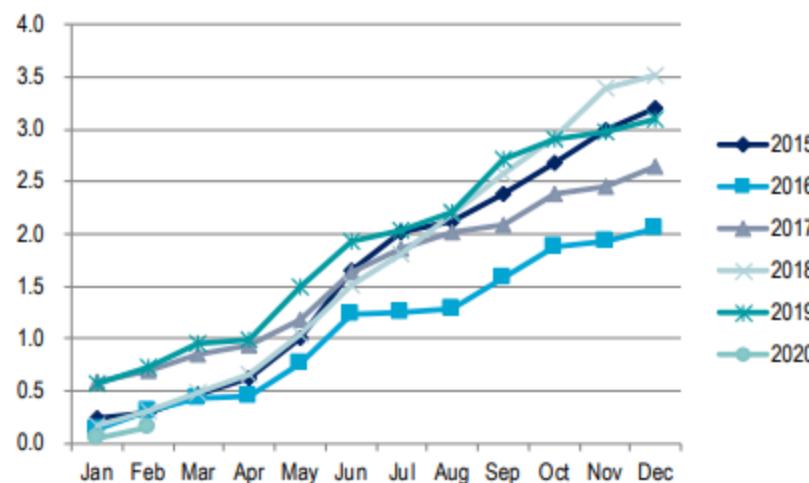


Note: Deposits and loans based on data at overseas branches of city banks.
Source: Bloomberg, BoJ, Citi Research.

Demand from overseas continues to be mainly related to bond issuance. Issuance was weak early this year, with few Samurai bonds issued. If the widening at the

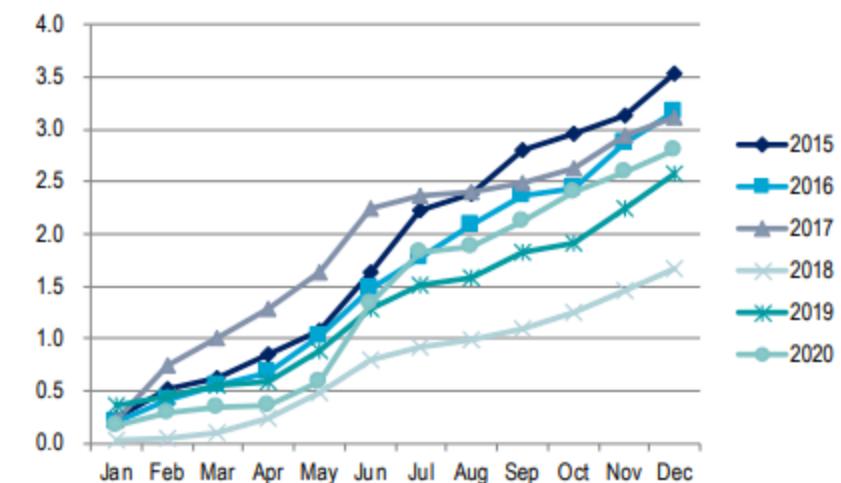
beginning of the year is considered to be a reaction to the excessive tightening at the end of last year, this could be consistent with the fact that the basis was largely flat until the rapid movement in late February. We think that yen bond issuance will recover once volatility settles down. There will be some increase in redemptions in June 2020, and we see the roll-over of these bonds as the key. If they are rolled into yen-denominated bonds, then the receiving of the basis aimed at bond issuance could weigh on the market.

Figure 37. Yen-denominated bonds issued by foreign names (annual cumulative value, ¥trn)



Source: Bloomberg, Citi Research.

Figure 38. Maturity profile (annual cumulative value, issuance value, ¥trn)



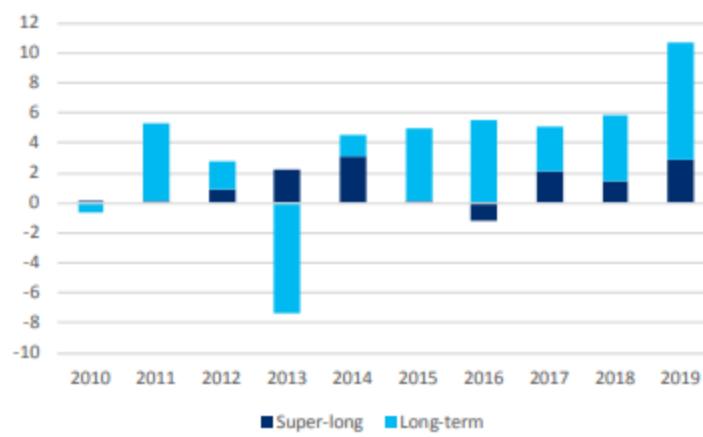
Source: Bloomberg, Citi Research.

On the other hand, we think that paying of the long-term XCCY basis is almost all related to yen bond investment by overseas investors. Last year, in particular, significant net buying by foreign investors was reported in the super-long sector, and we think that a considerable amount was investment related to ASWs. However, this category relies on the initial maturity of JGBs and will actually include bonds with short terms to maturity. In the 10y and longer sector, we think that the amount of supply is around several hundred billion yen annually. This is much smaller than the yen-denominated bond issuance noted above, and Japanese investors also make credit investments. Structurally, paying positions, therefore, tend to build up at dealers. Given credit spreads as well, we think the fact that the long-term basis remains more negative than the short end is appropriate.

While market structures and liquidity differ considerably, a comparison of the XCCY basis and the 30y swap spread suggests one support line at -60bp. In the past, the belly of the curve has tended to widen along with widening at the short end and credit investment demand from Japanese financials, but the lower limit since 2018 in the 5y-10y sector has been around -60bp. If 2017 is considered a transition period following US MMF reforms of 2016, then recently -60bp could be one yardstick for widening. However, this would may not be the case if there was an ongoing contraction in credit.

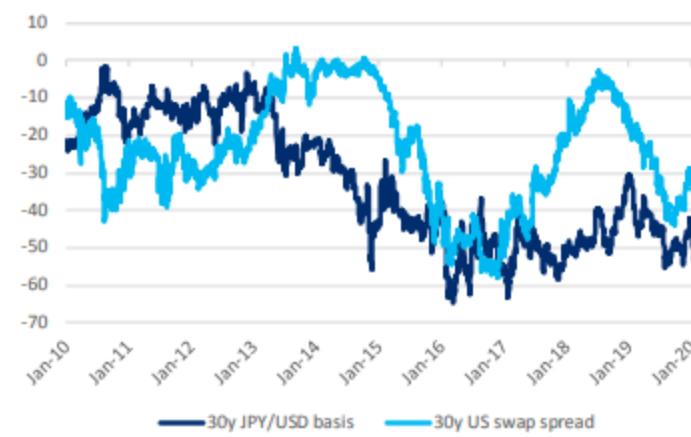
Now that the low-interest-rate environment is not only in Japan but has spread globally, returns due to spreads are becoming increasingly important. QE continues to supply the market with large amounts of liquidity, and from a somewhat longer-term perspective, there could again be action to contract spreads. Since the BoJ introduced its negative interest rate policy in 2016, there has been support for the JGB 3m SASW at 110bp–120bp. While there is ongoing widening relative to the 3m EURIBOR, the spread has recently approached that of Spain. We think that it is not far from a turning point, on the assumption that the creditworthiness of JGBs is maintained.

Figure 39. Annual net JGB purchasing by overseas investors (\$trn)



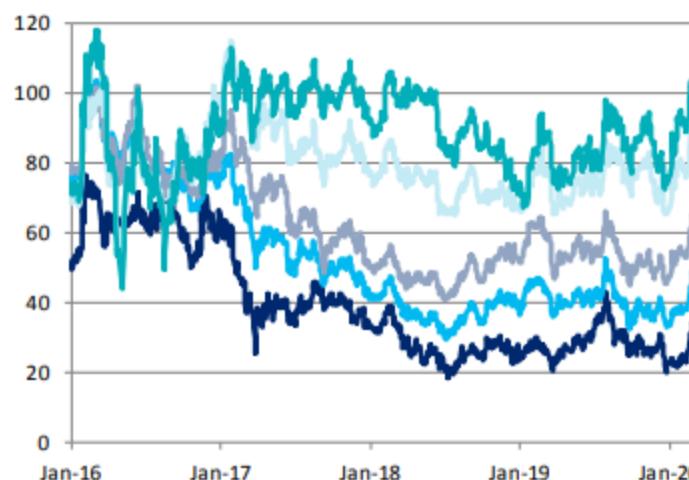
Source: JSDA, Citi Research.

Figure 40. Comparing XCCY basis and swap spread (bp)



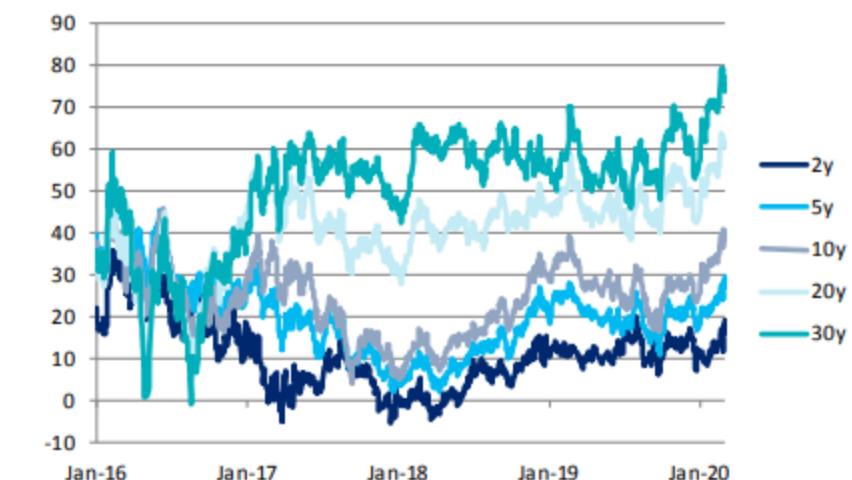
Source: Citi Research.

Figure 41. JGB 3m \$ASW (bp)



Source: Citi Research.

Figure 42. JGB 3m Euribor ASW (bp)



Source: Citi Research.

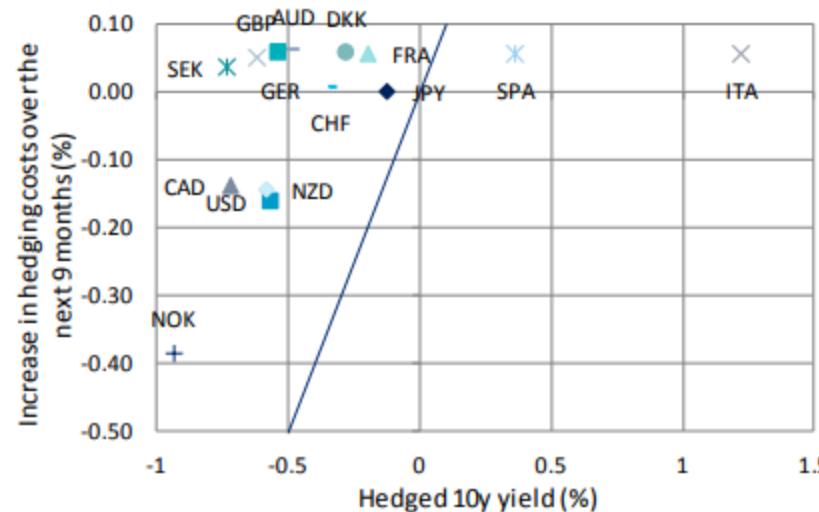
Comparison of yields on hedged foreign bonds and investor trends

Figure 43 shows yields on 10y bonds from a range of countries after 3m forex hedging compared to the change in hedging costs over the next nine months factored in by forex markets (9m3m – 3m). The slope of the straight line is 1, indicating that anything to the right will have a positive yield over the next year. This does not factor in the roll-down effect for bonds. Unfortunately, for Japanese investors, yields are positive only for euro zone government bonds that benefit from greater spreads, such as those of Spain and Italy. This a likely reason for the rapid growth in Japanese investment in Spain during 2019 (including investments financed by repo). While this is now a less attractive investment, the inflow of funds looks likely to continue.

We also think that the attractiveness of dollar-denominated investments has risen due to contraction in the short-term interest-rate differential. The UST 10y/30y curve has recently steepened considerably, and the yield on even a hedged 30y bond is positive. Fiscal premiums and the like tend to be reflected in super-long maturities, and during rate-cut cycles, they do not tend to follow initial rallies. However, if the situations in which inflation risk is being actively priced in are excluded, the steepening of the curve appears to be the investment opportunity. The linkage to

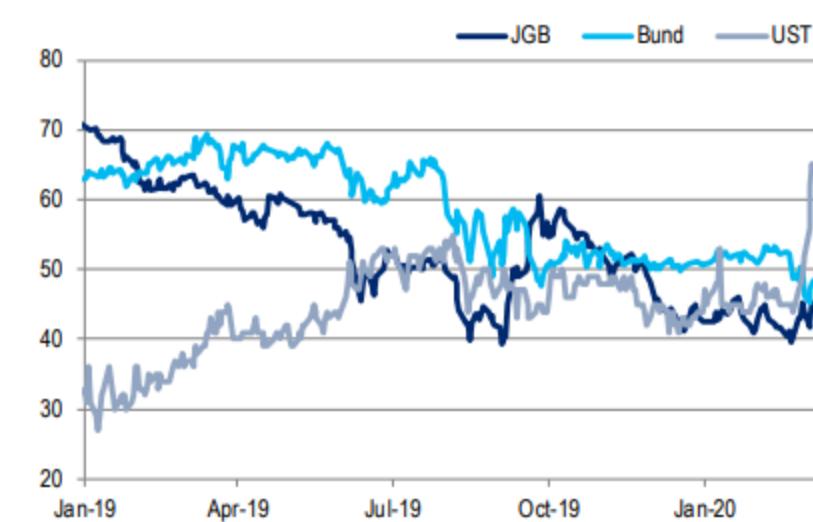
the curve shape in the super-long sector has been high since the second half of last year, and it is not clear yet whether this will result in 1) a return to the original range, 2) a steepening around the world, or 3) continued diversion. However, the Japanese experience has been that the curve remains flat in a low-interest-rate environment unless there are heightened expectations for rises in rates.

Figure 43. Yield after 3m forex hedging, expected change in hedging costs over the next nine months



Source: Bloomberg, Citi Research.

Figure 44. 10s30s curve comparison (bp)



Source: Fed, MoF Japan, Bloomberg, Citi Research.

While the data are somewhat old, usage of FX swaps apparently increased somewhat last year, led by USD/JPY pair. On the other hand, there was a decline in EUR/JPY and other currency transactions (Figure 45). Data on outbound portfolio investment by currency shows that in 2019 most demand centered on dollar-denominated assets, and we think that investors were targeting capital gains.

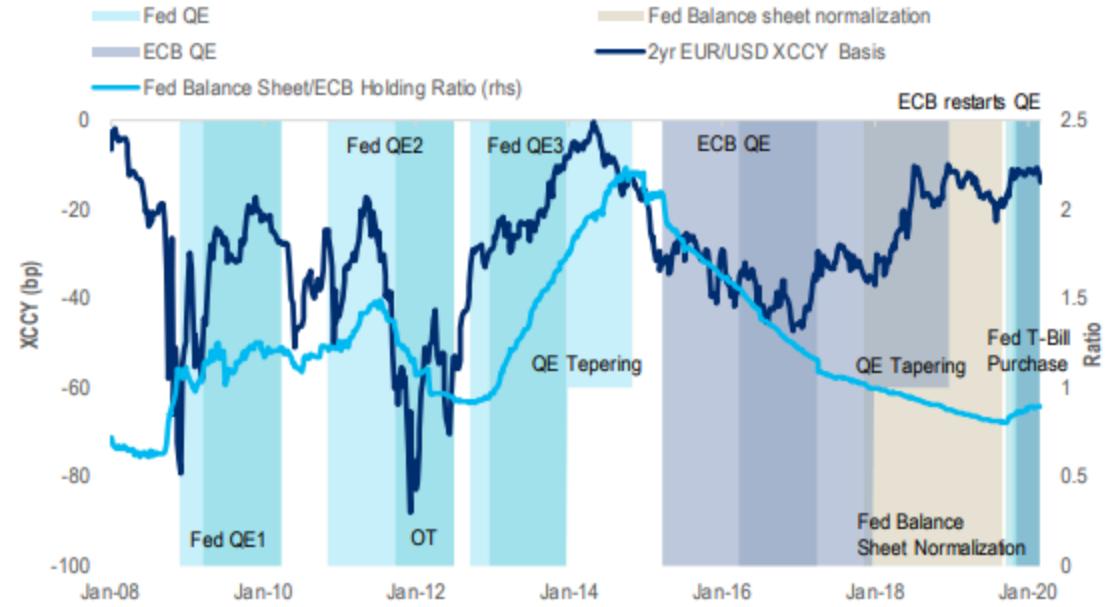
As banking accounts make up a large part of foreign bond flows, they may not necessarily be consistent with hedging demand. However, life insurers have reduced foreign bond holdings since the second half of last year, and hedge transactions have consequently declined as well. During this time, net selling of euro-denominated bonds has been particularly marked, and we think that carry positions have been unwound. It would not be surprising if similar transactions were made by regional financial institutions. In addition, net selling by life insurers is a common phenomenon toward year-end, and doubts remain as to whether this will continue from April onwards. As noted above, the attractiveness of hedged foreign bonds is increasing, so the situation is not conducive to aggressive reductions in holdings.

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EUR: Expect Wider XCCY Basis

We expect €/\$ cross-currency basis to widen in the back end of the curve given the imbalance between \$ and € bond supply from foreign issuers. As the Fed started T-bill purchases in October, the ratio of Fed B/S to ECB B/S increased, contributing to €/\$ cross-currency basis tightening over Q4 2019 (Figure 52).

Figure 52. XCCY Basis versus Fed balance sheet to ECB holding ratio



Source: Citi Research

As yields in Europe fell back to negative territory across the curve on coronavirus fears, \$ assets became more favorable for investors on a currency-swapped basis. The xccy basis has widened sharply over the past two weeks (Figure 53 – all our data in this section is ending as of 2/28). However, moves in swap spreads offset the widening in xccy basis and dollar-swapped € bonds only cheapened slightly versus \$ over the same period of time. As a result, xccy and swap spreads still imply \$ bonds cheaper than € bonds on a currency-swapped basis despite the recent xccy basis widening (Figure 54). Hence, we expect \$ assets to continue to be in demand compared to € bonds, which would keep XCCY wide.

Figure 53. EUR/USD xccy basis widened sharply on coronavirus fear



Source: Citi Research
Note: our data is ending as of 2/28

Figure 54. Dollar-swapped € bonds only cheapened slightly despite the widening in xccy basis

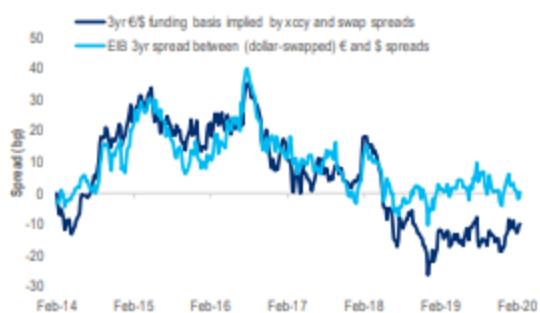


Source: Citi Research

On the funding side, we track the historical funding levels between € and \$ issues (after currency swaps) for individual corporate issuers. Although actual funding

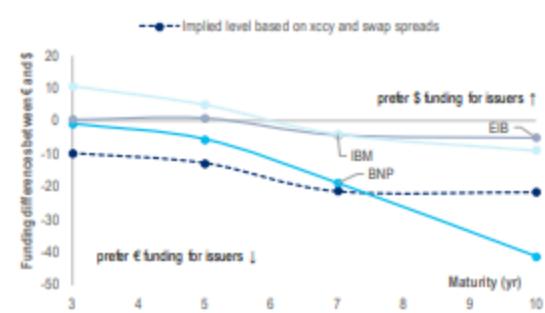
differences followed the levels implied by xccy and swap spreads, funding in local currencies still appear preferable for both US and European issuers in general. For SSAs, \$SSA spreads are well supported by strong \$ demand thus differences between € and \$ SSA spreads have been staying in a narrow range around zero since 2018 (Figure 55). As for US corporates, \$ funding still appear preferable for in the 3-5y area, while € funding levels are more competitive for most corporates and SSAs in the long end (Figure 56).

Figure 55. Differences in 3y EIB € and \$ funding levels (currency swapped) versus levels implied by xccy basis and swap spreads



Source: Citi Research

Figure 56. Differences between € and \$ funding levels (currency swapped) for individual issuers



Source: Citi Research

While Yankee issuance from European issuers outpaced € issuance from US corporates in the 3-5y area, the supply pattern in the 10y area has already changed direction and no longer supports the tight xccy basis in the long end (Figure 59). Although supply slows down due to the recent deterioration of funding conditions and we don't think that the cross-currency FX hedging flow will be the main drive for xccy basis in the near term, we still think that this dynamic will ultimately push the basis to the wider side.

Figure 57. Cumulative supply difference between Yankee issuance from European corps and € issuance from US corps, 3y



Source: Citi Research

Figure 58. Cumulative supply difference between Yankee issuance from European corps and € issuance from US corps, 5y



Source: Citi Research

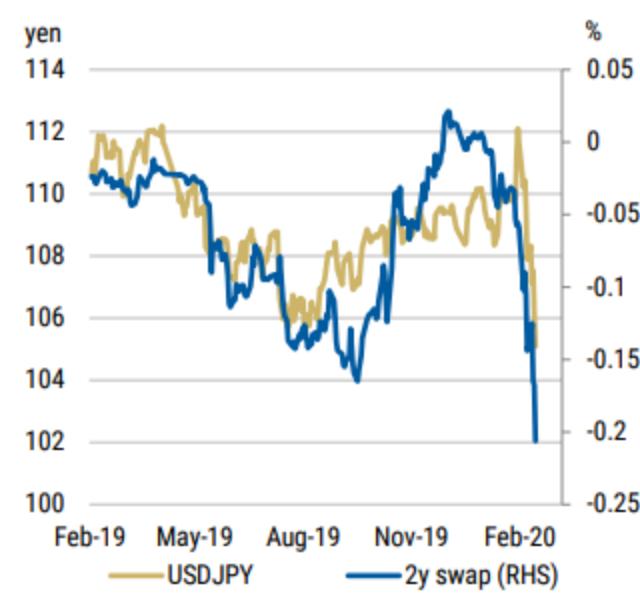
Figure 59. Cumulative supply difference between Yankee issuance from European corps and € issuance from US corps, 10y



Source: Citi Research

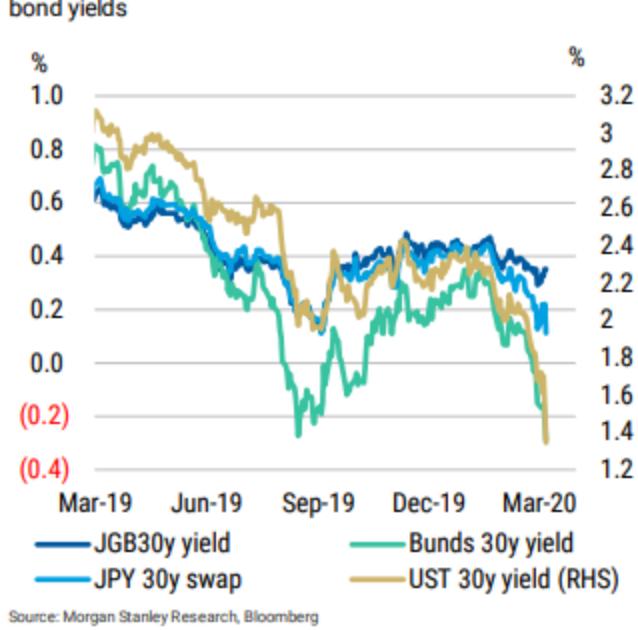
In addition, as the global economic downturn now becomes a more likely scenario, we expect to see policy responses from central banks soon. In the US, we expect 1~2 cuts from the Fed in the next few months, while in Europe, given little room for ECB to maneuver, it might expand its current asset purchase program. Despite a lot of uncertainties going forward, we expect the impact on FX basis to be similar to 2015 and 2016. With negative yields in Europe and lack of € assets, investors are likely to be pushed further into \$, and xccy basis will widen as a result.

Exhibit 34: USDJPY and short-end JPY swap rate



Source: Morgan Stanley Research, Bloomberg

Exhibit 35: 30y JGB yield/swap yields vs global long-end bond yields



Source: Morgan Stanley Research, Bloomberg

However, with the UST market now well and truly in bull mode, we expect the JGB market to start seeing greater inflows by virtue of its relative cheapness. The recent deterioration in risk asset performance will also have come at an inopportune time for life insurers as they prepare for the adoption of domestic economic-value-based solvency requirements ahead of 2025. We therefore believe that declining interest rate levels will create a need for further duration on the asset side of the balance sheet in the final weeks of FY2019 (through end-March), and would expect super-long JGBs to be favored over super-long swaps given that the latter are now starting to look quite rich.

In contrast, short-end swap rates are now lower than they were last year when BoJ rate-cut expectations were at their strongest, suggesting that there is not all that much further the market can go in pricing in additional BoJ easing.

We thus see ample potential for a quite significant correction in the event of sentiment shifting back into "risk on" mode. Taking risk/reward asymmetry into consideration, we believe that shorting the short end (via swaps) should serve as a useful hedge for existing duration-long exposure. The main risks to this trade would be (1) an actual BoJ rate cut of 10bp or greater and/or (2) a continued preference for super-long swaps over super-long JGBs among life insurers looking to reduce their asset-liability duration mismatches.

Trade idea: Shift long 40y JGB to long 40y JGB vs paying JPY swap 1y1y at 57 bp
Trade idea: Maintain JPY swap 20s30s flattener
Trade idea: Maintain JPY 1y7y straddle
Trade idea: Close JPY 1y 1s7s conditional bull-flattener

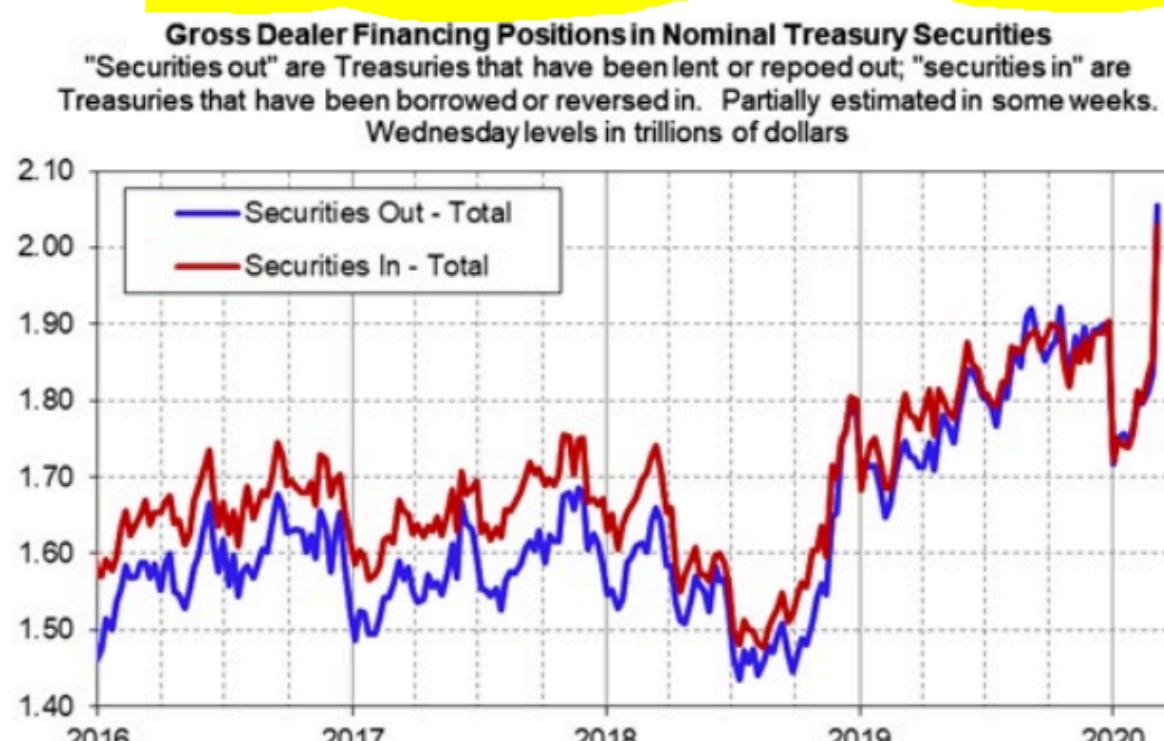
Today's Repo Operations

The Fed has three repo operations scheduled this morning: a 3-month operation closing at 8:00 AM, a 1-month operation closing at 8:30 AM and an overnight operation closing at 9:00 AM. The two term operations have maximum offering sizes of \$500 billion apiece, and the overnight RP has a limit of \$175 billion. The Desk has ensured that all of these operations will be dramatically undersubscribed, just as yesterday's initial emergency 3-month RP was. (Dealers took down just 16% of the \$500 billion that was theoretically available in that operation.) The current dislocations in the Treasury market would not be so severe if dealers had the balance sheet capacity to make use of all of the funding that the Desk has chosen to make available.

Charts of the Week

Not surprisingly, a number of charts from our regular Thursday night collection jumped out at us this week:

Surging Overnight Financing Volumes. Yesterday afternoon's dealer financing data were sobering. Gross dealer financing positions in Treasuries spiked by roughly 10% on a Wednesday-to-Wednesday basis, *and that was for the week ending last Wednesday, March 4*. Next Thursday's data for Wednesday, March 11 may show even more extreme results. The huge swings in positioning this month have placed exceptional strains on dealers' matched book balance sheet capacity.

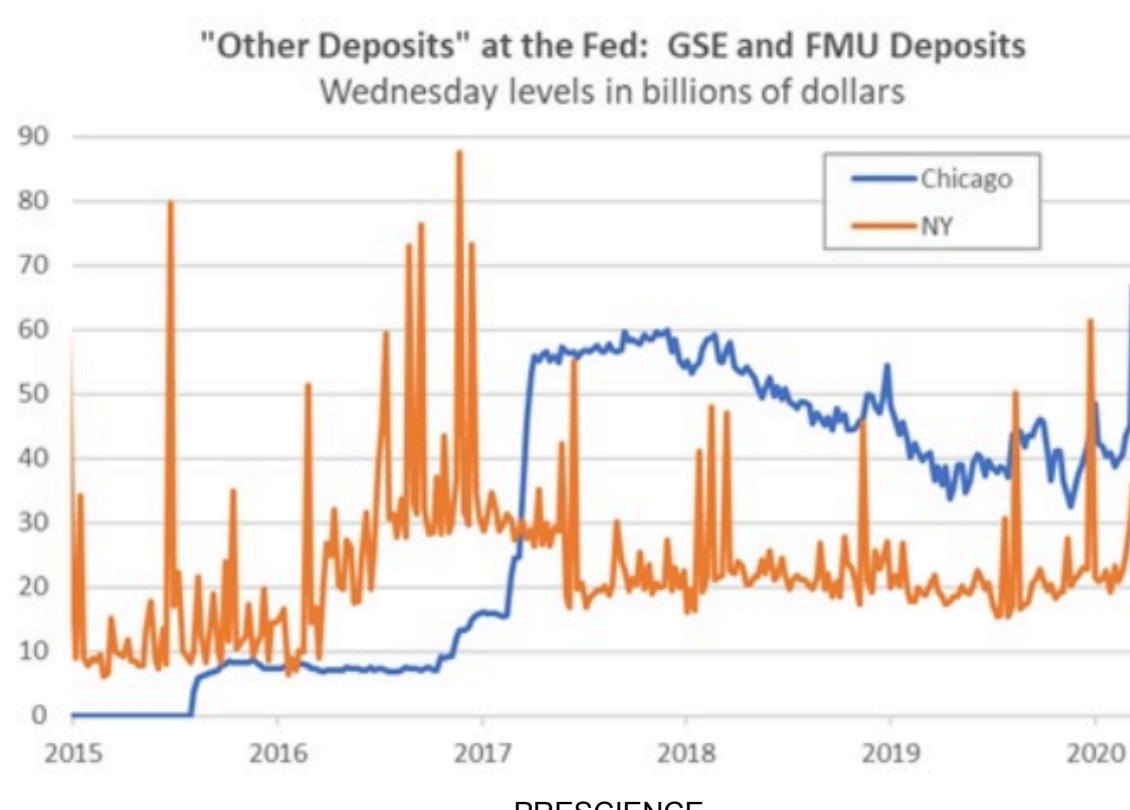


Govt Money Funds Have a Lot of Money. For the second consecutive week, government-only money funds saw a massive inflow in the week ending March 11. The fact that dealers are having to turn to the Desk's repo operations for funding at a time when money funds have so much cash to put to work is a sign of how severe the dislocations have become.

Other Deposits. The "other deposit" category on the liability side of the Fed's balance sheet largely consists of financial market utility deposits, which are concentrated in New York (DTCC) and Chicago (CME and ICE), and GSE deposits, which are concentrated at the New York Fed.

Most of the large week-to-week swings in "other deposits" in recent years have shown up on the balance sheet of the New York Fed, and can be attributed directly to MBS-related activity at Freddie Mac and Fannie Mae. Both GSEs pre-position cash at the Fed on the day before their monthly MBS P&I payment, leading to a spike in other deposits any time that either the 14th or the 24th of the month happens to fall on a Wednesday.

In the latest week, however, other deposits jumped by \$29 billion on a Wednesday-to-Wednesday basis, none of which was obviously attributable to MBS-related activity. The largest increase (\$22 billion) was in the Chicago district, followed by a \$6 billion increase in New York. The fact that other deposits in both Chicago and New York shot up in the latest week suggests that the increase was due to an influx of cash margin payments that made their way into the Fed accounts of FMUs in the latest week.



There is one market where USD funding stress could reemerge

FX basis has outpaced other local funding spreads, and faces tactical and structural risks to widening

- So far this year, funding spreads have tightened consistently, with recent news flow regarding Treasury's issuance intentions and the prospect of Fed regulatory reform continuing this trend
- FX/OIS basis in various G10 currencies vs. USD has also tightened, reflecting cheaper relative funding conditions in dollars ...
- ... but this is likely unrelated to shifts in the structural NFA exposures that generate cross-currency basis spreads in the first place
- Rather, we believe the narrowing has occurred on light volume, and though it reflects endogenous USD funding dynamics, has likely outpaced moves in competitor spreads like GC/OIS and FRA/OIS
- GSIB remains a binding constraint on bank activity in FX swaps markets around statement dates; moving to daily averaging would likely mitigate the turn at the expense of notably less overall availability of FX-based USD funding
- Both tactical and structure considerations favor receiving FX basis, and these positions are an attractive hedge for other funding market exposures like shorts in FRA/OIS and paid positions in SOFR/FF; receive 2Yx1Y EUR/USD basis

US Fixed Income Strategy

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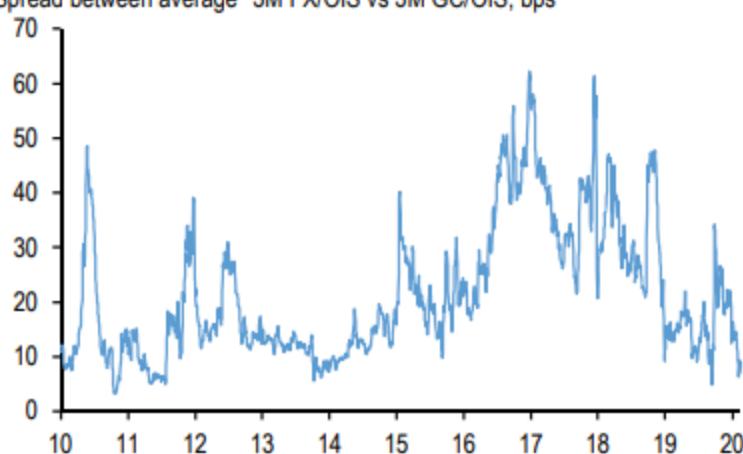
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J.P. Morgan Securities LLC

Exhibit 1: FX/OIS basis has narrowed considerably, and tightened relative to GC/OIS

Spread between average* 3M FX/OIS vs 3M GC/OIS; bps

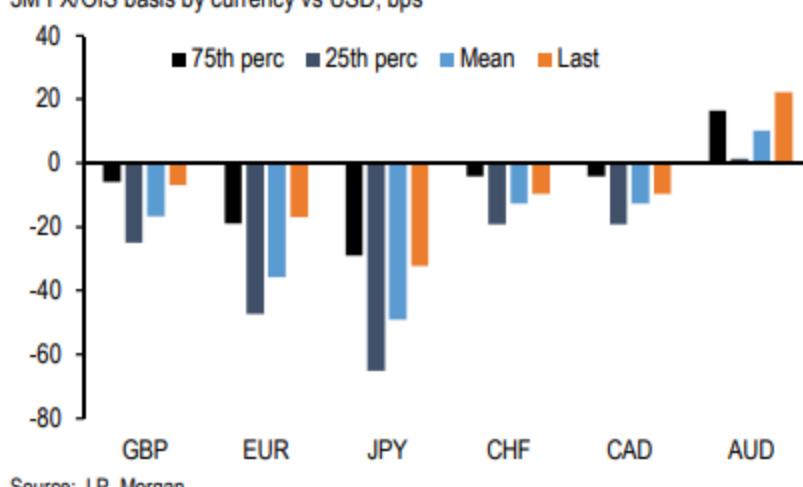


* Average of basis levels across EUR, JPY, CHF, GBP, NOK, SEK, AUD, CAD. Shown in absolute value such that lower values reflect cheaper relative USD funding.

Source: J.P. Morgan

Exhibit 2: In most major currencies, funding premia in dollars has diminished substantially, and is close to historically tight levels

3M FX/OIS basis by currency vs USD; bps



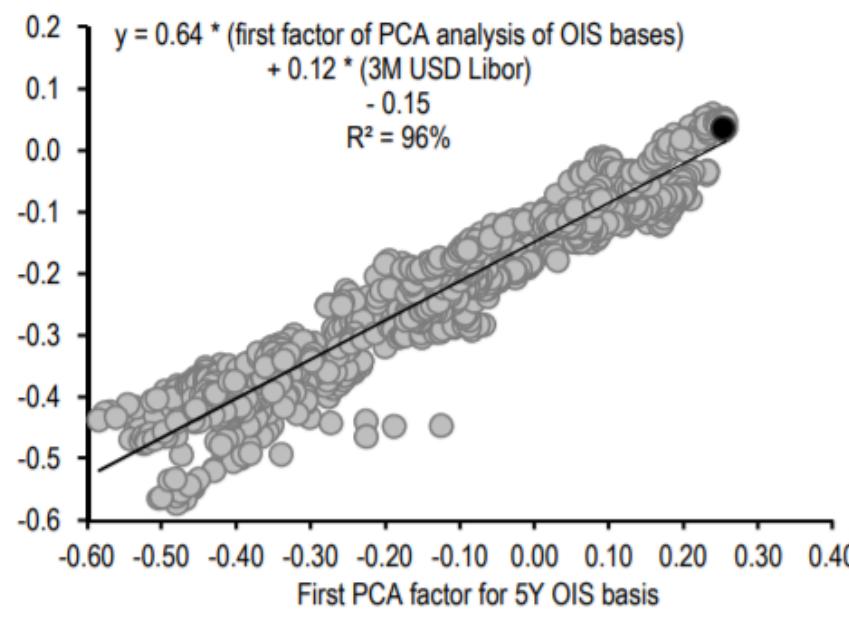
Source: J.P. Morgan

Tighter spreads have also been an important theme in cross-currency funding markets: the average level of FX/OIS basis, the premium in FX swaps above what covered interest parity would imply, **is close to its narrowest level since late 2015, and particularly tight in the context of current term GC/OIS and FRA/OIS spreads (Exhibit 1).** That FX-based secured lending would occur at comparable spreads to unsecured bank funding (i.e., Libor/OIS) is a particularly striking and somewhat rare development. The trend has been consistent across DM currencies relative to dollars, suggesting market participants, flush with funding and less concerned about the risks of short term disruptions in overnight markets, have been more willing to lend dollars in the forwards markets (Exhibit 2). **With this price action, the carry from lending dollars via the forwards market has eroded significantly,** with the slope of the 3M/6M FX/OIS basis curve flattening to within distance of zero across major currency pairs. Indeed, the average slope across DM currency pairs is 3.8 annualized basis points, compared to an average of 6.5bp over the last 12 months.

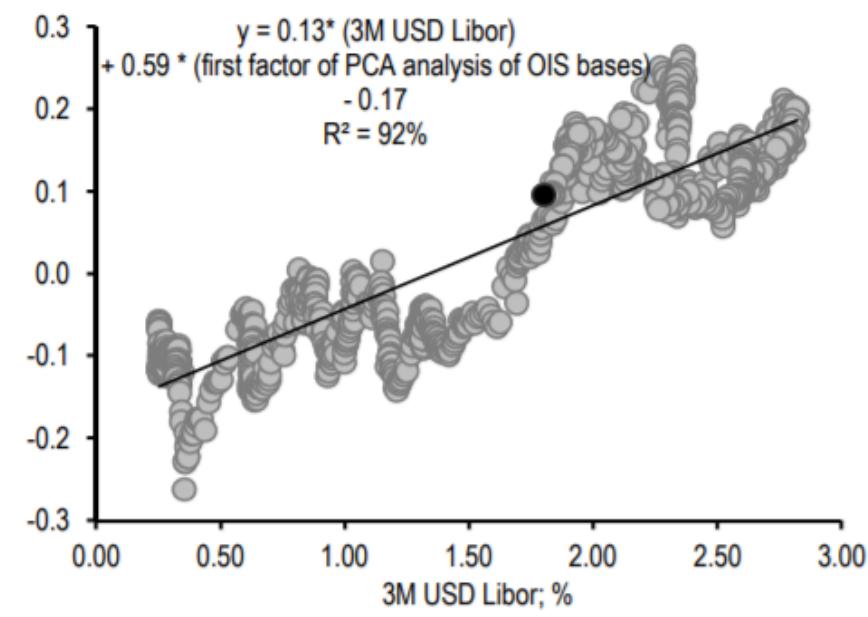
We now run two sets of PCA analysis, one on the global Libor and the other on the global FX OIS bases, with the objective of separating the dynamic between Libor and FX OIS bases. We believe that the PCA analysis on the FX OIS allow us to focus on the component of the basis that is coming from pure USD scarcity considerations, whereas the one on the Libor bases is a function of the combined effect of USD scarcity and relative credit component in the two currencies, measured by the spread of the relative FRA/OIS bases.

Exhibit 6: The first PCA factor of the Libor bases is driven by the first PCA factor of the FX OIS bases and the level of USD Libor fixings

First factor of PCA analysis of intermediate (5Y) Libor bases run since January 2013 regressed against first factor of PCA analysis of OIS bases and 3M USD Libor fixings; since Jan15; %



First factor of PCA analysis of intermediate (1Y) Libor bases run since January 2013 regressed against first factor of PCA analysis of OIS bases and 3M USD Libor fixings; since Jan15; %



The variability of the first PCA factor of the Libor basis in the intermediate sector (**Exhibit 6**), or at the short end of the curve can be explained by the first PCA factor of the FX OIS basis and by the level of USD Libor fixings. This is clearly driven by the level of USD fixings exhibiting a positive correlation with the level of the relative FRA/OIS basis in USD vs. other currencies. Specifically in EUR/USD, we note that the relative narrowing of the USD FRA/OIS vs. EUR has taken place in line with a larger decline in the level of USD Libor fixings (**Exhibit 7**).

Swaps liquidity slumps as Treasury stress spreads

Big buy-side participants report “worst day” in 10 years, as spreads widen and prices gap



Lukas Becker

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12 Mar 2020

Liquidity continued to worsen in US dollar interest rate swap markets yesterday – another day of savage volatility, in which the US Treasury market was also under stress. Three large buy-side swaps users reported pricing dislocations, widening spreads and a dwindling number of dealers willing to provide quotes.

At the [start of the week](#), market-makers told *Risk.net* liquidity [was as bad](#) in some instruments as it had been during the 2008 financial crisis. On March 9, the 30-year swap rate swung through a range of more than 30 basis points.

Conditions were worse on March 11, according to a swaps trader at one of the world's largest asset managers.

At the **start of the week**, market-makers told *Risk.net* liquidity **was as bad** in some instruments as it had been during the 2008 financial crisis. On March 9, the 30-year swap rate swung through a range of more than 30 basis points.

Conditions were worse on March 11, according to a swaps trader at one of the world's largest asset managers.

"On trades where we would usually pay inside 0.5bp, we're getting quoted 4bp

from mid. It was the worst day in liquidity terms that I have experienced in the last 10 years, and doesn't seem to be getting better," he says.

"Some dealers have completely pulled back. There are a few who remain willing to quote, albeit at much wider levels," the trader adds.

A derivatives trader at one US insurer also said swaps liquidity on March 11 was worse than at the start of the week. He claimed prices were gapping 3bp at a time, and dealers were not willing to quote in long-dated swaps.

A trader at a second US insurer claimed to be getting bid/offer spreads that were "10 times wider" than they had been a day earlier.

Strains **are also being reported** in the US Treasury market and its related futures market. In a Bank of America research note published today, analysts noted the 30-year US Treasury yield had risen yesterday by 11bp even as stock markets continued to sell off.

The analysts argued that "sustained illiquidity in the US Treasury market threatens the ability for certain actors to retain their UST positions and could

USA: Fed Takes Steps to Assure Ample Liquidity; We Now Expect a 100bp Cut in March

1. To alleviate stresses in funding markets that have emerged as the coronavirus outbreak has spread, the NY Fed announced today that it will take two steps to boost liquidity and reserves in the banking system over the next month. First, the ongoing \$60bn of monthly reserve management purchases in bills will now be spread across a range of Treasury maturities through mid-April. These secondary market purchases will help to clear some of the off-the-run Treasuries on dealer balance sheets. Second, the NY Fed announced a slate of weekly term 1m and 3m repo operations over the remainder of the monthly schedule with a minimum size of \$500bn each (full schedule [here](#)). The substantial increase in operation limits is in keeping with the NY Fed's commitment to provide cash to banks as needed during Treasury market disruptions.

2. In light of the continued growth in coronavirus cases in the US and globally, the sharp further tightening in financial conditions, and rising risks to the economic outlook, we now expect the FOMC to cut the funds rate 100bp on March 18, a faster return to the crisis-era 0-0.25% rate than under our previous call for two 50bp steps in March and April.

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Statement Regarding Treasury Reserve Management Purchases and Repurchase Operations

March 12, 2020

The Open Market Trading Desk (the Desk) at the Federal Reserve Bank of New York has released a new monthly schedule of Treasury securities operations and has updated the current monthly schedule of repurchase agreement (repo) operations. Pursuant to instruction from the Chair in consultation with the FOMC, adjustments have been made to these schedules to address temporary disruptions in Treasury financing markets. The Treasury securities operation schedule includes a change in the maturity composition of purchases to support functioning in the market for U.S. Treasury securities. Term repo operations in large size have been added to enhance functioning of secured U.S. dollar funding markets.

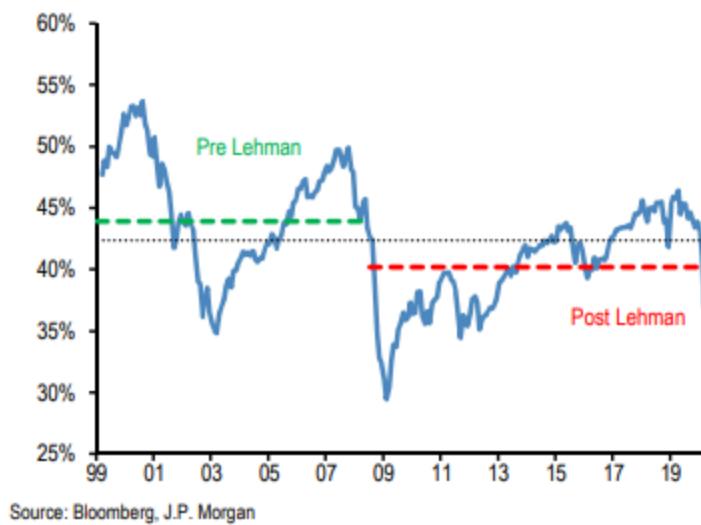
- As a part of its \$60 billion reserve management purchases for the monthly period beginning March 13, 2020 and continuing through April 13, 2020, the Desk will conduct purchases across a range of maturities to roughly match the maturity composition of Treasury securities outstanding. Specifically, the Desk plans to distribute reserve management purchases across eleven sectors, including nominal coupons, bills, Treasury Inflation-Protected Securities, and Floating Rate Notes. The distribution of purchases across sectors will be the same distribution as the Desk uses to reinvest principal payments from the Federal Reserve's holdings of agency debt and agency MBS in Treasury securities. The first such purchases will begin tomorrow, March 13, 2020.

MONTHLY SUMMARY | OPERATION SCHEDULE & PARAMETERS

CURRENT PERIOD	SUMMARY	NEXT SCHEDULE RELEASE	
Thursday, 3/12/2020 - Monday, 4/13/2020	The desk plans to conduct overnight repo operations on each business day and a series of term repo operations.	Monday, 4/13/2020	
OVERNIGHT OPERATIONS DATES		AGGREGATE OPERATION LIMIT	
Thursday, 3/12/2020 - Monday, 4/13/2020*		At least \$175 billion	
TERM OPERATION DATE	MATURITY DATE	TERM	AGGREGATE OPERATION LIMIT
Thursday, 3/12/2020**	Monday, 4/6/2020	25-days	At least \$50 billion
Thursday, 3/12/2020	Thursday, 3/26/2020	14-days	At least \$45 billion
Thursday, 3/12/2020**, forward settlement repo***	Friday, 6/5/2020	84-days	At least \$500 billion
Friday, 3/13/2020**	Friday, 6/5/2020	84-days	At least \$500 billion
Friday, 3/13/2020**	Monday, 4/13/2020	31-days	At least \$500 billion
Monday, 3/16/2020**	Monday, 4/13/2020	28-days	At least \$500 billion
Tuesday, 3/17/2020	Tuesday, 3/31/2020	14-days	At least \$45 billion
Thursday, 3/19/2020	Thursday, 4/2/2020	14-days	At least \$45 billion
Friday, 3/20/2020**	Friday, 6/12/2020	84-days	At least \$500 billion
Monday, 3/23/2020**	Monday, 4/20/2020	28-days	At least \$500 billion
Tuesday, 3/24/2020	Tuesday, 4/7/2020	14-days	At least \$45 billion
Thursday, 3/26/2020	Thursday, 4/9/2020	14-days	At least \$45 billion
Friday, 3/27/2020**	Friday, 6/19/2020	84-days	At least \$500 billion

<https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/repo-reverse-repo-agreements/repurchase-agreement-operation-al-details>

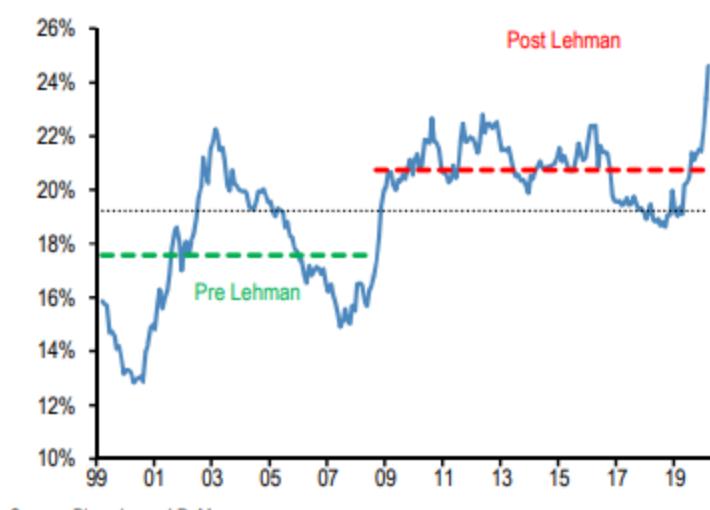
Figure 2: Implied equity allocation by global non-bank investors
Global equities as % total holdings of equities/bonds/M2 by non-bank investors. Dotted lines are averages.



Source: Bloomberg, J.P. Morgan

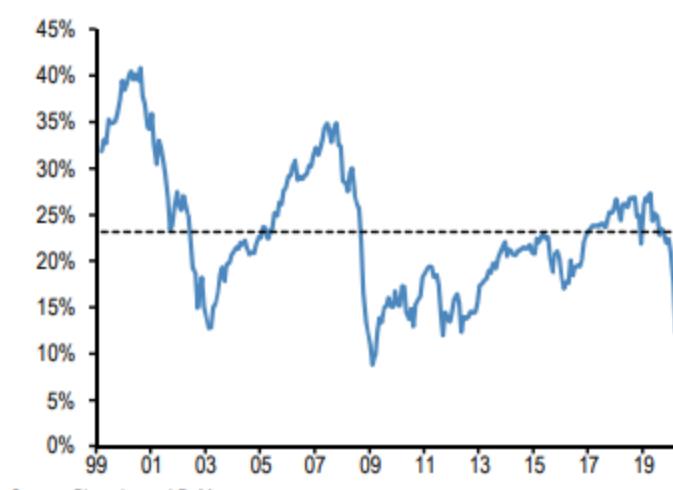
- The mirror image of this is an extremely high allocation to bonds. Figure 3 shows that non-bank investors, which invest in both bonds and equities, have an allocation to bonds of 25%, which is a record high for our sample period since 1999.

Figure 3: Implied bond allocation by global non-bank investors
Global bonds held by non-bank investors as % total holdings of equities/bonds/M2 by non-bank investors. Dotted lines are averages.



Source: Bloomberg, J.P. Morgan

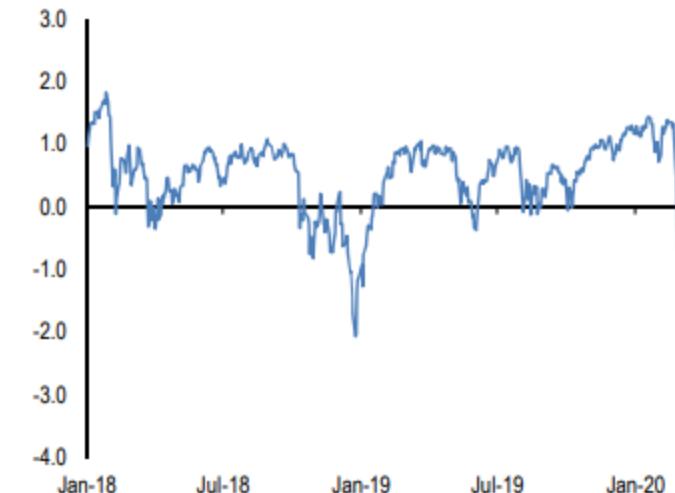
Figure 4: Difference between Implied Equity allocation – Bond allocation by global non-bank investors
Dotted lines are averages.



Source: Bloomberg, J.P. Morgan

- In all, while we acknowledge it is difficult to predict the timing, we believe that the current entry level for VaR insensitive real money investors to shift to equities away from cash and fixed income is extremely attractive from a historical perspective

Figure 5: Average of the z scores of S&P 500 momentum signals
z-score of the momentum signals in our Trend Following Strategy framework shown in Tables A5 and A6 in the Appendix. The line shows the average z-score of the short and long lookback period momentum signals for the S&P 500 index.



Source: Bloomberg, J.P. Morgan

US Rates Watch

Treasury illiquidity & buyback “bat call”

12 March 2020 | Rates Research | United States



Mark Cabana, CFA



US Rates Research

Key takeaways

- Treasury market functioning has materially deteriorated and may require a large policy response from the US Treasury or Fed
- Two options: (1) Fed re-starting UST QE (2) US Treasury conducting buyback operations. We favor the latter.
- Treasury buybacks or Fed UST QE would result in material richening of UST vs OIS & widening of swap spreads across the curve

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US Treasury market functioning materially deteriorated over recent days and likely requires a rapid & large near-term policy response from the US Treasury or Federal Reserve. Reflective of this is the 30Y bond yield increased 11bps yesterday while SPX declined 5%. In a risk off environment it would be expected to see UST yields decline; yields appear to have been overwhelmed by liquidity concerns yesterday.

What happened? - The US Treasury market has been very volatile due to macro uncertainty. Realized volatility in the Treasury market is at the highest levels since EU breakup concerns in '11 & the financial crisis in '08 (Chart 1). This has caused dealers to widen their bid-offer spreads and limited their ability to transfer risk. These dynamics have materially worsened market functioning (Chart 2), and led to a large cheapening of USTs vs OIS across the curve (Chart 3).

Why should you care? -Sustained illiquidity in the US Treasury market threatens the ability for certain actors to retain their UST positions and could result in large scale position liquidation. The investor community most at risk

What is the policy response? - The Fed today extended the tenor of its repo operations from overnight & 2 week tenors out to 1 month ([Chart 6](#)). The first 1-month repo operation is \$50 bn in size, slated for Thursday morning, and priced at 1-month fed funds OIS + 5 bps. This repo operation will help provide certainty over dealer funding costs that can be passed along to the leveraged UST community and should assist in stabilizing funding costs. The action shows that the Fed is sensitive to underlying market conditions and working to improve market functioning. However, it may not be enough.

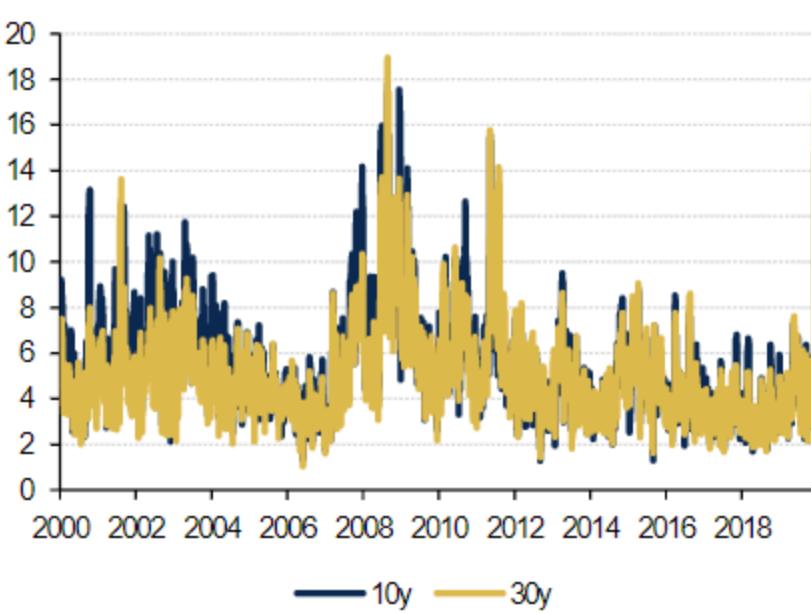
We are concerned that the size of this repo operation may not be large enough to stabilize the cheapening in UST securities and materially improve Treasury market liquidity. We believe it may take a more forceful action from the US Treasury or Federal Reserve to act as a "circuit breaker" in these illiquid Treasury markets. Specifically, we think there is a case for official sector policy action to support market functioning. Two options for consideration include: (1) the Fed re-starting UST quantitative easing (2) the US Treasury conducting "buyback" operations. We favor the latter option.

How does a Treasury buyback work? - In a buyback operation the US Treasury redeems USTs outstanding. This is the same process by which any other private issuer could choose to extinguish outstanding debt or equity. In a Treasury buyback the US Treasury Department would instruct the New York Fed (NY Fed = US Treasury fiscal agent) to buy USTs from primary dealers and pay for these purchases by drawing down its cash balance. To offset the cash balance decline, the US Treasury could increase its debt outstanding at other tenors. The US Treasury engaged in buyback operations from 2000-2002 as a means to manage debt stemming from a budget surplus & strong tax receipts; the US Treasury has done a number of small value buyback operation tests since the fall of 2014 but not done any large scale buyback operations recently.

We expect that the US Treasury would target its buyback operations at tenors across the US Treasury curve and finance these operations by increasing short-term bill issuance. The Treasury has the benefit of the Fed currently conducting 1-month repo operations which should limit the extent of upward pressure on short-dated bills.

The buybacks across the curve would represent a strong real money investor that could aid dealer risk transfers and improve two-way market making activity. We are not sure how large such a buyback program would need to be but we might imagine it could take \$50-\$100 bn to stabilize market conditions and result in more orderly market making. The Treasury would likely signal that these buyback operations are being done to promote market functioning and will remain open ended until more orderly market conditions prevail.

Chart 1: Rate market volatility rivals the financial crisis (bp)
2wk rolling stdev of daily changes in 10y and 30y



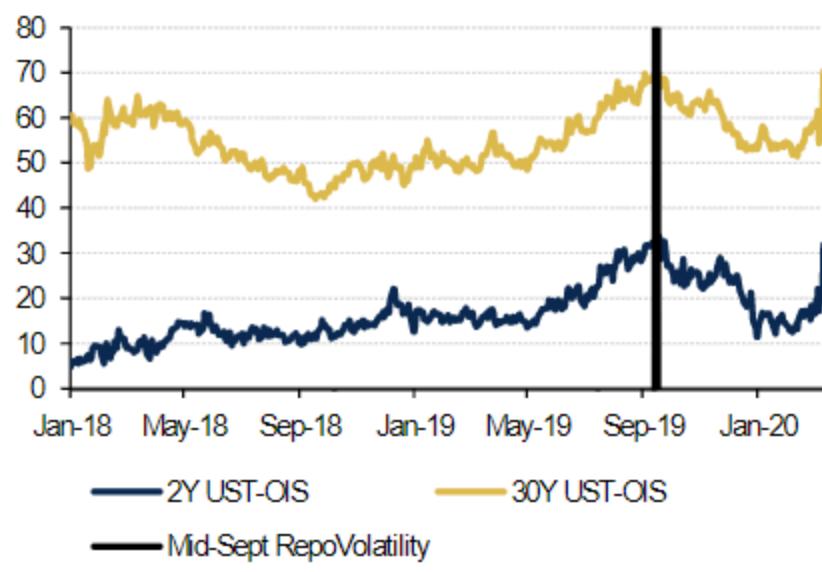
Source: BofA Global Research, Bloomberg

Chart 2: Bloomberg US govt securities liquidity index



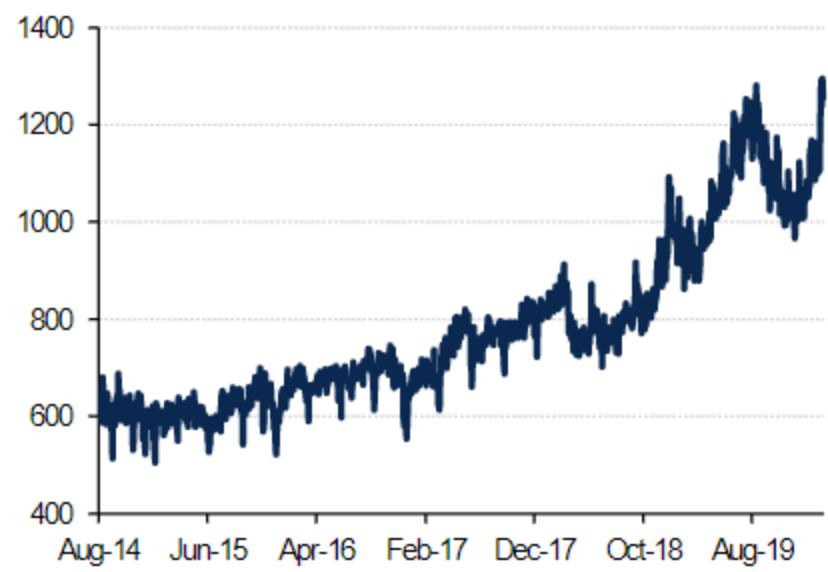
Source: Bloomberg; Note: The Bloomberg liquidity index displays the average yield error across the universe of US Treasury notes and bonds with remaining maturity 1-year or greater, based off the intra-day Bloomberg relative value curve fitter. A lower value = lower yield errors, better liquidity; a higher value = higher yield errors, worse liquidity.

Chart 3: UST cheapening vs OIS across the curve



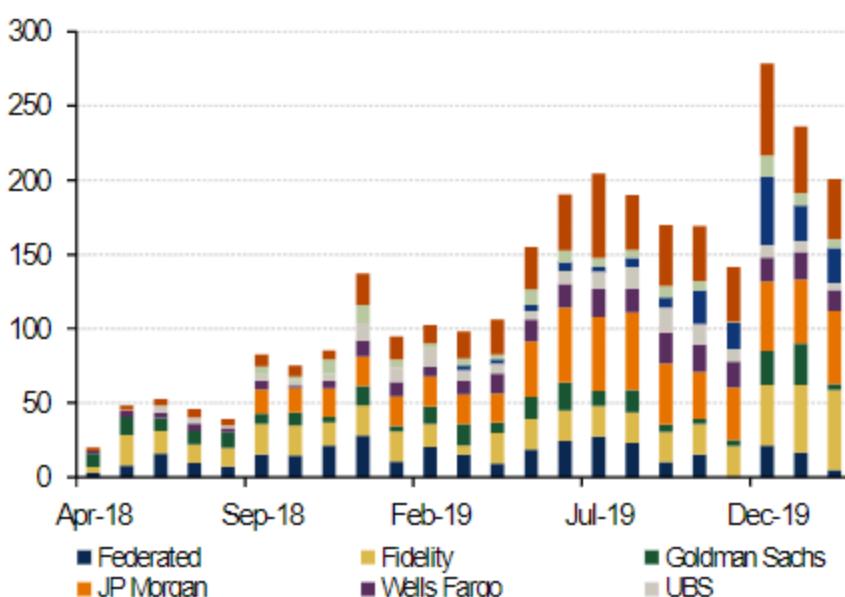
Source: BofA Global Research, Bloomberg

Chart 4: SOFR volumes (\$bn)



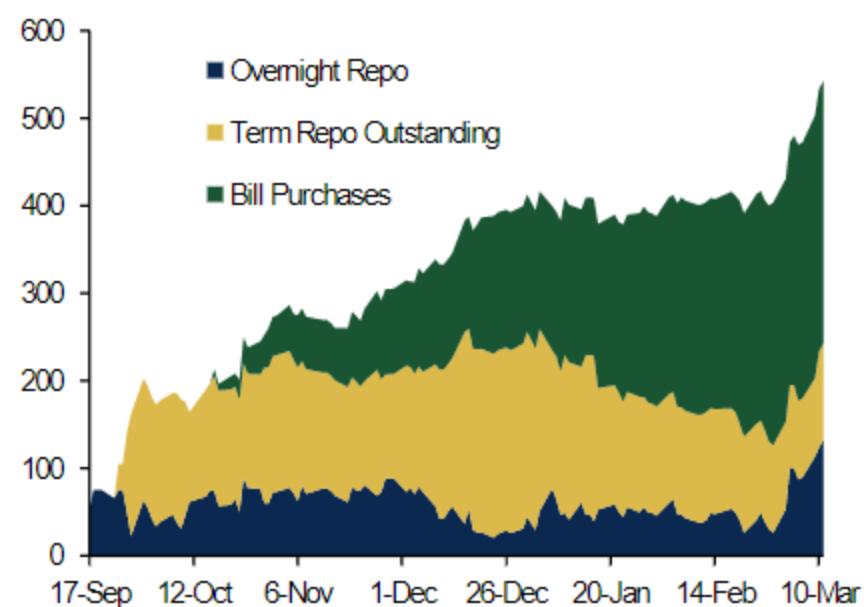
Source: Bloomberg, NY Fed

Chart 5: MMF Treasury repo with the FICC (\$bn)



Source: OFR, Crane Data

Chart 6: Fed open market operations (\$bn)



Source: Federal Reserve

Table 1: Quantitative easing versus Treasury buybacks

	QE	Buybacks
When implemented?	Fed has cut to zero	To promote market functioning
What happens to UST?	Owned by Fed	Redeemed
Impact on Fed balance sheet?	B/S expands	No impact

Source: BofA Global Research



Interest Rates Research

13 March 2020

US Money Markets Fed: Time for bold action

The Fed's efforts to support liquidity in the repo market were aggressive even if program take-up has been lacklustre. In recent days, however, short-term unsecured funding markets have come under stress. We think these markets also need decisive Fed intervention.

- The lacklustre response to the Fed's \$500bn open market operations suggests that the problem in secured markets is balance sheet rather than funding-related.
- The Fed's response has been to shift from bills to coupons and move up the timing of these purchases. We expect it will increase the size of these purchases.
- Balance sheet capacity constraints are also preventing dealers from bidding and intermediating in the CP market.
- The pressure on CP rates has been compounded by pressure on securities lenders as well as outflows from prime funds.
- We expect the Fed will re-institute the CP funding facility (CPFF) next week. In this program, issuers were able to sell the Fed CP at a spread over OIS.

Although the OMO take-up was weak, the size of the operations suggests that the Fed is prepared to be bold. We expect this will include a large increase in its secondary market purchases of Treasury coupons as well as the re-introduction of some of its crisis-era liquidity programs such as the TALF and CPFF.

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Dollar Funding Stress Surges to 2008 High on Corporate Cash Run

- Firms load up cash reserves, credit access on slowdown concern
- Fresh funding demand can drive more stress in money markets

By Stephen Spratt

(Bloomberg) -- A dash for cash from companies is putting extra strain on global funding markets, sending the premium for dollars heading to the highest since the financial crisis.

As uncertainty grows over the ultimate economic impact of the coronavirus outbreak, corporate treasurers are rushing to borrow to bolster their reserves. Commercial paper rates climbed this week and the cost of converting the euro to dollars in swap markets headed for its largest move since 2008.

Dollar Demand

Cross-currency basis on course for widening most since 2008



Source: Bloomberg

Greater demand for cash risks exacerbating the stresses already underway in markets. The gap between commercial paper rates and overnight swaps hit the widest since 2018 this week -- another sign of the increased demand for funding.

"Intuitively this makes sense as commercial paper is likely one of the first firewalls for companies experiencing cash flow disruptions," wrote Blake Gwinn, a rates strategist at NatWest Markets, in a note. "If you are having trouble making payroll, accounts receivables, etc., you tap commercial paper markets."

Cash Dash

Commercial paper spreads tick higher as funding needs grow

■ 3-month commercial paper rates - overnight swap equivalents on 3/10/20



There is one market where USD funding stress could reemerge

FX basis has outpaced other local funding spreads, and faces tactical and structural risks to widening

- So far this year, funding spreads have tightened consistently, with recent news flow regarding Treasury's issuance intentions and the prospect of Fed regulatory reform continuing this trend
- FX/OIS basis in various G10 currencies vs. USD has also tightened, reflecting cheaper relative funding conditions in dollars ...
- ... but this is likely unrelated to shifts in the structural NFA exposures that generate cross-currency basis spreads in the first place
- Rather, we believe the narrowing has occurred on light volume, and though it reflects endogenous USD funding dynamics, has likely outpaced moves in competitor spreads like GC/OIS and FRA/OIS
- GSIB remains a binding constraint on bank activity in FX swaps markets around statement dates; moving to daily averaging would likely mitigate the turn at the expense of notably less overall availability of FX-based USD funding
- Both tactical and structure considerations favor receiving FX basis, and these positions are an attractive hedge for other funding market exposures like shorts in FRA/OIS and paid positions in SOFR/FF; receive 2Yx1Y EUR/USD basis

US Fixed Income Strategy

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- **Additional asset purchases.** It is entirely possible that the Fed will launch a new asset purchase program in response to the coronavirus shock at some point. However, the FOMC is still at least a couple of half-point rate cuts away from the point where it would need to make that decision. We doubt that the FOMC is ready to decide whether to structure its next round of securities purchases as a quantity-based QE program or a rate-based "yield curve control" exercise. We don't expect an expansion of the Fed's Treasury purchases this afternoon.

Additional measures. Pressure is mounting on the Fed to expand the scope of its liquidity operations in light of heightened volatility in a number of spreads as the markets react to massive hedging flows and extreme uncertainty in the policy outlook. One popular suggestion is to expand dollar swap activity with foreign central banks, but it is not clear how strong the demand for that funding would be at this point. The combined total awarded through the 7-day operations by the BOJ and ECB this week was \$0.05 billion. Granted, the operations are priced at a penalty rate, and our sense is that banks in both jurisdictions are discouraged from relying on the program. A change in rate levels and official guidance could make the program more attractive, but even so the results to date don't suggest that this is a pressing need.

Another option available to the Fed would be to resurrect the Term Auction Facility that was used during the crisis. A growing concern in policy circles is that coronavirus disruptions will cause cash flow problems that will threaten firms that are otherwise viable. Banking supervisors have encouraged the industry to accommodate the near-term needs of customers affected by the pandemic, and it is possible that the Fed might decide that it has a role in providing funding for banks facing increased C&I loan demand. Three-month TAF loans priced at OIS could be pitched as being targeted at Main Street banks meeting the credit needs of local businesses, but would also be available to foreign banks facing wider borrowing spreads in the cross-currency market.

Term Auction Facility Credit Outstanding: 2008-10
Weekly averages in billions of dollars

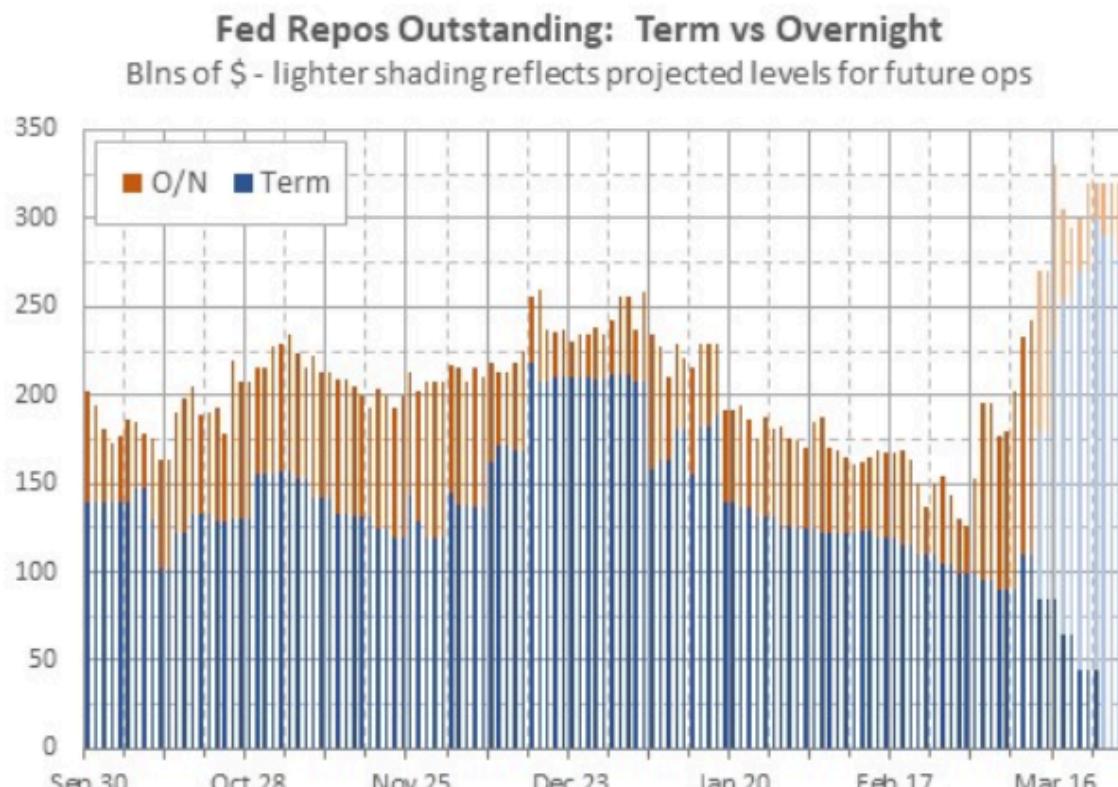


The Fed's Monthly Operations Schedule Announcement

Thu, March 12, 2020

The Fed announced the repo portion of its monthly operating schedule a day early yesterday, which allowed it to jump-start the process of increasing its support for the funding market. The monthly outright purchase announcement had to wait until today, as the Fed wants to see the data on MBS prepayments before finalizing the details of its reinvestment purchases. It is an open question whether the Fed will announce additional measures along with the outright purchase schedule.

The Fed's March/April Repo Schedule. The Desk made a concerted effort to ensure that all of its repo operations would be undersubscribed by early April. In addition to keeping the maximum size of the regular 2-week RPs at this week's higher level of \$45 billion, the Desk boosted the maximum offering in its overnight operations to \$175 billion and added a total of three \$50 billion longer-term operations stretching over quarter-end between now and March 23. If fully subscribed, those operations would provide \$505 billion of financing to the dealer community over the quarter-end statement date. That would be nearly double the previous peak of \$260 billion in mid-December. The amount of Fed RPs outstanding may well reach new highs in the second half of March, but it is highly unlikely that dealers will come close to maxing out the full amount available. This morning's two term operations (\$50 billion of 25-day RPs at 8:00 and \$45 billion of 14-day RP's at 8:30) will be fully subscribed, but we could see the Fed's term operations start to be undersubscribed as early as next week.

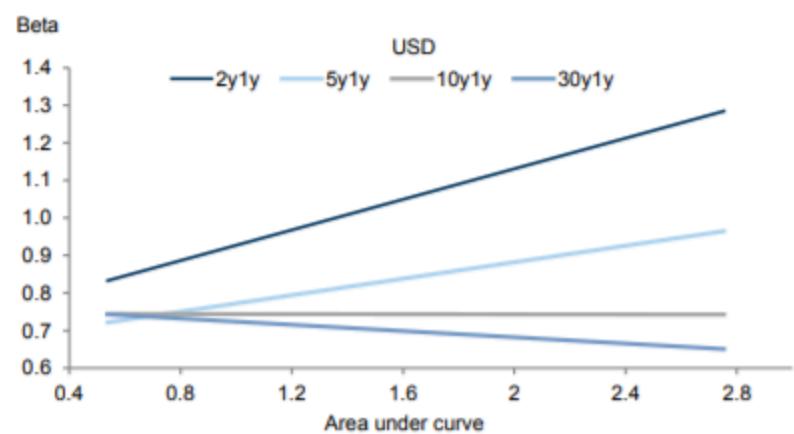


The Fed's March/April Outright Purchase Schedule. While we cannot rule out anything at this point, we're not expecting the Fed to make any substantive changes to its outright purchase program this afternoon. But we cannot rule out anything at this point. Our default assumption is that the Fed will announce another \$60 billion of bill purchases for reserve management purposes and \$20 billion of reinvestment purchases in the Treasury market to roll over MBS principal payments:

- **Bill purchases.** There has been some discussion of the possibility that the Fed might diversify its front-end purchases to include short coupons in order to avoid liquidity problems in the bill sector. However, the risk of a bill squeeze has been substantially reduced given the likelihood that the April tax due-date will be delayed. There is no compelling reason for the Fed to muddy its messaging on that front.

Markets have repriced these changes fairly rapidly, though we do not think they have quite fully priced the extent of easing to come. At the same time, unless central banks are more fully willing to explore negative rates, the fact that they are running out of policy space means the sensitivities of longer maturity forwards to shifts in policy have been increasing. Exhibit 1 shows fitted (linear) relationships between the betas of various forward USD swap rates to front-end policy expectations (which we proxy with 1y1m OIS rates) and the monetary policy space available to the Fed—we use the area under the OIS curve as a crude approximation for the space available. As can be seen, when there is plenty of monetary policy space available, longer maturity forwards are substantially less sensitive to changes in front-end policy expectations than shorter maturity forwards. However, as monetary policy space erodes, the sensitivity of shorter maturity forwards drops, and that of longer maturity forwards increases.

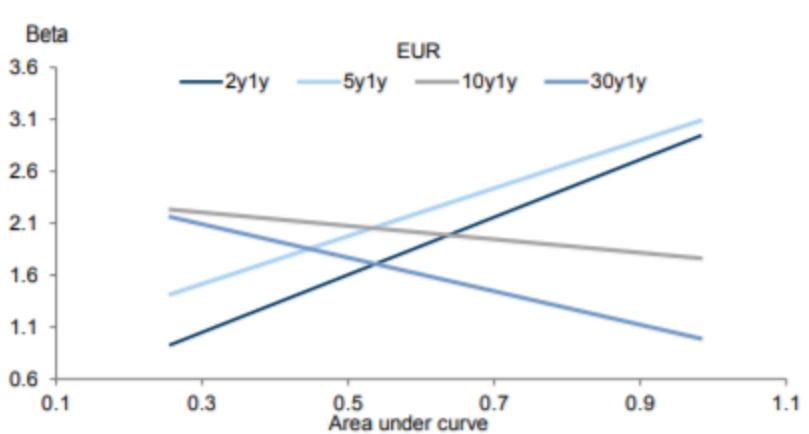
Exhibit 1: Betas* of USD swap rate forwards to 1y1m OIS versus monetary policy space available (past year)**



*rolling 1 year betas **area under OIS curve

Source: Goldman Sachs Global Investment Research

Betas* of EUR swap rate forwards to 1y1m OIS versus monetary policy space available (past year)**



*rolling 1 year betas **area under OIS curve

Source: Goldman Sachs Global Investment Research

This behavior makes sense for two reasons: first, when monetary policy space is

12 March 2020

2

Goldman Sachs

Global Markets Daily

limited, it is likely that shorter maturity forwards are already close to the ELB, limiting the space for action in that sector. This means that future central bank actions would end up targeting longer maturities (for example, via QE). Second, once the central bank

Daily : Top and bottom 10 vol-adjusted moves
(daily return / daily std deviation (3-month historical window))

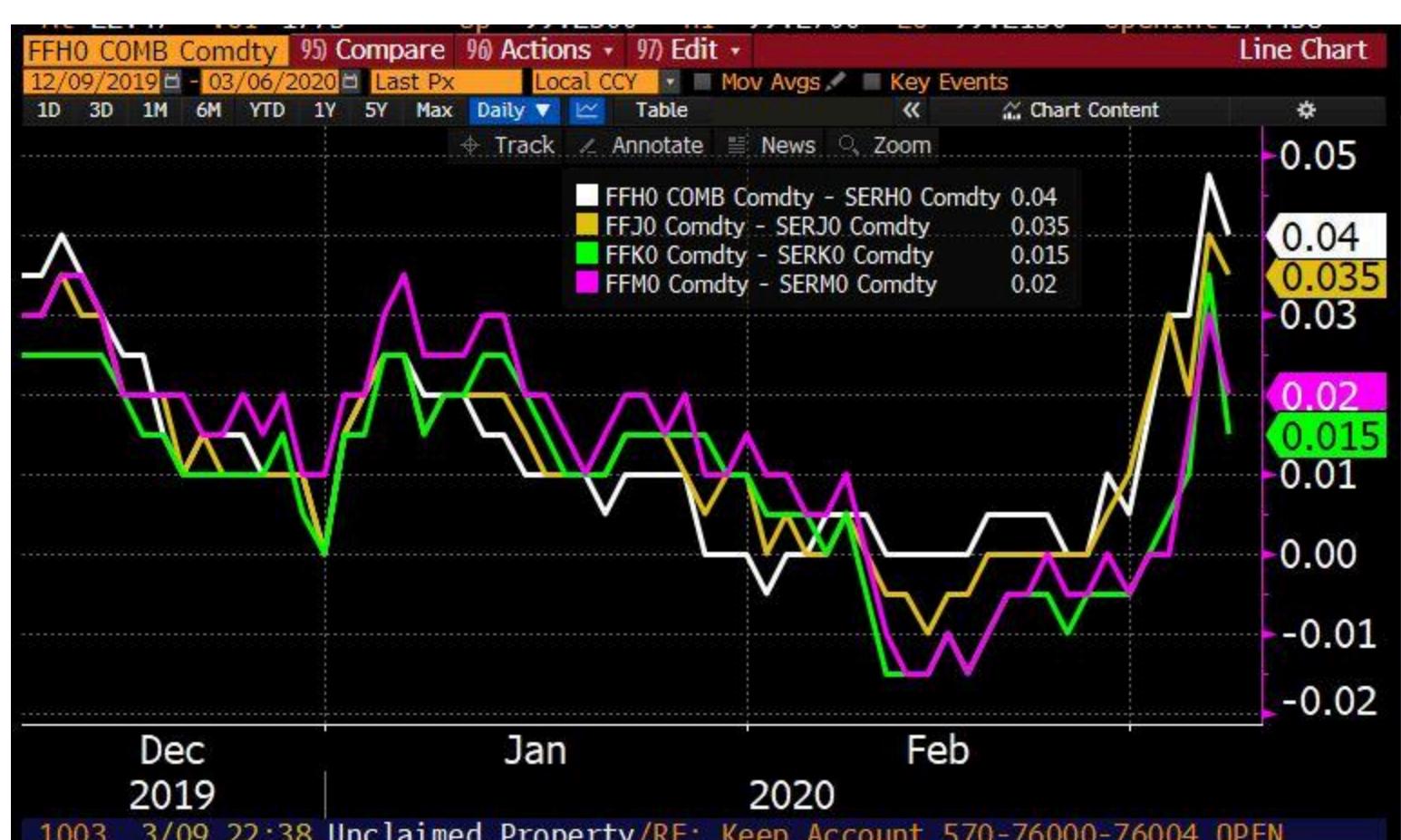
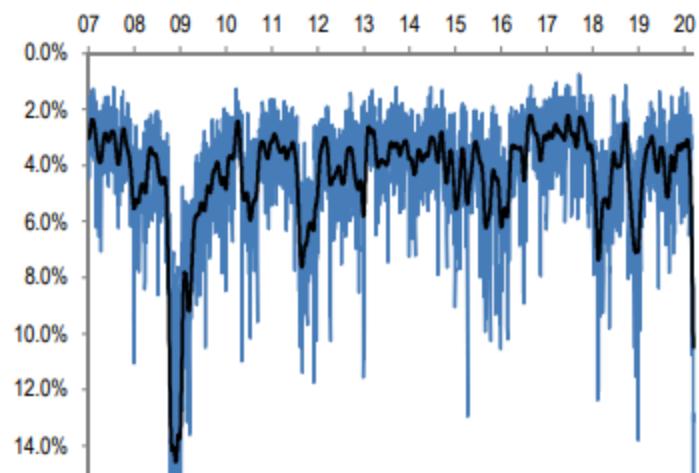


Figure 9: Hui and Heubel liquidity ratio for futures on S&P500

Y axis in reverse order as a higher ratio implies lower market liquidity. The black line shows a smoothed version of the same series. The smoothing is done using a Hodrick-Prescott filter with a Lambda parameter of 10000. See text for details on the construction of this ratio.

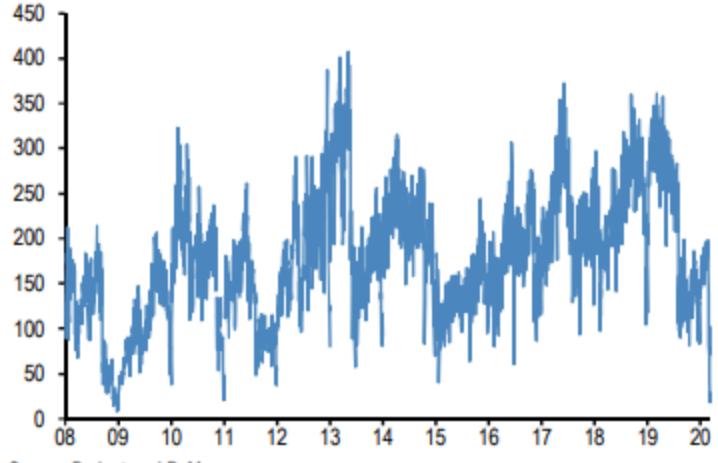


Source: Bloomberg, J.P. Morgan

- What about bond markets? As we noted last week, there had been some improvement in market depth in 10y cash USTs during the week, but anecdotally this had already deteriorated on Friday. Indeed, market depth on 10y USTs declined to just \$18mn on Monday 9th, its lowest level since December 2008 (Figure 10). Similarly, our Hui-Heubel metric for 10y UST futures, shown in Figure 11, also deteriorated further this week.

Figure 10: Market depth for 10y cash USTs

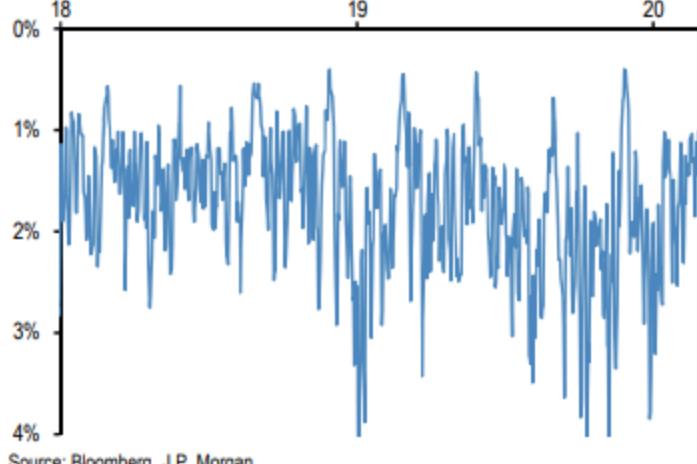
Average size of tightest three bids and asks each day, \$mn.



Source: Brokertec, J.P. Morgan

Figure 11: Hui and Heubel liquidity ratio for 10y UST

Y axis in reverse order as a higher ratio implies lower market liquidity. The black line shows a smoothed version of the same series. See text for details on the construction of this ratio.

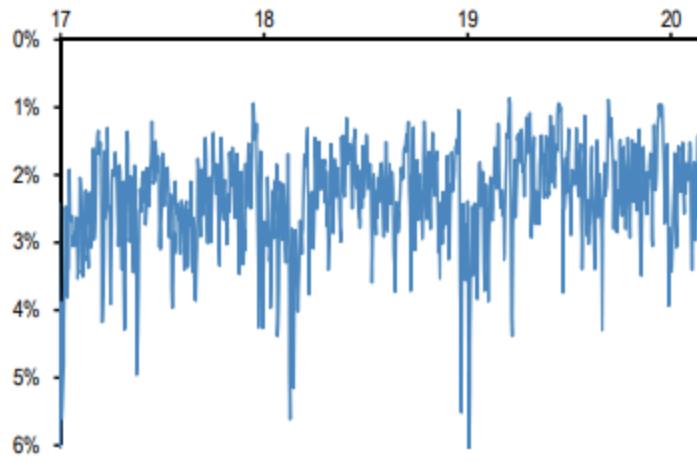


Source: Bloomberg, J.P. Morgan

- For FX futures, the Figure 12 depicts the Hui-Heubel ratio averaged across EUR/USD and USD/JPY futures. This shows a deterioration in liquidity, though not quite as sharp as during the early 2018 and late 2018 corrections. The latest episode comes against a backdrop of a sharper rise in turnover than either of the previous episodes. Indeed, our colleagues in FX strategy note a deterioration in market depth ([Avoiding crowds](#), Chandan, Mar 10th).

Figure 12: Average Hui-Heubel liquidity ratio for EUR and Yen currency futures

Y axis in reverse order as a higher ratio implies lower market liquidity. The black line shows a smoothed version of the same series. See text for details on the construction of this ratio.



Source: Bloomberg, J.P. Morgan

USD: Everything is procyclical

Steve Kang

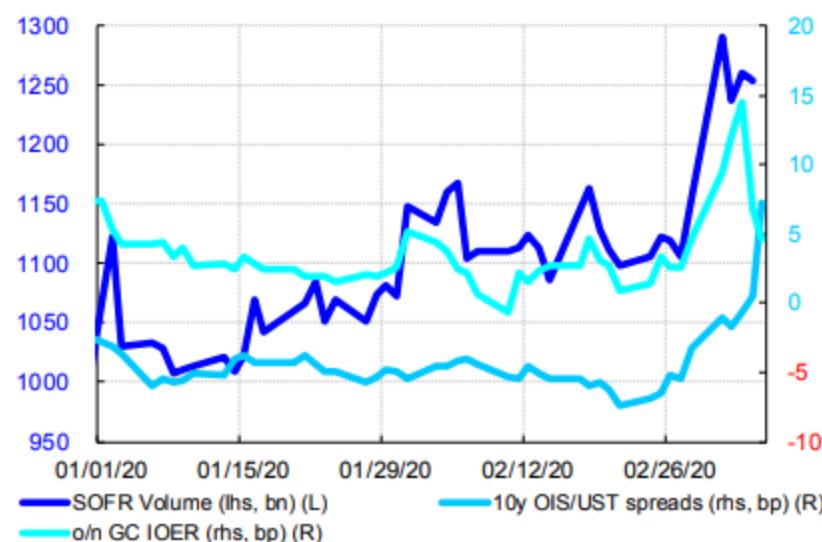
USD FRA/OIS is very much dependent on the Fed's policy rate path, and we are seeing increasing likelihood of the spread staying wide throughout 1H. The FX basis can widen further as typical USD lenders are being restricted by the volatility of the markets. If risk off continues, an inflection point is likely to come from global central banks. They may not be able to save us from a health crisis, but they can certainly save funding markets.

There is nowhere to hide from the virus outbreak. As the macro backdrop continues to deteriorate this week, the stress started into spill over to USD short-end basis, increasing cross-“basis” correlation. We discuss our framework for SOFR/EFFR, FRA/OIS, FX OIS, and XCCY and put forward our projections.

SOFR basis (EFFR rate – SOFR rate): Limited downside from the Fed “put”
 USD o/n repo went higher this week from what seems to be an increase in forced buyers of USTs. EFFR-SOFR repriced from -1~ -2bp prior to this week to -14bp on 3/4 and stabilized back to -3bp on 3/5. Earlier this week, as o/n tri-party repo went above the Fed's o/n repo rate (IOER), usage for the facility quickly increased from <50% to 100% (the latest is around 90%). In our view, this week's increase in o/n repo, repo volume, and a sharp widening in 5y-10y spreads (Figure 21) suggest increased UST demand funded at o/n repo. Given the violent move in rates and spreads, we posit a forced demand for cash from risk-asset hedgers. We assume that these buyers are funding their longs at o/n repo. This indicates that further large risk-off flows would keep o/n repo elevated. We saw 1mo SERFF repricing tighter and then reverting back by some as repo stabilized later in this week (Figure 22).

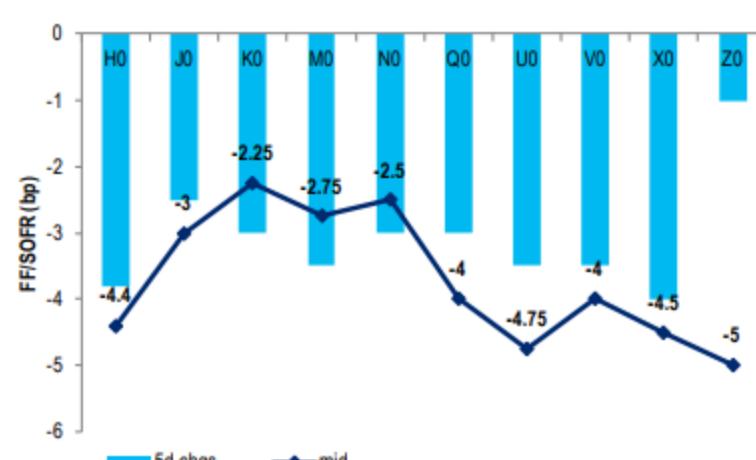
It should also be noted that the SOFR basis in the later part of this week exhibited less procyclicality – i.e., repo stabilized even as macro remained volatile. This relationship bears watching – if spillover from the pandemic picks up again, it may prompt the Fed to act. We've seen signs of stress in all funding markets – L/OIS, FX basis, and SOFR. Though the Fed may not care much about L/OIS and FX, it does care about LIBOR. If SOFR flares up again, it will be an opportunity for the Fed to be more proactive, to build a healthy reflexivity in funding markets, as it does with policy rates. On March 12 (the scheduled release date of TOMO/POMO operations for the next month), we expect a dovish tilt on the existing parameters – e.g., increasing the o/n amounts from \$100bn to \$120/150bn and keeping the current size of term TOMO at \$25bn (or perhaps a tad higher). A proactive signal like this can go a long way to widen SERFF (and tighten FX basis), in our view.

Figure 21. This week's increased repo rate, repo volume, and sharp widening in intermediate spreads suggest increased UST demand



Source: Citi Research, Bloomberg

Figure 22. SERFF tightened on cheaper repo this week (3:30PM, 3/6)



Source: Citi Research, Bloomberg

LIBOR/OIS basis: Upside risks remain throughout 2H, but much is priced in
While SOFR basis (and FX OIS basis to a certain extent) is driven primarily by funding market conditions, LIBOR/OIS is also driven by other technical factors related to the general stress in the markets. We put forward a simple two-factor model for LIBOR/OIS last week¹: On risk off, LIBOR/OIS tends to widen on credit widening (20% pass-through from CDX IG 5y) and on the Fed cuts. The latter is driven by the nature of MMF investors, who tend to take refuge at o/n rather than to chase the 3M lower – hence we tend to see 3m L/OIS wider as 3m OIS rolls lower.

What is the beta from 3M OIS to L/OIS? Historically, we saw -12% average pass-through from 3m OIS to 3mL/OIS¹. Looking at this widening episode (from 2/28), we saw -27% daily pass-through rate on average 6am-6am OIS rates to 3mL/OIS (sample size of 6), but daily data varies widely. The last data point (3/6-3/5) suggests ~-55% daily pass-through (-22.7bp OIS → +12.4bp in L/OIS) and pushed H0 3m F/OIS to 50bp. Figure 23 shows the OIS trajectory and realized and expected F/OIS. With our US economists expecting a 50bp cut at the March FOMC meeting followed by 25bp cut in April FOMC and another 25bp cut (to the 0-25bp ZLB) either inter-meeting or at the June FOMC², we expect 3mL F/OIS to remain elevated in 1H.

Near-term FRA/OIS (such as H0) is likely to remain volatile, as it is very path dependent. L/OIS widened much more than expected today (March 6) – moving wider by +12.4bp to 38.6bp. If we take this as a starting point and assume the market's trajectory of 3M FF OIS into March FOMC (rolls 8bp lower), H0 FRA/OIS range can be between 40bp and 43bp, assuming 12%-55% pass-through from OIS to LIBOR/OIS (and assuming credit to remain the same). Again, this remains uncertain, as calibration data remains small, and this time may be different from the past.

We think that M0 FRA/OIS can be wider than priced in, on the expectation that the Fed will cut to the ZLB in 2H – we can see M0 FRA/OIS staying relatively wide around 35bp-40bp, assuming H0 realizing at 43bp. Beyond 1H, as we get closer to the ZLB, 3m FRA/OIS should naturally tighten from a lack of space to cut. We note that these are moving targets, as this also depends on the severity of credit conditions and other actions from the Fed.

Spreads – US

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Spread curve flattener not just an HQLA trade

We updated our analysis (Table 11) of the macro drivers of spreads across the curve to frame our spread curve flattener view not only as a way to position for bank migration into front-end Treasuries for liquidity purposes, but also to capture continued credit spread widening and increased potential for fiscal stimulus. Credit spread widening and increased deficits we think are likely outcomes of the ongoing global health threat. While the spread curve has flattened about 10bp since mid-February we think there's scope for 2y spreads to widen another 5-10bp and for 30y spreads to return their historical lows of around -50bp. Convexity-related receiving in the long end could help the position as well.

Short spreads are about financial conditions, long end about rate and deficit

Our analysis suggest that the main driver of 2y swap spreads is financial conditions, proxied here by credit spreads and vol, while key drivers for 30y spreads are deficit/GDP and rate levels. Some components of financial conditions have moved more than others. The BofA Global Financial Stress Index breaks down into 3 components: skew, flow and risk. The skew component, which captures vol in equities and currencies has moved most dramatically with a current z-score of 2.6 (back to 2010), the flow measure shows a z-score of 1, and the risk measure is right around 0. In this sense, we would say that in the recent blowout in financial conditions, solvency fear has lagged. We would expect that the longer the health threat lasts, the more we could see increased solvency fears. This could become a key driver pushing FRA-OIS and 2y spreads wider.

While changes in deficits are generally slow moving, we expect that momentum along these lines could advance rapidly in coming months in the event that the health scare worsens. With the Fed priced to reach 27bp by year end, monetary policy is essentially out of traditional bullets and markets are apparently not convinced that Fed easing will matter much. 30y spreads show a beta of roughly 11bp tightening per 1% worsening of the deficit/GDP ratio. We would not be surprised to see a \$300-\$500bn stimulus package pass this year if a recession is underway, which represents 1%-2% of a deficit shock which we think would bring 30y spreads back down to -50bp or lower.

Table 11: Marginal impact of adding explanatory variables across the spread curve

	Deficit	Vol	Deficit	Credit	Vol	Deficit	Fed policy			
							rate	Credit	Vol	Deficit
2y sprd	2.9	0.4	2.4	0.14	0.2	3.6	0.04	0.17	0.10	2.1
r-square	16%	42%		58.7%			64.4%			
5y sprd	4.8	0.5	4.2	0.10	0.3	5.1	0.05	0.16	0.24	2.7
	26%	54%		59.7%			67.4%			
10y sprd	7.7	0.4	7.3	-0.01	0.4	7.2	0.07	0.06	0.26	4.4
	50%	61%		61.1%			69.3%			
30y sprd	11.2	0.3	10.8	-0.12	0.5	9.8	0.10	-0.02	0.36	5.5
	55%	60%		63.6%			72.9%			

Source: BofA Global Research. Note: For each spread, deficit/GDP starts as the single explanatory variable, and then Vol, Credit and Fed policy are added to see how much they increase the r-square. Data back 1994.





In all likelihood investors are simply buying Treasury duration as a risk hedge. Some evidence of this is apparent in term premia metrics from the intermediate sector versus the long end. The chart below left illustrates the 5s10s + 20%*2s proxy for the intermediate term premium, and the 10s30s vs. 20% 5s measure for the long end. The “blip” higher in the long end metric is consistent with other tell-tale signs of a (fleeting) Treasury liquidation at the long end of the curve. The chart below right illustrates US and WN contract invoice spreads. The sharp underperformance of WN invoice spreads relative to US again is suggestive of some long liquidation in the Treasury market.

Figure 3: Fleeting increase in long end term premium



Source : Deutsche Bank

Figure 4: Dislocation of WN invoice spread relative to US suggests Treasury liquidation

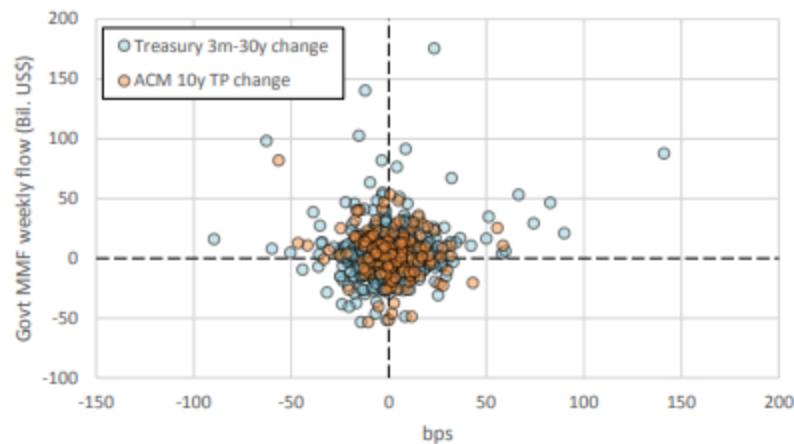


Source : Bloomberg Finance LP

The picture that emerges is that of liquidation of long end holdings likely held as a general hedge against risk asset underperformance. The subsequent collapse of the long end term premium late last week, however, suggests ongoing concerns about risk asset valuation and strong appetite for Treasury duration as a general hedge. It seems likely that this demand will remain strong until risk asset valuations stabilize.

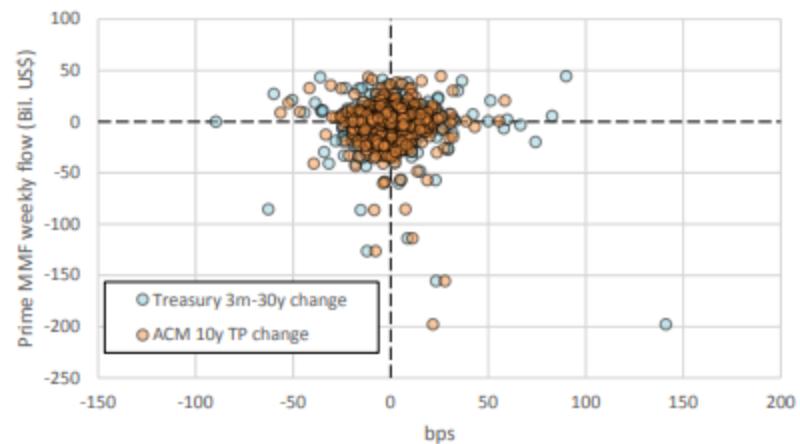
Mutual fund and ETF flows illustrate strong outflows from credit and high yield funds, into money market and Treasury funds. Over the last two weeks, for example, HY funds have seen outflows just under \$10 billion, while investment grade outflows have been just under \$1 billion. Treasury funds saw inflows of around \$10 billion, while money funds saw total inflows of \$54 billion over the same two week period.

Figure 7: Government MMF flows demonstrate low correlation against TP or curve steepness



Source : Deutsche Bank, Bloomberg Finance LP, Haver Analytics

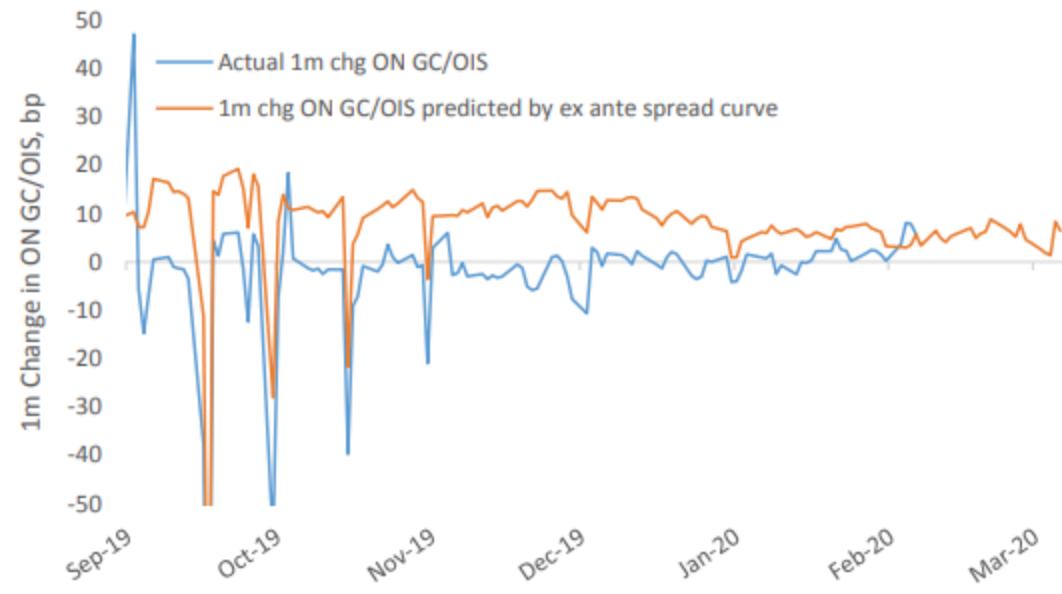
Figure 8: The same lack of relationship can be observed for Prime MMF



Source : Deutsche Bank, Bloomberg Finance LP, Haver Analytics

Further on this point, repo market behavior does not currently show a material increase in risk premia. The chart below illustrates the 1m change in ON GC/OIS spreads predicted by the ex-ante slope of the repo/OIS spread curve against the subsequently realized change in the overnight GC/OIS spread. Late last week, the slope of the spread curve suggested a modest increase of approximately 6 bp over the next 1m in the overnight GC/OIS spread, which would put that spread at around 12 bp in one month's time, far less than levels observed during the September period of repo dysfunction. Moreover, the latest data again illustrate that save for two days, the overnight spread has systematically failed to increase to the extent predicted by the ex ante slope of the spread curve.

Figure 9: ON GC/OIS spread widening has consistently "undershot" relative to curve prediction



Source : Bloomberg Finance LP, Deutsche Bank



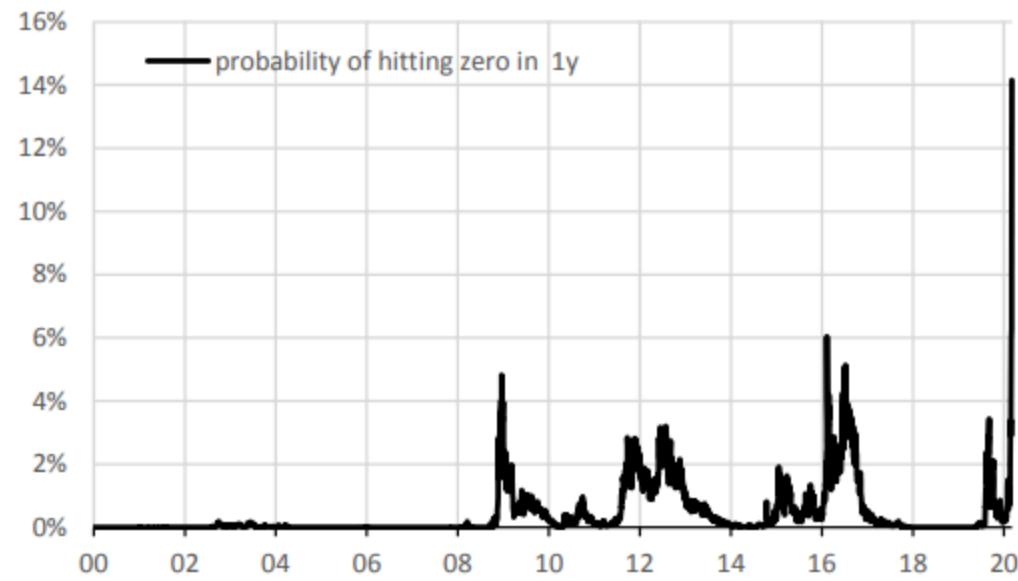
Derivatives

We may need a bigger parachute

Forceful repricing persisted throughout last week with a straight-line drop in rates and a jagged response in risk. Since Feb-19, the 2Y swaps rate has been rallying at roughly 8-9bp per day, reaching a total of 85bp decline by Friday midday, while the equities decline has slowed, with S&P stabilizing near 2950, a 10% drawdown since the beginning of the downturn. In terms of its intensity and speed, this will go on record as one of the most memorable weeks in recent history. To illustrate the singularity of the current price action in the rates and vol market, we express it in terms of probability for the 10Y rate to reach zero. The figure shows the history of the (back-of-the-envelope) estimate of that probability over the 1Y horizon. In terms of its magnitude, it eclipses even 2008. The logic behind the dramatic rise in this probability resides in the fact that currently we are very close to zero, and vol – although not at 2008 levels – is still elevated so that zero is only about 1-sigma away. In contrast, in 2008 during the peak of the crisis, although vol was more than twice as high, 10Y rates were still more than 2-sigma away from zero.

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Figure 11: Probability of 10Y rates not being above zero in one year



Source : Deutsche Bank



Currently, curve term premia have collapsed and rates are on the way to zero together. In the market's view, the distinction between short- and long-term policy is not relevant. Volatility could only align with that view. The descent of rates is taking place at a compressed term premium, which is likely to drag volatility associated with long-term policy uncertainty down.

About x-asset vol

If rates indeed approach zero, this would likely result in a massive transfer of volatility from rates to risk assets. As rate differentials remain stable and tight, not much volatility should show up in FX either. Thus, the verdict about the adequacy of policy response and/or possible effects of a deepening of the corona virus crisis would propagate through risk assets.

About the long end

As far as rates are concerned, if Fed funds are at or near zero, all the action would move to the long end of the curve. In principle, once rates settle low, several bearish pressures can push the long end higher. Low rates are generally bearish for USD, which ultimately would alleviate disinflationary pressures and allow long rates to correct. Fiscal stimulus, if it comes to that, would interact constructively with it. In addition, if the corona virus morphs into a supply shock, it could imply higher price levels. All of these factors would be supportive for higher yields in the bond sector. We are buyers of conditional 5s/30s steepeners in the medium term (prices are Thursday's closing):

- Conditional bear steepeners: Sell \$1.34bn 1Y 3Y 2Y 7bp OTM payers vs buy \$100mn 1Y 30Y ATMF payers, costless
- Conditional bear steepeners in terms of curve caps: Sell \$1bn 1Y 5Y 30bp OTM CMS caps vs. buy \$1bn 1Y 5s/30s ATMF curve caps, costless

Both trades are vulnerable to bear flattening of the curve with the short end selling off beyond the strike. Theoretical downside is unlimited.

Avoiding crowds

When macro stress and thinning FX liquidity intersect

- Alongside increasing macro stress, FX market liquidity has worsened across several metrics—market depth has plummeted and bid-offer spreads are wider, even as trading volumes have spiked to record highs.
- This backdrop has resulted in more dislocations in FX markets; but the magnitude of such dislocations has been larger in the past and thus has scope to increase further.
- FX position unwinds have been the best performing signals in FX in the past two weeks; Longs in defensive currencies vs. high beta FX is still light so increased investor interest in recession hedges, if it were to materialize, is likely to elicit additional market moves.

From deluge to drought in a month

In some ways, 2020 has been similar to 2019—global growth risks have escalated even as the underlying source has shifted from trade conflict to COVID-19, prompting a wholesale easing by global central banks. However, a key difference is the extent to which liquidity in FX markets has deteriorated. Three observations are relevant in relation to FX market liquidity.

First, **bid/offer spreads have started to widen out**, as is typical in conjunction with higher market volatility (exhibit 1). Second, certain **metrics of market depth have plummeted**. Exhibit 2 for instance shows that the FX liquidity available at top of book for even the two most liquid pairs like EUR/USD and USD/JPY has fallen by 35% relative to last year.

Third, this **deterioration in liquidity has occurred as trading volumes** have picked up and hence has to be digested by markets. Month-to-date data shows that volumes have effectively doubled relative to the first two months of the year and are currently making fresh record highs (exhibit 3).

Exhibit 1: Bid/offer spreads have widened up as vol increased...

Average bid/offer spreads for select G10 and EM pairs vs. USD (%) vs. J.P. Morgan FX volatility index

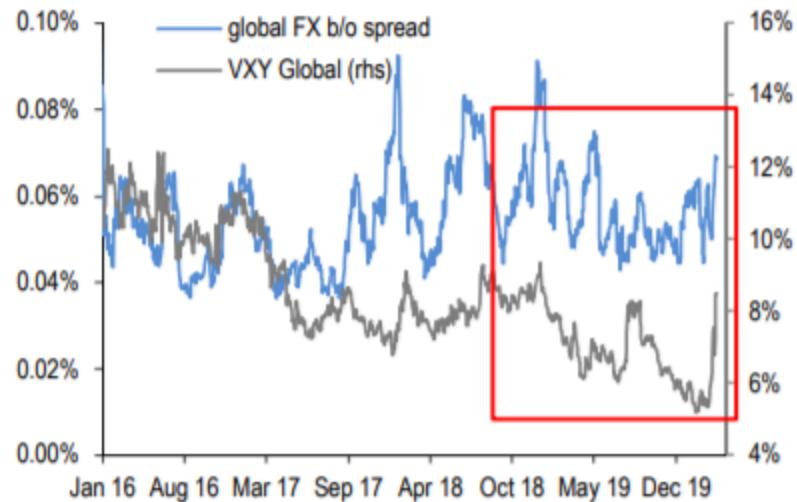
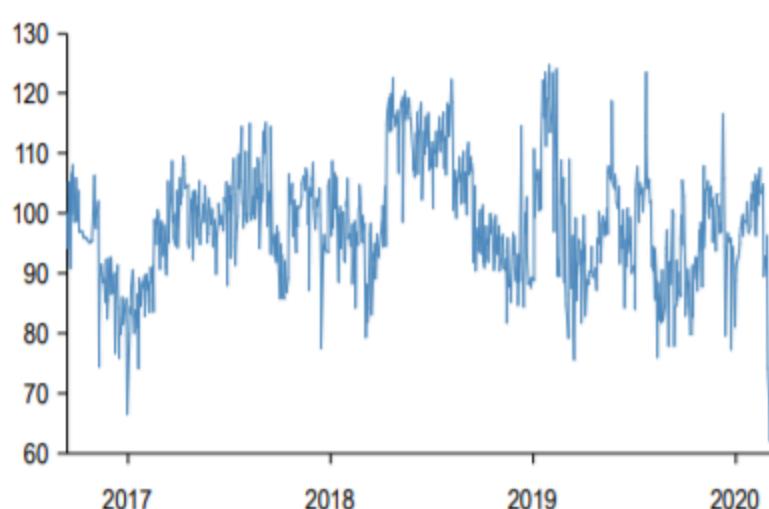


Exhibit 2: ...market depth has plummeted substantially in even the most liquid pairs...

Market depth* for USD/JPY and EUR/USD; Starting value indexed to 100

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* 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



Figure 37: Macro Portfolio Update

Trade	Publication date	Exit Date	Maintain / Enter / Exit	Comment
US				
UST 2Y ASW widener	06-Dec-19	-	Maintain	Fed bill purchases and temporary repo operations should compress repo rate spreads to OIS in the near term. In the medium term, policy changes such as recalibration of capital requirements or introduction of a standing repo facility should compress the risk premium in term repo and richen Treasuries relative OIS and LIBOR.
UST 2s10s steepeners	03-Feb-20	05-Mar-20	Exit	Exit: With rate cuts front-loaded and the market pricing a Fed at zero, there is limited scope for further bull steepening. Moreover, there is a risk that the market prices further Fed QE before any fiscal response materializes
EDU0-EDU1 steepener	27-Feb-20	05-Mar-20	Exit	Exit: With rate cuts front-loaded and the market pricing a Fed at zero, there is limited scope for further bull steepening. Moreover, there is a risk that the market prices further Fed QE before any fiscal response materializes
EUR				
EUR 5s30s steepener	06-Dec-19	06-Mar-20	Exit	Exit: Trade has reached its stop
Bobl-Buxl ASW flattener	31-Jan-20	06-Mar-20	Exit	Exit: Exit alongside the 5s30s steepener (see above), as this trade was a hedge
Short Germany 10Y vs. US TIPS 10Y	06-Dec-19	-	Maintain	Any material rally is likely to be Fed and US real rates driven, while Bunds and US breakevens will have to lead in a sell-off
BTP/DBR 10s30s flattener	31-Jan-20	-	Maintain	BTP/DBR spread slope remains relatively steep, while more defensive and lower beta in the near-term uncertain environment
Pay March ECB (EONIA)	05-Mar-20	-	Enter	Enter: A 10bp cut is nearly fully priced in although the benefits are questionable. However a 20bp cut is highly unlikely (and if delivered would be accompanied by more generous tiering).
GBP				
Short 5Y Gilt spread vs OIS	06-Dec-19	-	Maintain	Rich to repo or shorter dated spreads, positive net supply until March 2020
Receive belly in GBP 2s5s10s	31-Jan-20	-	Maintain	The MPC raising the bar for cuts alongside slowing growth/inflation poses flattening risks for 2s5s. 5s10s could steepen due to increased issuance. Receiving 2s5s10s hence appears attractive and should trade with a slight bullish bias.

Source : Deutsche Bank

Risk.net

Equity, Treasury collateral builds up at US G-Sibs

Abdool Fawzee Bhollah

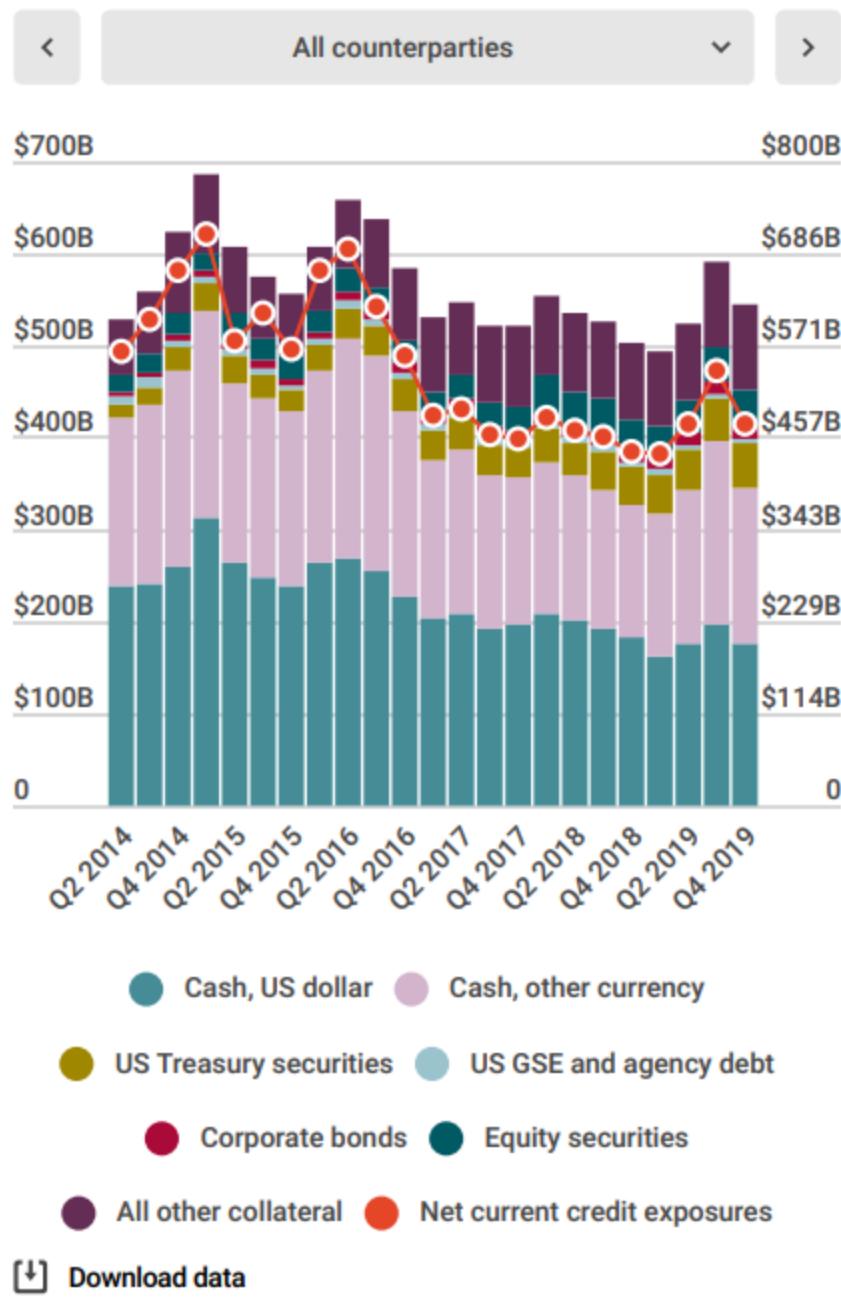
09 Mar 2020

Top US banks had more collateral in the form of equities and US Treasuries at end-2019 than a year prior, regulatory disclosures show.

The eight global systemically important banks (G-Sibs) in the US reported collateral held in relation to over-the-counter derivatives worth \$544.4 billion as of Q4 2019, up 8% on the year-ago quarter.

The fair value of equity securities and US Treasuries held as collateral increased the most percentage-wise year-on-year. The G-Sibs disclosed equity collateral worth \$40.3 billion for Q4 2019, up 19% on the year prior, and US Treasury collateral worth \$47.1 billion, up 12%.

Fair value of US G-Sib collateral for OTC derivatives, by counterparty type



Source: [US bank FR Y-9C reports](#)

Share

Risk.net

Figure 15. The market is expecting a resumption of rate cuts this year on virus worries, pressuring down the FF OIS curve around June 2020

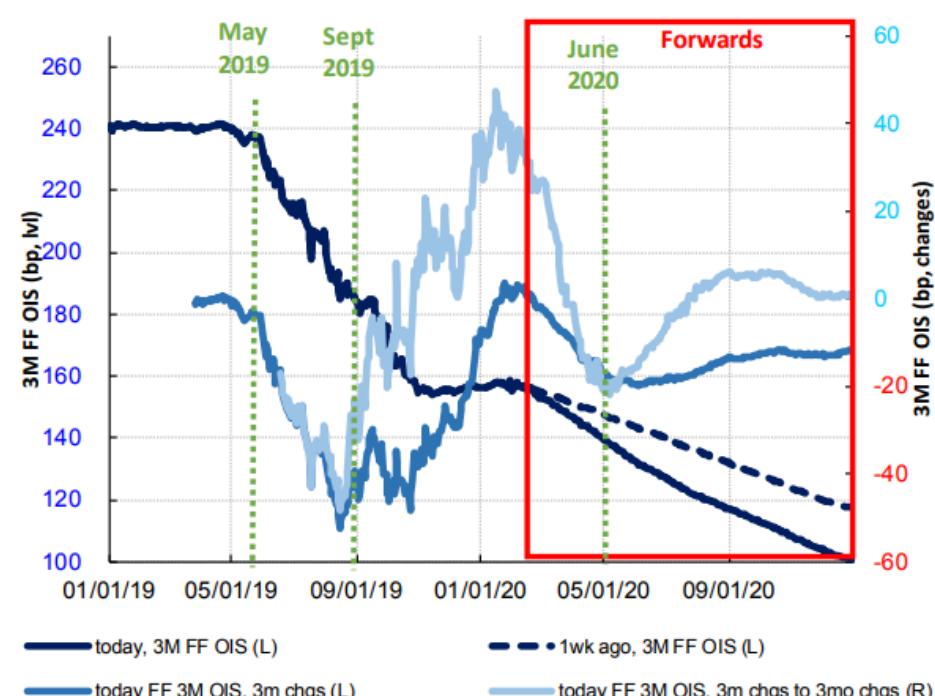
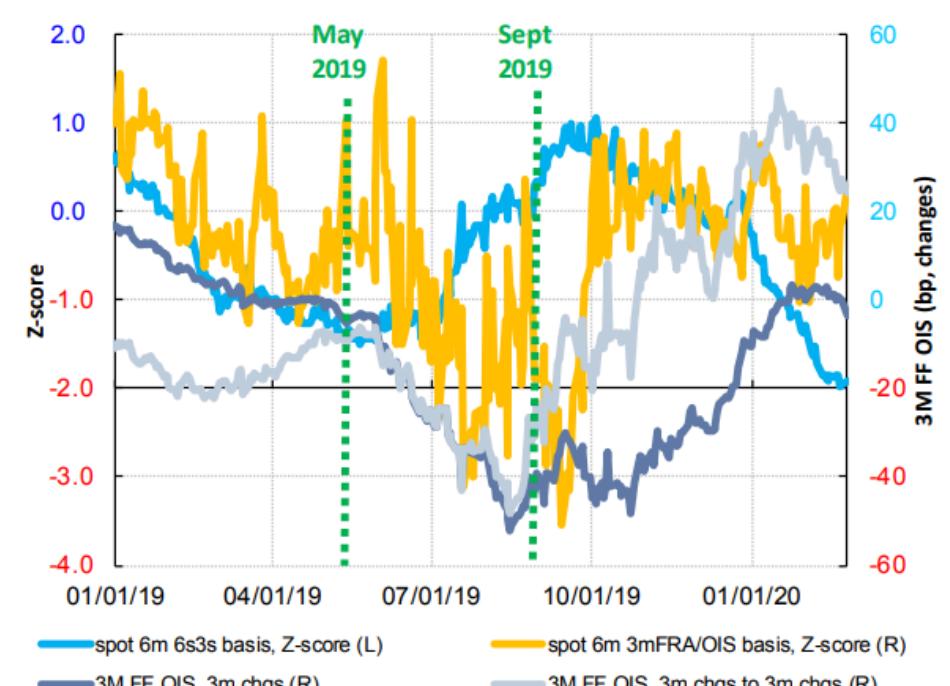


Figure 16. Last year, we saw wider 3mL/OIS and tighter 6s3s on Fed cuts; pause of cuts from Oct 2019 caused spreads to normalize, and we may see this dynamic repeat this year

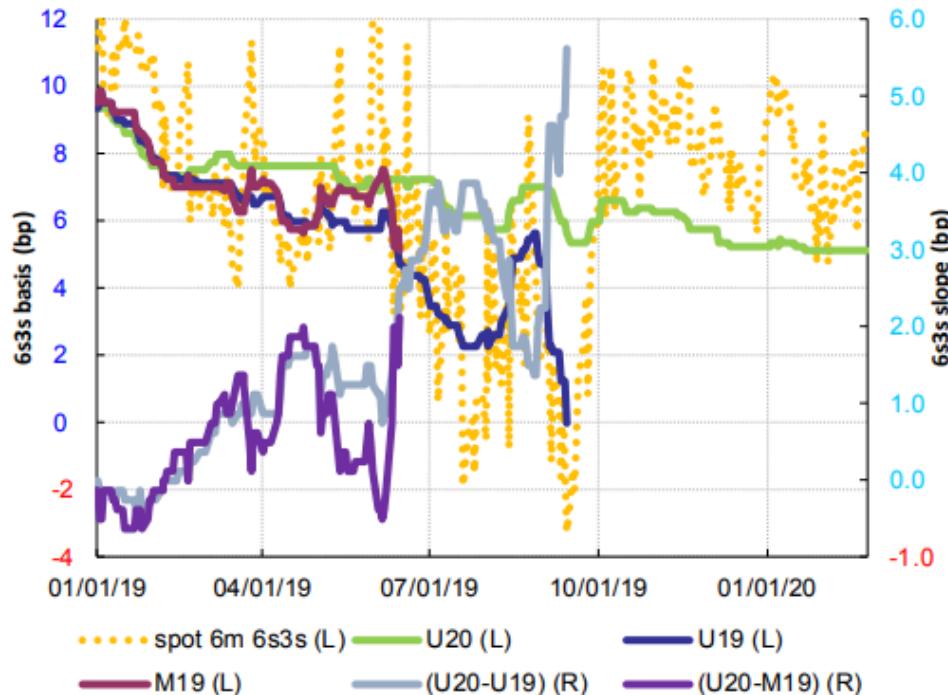


The Trade: Receive M0 6s3s and U0 6s3s vs. U1 6s3s

We expect 3mL/OIS to widen and 6s3s to tighten in 2H of this year, if the current Fed pricing remains. Given a near-term technical tightening pressure from LIBOR/CP and large T-bill paydown in 1H (mostly April and June),⁶ we feel better about 6s3s tightening than 3mL/OIS widening in the near term. Hence, we recommend receiving M0 6s3s (M0 starting 6m maturity), receiving U0 6s3s and paying U1 6s3s in 75K: 75K: 150K DV01 ratio. We prefer a 6s3s steepener to outright tighteners to hedge directionality of the spread. Figure 17 shows the corresponding structure for last year, using M9/U9/U0 – where we have seen U0-M9 and U0-U9 steepening to +2 and +5.5bp, respectively. Figure 18 shows pricing of our recommended structure so far, where we have not seen much tightening/steepening yet. Granted, we expect these spreads to tighten/strengthen as we get closer to rate cuts. We like paying U1 6s3s as an anchor, as quarterly averaging of GSIB scores from next year has a potential to widen U1 relative to Z1 and M1.⁷

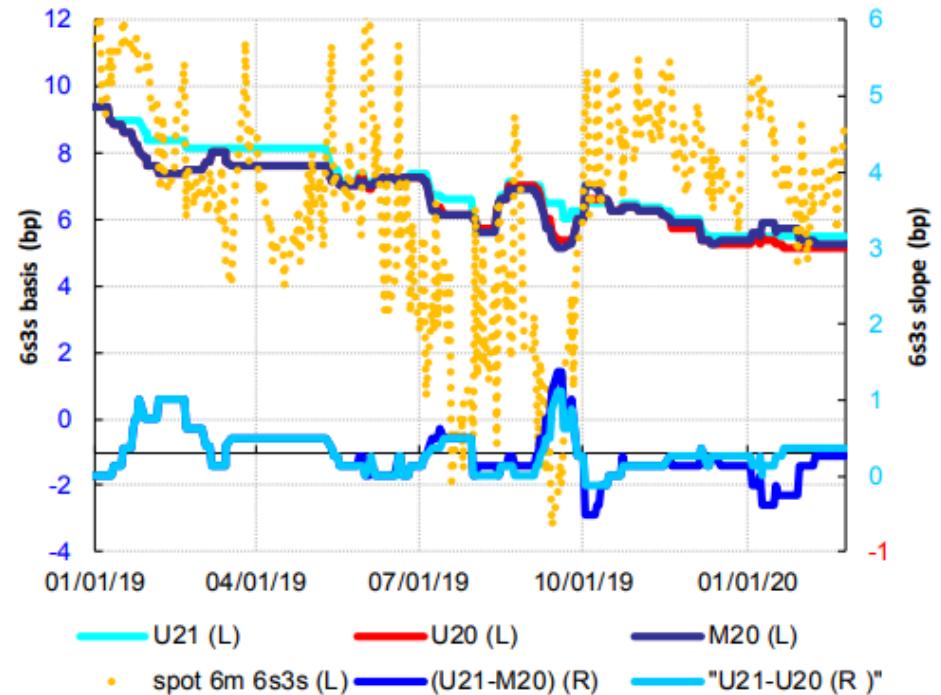
Currently, this 6s3s steepener can be initiated at +3.375bp (U1*2 – M0 – U0, 9AM 2/25/2020, after bid-ask). We target +7bp and put a stop at 0bp. The risk of this trade is the market reacting to an initial widening in 6s3s as noted in Figure 16 – which tends to revert back eventually. Another risk of this trade is that there are no cuts in 2H of this year or if the Fed cuts earlier in March 2020. In the latter case, we may see 6s3s tightening in 1H and widening back by M0 2020. Also, the dynamics of last year may not repeat this year for some other unforeseen reason – after all, we are limited by the sample size of one (i.e., just 2019).

Figure 17. In 2019, M9 and U9 6s3s tightened on Fed cuts, steepening U0-M9 and U0-U9 6s3s curve to +2bp and +5.5bp, respectively



Source: Citi Research, Bloomberg, PREB
Note: data ending 2/24 close

Figure 18. This year, we saw Fed cut 100% priced in for June, but corresponding curves have not steepened yet



Source: Citi Research, Bloomberg, PREB
Note: data ending 2/24 close

Swaps: Spreads curve flattening in focus

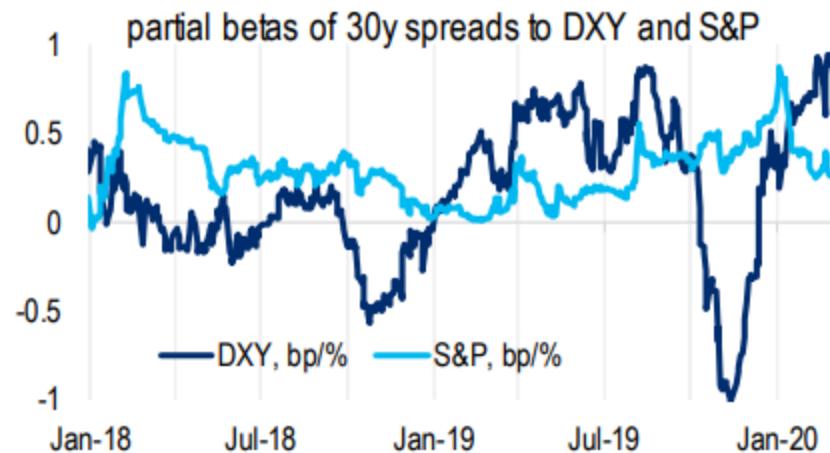
Ruslan Bikbov

The 30y spreads have room to tighten below -40bp given the normal sensitivity to stocks, the lack of an adequate policy response, potential for more corporate issuance, and increased recession risks. Increased demand for Treasury from banks should richen front-end Treasuries to OIS, while positive MSR convexity means that 5-10y spreads may widen in a further rally. We expect the 5s30s and 10s30s spreads curve to continue to flatten.

The 30y spreads tightening: don't fade yet

The spreads curve has flattened notably, led by the tightening of the 30y spreads since last month. We argued for a flatter spreads curve in our [year-ahead spreads outlook](#), given our expectations for the richening pressures on repo and elevated recession risks. We expected domestic growth to weaken only in H2, but the virus outbreak clearly has the potential to create a large global growth shock much sooner than that. The 30y spreads, currently at -38bp, are not that far from our year-end target of -43bp.

Figure 19. Long-dated spreads have become more directional with the dollar



Source: Citi Research

Figure 20. The curve beyond 30s has continued to flatten, suggesting structural receiving pressures



Source: Citi Research

Part of the recent tightening has been very likely driven by familiar variable annuity (VA) hedging flows as stocks sold off. In addition, capital outflows may have contributed to spreads tightening. Figure 19 shows partial betas from the multivariate rolling regression of the 30y spreads on S&P and DXY (in daily changes). We note that the beta to the dollar has increased, especially since last year (weaker dollar-tighter spreads and vice versa). While the dollar richened earlier this year as the US was seen as a safe haven against the Asia-originated virus shock, the USD has reversed sharply since last week as the market started pricing the outbreak in the US, coupled with an aggressive monetary policy easing. This suggests that selling pressures from foreign accounts may have contributed to the

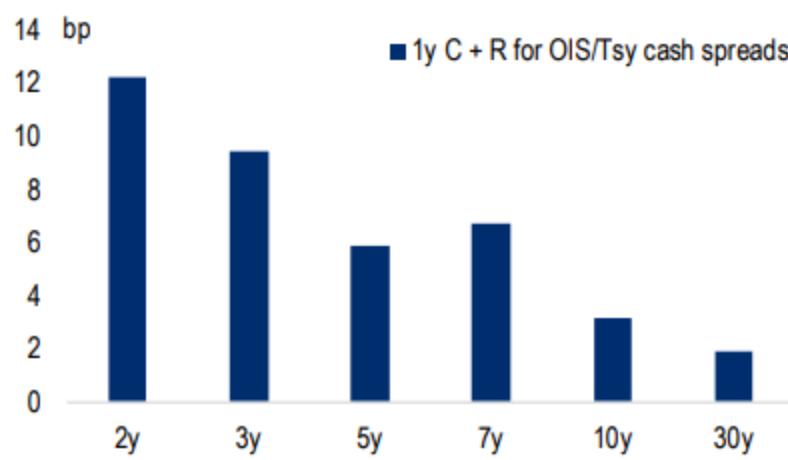
Risks are still skew toward spreads curve flattening

One counter-argument to our tightening view is the Fed's recent proposal to improve the fungibility of Treasuries vs. reserves by allowing banks to assume that the discount window can be used in their liquidity-planning stress scenarios. One GSIB bank already has announced its plans to tap the discount window to break the stigma, which caused spreads to widen by 1-2bp on the announcement. This policy proposal is not entirely new, as the market has been pricing similar consequences from the introduction of the standing repo facility (SRF) for some time (which is now unlikely to happen). In OIS/Tsy, spreads widened by 4-5bp last year when the market first started pricing the SRF.

Yet, we do think that spreads may have more room to widen on this when actual demand for Treasuries materializes. However, we expect most of the Treasury purchases to occur in the front end (5y maturities and shorter). The additional Treasury purchases are likely to be hedged with OIS by locking into attractive spreads. The carry looks most attractive in the front end, and this is where we would expect purchases to be concentrated, which should have a direct widening impact on front-end OIS/Tsy spreads (Figure 23).

An additional widening factor for spreads may be that, after the recent rally in rates, the MSR universe is positively convex (Figure 24). This suggests that servicers may start paying in a further market rally, likely in the 5-10y sector, where most of the key rate durations are concentrated. Again, this argues for flatter 5s30s and 10s30s spreads curves.

Figure 23. OIS/Tsy carry looks more attractive in the front end



Source: Citi Research

Figure 24. The MSR universe is positively convex

	10yr Tsy Yield	0.81	1.06	1.31	1.56	1.81
Effective Duration (yr)		1.3	1.7	2.3	2.9	3.5
MBS Universe Effective Convexity (yr)		-1.2	-2.0	-2.2	-2.4	-2.2
Dur Chg in 10Y Equiv(\$bn)		-568	-323	0	357	718
MSR	Dur Chg in 10Y Equiv (\$bn)	27	12	0	-2	4

Source: Citi Research

Closing our XCCY trade

We are closing our 6m x 1y CADUSD receiver vs. JPYUSD that we recommended on January 7, 2020⁴. We entered the trade at -11bp and the position is currently trading at -16bp (JPY minus CAD, after bid/ask as of 2:45PM 2/28/2020) realizing -5bp (-250K) loss after transaction costs. We entered with a rationale that USD funding will remain abundant in 1H of the year. However, JPYUSD ended up wider more than CADUSD on risk-off flows. FX OIS basis (and XCCY to lesser extent) is likely to remain directional with the market in the near-term (risk-off = wider FX basis).

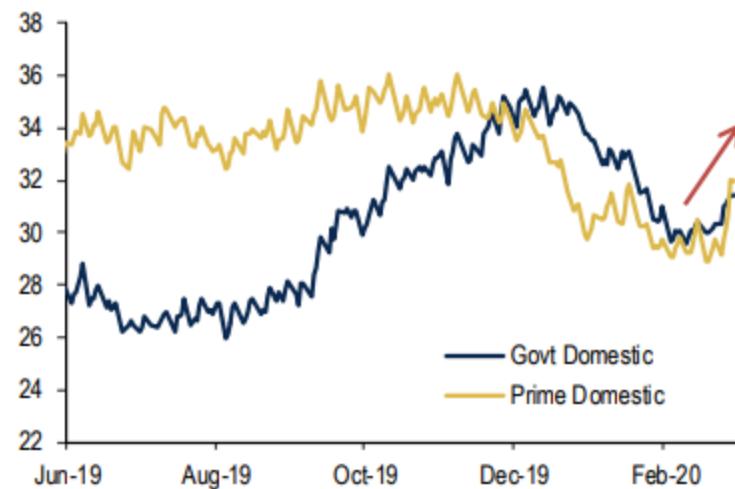
First published in [North America Rates](#)
[Trade Idea: How to go long duration with LIBOR basis](#) on 25 February 2020.

How to go long duration with LIBOR basis: Looking at the past to see the future

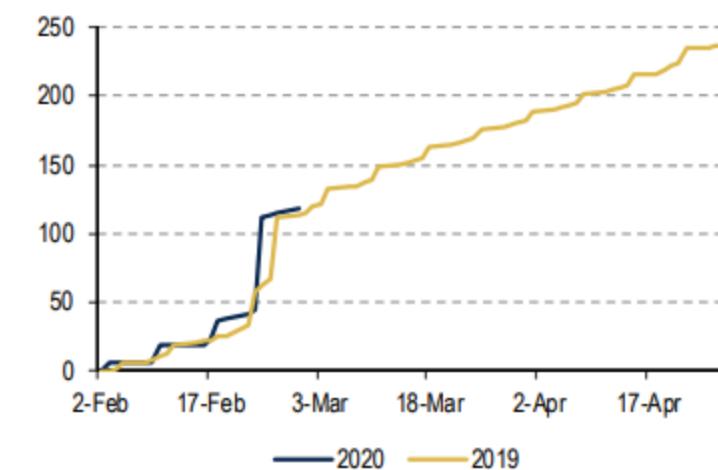
As LIBOR lagged OIS on rate changes, LIBOR basis widened on the cuts last year. We have written about this relationship.⁵ We have concluded that (1) L/OIS tends to lag on OIS regardless of whether it was expected (i.e., OIS roll) or not (OIS changes excess of roll); (2) beta to LIBOR basis was larger from near-term FF OIS changes rather than medium-term FF OIS changes (3m FF OIS had higher magnitude beta (more negative) vs. 3m3m FF OIS); (3) this negative beta was larger for 1mL/OIS and 3mL/OIS than other basis. We found 32%-44% beta from changes in spot 3M OIS to 3mL/OIS. Meanwhile, 6s3s tends to tighten as 3m L/OIS widens (more on this later).

Given that a large part of recent FF curve repricing came from the 3m3m part of the curve rather than spot 3m FF OIS, the widening pressure on 1mL/OIS and 3mL/OIS is likely to be limited in the near-term. Also, with 3M and 6M LIB/CP still ~2bp and ~3bp wider, respectively, vs. the previous steady state observed in 2019, we have offsetting cross-currents for 3m L/OIS, at least for the near-term. Beyond the near-term, if the current Fed pricing sticks, we expect all LIBOR basis to repeat this dynamic (3mL/OIS wider, 6s3s tighter). Figure 15 shows the realized and expected FF OIS curve (forwards) – we saw a cutting pressure building up on June FOMC. Figure 16 shows the resulting dynamic on LIBOR basis – where we saw wider 3m L/OIS and tighter 6s3s on fed cuts last year. This pressure peaked in September 2019 when we saw the largest rate of change. We could see similar dynamics happening around June 2020, if the current pricing sticks.

Overall, we expect UST GC repo markets to settle around prior levels vs IOER in coming days. This should take place as market participants adjust to the new Fed reaction function and setting of the fed funds target range. We expect that USTs vs OIS will continue to widen in an environment of plentiful Fed liquidity.

Chart 10: Domestic MMF WAMs

Source: iMoneyNet Analyzer

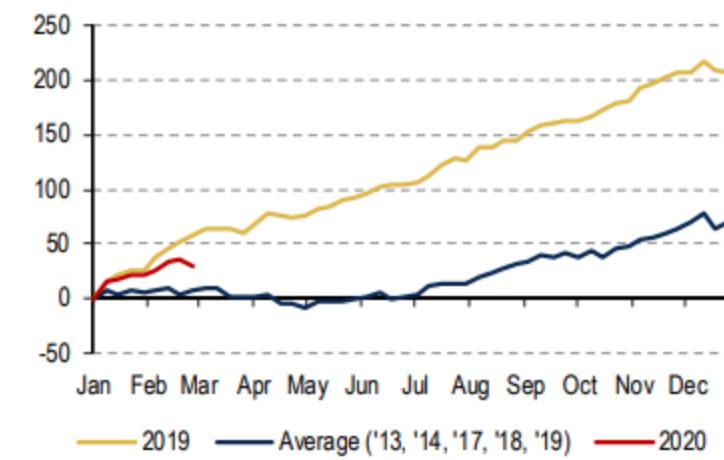
Chart 11: Cumulative Individual & Business Tax Refunds (\$bn)

Source: Treasury

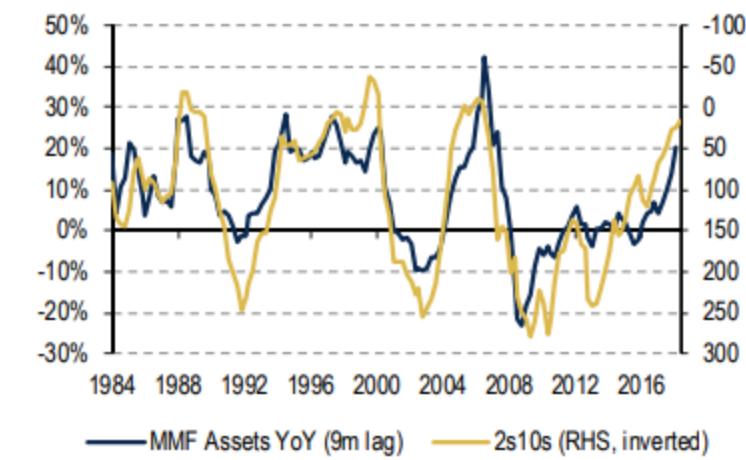
Flows: will there be material MMF outflows?

In the past two weeks, govt MMFs saw a \$15bn increase in assets while prime funds saw a \$22bn decline. These trends are not far off from historicals (Chart 12) but the prime outflows have raised questions as to how resilient these balances might be during any further period of continued risk off.

In past risk off periods MMF balances have been mixed; prime funds see larger outflows or accumulate fewer assets vs govt funds due to their credit exposures. We are optimistic that there will not be material MMF outflows in the current environment and that MMF will likely continue accumulating assets. This is due to the flat UST curve which does not compensate investors for duration risk and economic uncertainty keeps them in short term investments (Chart 13). Even with an increase in broader credit concerns MMF inflows should support relatively stable funding conditions.

Chart 12: Prime MMFs cumulative change in assets by week (\$bn)

Source: ICI

Chart 13: MMF assets and 2s10s curve

Source: BofA Global Research, Federal Reserve, Haver

Front end fluidity: Fed, funding, & flows

The US front end has been very fluid over the past two weeks. We have received a number of questions surrounding the Fed, funding markets, & front end flows. We offer our take on the outlook for each in Q&A format.

Fed outlook: takeaways from the 50 bps intermeeting cut?

Simple answer: the Fed won't fight the market when uncertainty is high. With high uncertainty the Fed essentially has two options: fight or follow the market. If the Fed fights the market it needs to have a high degree of confidence it is right and the market is wrong. We are skeptical the Fed has such confidence at present.

We expect the Fed will keep easing. We have penciled in another two 25bps cuts at the March & April meetings but risks are for the Fed to act sooner and deliver more.

Funding markets: are there signs of material stress?

Funding markets have recently shown some signs of pressure but we think they do not reflect acute counterparty credit concerns as seen in '07-'08. In particular we think that: (1) recent repo pressure appears driven by technical factors as opposed to USD scarcity seen in Sept '19 or elevated counterparty credit concerns (2) markets are pricing LIBOR-OIS wider in-line with the recent increase in short-dated corporate spreads.

We don't see signs of material funding market stress or significantly deteriorating market functioning at this stage. Post-crisis bank regulations have strengthened financial market resilience during market stress. It also helps that funding markets have a backdrop of existing Fed repo operations & bill purchases which have likely blunted more acute funding pressures.

Why is the UST GC repo market coming under pressure?

We have a more benign interpretation of recent repo pressure that is driven by technical factors. Recent technical factors include (1) a large \$77.6bn in coupon and bill settlements in the past 5 business days (2) a modest reserve drain as the TGA increased \$46.5bn from Feb 28 to Mar 2 (3) MMF WAM extension likely due to increased expectations of a Fed rate cut (Chart 10).

We expect that some of these factors will ease over coming days and weeks. The increase in the TGA should ease with a slow and steady increase in tax refunds (Chart 11). Treasury bill paydowns will also accelerate once we move into April and there will likely be material downward pressure on bills. In addition, we expect that any continuation of market stability should allow for real money investors to have more confidence in the stability of their balances and deploy cash in the repo & broader funding markets.

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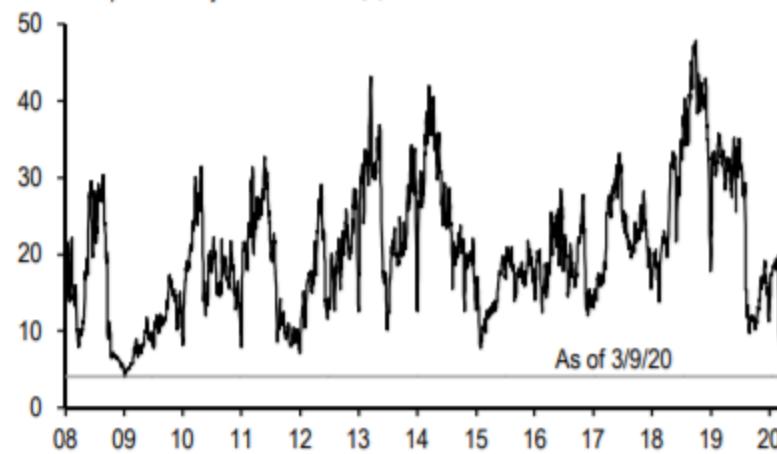
North America
When market risk meets operational risk
10 March 2020

J.P.Morgan

rates markets just experience a mini 'Flash Rally'?, M. Salem et al., 5/5/20). In principle, one would expect the high-frequency trading activity (HFT) that dominates liquidity provision in interdealer Treasury markets to be more resilient in a WFH construct—it is automated after all. However, these traders are also notoriously skittish when volatility spikes (see Far from the shallow now, M. Salem et al., 4/12/19). Though “human” traders have typically provided a backstop in prior episodes—we can see this clearly, for example, around economic data releases (see When the going gets tough, M. Salem et al., 11/5/19)—WFH and split working arrangements likely introduce new frictions owing to potentially inefficient communication and systems issues. **If that occurs we believe this particular circuit breaker will not function effectively, which could significantly extend the vicious cycle of higher volatility begetting lower liquidity, and so forth.**

Exhibit 1: Market depth in Treasuries has dropped quickly, with the long end in particular now thinner than was the case back in 2008

Market depth* in 30-year Treasuries; \$mn

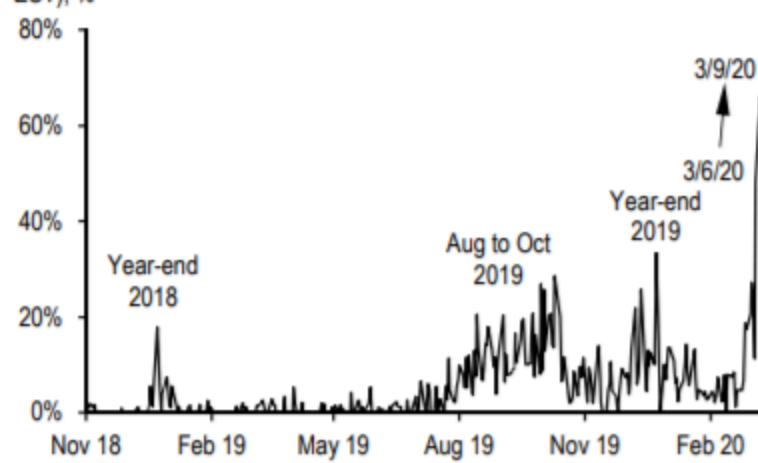


* Average of the top 3 bid/ask sizes between 8:30am and 10:30am New York time.

Source: J.P. Morgan, BrokerTec

Exhibit 2: Transaction costs in interdealer markets for even benchmark Treasuries spiked this week at the long end

Fraction of \$100mn gross flows in 30-year Treasuries executed at an effective bid/offer in excess of 0.5 ticks during the New York session (8:30am to 3:00pm EST); %



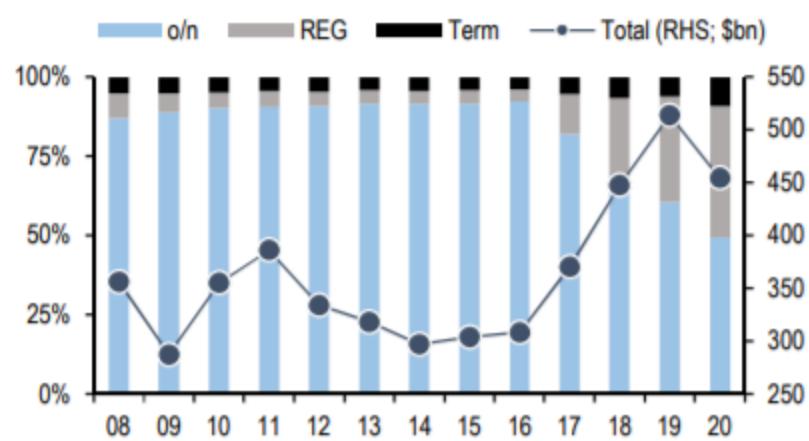
Source: J.P. Morgan, BrokerTec

Among other things, this means significantly higher transaction costs, even for benchmark Treasuries are possible. For example, roughly two-thirds of the volume in 30s traded interdealer during the New York session this Monday was filled wider than the minimum price increment (**Exhibit 2**). This stands in sharp contrast to prior episodes of elevated volatility, including last summer and year-end 2018, and was even noticeably elevated compared to last Friday (~50%) despite comparable optical market depth. When the broker market, which is the means by which dealers socialize risk, is trading this poorly, client-facing prices are frequently quite a bit wider. While shorter Treasury notes have seen bid/ask hold steady, dramatically thinner market depth nonetheless allows prices to gap away from the trade far more easily. **It would furthermore make sense that under these circumstances, less liquid though still vanilla products (e.g. swaps) would be**

strategies that are balance sheet intensive, frequently funded overnight, with limited potential upside and exposure to sharp market dislocations. In other words, the cash/futures basis. This has been a common alpha-seeking strategy among actively managed funds for many decades. But more recently, it has grown due to regulatory constraints among dealers which incentivize large dealers to plan their balance sheet usage months in advance, which frequently takes the form of “use-it-or-lose-it” allocations to end users. One way to occupy that sheet with limited downside is buying the futures basis, in which the cash CTD is funded in overnight or term repo and paired with a short position in the contact, which in principle limits downside by allowing the fund to deliver these securities into the short futures position. **The CTD cash/futures basis has also generally traded with limited MTM volatility as well, which makes for an ideal way to preserve balance sheet allocations.**

Exhibit 5: ... but brokered repo transactions on FICC as a proxy for the activity of smaller dealers represent a significant exposure and are also predominantly overnight

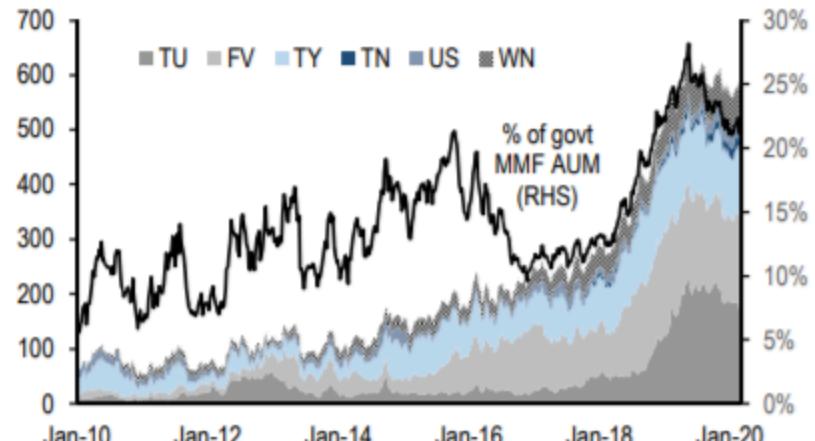
Fraction of average daily brokered repo trading volume in maturity buckets (LHS; %) versus total (RHS; \$bn)



Source: J.P. Morgan

Exhibit 6: In the current environment, as much as \$600bn in Treasury cash/futures basis positions have an undesirable mix of operational and market risk characteristics

Notional of gross levered fund shorts by contract (LHS; \$bn) as well as that as a fraction of total government MMF AUM (RHS; %)



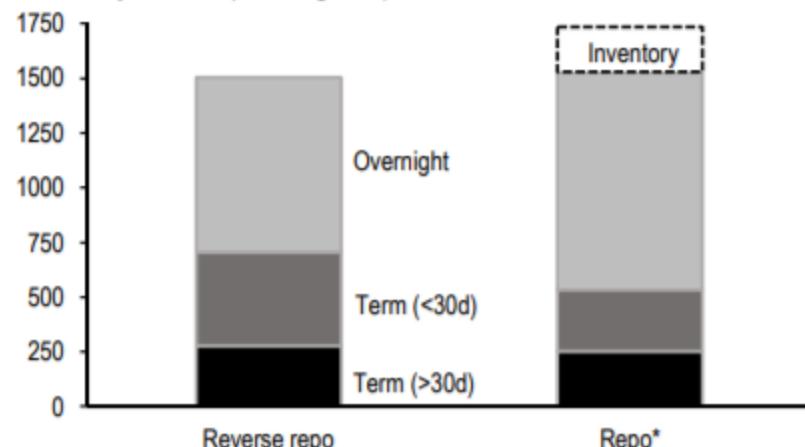
Source: J.P. Morgan, CFTC, iMoneyNet

That presumes, however, that market risk is the only important consideration. Operational risk considerations can be quite different. **Similar to a potential cyber event, our concern is not so much that the most negative potential outcomes are realized, but rather the perception that the risk they might occur leads to risk management actions.** When the upside is small—e.g., maintaining balance sheet allocations—and the downside is large—getting either locked into unwanted positions or pushed out at a bad level—there is a strong incentive to be the first out the door. In this sense, cash/futures basis positions would likely be among the first to be unwound.

Primary Dealer statistics from the New York Fed, this constitutes the vast majority of their matched-book activity—not to mention their inventories, which are predominantly overnight funded as well (**Exhibit 3**). To be sure, regulations have incorporated operational risk management in their regular monitoring activities for some time: as a proxy, roughly 15-20% of T1 capital among U.S. GSIBs (roughly \$154bn in total) is specifically earmarked for this purpose⁴ (**Exhibit 4**). This of course suggests that these institutions have been preparing for operational risk episodes of the kind we are potentially experiencing, and therefore should be reasonably well-equipped to handle the transition—albeit likely not without occasional issues. However, this metric varies across institutions and has declined somewhat over the past few years in some cases. Further, comparing RAW for operational to market risk-based capital requirements suggests variation in overall exposure as well. And this of course only includes larger banks, not all primary dealers.

Exhibit 3: Repo positions intermediated by primary dealers are predominantly overnight on both sides of the market

Primary dealer reverse and repo exposures as of 2/28/20 split into maturity buckets for Treasury collateral (excluding TIPS); \$bn

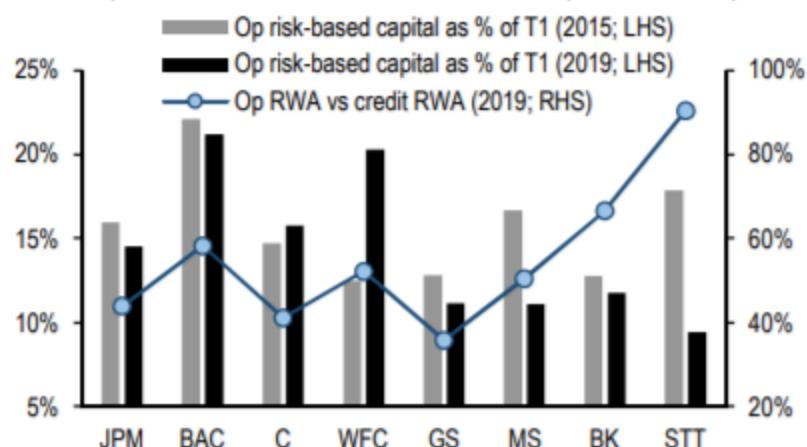


* We assume primary dealer inventories of Treasuries (again excluding TIPS but including Bills and coupon securities) are overnight funded.

Source: J.P. Morgan, NYFRB

Exhibit 4: Larger dealers have been working operational elements into their risk management frameworks for years ...

Fraction of T1 capital attributable to operational risk as of 2015 and 2019 (LHS) and RWA for operational risk versus credit risk measurement (as of 2019; RHS)



Note: Operational risk capital (AASA J079), operational RWA (AABG J154) and credit risk RWA (AABG J151) taken from the FFIEC 101 Regulatory Capital Form. Tier 1 capital from FR Y9C.

Source: J.P. Morgan, SNL Financial, FFIEC

Importantly, even if we presume the GSIBs, or in fact all primary dealers, have adequate contingency and resiliency plans, they do not dominate repo market activity to the extent one might prefer under these circumstances. On FICC, for example, brokered repo transactions using Treasury collateral, which primarily intermediate activity among smaller dealers, total roughly \$450bn per day on average YTD of which half (\$225bn) was overnight and 41% (188bn) was REG (**Exhibit 5**). Further, they are even more concentrated in overnight maturities (cash and regular settlement) than primary dealer exposures. **To the extent that smaller dealers are more exposed to operational risk, it raises the specter of a sharp and unforeseen contraction in repo lending.** This would not be a small event: brokered trades , and by extensions smaller dealers, represent as much 39% of cleared GC volume (i.e., comparing to the bilateral component of SOFR after reallocating sponsored trades facing MMFs which price around triparty; see [A dollar funding market riddle](#), J. Younger et al., 2/26/20).



BASIS DEVIL



Figure 1. "Cash UST is trash" – cash relative to swaps

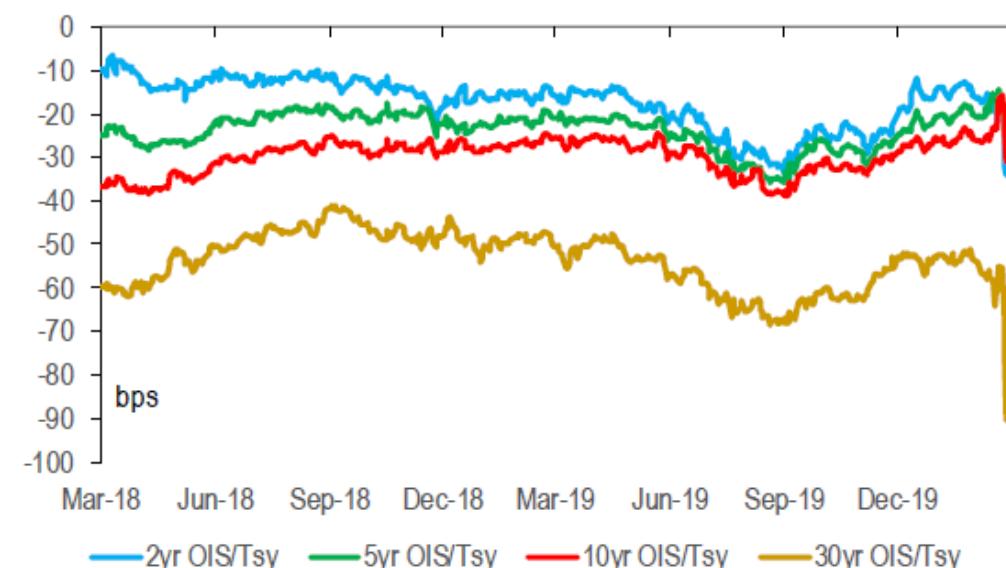
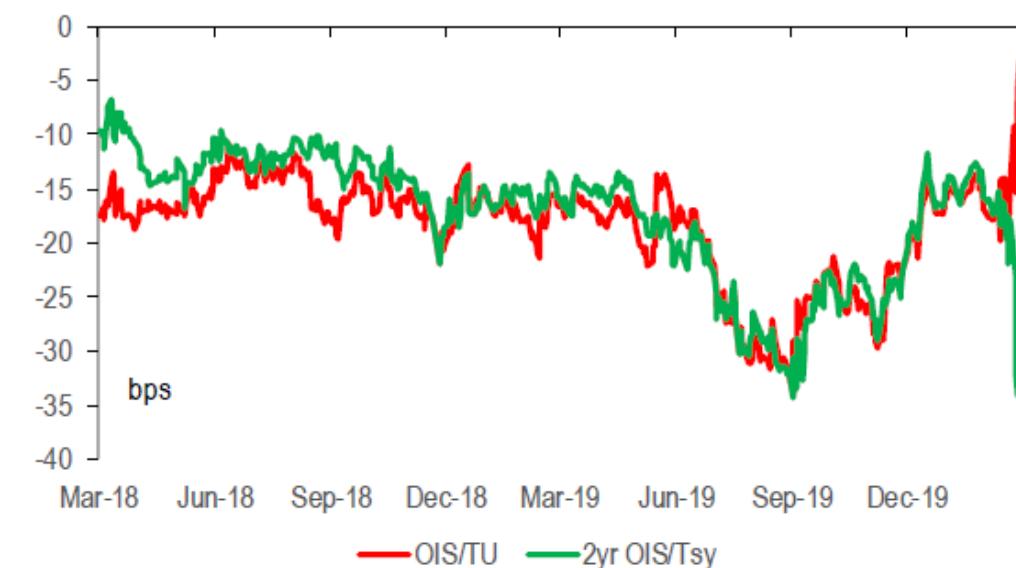


Figure 2. "Cash UST is trash" – cash relative to futures



North America Fixed Income
Strategy
13 March 2020

Interest Rate Derivatives

All eyes on Treasury futures basis

- Treasury futures basis remains a key focus for the market
- Severely impaired liquidity in Treasury markets has led to significant tiering among formerly closely related products ...
- ... leading futures to outperform in the rally, causing a rather dramatic cheapening of cash/futures basis
- This has likely been exacerbated by operational risk concerns, which is reflected in the steepening of the term structure of repo
- Futures basis still shows evidence of considerable strain despite an unprecedented series of Fed interventions; increased margin requirements for US and WN likely exacerbate the problem
- With implied repo still competitive with other short-term investments, this raises the risk of reallocation flows and continued pressure on funding markets, including unsecured bank paper and FX forwards
- Repo remains somewhat of an exception given Fed liquidity operations have been effective at stabilizing spreads
- The widening and steepening of Libor basis has led to a sharp widening in fallback levels using a 5-year median ...
- ... which has revealed the instability of that methodology in comparison to a trimmed mean approach; if ISDA were to revisit their framework it could mean much wider long-end 3s/6s

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futures themselves are clearly not directly affected by Fed activity, and depending on the timing of the flows could ricken further—particularly intraday.

Since we first wrote the above there have been several critical market developments. On the constructive side, we have **first** and foremost Thursday's announcement of unprecedented liquidity from the Fed, including weekly 1- and 3-month repo operations over the next month of up to \$500bn each in addition to upsized overnight operations. **Second**, the Bill purchase program has been expanded to include coupon securities across the curve. And **third**, on Friday the Fed brought forward a significant fraction of those purchases, again across the curve. All were explicitly operational in their goals, so as not to be confused with monetary policy-rated QE, and tied specifically to supporting the orderly functioning of the Treasury market. These purchase operations were heavily oversubscribed, especially in shorter and intermediate maturities. **They have had some impact, particularly in overnight repo which has remained stable, but the off-the-run Treasury market, however, remains under considerable strain—particularly at the long end.**

Exhibit 5: Increasing margin requirements for Treasury futures could trigger a further wave of capitulation in cash/futures basis ...

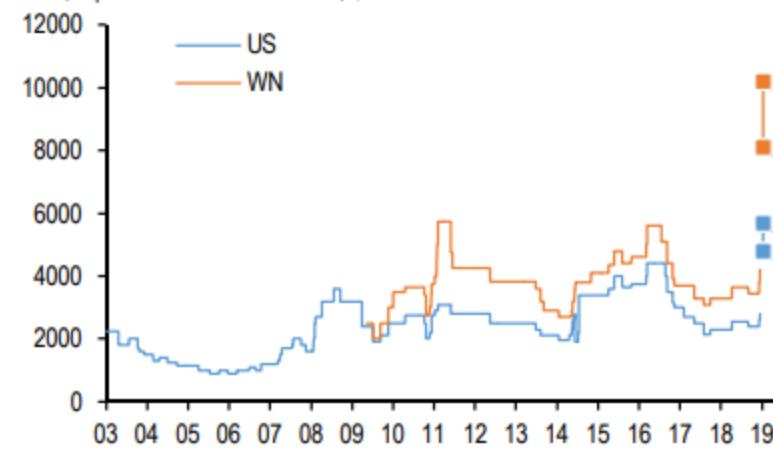
Change in IM and MM for spec and member accounts

Change	Spec				Member			
	IM		MM		IM		MM	
	Old	New	Old	New	Old	New	Old	New
TY	1,760	1,870	1,600	1,700	1,600	1,700	1,600	1,700
TN	2,970	3,410	2,700	3,100	2,700	3,100	2,700	3,100
US	5,280	6,270	4,800	5,700	4,800	5,700	4,800	5,700
WN	8,910	11,220	8,100	10,200	8,100	10,200	8,100	10,200

Source: J.P. Morgan, DTCC, CME

Exhibit 6: ... particularly since recent price action has pushed these requirements to a level unseen in recent decades

Maintenance margin in US and WN; lines show historical data through August 2019; squares show last two sets; \$/contract



Source: J.P. Morgan, CME

On the bearish side, CME announced Friday that **margin requirements on holding futures positions have been increased**. In effect, this makes holding outright futures positions more balance sheet intensive, particularly for investors who are active traders of the basis, and additionally dissuades investors from holding or re-entering stressed cash/futures positions. The margin increases, effective after COB 3/13/20, are most punitive at the long-end, and particularly for speculative accounts' initial margining requirements (**Exhibit 5**, see [here](#) for detail). In particular, these new requirements push holding costs well past any levels previously seen in the past few decades (**Exhibit 6**). Clearly this is a net negative for the futures basis, and exacerbates the risk of an acceleration in unwinds.

Treasury futures richened sharply relative to cash as basis positions were unwound

Levered shorts in US and WN have steadily increased, which may have exacerbated the basis move this week

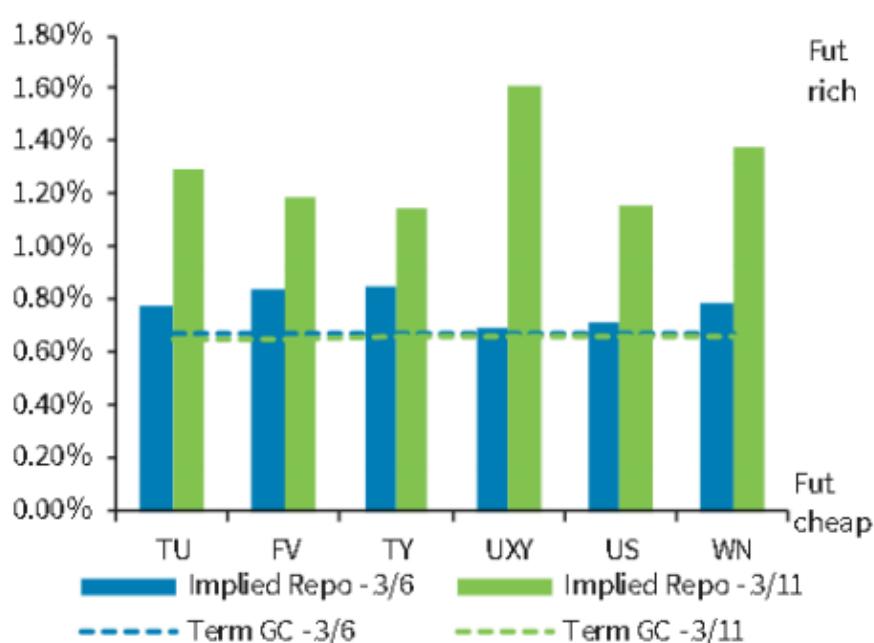
Treasury futures basis

Cash instruments requiring funding have cheapened vs. their derivative counterparts, such as futures/swaps. This week, valuations in Treasury futures reached extreme levels, with the net basis trading -7 to -10 ticks (as of close March 11) across the curve. The implied repo vs. term repo spread (to the last delivery date) was 5-15bp last week (Figure 1), which suggests that futures were modestly rich at the time. Since then, the spread has widened to 50-100bp across the curve, so the richness in futures intensified.

In WN, the massive duration grab, combined with the lack of balance sheet to fund the CTD leg, may have exacerbated the basis relationship. According to CFTC, leveraged short interest in US and WN has steadily increased (Figure 2), while that in TU, FV, and TY has declined over the past few months. These shorts are typically held as basis positions against long cash bonds, which need to be funded. In particular, WN leveraged shorts accounted for 50% of the open interest. As the basis moved against them, this likely forced the unwind and stop out of positions, exacerbating the future vs. cash relationship.

FIGURE 1

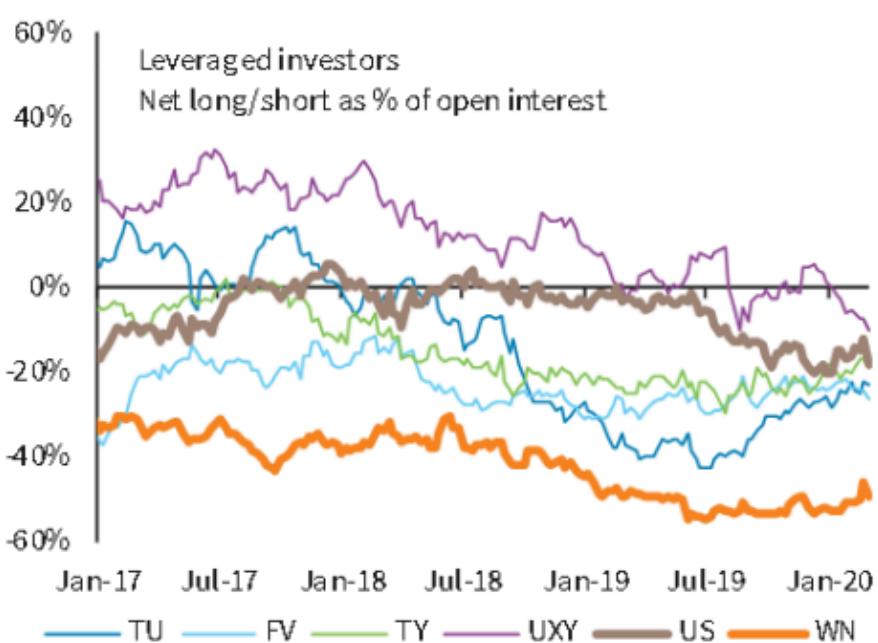
Treasury futures trading extremely rich vs. cash



Note: As of March 11, 2020, Source: Barclays Research

FIGURE 2

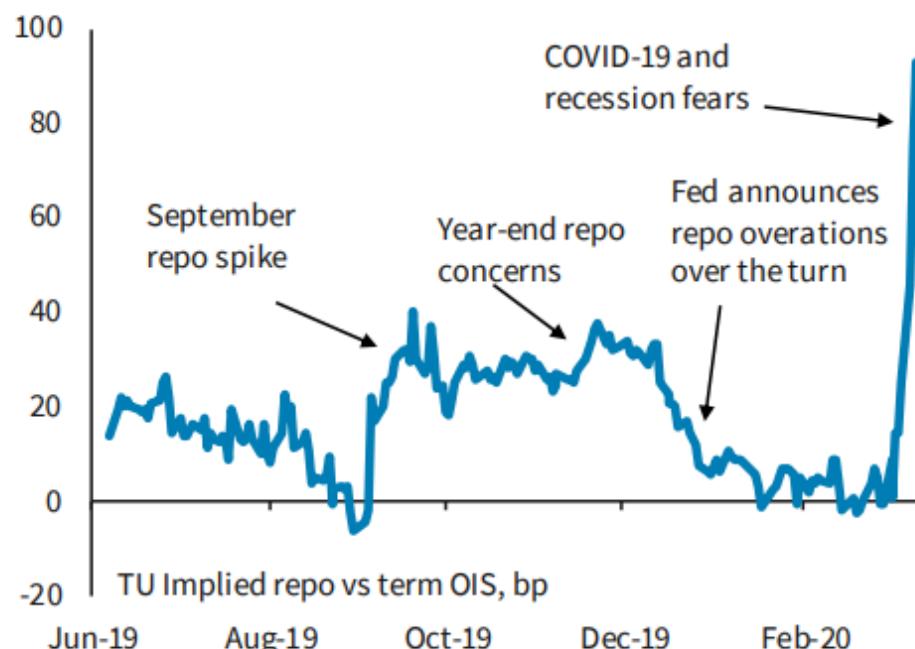
Leveraged short positions in US and WN have increased



Source: CFTC, Barclays Research

FIGURE 3

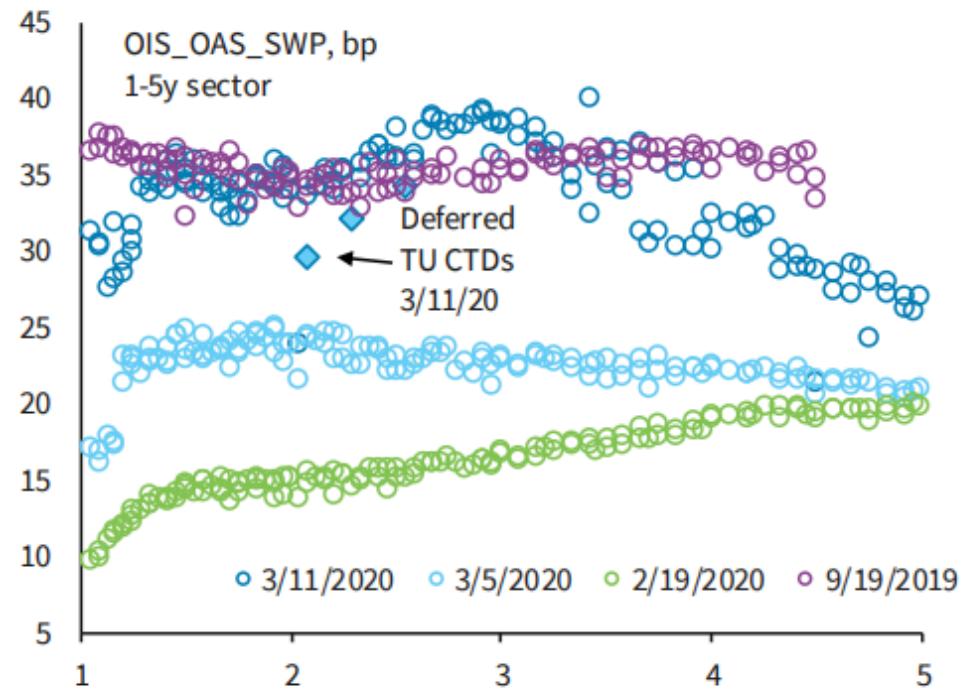
TU implied repo vs. OIS (last delivery date) is now above September 2019 levels



Note: As of 3/11/2020 close, Source: Barclays Research

FIGURE 4

Off-the-run Treasuries have cheapened vs. OIS to September 2019 levels



Source: Barclays Research

At the front end, TU implied repo is trading about OIS+100bp vs. matched-maturity OIS (to the last delivery date). These levels are now above those during the September repo spike at OIS+40bp. Furthermore, off-the-runs have also cheapened vs. OIS and are now trading at about OIS+35bp, comparable to September's levels (Figure 3). There has been an increase in demand for secured funding from leveraged Treasury longs during the recent flight-to-quality trade. And as quarter-end approaches, dealers could be trimming balance sheet exposure further, putting upwards pressure on repo rates. Last, the diamonds in Figure 4 show that high-coupon deferred TU CTDs have richened relative to nearby issues, reflecting investor preference for CTDs.

Dealer TU long basis positions came under pressure

In addition, Figure 5 shows futures positioning in the TU contract for leveraged investors, asset managers, and primary dealers in notional terms. Leveraged investors' net shorts reached a high in summer 2019, but have steadily declined, suggesting that they have trimmed basis positions in TU but only partially. In contrast, dealers likely added to TU basis positions, given that their short interest in TU increased somewhat since September 2019 and primary dealer inventories are still elevated. Dealer TU basis positions likely came under pressure when their long off-the-run cash positions cheapened as futures richened.

Treasury market dislocations

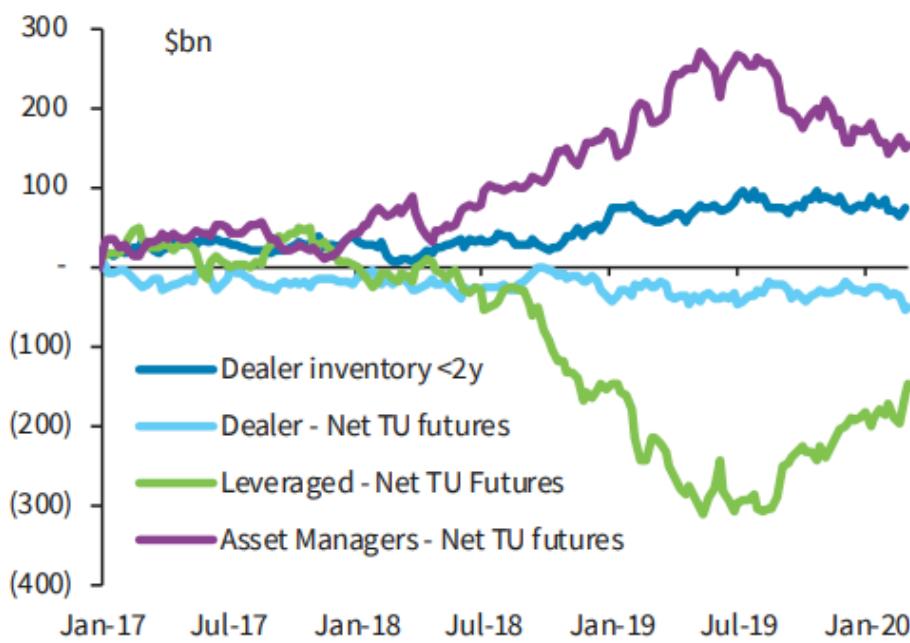
Last week, we discussed the increasing preference for liquid securities in the Treasury market. These relationships intensified this week as dislocations increased further. Our market dislocation proxy (Figure 6), which measures relationships that are sensitive to balance sheet availability, has now increased to September 2019 levels. Captured in the proxy is the average error to Barclays' Treasury spline, which has increased to mid-2018 levels. The higher value suggests greater dislocations that are not being arbitrated away.

12 March 2020

2

Barclays | US Treasuries

FIGURE 5
Dealers' net short futures positioning in TU has increased



Source: CFTC, Barclays Research

FIGURE 6
Market dislocations proxy at September 2019 levels...



Source: Barclays Research

TUH0 Basis Report

Trade	03/11/20	Last Trade	03/31/20	Rich/Cheap (ticks)	-10.07	\$PV01	18.97
Settle	03/12/20	Last Delivery	04/03/20	Option Value (ticks):	0.00	\$PV Factor 1	-
OTR BP Vol (06/17/2014)	-	Model Price	109.201	Repo Sensitivity(ticks/100bp)	-	\$PV Factor 2	-
First Delivery	03/02/20	Market Price	109.302	Vol Sensitivity(ticks/10bp)	-		

Bond Future Indicatives

Coupon	Maturity	Conversion Factor	Delivery Probability	Price	Yield	Val 01	Forward Price	Forward Yield	Forward Val 01	Gross Basis	Net Basis	Repo	Implied Repo	FDD Deliv. Prob.	FDD Net Basis	FDD Implied Repo	Parallel Shift Hedge	1-Factor Shift Hedge	2-Factor Shift Hedge
2.625	2021-12-15	0.9447	100.0	103-206	0.537	17.9	103-181	0.512	17.3	-6.9	-9.5	1.18	5.85	-	-	-	9.440	-	-
2.000	2021-12-31	0.9344	0.0	102-186	0.555	18.2	102-172	0.533	17.6	-4.7	-6.3	1.16	4.26	-	-	-	9.599	-	-
1.625	2021-12-31	0.9283	0.0	101-291	0.557	18.1	101-283	0.535	17.5	-4.8	-5.6	1.17	3.99	-	-	-	9.557	-	-
2.500	2022-01-15	0.9400	0.0	103-177	0.556	18.7	103-153	0.535	18.1	6.7	4.2	1.14	-0.93	-	-	-	9.877	-	-
1.875	2022-01-31	0.9294	0.0	102-152	0.553	19.0	102-140	0.531	18.4	9.4	8.2	1.19	-2.88	-	-	-	10.041	-	-
1.375	2022-01-31	0.9208	0.0	101-173	0.551	18.9	101-170	0.531	18.3	9.7	9.4	1.15	-3.56	-	-	-	9.982	-	-
2.500	2022-02-15	0.9375	0.0	103-236	0.546	19.6	103-212	0.526	19.0	21.4	18.9	1.14	-8.14	-	-	-	10.340	-	-
1.875	2022-02-28	0.9263	0.0	102-186	0.551	19.9	102-174	0.531	19.3	23.8	22.5	1.16	-10.05	-	-	-	10.469	-	-
1.125	2022-02-28	0.9129	0.0	101-074	0.493	19.7	101-074	0.473	19.1	27.7	27.7	1.10	-12.90	-	-	-	10.388	-	-
2.375	2022-03-15	0.9326	0.0	103-267	0.452	20.4	103-245	0.429	19.8	41.7	39.5	1.16	-18.26	-	-	-	10.779	-	-
1.875	2022-03-31	0.9233	0.0	102-247	0.511	20.7	102-235	0.491	20.1	40.5	39.2	1.17	-18.22	-	-	-	10.933	-	-

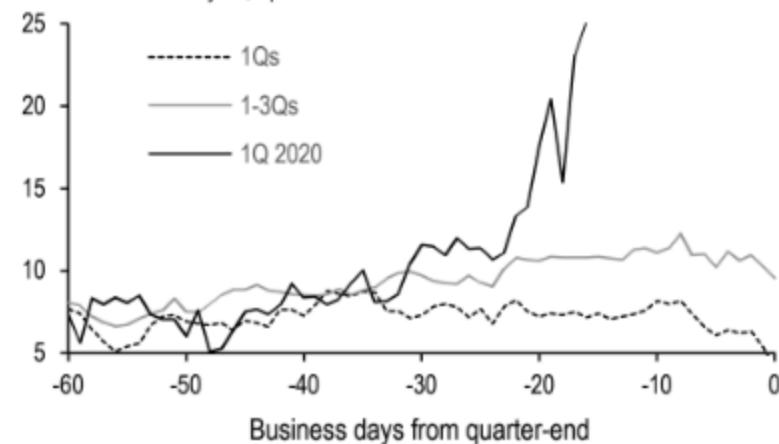
Source: Government Strategy

reduce operational risk associated with overnight or even weekly rolls. The cheapening of WN basis, which is particularly notable in a highly volatile environment given wildcard optionality, is another indication that there may be some unwinds of basis positions (though as discussed above, liquidity differentials could be playing a role as well; see [Interest Rate Derivatives, US Fixed Income Markets Weekly](#), 3/6/20).

What would happen if a sizeable fraction of those positions were to be unwound? In principle the money markets could likely supply the funding. **As a preliminary analysis, if we assume that half of the \$600bn gross short held by levered funds is cash/futures basis, and half of that were unwound, it would be less than 5% of government MMF assets.** It would also presumably ricken the futures contracts on a relative basis (i.e., higher implied repo rates). This would likely be most significant in WN, where the gross levered fund shorts as of last week were roughly 1.5x daily trading volume (other contracts were ~30%, though FV is closer to 80%).

Exhibit 7: Term repo typically comes under pressure in the lead-up to statement dates like quarter-end, but the past few weeks have been earlier and more aggressive than prior episodes

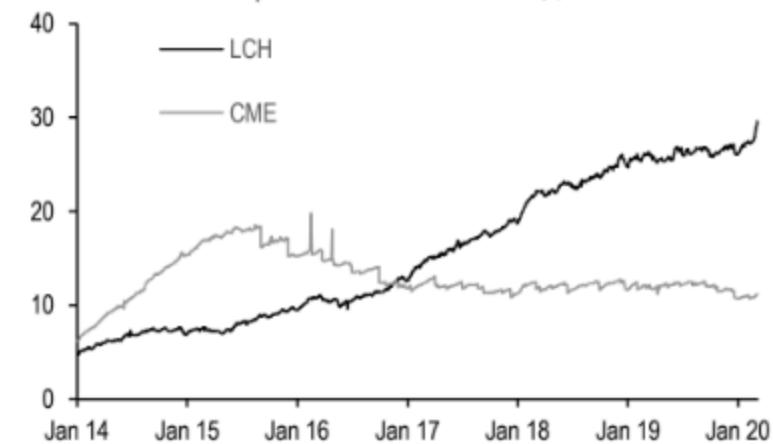
3-month GC/OIS spreads around quarter-end, just 1Q and just 1-3Q for 2017-19 as well as the current cycle; bp



Source: J.P. Morgan

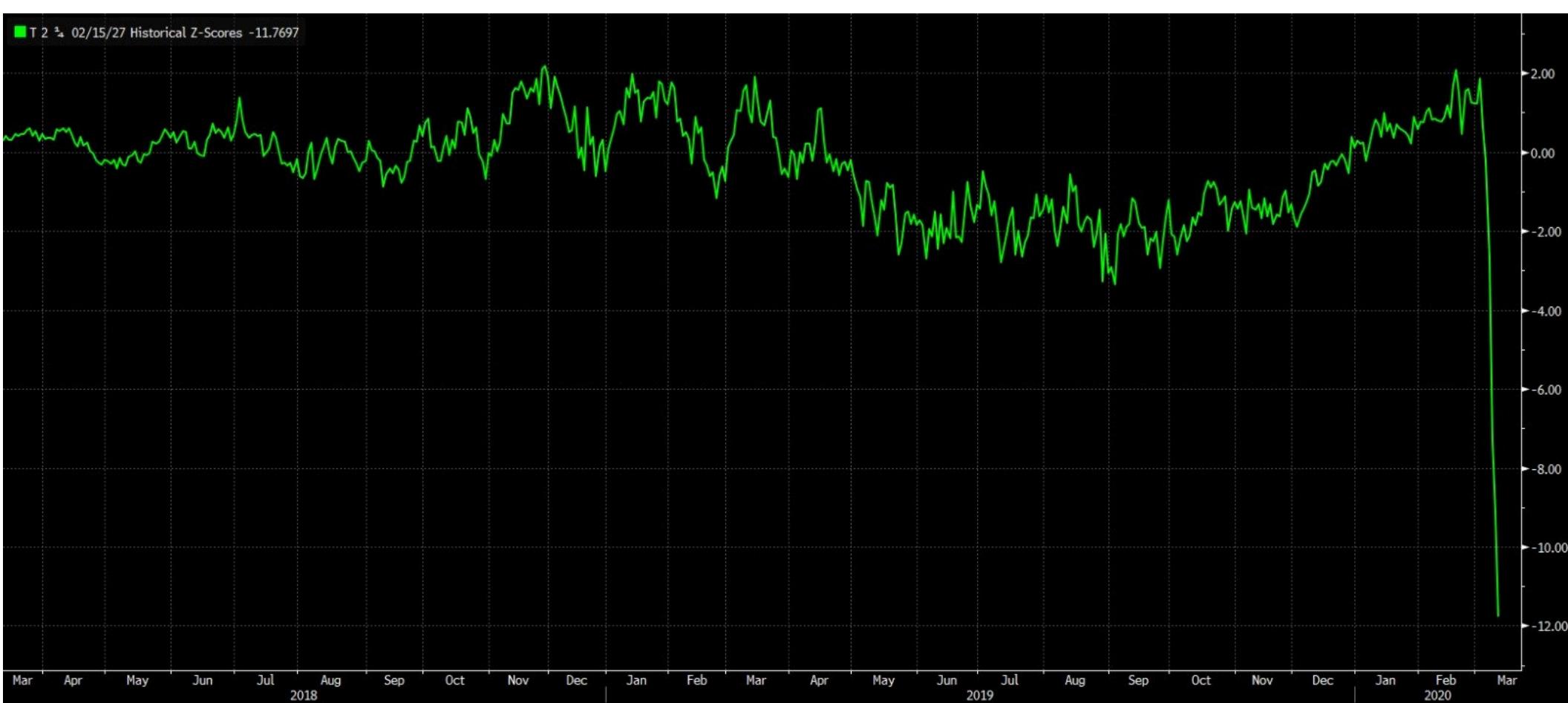
Exhibit 8: CME/LCH basis **may be back of mind at this point**, but an operational event on one but not both CCPs would expose its value to the daily balance of flows

Interest rate derivative open interest on LCH and CME; \$tn



Source: J.P. Morgan, CME, LCH

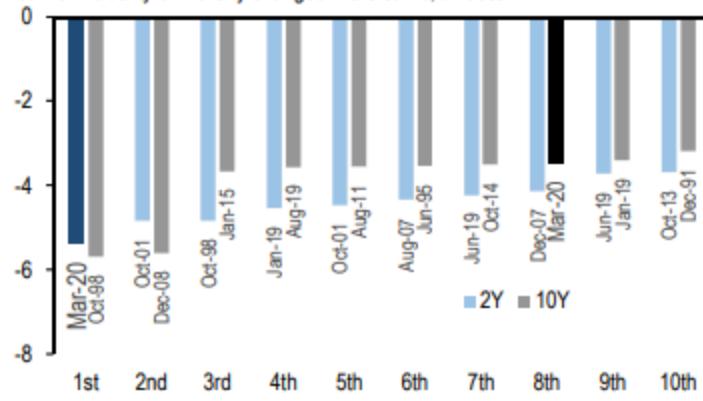
That is not to say there would not be significant market consequences. **An unwind of the kind we describe above would increase dealer inventories by more than 50%, and presumably over a relatively short period of time.** We believe the Fed has shown it has the tools to address the potential knock-on implications for repo (see e.g., discussion of turns in [This spike in SOFR should be very short-lived](#), J. Younger et al., 3/5/20). They could, for example, offer liquidity through upsized overnight and term TOMOs until the money markets have a chance to adjust—they in fact did so just this week, increasing overnight operations by 50% to \$150bn and more than doubling term to \$45bn. That does not mean the collateral itself will not re-price, however. Given the regulatory costs of holding significantly larger inventories, we would expect such an influx to cheapen Treasuries considerably versus OIS and especially SOFR. **Thus while we do not expect an operational event to lead to the same repo market disruptions we saw last year, it would point towards a material cheapening of swap spreads..**



As global markets continue to shift rapidly, seemingly under our feet, it's worth noting that trading activity in rates markets has migrated somewhat into Treasury futures. Primary dealer transaction volumes, for example, are not too dissimilar from a few weeks ago, while turnover in the futures complex has reached all-time highs in notional terms—even more exaggerated than late-2008. This has brought with it some curious behavior in the cash/futures basis for some sectors. In particular, **the WNM0 CTD basis net of carry has arguably missed a minor regime shift in volatility and now looks markedly rich relative to cash.**

Exhibit 1: The past few weeks have seen some of the largest volatility-adjusted moves in thirty years ...

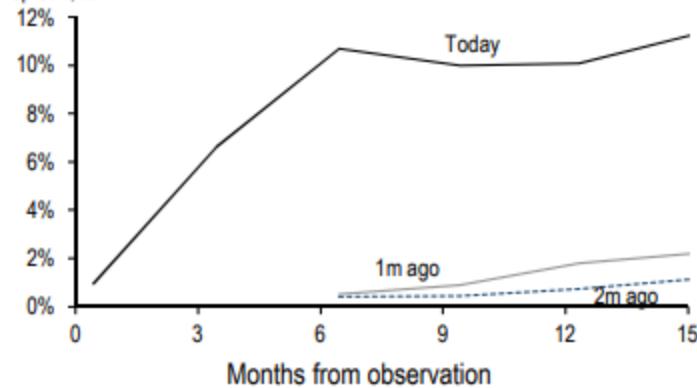
1-month change in 2- and 10-year Treasury yields versus the ex-ante 1-year realized volatility of monthly changes in the same; unitless



Source: J.P. Morgan

Exhibit 2: ... as the market has re-price the curve assuming significant likelihood of zero and even negative policy rates

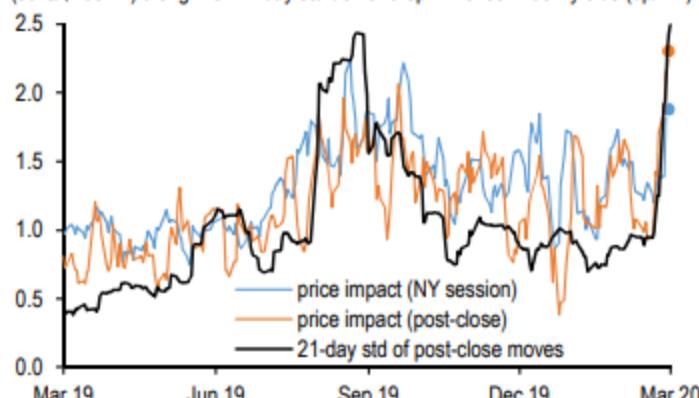
Probability of Libor fixing at 25 bp as of option expiry from 99.75/100 Eurodollar call spread; %



Source: J.P. Morgan, Reuters

Exhibit 3: Rapid news flow surrounding COVID-19 has caused price impact to surge, particularly late in the day after futures pit close, leading to sharp rise in the magnitude of post-close moves...

Price impact* in 30-year Treasuries both midday and after Chicago pit close (ticks/\$100mn) along with 21-day std dev of 3-5pm moves in 30Y yields (bp/2hr)

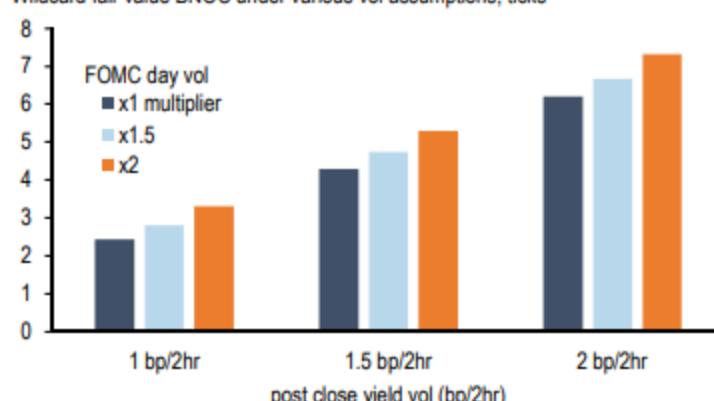


*Price impact defined as the average move in orderbook mid-price against a \$100mn flow in traded notional. See [Drivers of price impact and the role of hidden liquidity](#), J. Younger et al., 1/13/17 for more details.

Source: J.P. Morgan, BrokerTec

Exhibit 4:...and given this volatility environment, WN looks roughly 4 ticks too cheap relative to its CTD bond

Wildcard fair value BNOC under various vol assumptions; ticks



Note: Wildcard fair net basis represents value solved to equalize option value with net basis. If the wildcard BNOC is above the actual BNOC, it suggests the wildcard is currently underpriced.

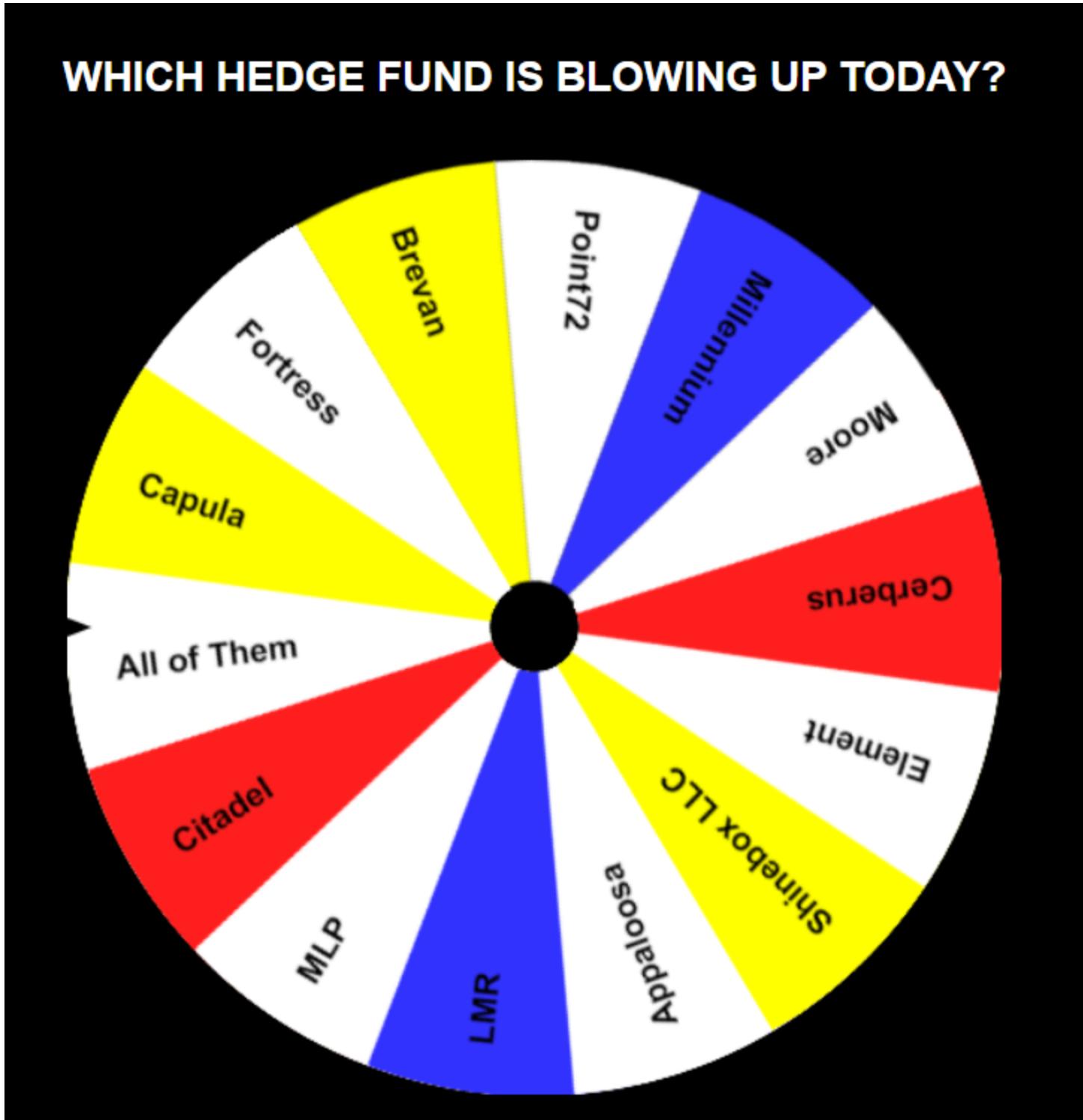
Source: J.P. Morgan, Reuters

Delivery optionality has increasingly come to drive structure in the net basis across the futures complex in general and in UXY and WN in particular (see [Special Delivery](#), M. Salem et al., 12/4/19). As a rule more option value cheapens futures relative to cash (widens the net basis), and, for a given contract/delivery basket, the best way to dial up option value is to dial up volatility.

ELEMENT, MILLENNIUM RV BLOODBATH



WHICH HEDGE FUND IS BLOWING UP TODAY?



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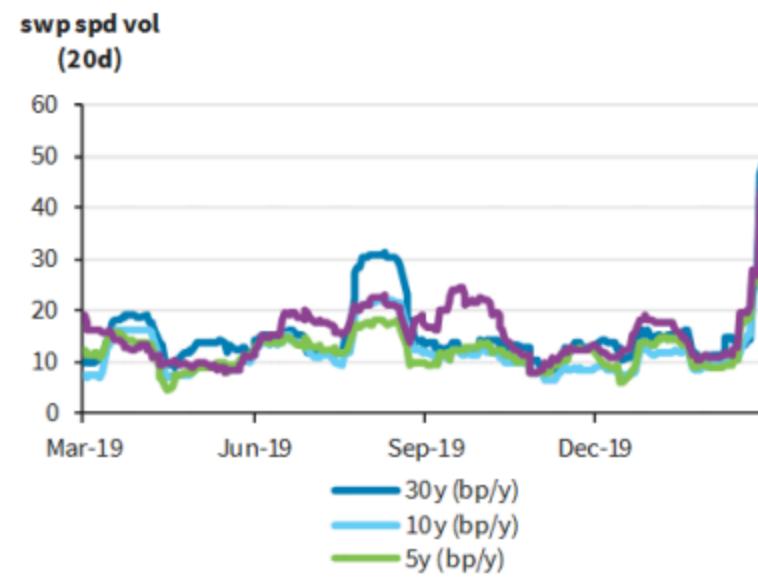
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US derivatives: Signs of extreme stress

- The US rates market broke down on Wednesday, with swap spreads collapsing in a rate rally where treasury yields were nearly unchanged, while implied repo rates on futures contracts soared (Figure 1 and Figure 2).
- The dysfunction has manifested in breakdowns of cash-derivative arbitrage relationships. 30y swap spreads have moved in a 30bp range in three days. CTD implied repo rates in TU futures have widened by nearly 100bp relative to OIS. Essentially, any structure which has a cash security as one leg against a derivative contract on the other leg has experienced chaotic moves.
- We have *previously made the point* that constraints in financial intermediation have weakened the ability of relative value capital to maintain tight relationships between cash and derivative instruments in the post-crisis era. Unlike the events of September 2019, the moves do not appear to be driven by the spot repo funding rate, which has been relatively muted amidst efforts by the Federal Reserve to boost liquidity in the system through open market operations. However, expected repo rates have notably risen relative to Fed funds. On Thursday, the Fed announced nearly \$1.5trn in repo operations, which should help restore usual relationships.
- Duration hedging/buying needs in the market right now are massive. Last week, we estimated that a 100bp move lower in rates would likely have led to nearly \$700bn to \$1.2trn in 10y equivalent needs. We have now exceeded that. Figure 4 shows that our

FIGURE 1

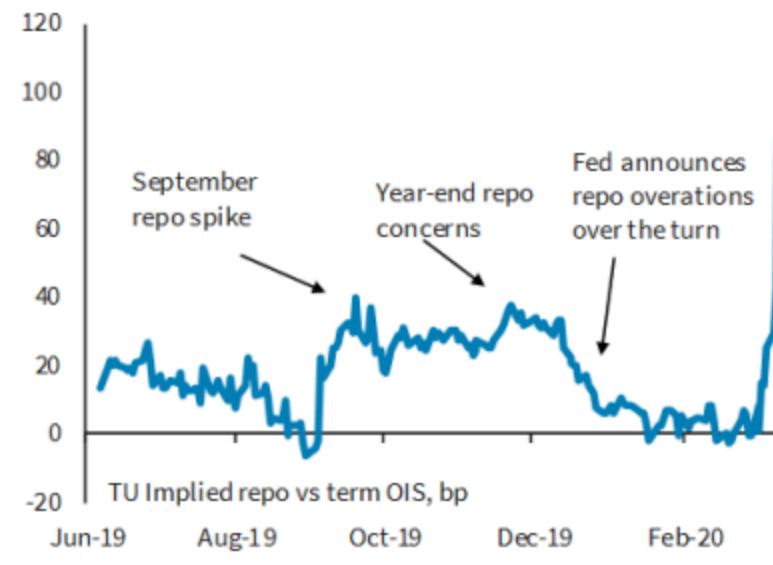
US swap spreads have been incredibly volatile over the past few days



Source: Barclays Research

FIGURE 2

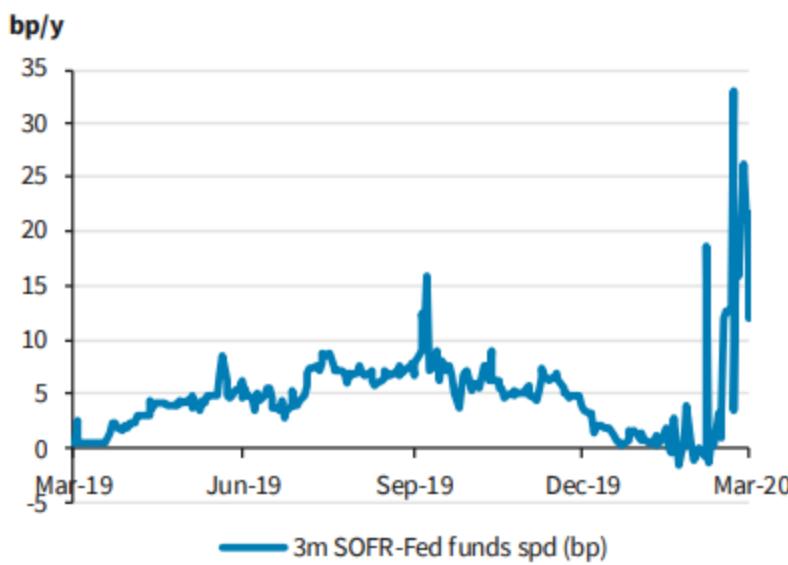
The spread of TU implied repo relative to OIS has shot up



Source: Barclays Research

FIGURE 3

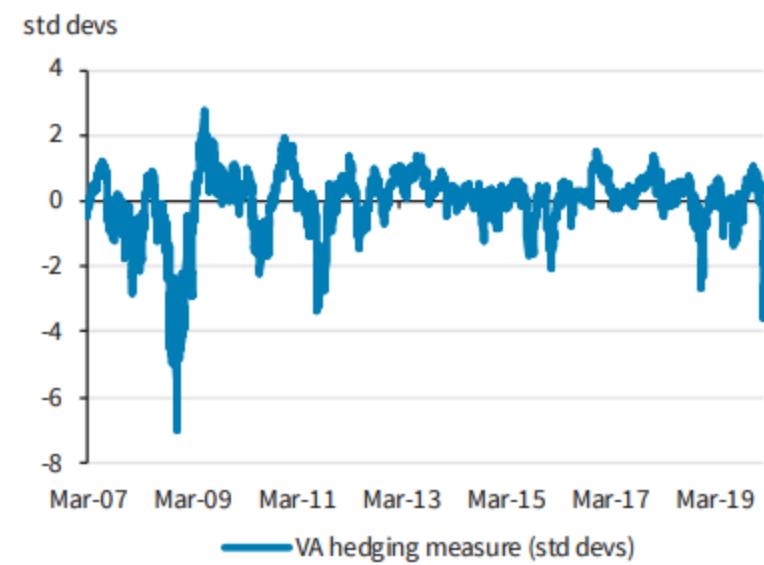
3m repo rate expectations have sharply increased relative to OIS, suggesting expected balance sheet constraints



Source: Barclays Research

FIGURE 4

Our measure of insurance hedging needs shows a greater need to receive than at any point since the financial crisis



Source: Barclays Research

measure of VA hedging needs is now the furthest it has been in receiving territory since the 2008 crisis (which likely explains the level of 30y swap spreads). More than ever, a healthy, functioning market for interest rate risk transfer is needed for all these rebalancing flows to occur –whether they be in swaps, futures, or Treasuries.

- We conducted a liquidity analysis of the swaps market, which showed that a given amount of traded volume associated with moves in rates is almost five times larger than was the case a few weeks ago.
- The cash market may be grappling with an even bigger concern – which is that of constrained balance sheet. Our measure of balance sheet constraints – which is based on a principal components analysis of a number of different balance sheet-sensitive variables (such as the expected spread between repo and fed funds, yield curve fitting errors, cross currency basis, etc.) – has sharply increased in recent days. This may explain the shift, in that time from a rates market that was trading in flight-to-quality mode (spreads widening in rate rallies) to the reverse (where derivatives are now leading the rallies in rates).

running split or remote operations. The cheapening of short coupons is consistent with the unwind of cash-neutral overnight funding positions, in which e.g. bilateral repo exposures in 10s are paired reversing the same notional of much shorter maturities. This allows levered funds to obtain long duration exposure while allowing their counterparty dealer to net down the overall position for regulatory purposes.

The unwind of these cash-neutral positions could in principle leave dealers long inventory in the front end of the Treasury curve. Were that the case, it would explain why Bills lagged the broader rally in the front end, particularly if it were exacerbated by real money selling in that sector. The cure for such a situation would be for government MMFs to alleviate this overhang, which would also be consistent subsequent price action. And of course any MMF inflows driven by the inverted yield and/or continued equity market volatility would be supportive of triparty rates as well (see e.g., [JPM Mid-Week US Short Duration Update](#), A. Roever et al., 2/27/20).

This suggests SOFR futures cheap to Fed funds are a buying opportunity. We have, however, yet to address the turn. Term TOMO operations by the Fed have proven very effective at suppressing turns for much of the past few months (**Exhibit 4**). We have no reason to believe otherwise this time around—in anything, the sizeable oversubscription rate for the most recent term operation raises the risk that they are upsized. This is particularly true of SOFR, which as we note in a recent publication is essentially a triparty proxy (see [A funding market riddle](#), J. Younger et al., 2/26/20). **We would therefore expect a modest turn, if any, this time around.**

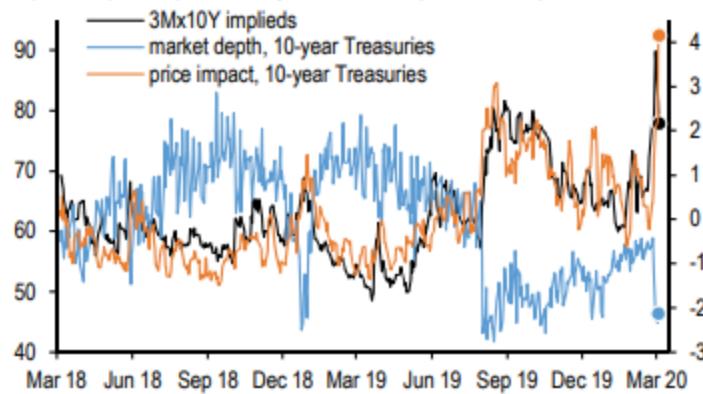
To conclude, we see little evidence of a significant breakdown in repo markets. Rather, **technicals related to the terming out and unwind of cash-neutral overnight funded positions likely left dealers long short coupons and Bills heading into the emergency rate cut on Tuesday.** This was likely at least in part to blame for their lagging the subsequent rally in 3-month OIS, leaving the front end of the Treasury curve looking quite cheap compared to other 2(a)7-eligible alternatives. Government MMFs responded by reallocating away from repo, putting pressure on triparty rates and by extension SOFR, with GC dragged along for the ride. But all this is temporary: Bills/OIS more than retraced this cheapening in just one day, and short coupons are well on their way. Thus while SOFR/IOER in double-digits is understandably concerning we would expect that spread to normalize in the next few days. Finally, Fed liquidity operations should remain effective at controlling turn pricing, particularly if term TOMOs are upsized. This is not, in our view, the beginning of a breakdown, but rather a temporary and likely very short-lived disruption. **Upcoming negative net T-Bill supply and ongoing Fed support for the repo market are much more important considerations, and our view on**

It should come as no surprise that yield moves from 3-5pm Eastern time (prime time for the wildcard option) have been greatly magnified of late. This comes as realized and implied volatility across markets has surged amidst the rapidly evolving COVID-19 epidemic. **But late afternoon in particular has seen particularly challenged liquidity even against this elevated baseline as measured via price impact at fixed volume (Exhibit 3).** That the June delivery month comes with an FOMC meeting somewhat close to the last trade date, at a time when markets are watching the Fed with bated breath, only serves to enhance the wildcard further.

Putting these considerations into our wildcard fair value model **we find the wildcard is grossly underpriced given this new normal in volatility.** We estimate the net basis in WNM0 is underpriced by roughly 4-8 ticks as of publication (**Exhibit 4**). And considering how increasingly fragile market microstructure has become across the curve and in 30s in particular, **we're inclined to think the option is biased to grow further in value from here, though this repricing might have to wait until closer to the roll period. This would, however, be quite bullish for the WN basis, all else equal.**

Finally, we take a moment to clear up our model portfolio a bit, particularly in funding trades (see Trade recommendations). Though we continue to believe price action in the Whites FRA/OIS has been technical rather than indicative of funding stress, we stop out of our weighted steepeners out given the level of volatility. We also take profits on 10Y/30Yx10Y flatteners as well as H0 3s/6s wideners. We retain, however, our longs in SOFR/FF (K0 as well as 10Y) as funding normalization trades, as well as received positions in 2Yx1Y EUR/USD cross-currency basis and 2Yx1Y 1s/3s which have room to widen.

Exhibit 5: As volatility rose in earnest in recent days, market microstructure deteriorated fast; price impact and market depth both continue to looked stretched despite a renormalization in implied vol
3Mx10Y swaption implied vol (LHS; abp) compared to 2-year z-score of market depth* and price impact† in 10-year Treasuries (RHS; unitless)



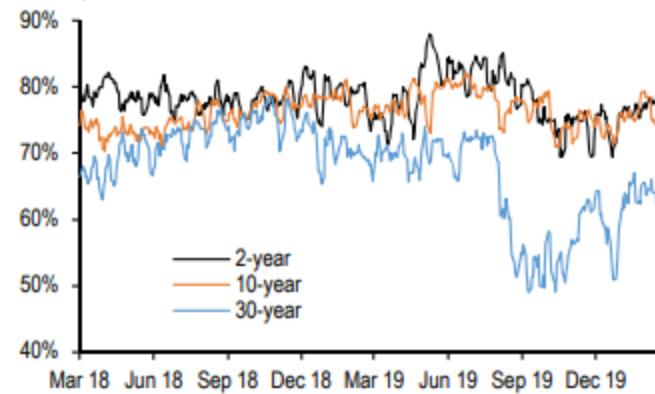
* Market depth defined as the total notional available in the central limit order book (CLOB) at the best three prices, averaged across both the bid and ask stacks. We take snapshots of the live order book for every \$100mn in traded notional, and average market depth measurements from these snapshots, thus forming a volume-weighted average.

† Price impact defined as the average move in orderbook mid-price against a \$100mn flow in traded notional. See [Drivers of price impact and the role of hidden liquidity](#), J. Younger et al., 1/13/17 for more details.

Source: J.P. Morgan, BrokerTec

Exhibit 6: Concurrent with this move, liquidity provision by likely high frequency participants dropped across the curve, to multi-year lows, on average, in 2s, 5s and 10s

Share of market depth likely provided by HFT participants* in the interdealer Treasury market; %



Note: We break participants into HFT and non-HFT based on reaction speed. Reaction speed is defined as the minimum time between when an order is created or explicitly deleted by the user and the previous change to the CLOB. Whereas the tail outcome from random updates is perhaps a fraction of a second, we find reaction speeds remarkably faster than this, inconsistent with human reaction speed or random noise. Here we define reaction speeds as follows: slower than 300 milliseconds; fast: faster than 300 micro-seconds. See [Far from the shallow now?](#) M. Salem et al., 4/12/19.

Source: J.P. Morgan, BrokerTec

COLD-RUNS

Treasury market dislocations deteriorated further as average error to the spline and on-the-run liquidity premia increased

Some of these dislocations reflect a greater preference for benchmark securities. At the end of last week (Figure 8), the front end reflected greater on-the-run liquidity premia. This has increased this week and is now being reflected at the long end of the curve. For example, the on-the-run liquidity premium at the 30y tenor is at stretched levels compared with previous auction cycles (Figure 9). OnTR10s also traded nearly 3.5bp through old10s on relative asset swap. They have subsequently cheapened on the curve and are trading in line with previous pairs (Figure 10), suggesting room to ricken.

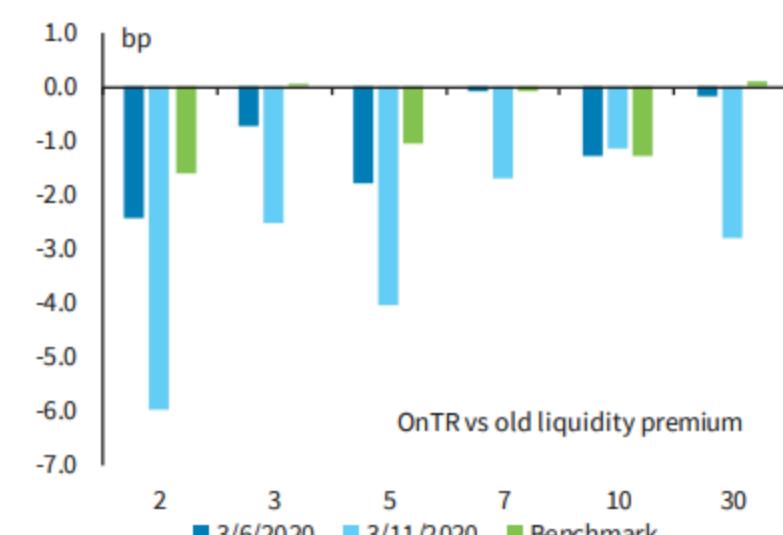
Overall, the increase in macro volatility coupled with balance sheet constraints has adversely affected market functioning. Even away from the Treasury market, other relationships such as the cross currency basis and corporate cash-bond basis are breaking down. We believe the Fed will need to be engaged on a more permanent basis to have a lasting effect, at least as long as volatility stays high.

FIGURE 7
...as the average error to Treasury spline increased (2-10y)



Source: Barclays Research

FIGURE 8
On-the-run liquidity premium intensified this week



Source: Barclays Research

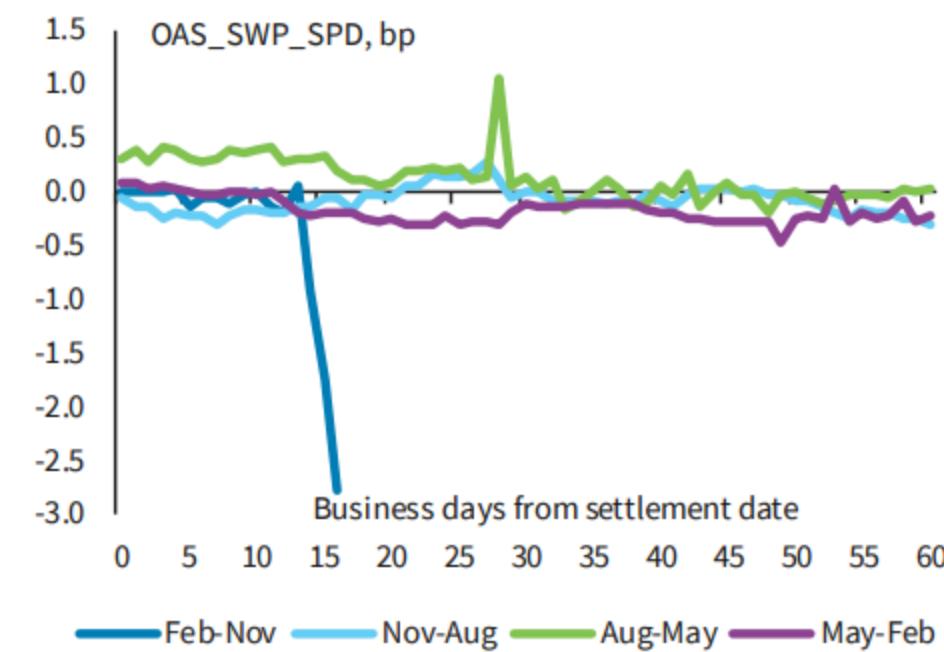
12 March 2020

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FIGURE 9

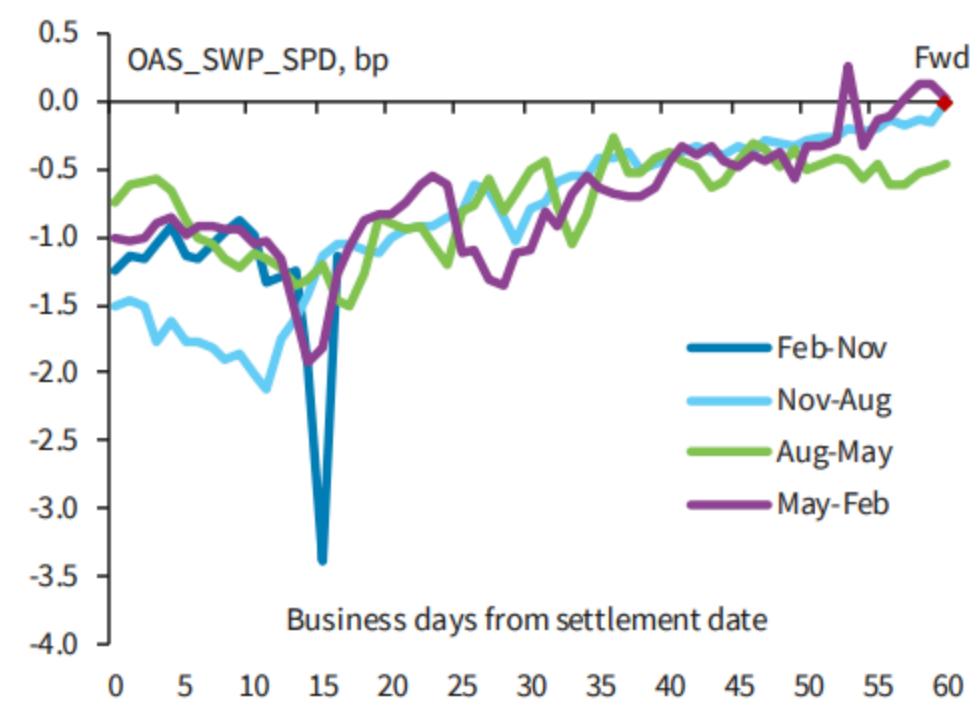
30y On-the-run liquidity premium intensified this week



Source: Barclays Research

FIGURE 10

Surprisingly, OnTR10s are trading in line with previous pairs



Source: Barclays Research

NOT JUST 30s (ASIA HRS)

	Ticker	Bid	Ask
18	Apr-20 (17d 3/27/20); CSize		
136	1) TYJOC 136		
136.25	2) TYJOC 136.25		
136.5	3) TYJOC 136.5		
136.75	4) TYJOC 136.75	1'42	2'11
137	5) TYJOC 137	1'34	2'01
137.25	6) TYJOC 137.25	1'26	1'55
137.5	7) TYJOC 137.5	1'19	1'47
137.75	8) TYJOC 137.75	1'12	1'38
138	9) TYJOC 138	1'06	1'29
138.25	10) TYJOC 138.25	1'00	1'24
138.5	11) TYJOC 138.5	'58	1'10
138.75	12) TYJOC 138.75	'53	1'11
139	13) TYJOC 139	'49	'63
139.25	14) TYJOC 139.25	'44	1'00
139.5	15) TYJOC 139.5	'41	'53
139.75	16) TYJOC 139.75	'37	'54
140	17) TYJOC 140	'34	'49
140.25	18) TYJOC 140.25	'33	'42
18	May-20 (45d 4/24/20); CSize		

CME/LCH.. AN OLD FOE

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North America
When market risk meets operational risk
10 March 2020

J.P.Morgan

One other area we would recommend keeping an eye on are relative pricing of interest rate derivatives facing difference centralized counterparties (CCPs).

The CME/LCH basis has of course been a key consideration, especially among dealers, since it first emerged in 2015. At the time we noted that its existence owed to residual directionality in the balance of flows cleared through each CCP, owing in large part of differential netting benefits (see [The law of one price versus the law of unintended consequences](#), J. Younger et al., 5/20/16). There have also been periods, however, when reallocation trades have dominated price action, leading to a much larger pricing discrepancy basis than margin funding considerations could justify. In the scenario where there is an operational event on one but not the other—not implausible given their geographic location—we could see a sizeable spike in cross-CCP spread volatility. Perhaps most important, it is unclear which direction this would move the basis, since it would depend on the balance of flows that day which could presumably shift rapidly. Though LCH has claimed a growing share of the USD interest rate derivative market, CME still clears nearly 30% of the gross notional (**Exhibit 8**). **That means not only would an operational event at either be highly disruptive, but the price impact would be significant.**

In summary, as WFH and split working arrangements become more widespread, the market is potentially facing a large-scale operational risk event.

- Though the current episode is perhaps slower moving, a systemic potential cyber incident is likely a better analogy than credit-driven episodes like 2008.
- **We are already seeing market making severely disrupted**, and to the extent that logistical frictions prevent “human” traders from providing backstop, liquidity transaction costs can stay very high compared to even recent history.
- For many market participants, operationally intensive activities with limited potential upside will look far less appealing. This is particularly true of overnight repo funding, **particularly in cash/futures basis trades** which are likely \$200-300bn or more in aggregate notional. A large-scale unwind could also lead to significant cheapening of collateral, and is **therefore quite bearish for spreads**.
- We also recommend **closely monitoring cross-CCP basis risk**, since an operational event at one but not the other could cause the CME/LCH basis to become highly volatile and unpredictable.

IOER-45bps Why not?

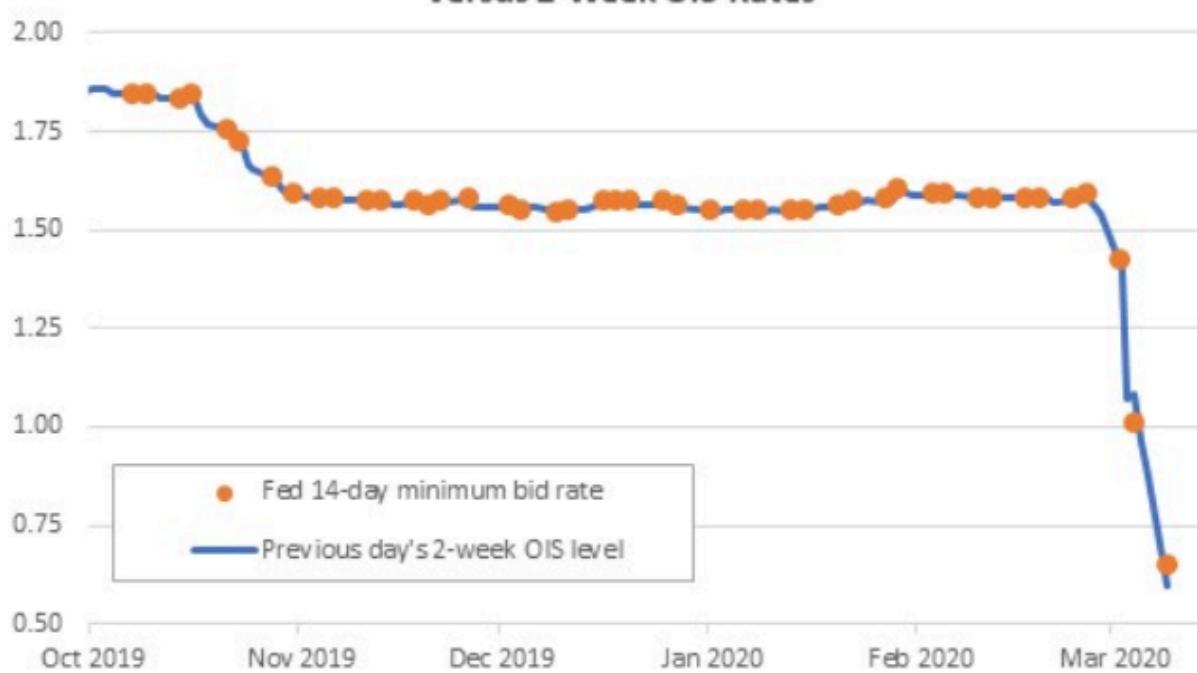
Triparty Repo versus Gross Cleared O/N Bilateral Repo Included in the SOFR Basket

The cleared bilateral repo series below is grossed up to reflect the fact that the Fed includes only 75% of the total in the SOFR basket
Daily levels in billions of dollars



This Morning's Fed Term RP. The Fed set the minimum bid rate on this morning's 14-day operation at 0.65%, which is in line with the pricing approach used in earlier operations. The Fed has consistently set the minimum bid rate on its term operations equal to OIS.

Minimum Bid Rate on the Fed's 14-Day Term RPs versus 2-Week OIS Rates



recommend chasing this (see Figure 17; the beta adjustment is based on the level of WN spreads). One possible explanation for this slope's break to historical norms is that the market may be starting to price in yield curve control, which, if the Fed targets 5s-10s, will keep TY, TN, and US, to some extent, rich to the curve.

Turning to the US contract we do think that this can continue to marginally richen against the curve as the reach for yield dynamic continues at this low level of rates. For a simple relative value metric for the US contract, we look at the PCA-weighted 10s-US-30s OIS spreads fly (OIS matched maturity swap rate minus Treasury yields – i.e., a higher number represents richer Treasuries). In Figure 18, we show the PCA 10s-US-30s spreads fly against the level of 10y yields. As we discussed, typically, the US contract richens in a low yield environment when the reach for yield mentality takes hold. On this metric, the US may richen further.

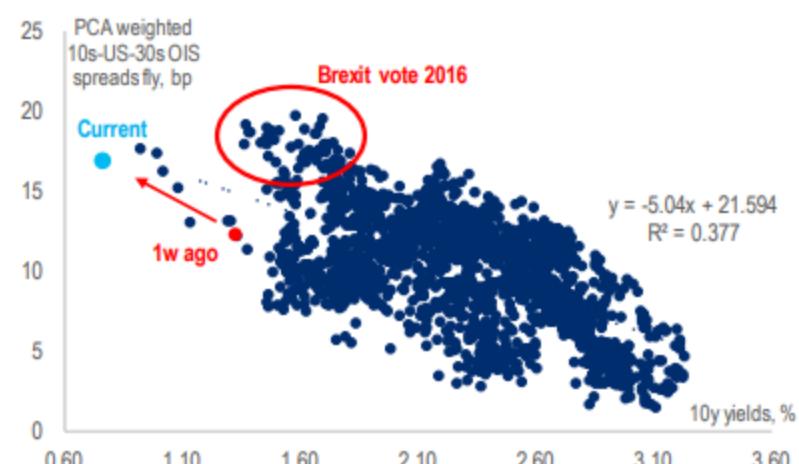
Note: Futures trading involves substantial risk of loss

Figure 17. On a beta-adjusted basis, the US/WN spreads curve is now well through the previous flats following the Brexit vote in 2016



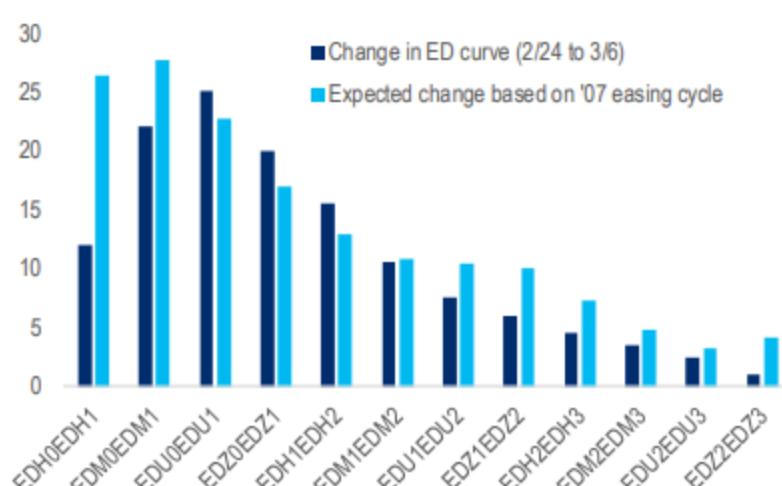
Source: Citi Research; Note: We calculate the beta adjusted US/WN LIBOR swap spreads curve (WN LIBOR swap spreads minus US LIBOR swap spreads). A lower number represents a steeper US/WN slope relative to swaps. The sample is from 2013 to present.

Figure 18. Still, we think that the US contract can continue to richen as the reach for yield mindset takes hold (a higher number represents that the US is rich against 10s and 30s), as was the case in 2016 around the Brexit vote



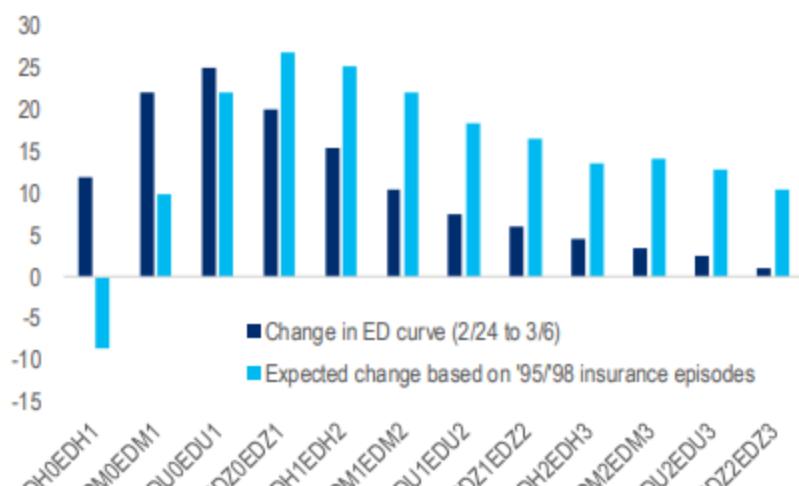
Source: Citi Research; Note: We report the PCA weighted 10s-Us-30s OIS spreads fly. A higher number on the y-axis represents that US is rich relative to the wings. The x-axis is the level of 10y yields.

Figure 19. Term premium has returned to the front end of the Eurodollar futures curve as 1y ED slopes have steepened during this rally; they look relatively in line with what we would have expected based on the 2007 cutting cycle.



Source: Citi Research, Bloomberg; Note: We report various ED futures slopes. We also report the estimated change based on a daily changes regression from each slope and ED1 from the first month of the '07 easing cycle.

Figure 20. The market is not expecting a mild easing cycle, such as the insurance episodes of 1995/1998; longer-dated curves would have steepened more in such an episode



Source: Citi Research, Bloomberg; Note: We report various ED futures slopes. We also report the estimated change based on a daily changes regression from each slope and ED1 from the first month of the '95 and '98 easing cycle.

What strikes us is how different the ED curve reaction would be if the market saw this as an insurance-style adjustment. This assumption isn't that unreasonable given that the Fed only has around 100bp of room left to the ZLB. In Figure 20, we extend our analysis using a beta calibrated to daily changes from the 1995 and 1998 insurance episodes (one month following the cut). Most ED curves would have steepened much more if the market thought the current easing cycle was based on only a transitory shock. Effectively, the market knows that the Fed will not hike again soon even though front-end ED slopes have steepened in the past two weeks.

US: Fading 2y tails for a return to zero lower bound (ZLB)

KEY MESSAGES

We expect the Federal Reserve to cut the policy rate by a further 50bp at the March FOMC, with the potential to reach the zero lower bound by mid-year.

Indeed, the OIS curve implies that fed funds will be roughly 0.15% by the December 2020 FOMC meeting.

Having explored the swaption surface for opportunities to benefit from a return to the ZLB, we expect the shape of 2y tails to steepen considerably.

We like selling 18m2y straddles versus buying 30m2y straddles (vega weighted) with a small 6m2y gamma hedge. Therefore in 6m, the trade will be 1y2y vs 2y2y.

Forward curve prices return to zero lower bound (ZLB)

(ZLB): The forward curve validates our expectation for a 50bp cut and a move to the ZLB by mid-year, with the OIS swap curve implying roughly 0.15% fed funds by year end.

Our working assumption is that if the ZLB is reached, the Fed will not reverse course and hike rates in the near-term.

Calendar-based guidance at end 2012: In its January 2012 FOMC statement, the Fed committed to keeping fed funds at exceptionally low levels through at least late-2014 (upgraded from mid-2013).

We compare the current forward curve and swaption vol grid to the end of 2012, when this forward guidance was entrenched (Figures 1 and 2). In the upper left corner (ULC), we find that the forwards are similar (with a flatter curve), but vols are much higher.

TRADE IDEA



Sell 18m2y atmf straddles vs buying 30m2y straddles and 6m2y straddles (-1x 0.75 x 0.25): As the ZLB nears, we expect the slope between 2y2y and 1y2y bp vol to be considerably steeper in the next six months. We hedge the short gamma of the trade with a small amount of 6m2y straddles.

Entry: 17c. Target: 37c. Stop: 10c. Carry: +0.1bp/month. Allocation: 500mn 18m2y. Current: 17c.

2s10s, 1y fwd steepener has been stopped at 24bp. Total P&L = +2.3bp including carry.

Fig. 1: Current forwards vs end-2012 (bp)

Forward	Swap tenor							
	1y	2y	3y	5y	7y	10y	30y	
3m	8	-1	-9	-45	-85	-130	-219	
6m	3	-4	-15	-53	-93	-137	-222	
1y	-6	-13	-29	-71	-110	-152	-228	
2y	-21	-40	-65	-110	-143	-182	-240	
3y	-60	-87	-111	-150	-178	-209	-251	
5y	-161	-180	-195	-217	-238	-255	-270	
7y	-225	-235	-244	-264	-273	-279	-279	
10y	-285	-295	-294	-298	-296	-290	-284	

Source: BNP Paribas

Fig. 2: Current swaption vols vs end-2012 (bp vol)

Expiry	Swap tenor							
	1y	2y	3y	5y	7y	10y	30y	
3m	66	70	71	70	66	63	69	
6m	45	48	47	44	38	35	35	
1y	32	30	27	23	16	13	14	
2y	16	13	9	1	-2	-3	-2	
3y	-1	-4	-7	-11	-11	-9	-6	
5y	-23	-23	-23	-22	-19	-16	-11	
7y	-27	-26	-25	-23	-20	-17	-11	
10y	-25	-24	-23	-21	-19	-17	-10	

Source: BNP Paribas



[Timothy High](#), G10 Rates Strategist | BNP Paribas Securities Corp.

Trade implementation

Not only are ULC vols considerably higher right now, the term structure is downward sloping versus upward sloping at end 2012. If the Fed eases to the ZLB, we expect the 2y tenor forward curve to more closely resemble the curve from end-2012 (Figure 3).

Within approximately six months, we would expect the 2y tenor vol term structure to more closely resemble the term structure from end-2012. Therefore, on a vega-weighted basis, we favour selling 18m2y atm straddles vs buying 30m2y atm straddles:

- Current 18m2y vs 30m2y bp vol = -1bp.
- In six months, at the ZLB, we expect 2y2y bp vol to be materially higher than 1y2y bp vol (+16bpv at end-2012).
- A vega-weighted structure is short gamma. We consider hedging with gamma-weighted 6m2y.

Scenario analysis

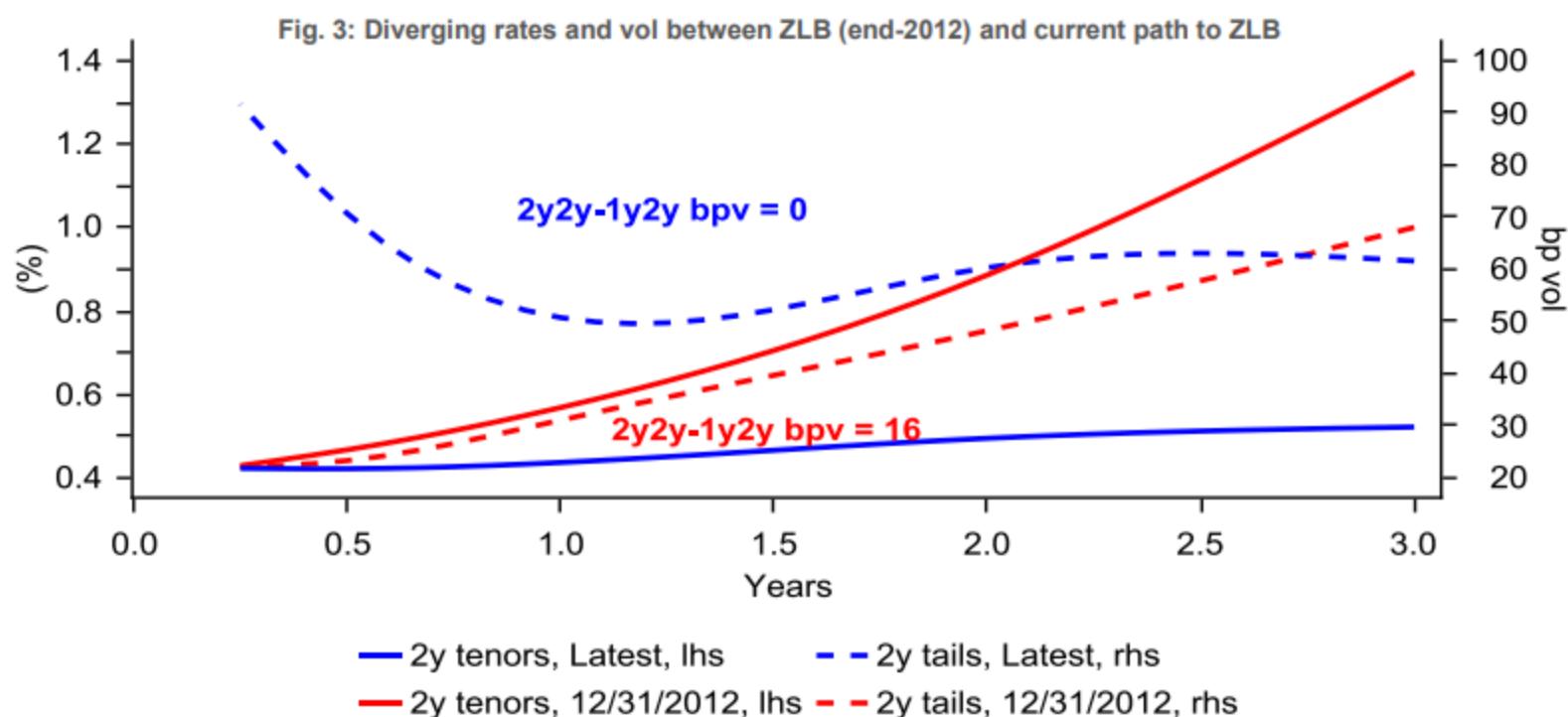
To apply a moderate stress test, we shift time three months forward and rates +/-25bp, +/-50bp with shifts in the volatility term structure. We find the structure performs well in a shift to the ZLB, while being better protected in scenarios that are not our core view (Figure 4).

Risks to the trade

Two adverse market outcomes are risks to the trade as the vol surface would likely not steepen as we expect (gamma may stay elevated):

- The Fed is able to quickly reverse course and hike rates, making the ZLB less permanent.
- The ZLB is not the lower bound and the Fed cuts rates to negative yields quickly.

These outcomes are not our base case, as we expect that if rates reach the ZLB, they will remain there for some time and the implied volatility surface will reflect it.



Sources: Macrobond, BNP Paribas

Fig. 4: Moderate stress scenario

Vol slope (bp vol)	Rate Move (bp)				
	-50	-25	0	+25	+50
1y2y-6m2y, 2y2y-1y2y	-50	-25	0	+25	+50
+15, +12	10.8c	15.9c	15.3c	15.6c	7.5c
+12, +15	9.0c	12.1c	11.2c	12.8c	8.4c
0	-1.7c	0.1c	1.2c	0.2c	-1.3c
0, -2	-6.6c	-7.1c	-7.c3	-5.7c	-5.0c
-5, -5	-9.8c	-10.6c	-10.7c	-9.1c	-7.9c

Source: BNP Paribas

[Timothy High](#), G10 Rates Strategist | BNP Paribas Securities Corp.

We track trades from T-30 days to T+30 days of the inter-meeting rate cuts. Given the small sample size, we prioritise outcomes with more samples as we are limited by data.

Trades which are consistent across all inter-meeting cuts: US 10y and 5y swap spreads, US 2s10s and 2s5s curves, VIX and VIX calendar spreads and Corporate BBB spreads.

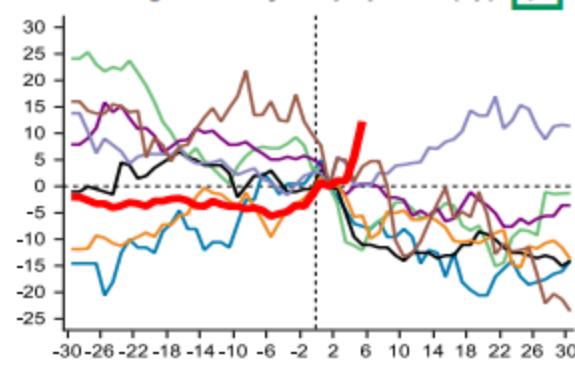
Trades with differing outcomes: 2y and 10y USTs, DXY, USDJPY 3m vol and S&P 500

Yields/spreads re-based to 0 at T = 0; Prices re-based to 100 at T = 0

Chart key	
Date	Line
15 October 1998	Blue
3 January 2001	Green
18 April 2001	Purple
17 September 2001	Black
17 August 2007	Orange
22 January 2008	Lilac
8 October 2008	Brown
3 March 2020	Red

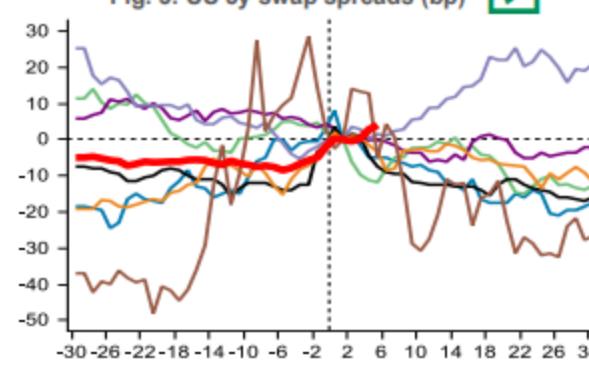
- If at least 6/7 previous trades work
- If less than 6/7 trades work

Fig. 2: US 10y swap spreads (bp)



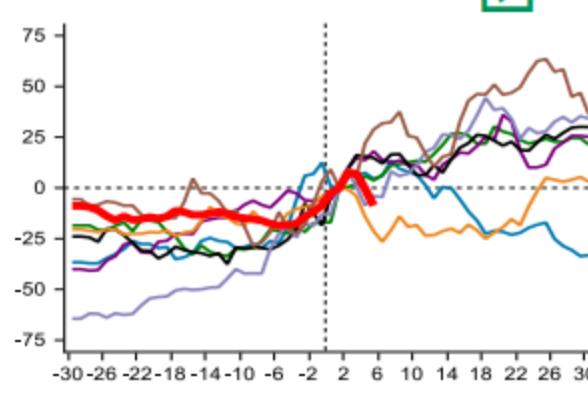
Sources: Bloomberg, BNP Paribas

Fig. 3: US 5y swap spreads (bp)



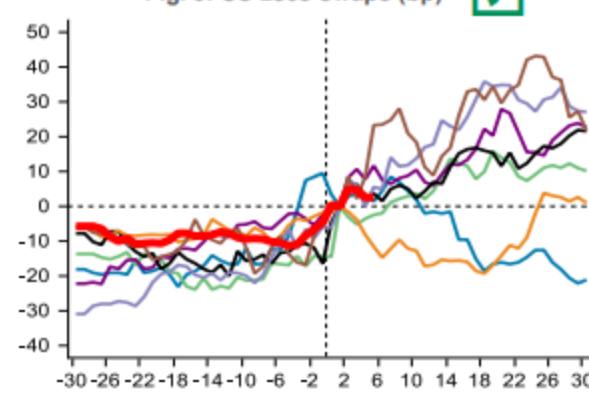
Sources: Bloomberg, BNP Paribas

Fig. 4: US 2s10s swaps (bp)



Sources: Bloomberg, BNP Paribas

Fig. 5: US 2s5s swaps (bp)



Sources: Bloomberg, BNP Paribas

Fig. 6: VIX Index

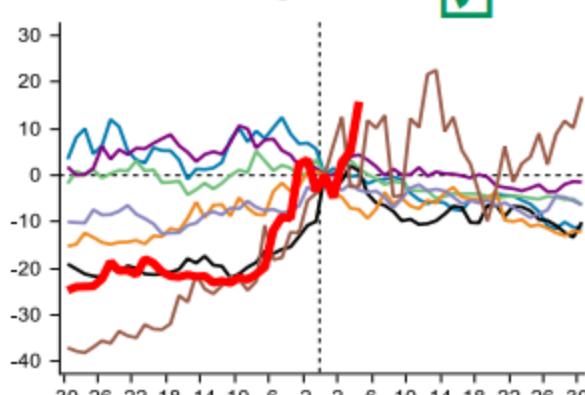
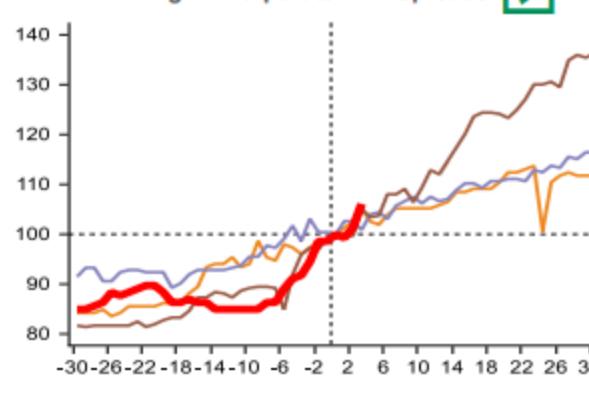


Fig. 7: Corporate BBB spreads



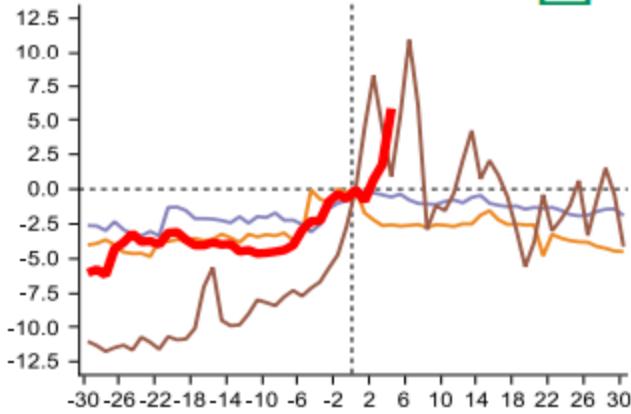
A brief history of prices around inter-meeting cuts

Yields/spreads re-based to 0 at T = 0; Prices re-based to 100 at T = 0

If at least 6/7 previous trades work

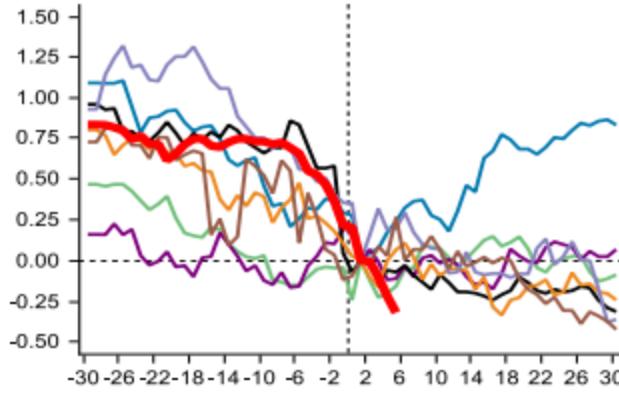
If less than 6/7 trades work

Fig. 8: VIX Calendar spread 



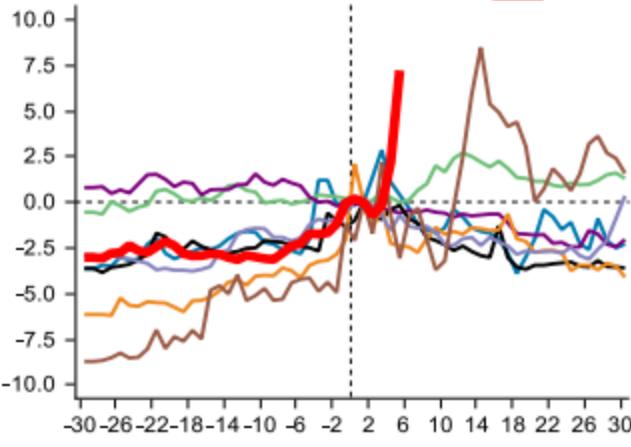
Sources: Bloomberg, BNP Paribas

Fig. 9: US Govt 2y (bp) 



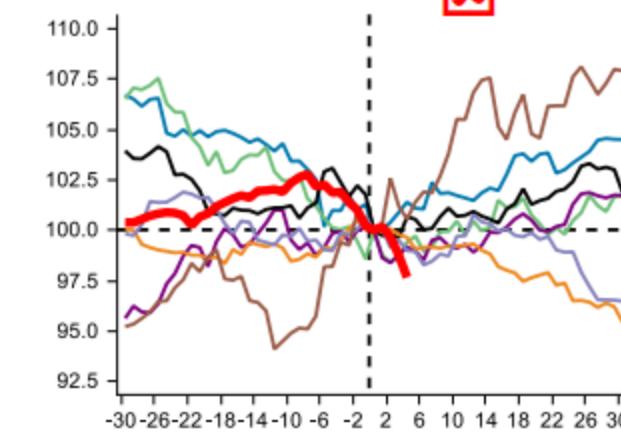
Sources: Bloomberg, BNP Paribas

Fig. 10: USDJPY 3m Vol 



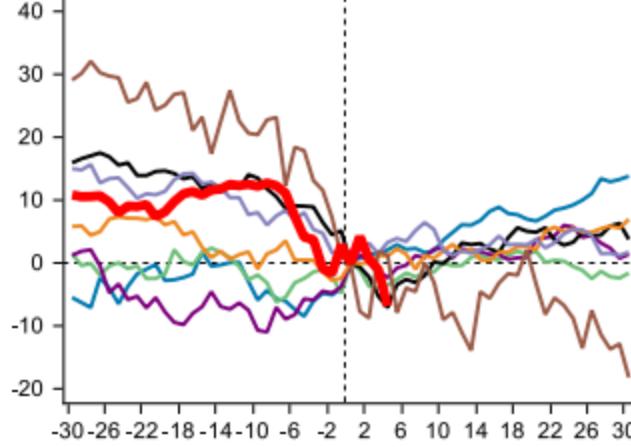
Sources: Bloomberg, BNP Paribas

Fig. 11: DXY Index 



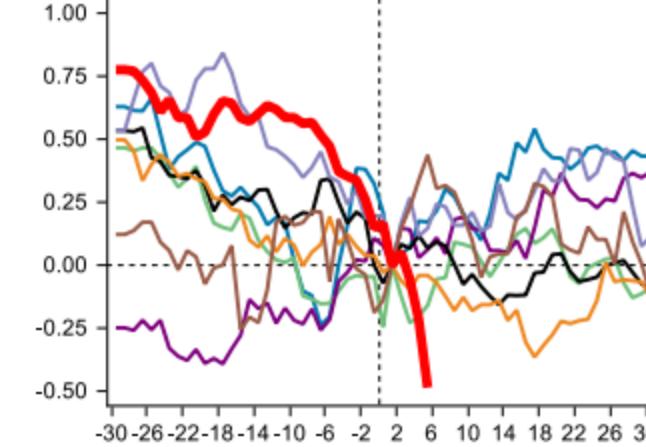
Sources: Bloomberg, BNP Paribas

Fig. 12: S&P 500 



Sources: Bloomberg, BNP Paribas

Fig. 13: UST 10y (bp) 



Sources: Bloomberg, BNP Paribas

G10 INTEREST RATES

Interest Rate Strategy: Portfolio update

The breakdown in talks between OPEC and Russia contributed to a further leg in current risk-off sentiment. Despite further stop outs in our [balanced portfolio](#), P&L remains positive at EUR2.6mn, supporting our approach. Our portfolio is increasingly skewed to risk-off (we have just one 'risk-on' trade idea left and three 'risk-off'). We remain cautious in the near term, and our positioning therefore remains unchanged at this time.

TRADE IDEAS

Closed trades

- **Booked profit:** Buy OAT May-34 vs IRISH May-33 (risk-off). Long-dated Irish bonds have finally moved from very expensive levels to reach our 15bp target versus OATs. We prefer to book profits at these levels.
P&L after carry: +12.8bp / +640k
- **Stopped out at a loss:** Receive EUR 5s10s30s swap fly (risk-off): The additional sell-off in equities on 9 March has pushed the valuation of 10y swaps more out-of-line versus our model, there is not yet any sign of stabilisation.
P&L: -4.2bp / -315k
- **Stopped out at a loss:** Buy SPGB Oct 29 vs OAT May 50 (risk-on): While we expect the ECB to announce a temporary increase in its quantitative easing programme, we will wait for peripherals to stabilise before adding a long Spain position to our portfolio again.
P&L: -10bp / -500k
- **Stopped out at a loss:** Receive April versus pay December ECB meeting (risk-on): Although we still believe the ECB is limited on the monetary policy front, the market is increasingly pessimistic and now prices in three bank rate cuts by end-2020.
P&L: -3bp / -75k.
- **Stopped out at a loss:** Long 10y GBP swap vs EUR and US (risk-on): The trade reached stop-out level amid further risk-off on Monday.
P&L: -11.1bp / -410k.
- **Stopped out at a loss:** Long 30y RPI inflation swap: Relentless rally in yields globally and sharp oil market repricing in the wake of the breakdown in talks between OPEC and Russia have resulted in long 30y RPI trade reaching its stop-loss.
P&L: -6bp (not part of 'balanced' portfolio)

Modified trades

- **Adjust stop-win and target:** Long 5y5y vs 2y2y HICPxT (risk-off). Global yield rally and the breakdown in talks between OPEC and Russia have resulted in sharp steepening of the HICPxT curve. The combination of a policy aimed at market share and negative demand shock due to Covid-19 might see oil prices fall further, in our view.
New target: 50bp . New stop-win: 35bp . Current P&L: +18.3bp / +3,294k.

Grids

- **OTM-ATMF Normal Vol Spread:** This grid displays the difference between the out-of-the-money (OTM) implied normal volatility for a given expiry, tenor, and moneyness, relative to the at-the-money-forward (ATMF) volatility. The ATMF level is the current ATMF volatility.

- **1-Week Vol Spread Change:** This grid displays the change in the volatility spread over the past week.

- **Local-ATMF Normal Vol Spread:** This grid is similar to the "OTM-ATMF Normal Vol Spread" grid, but uses the spread between ATMF volatility and local volatility rather than OTM volatilities. The local volatility for a given moneyness is the estimated ATMF volatility in a scenario where the market were to move to that rate level. We estimate the local volatility based on a SABR model.

- **Implied CEV:** This grid displays the implied CEV factor for each expiry, tenor, and moneyness. For at-the-money volatility, the realized CEV is displayed.

► The realized CEV is calculated as a function of the regression beta for a regression of the log of normal volatility on the log of rates. If:

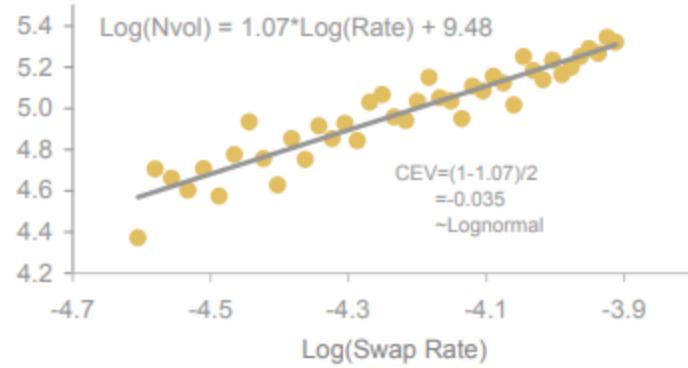
$$\sigma_{\text{Normal}} = \sigma_0 F^\beta$$

Then:

$$\log(\sigma_{\text{Normal}}) = \beta \cdot \log(F) + \text{Constant}$$

$$CEV = \frac{1 - \beta}{2}$$

Log(Normal Vol)



► If the realized CEV > implied CEV, the history of implied volatility vs. rate is more normal than the current market implies. To position for a continuation of the historical relationship, investors can buy low-strike vol and sell high-strike vol.
 ► If the realized CEV < implied CEV, the history of implied volatility vs. rate is more lognormal than the current market implies. To position for a continuation of the historical relationship, investors can sell low-strike vol and buy high-strike vol.

Notes

- **The SABR Model:** The Stochastic Alpha Beta Rho model was presented by Hagan, et al. It combines a local volatility model with a stochastic volatility model:

$$dF = \alpha F^\beta dW \quad d\alpha = \nu \alpha dZ$$

$$\text{cor}(dW, dZ) = \rho$$

► This model is widely used in rate volatility markets due to its tractability and ability to capture market prices and behavior.
 ► We calibrate the model by first solving for beta based on a local volatility model using OTM and ATMF option prices, then setting the other parameters to minimize market pricing errors.

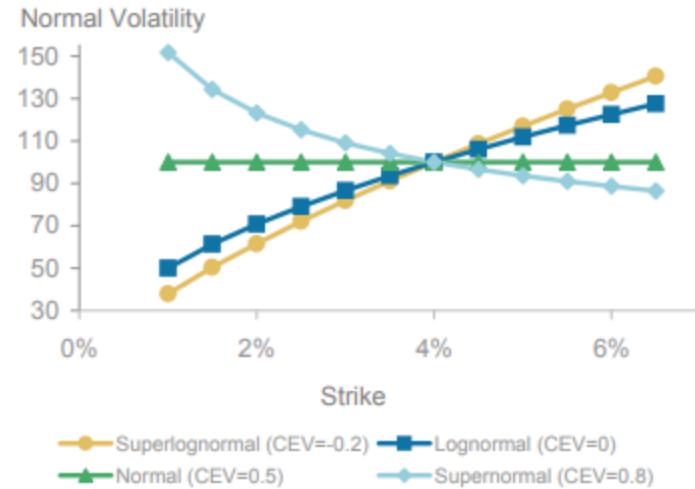
► A note of caution: Although the SABR model is widely used, it still may give inaccurate estimates for long expiry options. Caution should be exercised when looking at long expiries.

- **The CEV Model:** The Constant Elasticity of Variance model assumes that volatility is a deterministic function of rates:

$$\sigma(F) = \sigma_0 F^\beta \quad CEV = \frac{1 - \beta}{2}$$

Where F is the forward rate and sigma is the normal volatility.

► A CEV factor of < 0 (beta>1) implies superlognormal skew. ATMF normal volatility will increase with a faster pace as rates increase.
 ► A CEV factor of 0 (beta=1) implies a lognormal skew. ATMF normal volatility is directly proportional to the level of rates.
 ► A CEV factor of 0.5 (beta=0) implies a normal skew. ATMF normal volatility is independent of rates.
 ► A CEV factor of > 0.5 (beta<0) implies supernormal skew. ATMF normal volatility will decrease as rates increase



Global Rates Notes: Are sovereign bonds still a good risk hedge?

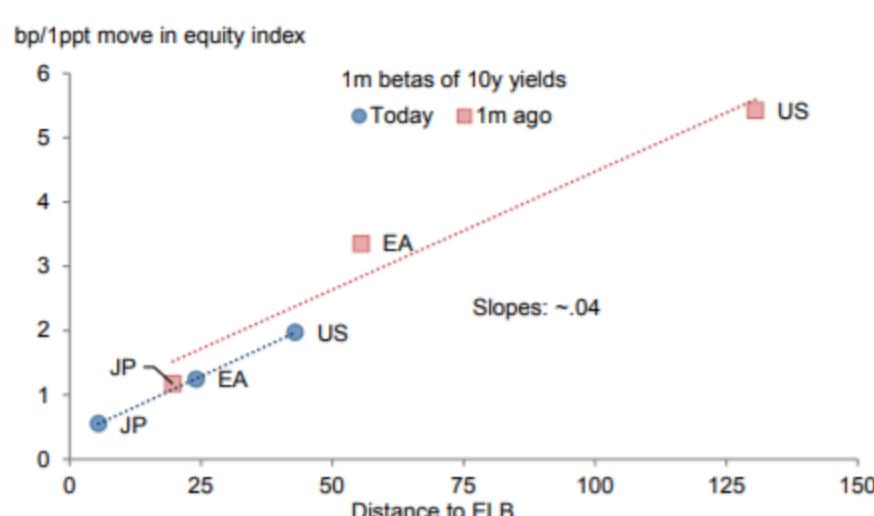
Over the past two weeks, high quality government bond yields have declined sharply alongside the selloff in risk assets. If investors owned an equal risk allocation of bonds and equities as a simplistic risk parity framework might suggest, the year-to-date gain in the bond portion has more or less offset the loss on equities. However, with sovereign yields across maturities in many regions approaching policy rate Effective Lower Bounds (ELBs), one question to ask is if nominal bonds still carry the same insurance value. Unless central banks show a willingness to cut deeply into negative territory, we think the answer is no, at least for the larger bond markets like the US, Euro area and Japan.

Exhibit 1 shows the 1-month betas of changes in 10y yields to changes in local equity markets for these larger economies, as of yesterday and one month prior. As can be seen in the cross-sectional plots in the exhibit, the betas tend to decline 1bp per ppt of equity declines for every 25bp decline in the "distance to ELB". In the case of US, this relationship suggests that the beta of 10y yields to S&P500 changes ought to have declined from roughly 5.5bp per ppt change in S&P500 levels to about 2.2bp/ppt. This is in fact close to what we observe empirically—the most recent observed beta is 1.97bp/ppt. The shift in the intercept of the cross-sectional relationship explains the difference; we view the shift as summarizing factors other than distance to ELB, which may not be readily alleviated by monetary policy easing, such as the coronavirus-driven downshift in growth outlook. The chart suggests that US Treasuries remain the best "hedge" option among the large developed market economies, though as can be seen, its hedge value has declined substantially (unless perceptions of the ELB change markedly).

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Goldman Sachs & Co. LLC

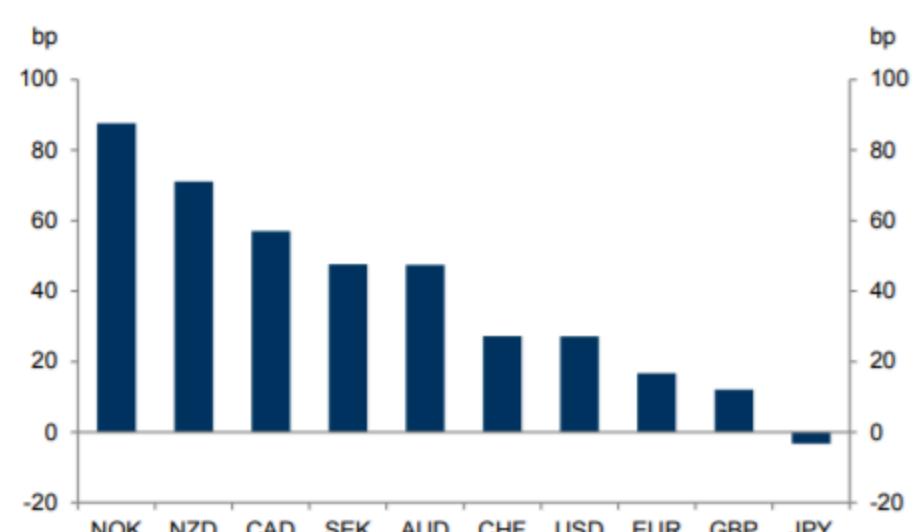
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Exhibit 1: The hedge value of sovereign bonds has declined as bonds have approached the effective lower bound on policy rates
 1-month betas of changes in 10y yields to changes in local equity markets



Source: Goldman Sachs Global Investment Research

Exhibit 2: Interest rates in smaller G10 economies have more room to catch down when compared to the larger economies
 Distance from 10y OIS rates to respective Effective Lower Bound (ELB)



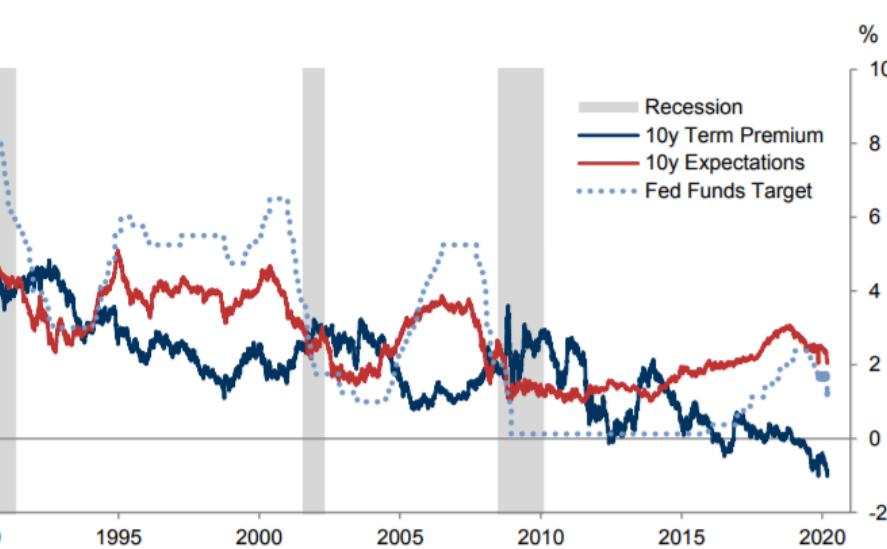
Source: Goldman Sachs Global Investment Research

One way this could happen is with deeply negative term premia, which could in theory push yields below the perceived lower bound. We believe it will be hard to produce such steep declines in term premia when policy rate expectations at longer maturities are converging to the perceived lower bound. This is because, at least historically, term premium has tended to be *counter-cyclical* with the business cycle; that is, as central bank easing starts to get priced, term premia increase, or at the very least, stop declining further (Exhibit 3).

Breaking risk premia further into real and inflation risk premia provides an interesting and useful detail—much of the increase in term premia typically occurs as a result of increases in real risk premia (Exhibit 4). This pattern makes sense; once all cuts perceived as being possible are priced, the risks to the path of real rates are skewed to the upside by definition. By contrast inflation risk premia have exhibited a less stable pattern over the past two decades. In periods where the growth shocks are demand-driven, inflation tends to be strongly pro-cyclical. Over the past two decades, recessions in developed markets have tended to be driven by drops in aggregate demand rather than supply shock induced. While the current shock from the

Exhibit 3: Term premium has historically been counter-cyclical with the business cycle

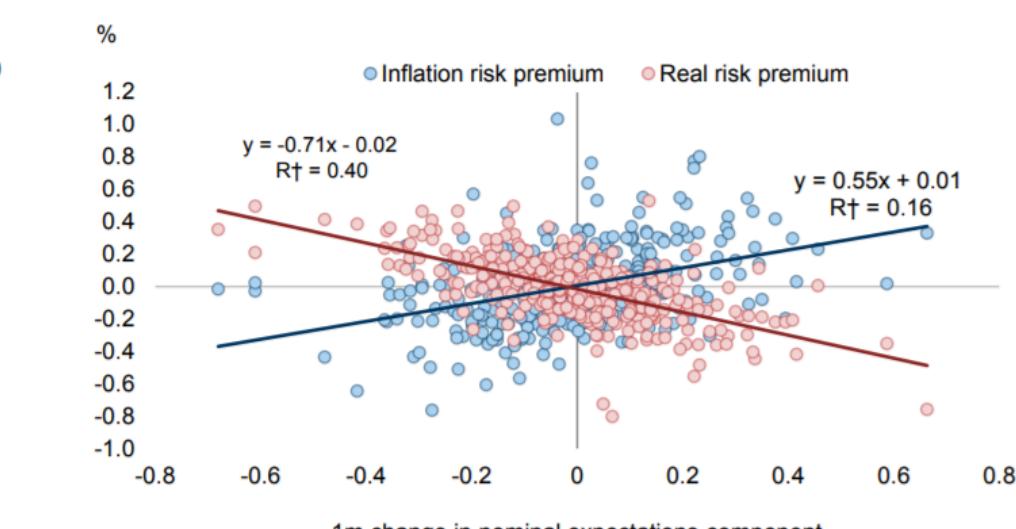
US 10y term premium and expectations components



Source: Goldman Sachs Global Investment Research

Exhibit 4: Real risk premia tend to increase once policy rate expectations have bottomed out; inflation risk premia continue to decline

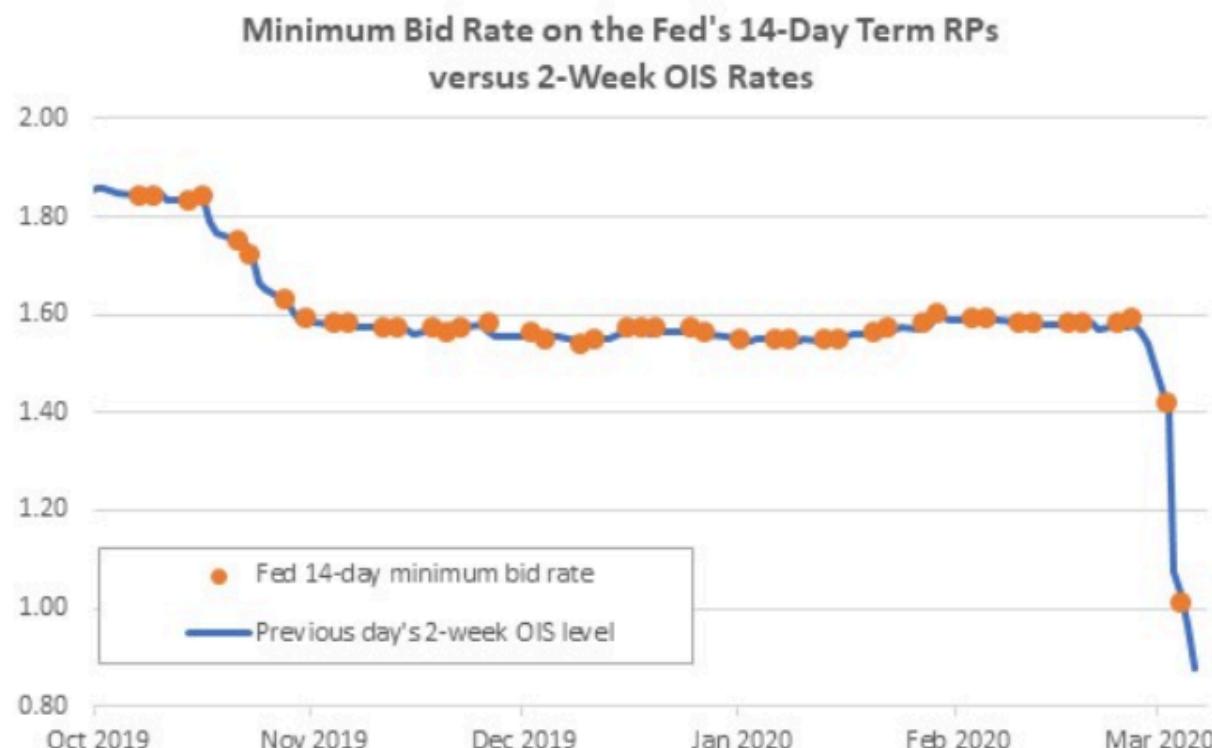
1m change in US 10y real and inflation risk premia versus change in the policy rate expectations component



Data from past 30 years

Source: Goldman Sachs Global Investment Research

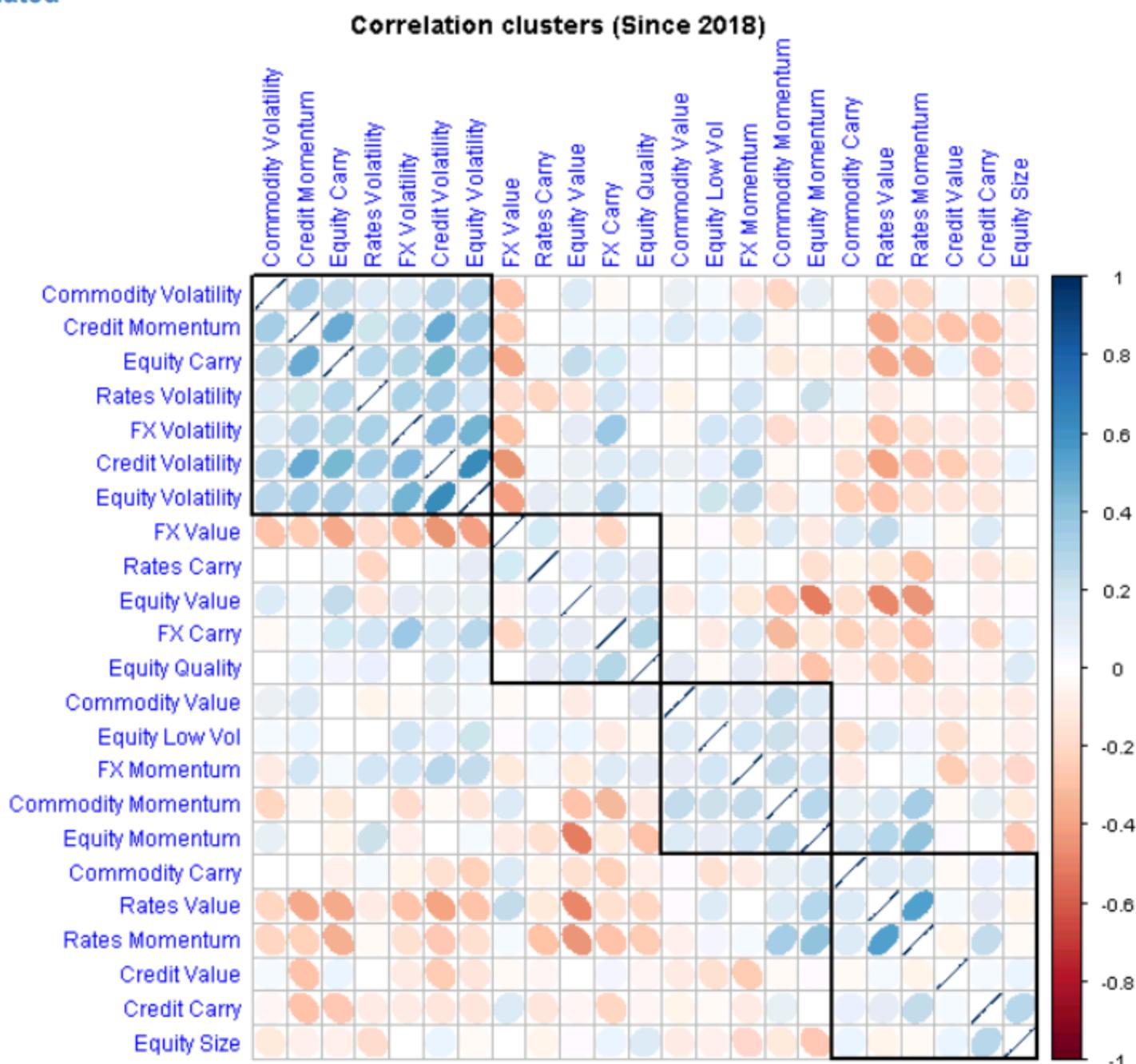
Note: Higher Minimum Bid Rates. Chair Powell has said that the Fed at some point might start to boost the minimum bid rate on its RPs, presumably with an eye to converting them from a staple source of bank reserves to a lightly-used backstop for the funding market. We think that could be an interesting experiment at some point, but not right now. Uncertainty about the size and timing of upcoming changes in the IOER is contributing to the extreme volatility in money market spreads (especially LIBOR/OIS). Adding yet another pricing variable to the outlook would exacerbate the uncertainty, and hamper the market's efforts to re-establish an equilibrium. We expect the Fed's overnight RPs to continue to be priced at the IOER for the coming monthly cycle, and the term operations to continue to be priced flat to OIS.



Global Quantitative & Derivatives Strategy
05 March 2020

J.P.Morgan

Figure 5: Correlation clusters since 2018: Many risk premia start to become more negatively correlated



Source: J.P. Morgan Quantitative and Derivatives Strategy

- **Investment grade (IG) companies typically can draw on their commitments without triggering covenants, although high yield borrowers may have springing covenants:** We believe that typically, IG revolver terms allow borrowers to draw on commitments without triggering covenants (with the exception of some maintenance covenants). On the other hand, typically HY revolvers may include "springing covenants," which trigger when a company draws on a revolver and impose leverage limits on the company.
- **Provisions are uncertain:** Banks may need to accelerate provision builds against these drawdowns under CECL, as they have to provide against life of loan provisions versus 12-18 months under the incurred rules. Clearly, the provisioning will be on a bottoms up case by case basis and is therefore difficult to estimate.

Exhibit 1: We estimate than banks have \$254bn of unfunded commitments in at-risk industries, but have \$850bn of cash and \$2.1tn of securities

\$ mn

Industry	BAC	JPM	C	WFC	MS	USB	PNC	Total
Unfunded commitments (4Q19)								
Metals, mining and materials	25,465	22,701	22,605	15,194	3,537	3,456	0	92,958
Energy	19,920	28,506	32,880	12,584	6,001	0	0	99,891
Transport and leisure	9,579	9,113	0	22,658	0	12,206	7,857	61,414
Sum of industries with elevated risk	54,964	60,320	55,485	50,437	9,538	15,662	7,857	254,263
Cash & Securities (4Q19)								
Cash	150,398	272,648	193,919	144,991	49,288	18,839	23,316	853,398
Securities	464,884	394,002	368,563	420,904	206,717	121,668	83,510	2,060,247
Total Cash & securities	615,282	666,650	562,482	565,894	256,005	140,507	106,826	2,913,645
Coverage of unfunded lending commitments in industries with elevated risk vs. cash & securities (%)								
Cash	2.7x	4.5x	3.5x	2.9x	5.2x	1.2x	3.0x	3.4x
Securities	8.5x	6.5x	6.6x	8.3x	21.7x	7.8x	10.6x	8.1x
Total Cash & securities	11.2x	11.1x	10.1x	11.2x	26.8x	9.0x	13.6x	11.5x

Note: We split C consumer retail and healthcare 50/50 between consumer & retail and healthcare; we split C power, chemicals and metals and mining 50/50 into utilities and metals and mining; USB unfunded commitments include corporate card

Source: Company data, Goldman Sachs Global Investment Research

MBS RUNOFF?

Fed Hasn't Disappointed When Markets Pricing Like This

BI Interest Rates, North America Dashboard



Ira F Jersey
Team: Strategy
BI Rates Strategist



Angelo Manolatos
Team: Strategy
BI Associate Analyst

Fed's Big Rate Cut Not an End, as Repo Market Gets Tight Again

(Bloomberg Intelligence) -- RECENT EVENT REACTION: The Federal Reserve didn't disappoint the market in cutting the federal funds rate 0.5 percentage point and may now need to provide additional assistance to the repurchase agreement market, which is once again somewhat tight. It would have been unprecedented for the Fed to hold rates steady as the market prices the magnitude of interest-rate cuts that it was factoring in.

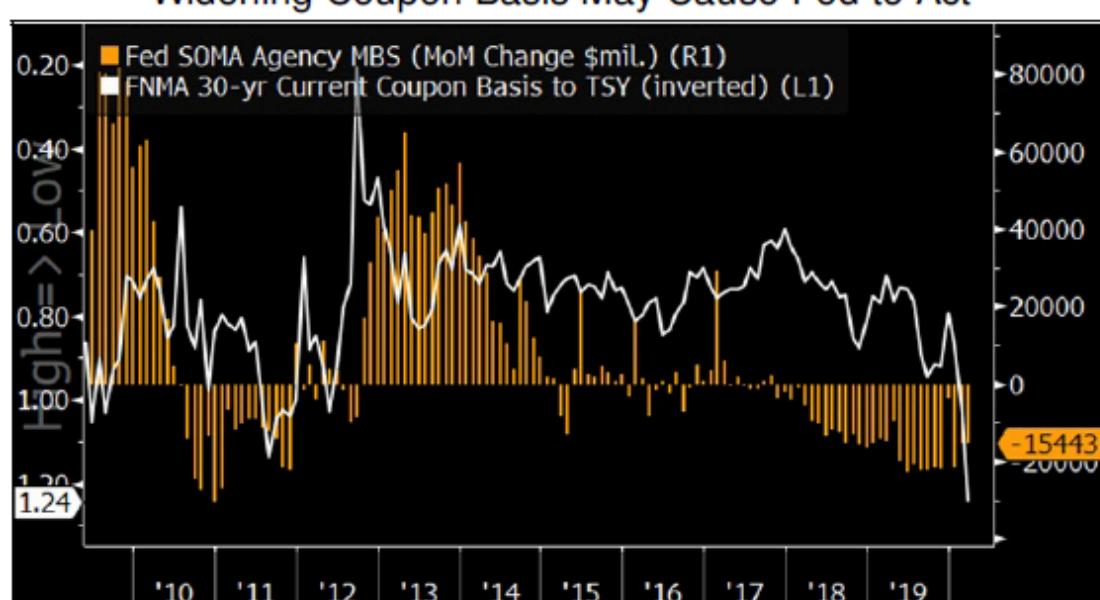
By not waiting until the March 18 meeting, the Fed appears to be attempting to calm risk-asset markets, as rate cuts are of dubious help to the economy. A fiscal response may be somewhat more helpful to economic growth, but takes longer to prepare -- while central-bank action can be immediate. Though the Fed could act to support risk-asset markets, the March FOMC meeting may focus more on repo than rate cuts, which could put April in play. (03/03/20)

1. Widening Coupon Basis May Force Fed's Hand in Halting MBS Runoff

The widening of agency mortgage-backed securities vs. Treasury yields (the MBS basis) may force the Federal Reserve to stop its MBS portfolio runoff this week. The Fed is set to announce \$20 billion of principal reinvestments from MBS into Treasury securities at 3 p.m. New York time on March 12, and may state a change in policy at or before this time. Mortgage yields have fallen to under 1.8%, but the decline hasn't kept pace with Treasury yields.

The market is predicting the federal funds rate may return to the zero-lower-bound by June. Stopping runoff would be the first step before the Fed would restart large-scale asset purchases of agency mortgage-backed securities, in our view. (03/09/20)

Widening Coupon Basis May Cause Fed to Act



2. Hedging Costs Keeping Mortgage Rates High

The consumer mortgage rate has remained relatively stable, though the current coupon MBS yield has sunk to less than 1.8%. One reason for this move is that mortgage servicer hedging costs have risen as rate volatility has spiked. Therefore, even if the Federal Reserve were to buy MBS securities in a size that caused the current

Corporate bonds are a grayer area. Section 13(3) allows the Fed to buy "notes, drafts, and bills of exchange" without a 90-day maturity limit in "exigent circumstances," but imposes strict requirements, including that borrowers are unable to secure credit elsewhere. Even during the financial crisis, this criterion would only have been met for the banking sector. As a result, while the Fed can lend to banks against corporate bonds pledged as collateral with a haircut, this language appears to us to preclude a broad QE-style program of corporate bond purchases intended to lower yields. More to the point, past comments from Fed officials indicate that they agree. In 2016, former Chair Janet Yellen noted that buying corporate stocks and bonds could be useful, but is not within the Fed's current legal powers, according to press reports. This could change in the future, but it would require an act of Congress.

Exhibit 2: What Can the Fed Buy?

Asset	Can the Fed buy it?
Federal government debt	Yes
Debt guaranteed by the federal government	Yes
Federal agency debt	Yes
State and local government debt	Yes, with a maturity up to 6 months
Commercial paper	Yes, with a maturity up to 90 days
Corporate bonds (in a QE-style program)	Probably not. In "exigent circumstances" the Fed can buy "notes, drafts, and bills of exchange" by the vote of 5 members of the Board of Governors, but subject to the stringent requirements that the program offers "broad-based eligibility"; participants are "unable to secure adequate credit accommodations from other banking institutions"; "the security for emergency loans is sufficient to protect taxpayers from losses"; the Fed does not lend to insolvent borrowers or individual companies; and the Secretary of the Treasury gives prior approval.
Asset-backed securities	Yes, subject to the conditions above
Stocks	No

Source: Goldman Sachs Global Investment Research

US Daily: What Can the Fed Do? (Mericle/Phillips)

- The FOMC now has just 100bp of room left to cut the fed funds rate before reaching the crisis-era lower bound of 0-25bp. This raises the question of what the Fed can do if another 100bp of rate cuts is not enough to respond to the impact of the coronavirus on the economy.
- After reaching the lower bound, the FOMC would likely turn to forward guidance and an asset purchase program targeting US Treasuries and probably mortgage-backed securities. We estimate that rate cuts to zero, aggressive forward guidance, and an asset purchase program would have roughly $\frac{1}{2}$ to $\frac{3}{4}$ the total impact of the median Fed easing cycle in past recessions.
- What else could the Fed do? Negative interest rates appear to be off the table due to the unanimous opposition of FOMC participants. QE-style purchases of corporate bonds are likely precluded by restrictions imposed by the Federal Reserve Act, and purchases of equities are prohibited. The Fed can provide liquidity to banks via term repo operations, to corporates via purchases of commercial paper, and to foreign central banks via swap lines. The Fed also purchased asset-backed securities during the crisis to keep credit available to small businesses—some of which could face cash shortages if virus fears keep customers away—but that type of program would probably only reappear under extreme market conditions.

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The Fed does have several tools for providing liquidity when needed. For banks, this means the discount window and could mean increasing the size of the current term repo operations or extending them for longer than initially planned. For non-financial corporates, this could mean buying commercial paper in extreme circumstances, as the Fed did during the crisis period with the Commercial Paper Funding Facility. And for foreign central banks—especially in economies hit hard by the coronavirus—this could mean providing dollar funding via swap lines, a tool that proved important during the financial crisis.

What about the businesses that might need help the most, smaller nonfinancial companies such as restaurants that could face major declines in revenue and cash shortages if virus fears keep customers away for an extended period? During the crisis, the Fed invoked its authority under Section 13(3) to extend credit to “individuals, partnerships and corporations” to establish the Term Asset-Backed Securities Loan Facility (TALF) in cooperation with the Treasury. The Fed cited the almost total shutdown of the market and spike in spreads as meeting the 13(3) criteria, allowing it to purchase asset-backed securities with the intent of keeping credit flowing to consumers and businesses. Such a facility would probably only make a reappearance under very extreme market conditions.

There are also two important differences between the authority the Fed relied on to implement credit and liquidity programs during the financial crisis and its authority today. First, as noted above, the Dodd-Frank Act substantially revised Section 13(3) of the Federal Reserve Act to narrow the range of potential Fed actions. Second, some of the programs that the Fed established during that period relied on capital from the Treasury and/or the FDIC, as the Fed could not take on credit risk. The Treasury, in turn, was able to provide this capital mainly because of the resources Congress provided it under the Troubled Asset Relief Program (TARP). With that authority now expired, the Treasury is unlikely to be able to participate in the range of programs that it was involved with during the financial crisis. That said, the Treasury continues to have authority to use its Exchange Stabilization Fund (ESF) for broad purposes, including the purchase of “instruments of credit and securities,” and the use of this fund would not require any new act of Congress.

<https://www.reuters.com/article/usa-economy-mbs/investors-strategize-for-feds-exit-from-mbs-market-idUSN1651142620091116>

Investors strategize for Fed's exit from MBS market

Julie Haviv, Daniel Bases

6 MIN READ



NEW YORK, Nov 16 (Reuters) - Investors who reaped robust gains in U.S. mortgage-backed securities by piggy-backing on the Federal Reserve's \$1.25 trillion buying program are bracing for the end to the central bank's support — and positioning themselves for a new round of profits as prices cheapen.

The \$5 trillion market for bonds backed by the housing finance companies Fannie Mae, Freddie Mac and Ginnie Mae is in for a shock when the Fed stops buying at the end of the 2010 first quarter.

To keep market volatility from stripping away gains, investors have either cut their holdings in the bonds the Fed has been buying most, avoided that part of the market altogether, or resorted to hedging their positions.

Fed buying, just over \$1 trillion so far, has not only played a key role in bringing down mortgage rates and kick-starting the hard-hit housing market, but also boosted returns at some of the world's largest bond funds.

As the program winds down investors are preparing for greater volatility. Many are

the 25% outflow assumption on these deposits means that losing them can inflict considerable damage on banks' liquidity profile as a dollar of outflow in operating deposits means an outflow of four credits of HQLA and an abrupt drop in their LCR compliance!

Barring regulatory forbearance – banks' and supervisors' equivalent of *force majeure* – these dynamics can quickly push banks to go to funding markets to fix their LCRs, which would stress unsecured funding markets and can push Libor-OIS spreads wider.

With their thinking shaped by the experiences of the GFC, the architects of Basel III assumed that only financial, non-operating deposits are slippery. They did not consider a scenario in which a rapid drawdown of operating deposits can occur without offsetting inflows over prolonged periods. Of course, DSGE models will suggest that there is nothing to worry about, as corporations burning through their operating deposits is due to people not buying phones, not flying and not shopping for luxury goods, which means that retail deposits with even lower outflow assumptions than corporate deposits must be accumulating somewhere – retail surplus agents – so the impact should be LCR positive!

Maybe, maybe not.

In our experience, finance is anthropological (see [here](#)) and the diversity assumed away in DSGE models is always what comes back to bite you. It is perfectly possible that corporations bank with different sets of banks than the people that stopped spending; if so, the deficit banks will borrow from surplus banks in interbank markets at high prices.

Firms depleting their dollar balances, pushing individual banks and local banking systems into deficits, and banks struggling to fund outflows is stage one of potential stresses; stage two is when firms start borrowing dollars from the same banks as their obligations to pay continue but their dollar balances are empty. There are two corporate lifelines: for big, public corporations the CP market, and for everyone else, credit lines from banks.

Firms tapping the CP market at the same time as banks are fixing their LCRs isn't good; neither is many firms tapping their credit lines from banks all at the same time – another potential scenario that can reveal another potential design weakness of Basel III.

Potential outflows related to the drawdown of corporate credit lines form a part of the 30-day outflows that banks have to pre-fund, but similar to the outflow assumption on operating deposits, the drawdown assumptions on corporate credit lines are very low – only 10%. Similar to the outflow of operating deposits, the drawdown of credit lines can inflict significant damage on LCRs which banks would have to fix in unsecured markets.

Missed payments due to the outbreak is the type of event that could cause many corporations to draw on their credit lines at the same time – and so what supervisors provisioned for as an idiosyncratic shock (a random corporation drawing on a credit line) becomes systemic (a random virus that forces all lines to be called all at the same time).

Corporations have not called their credit lines yet to "test" their banks if they're there, but they soon could. This is a fast-moving risk STIR traders should be the most aware of.

Even with regulatory forbearance on LCR compliance, the underlying funding mechanics of such a massive liquidity call could be overwhelming for the repo and FX swap markets, unless all HQLA portfolios are made up of reserves at the Fed, and we know they're not.

A flood of corporate drawdowns could force the entire banking system into becoming a deficit agent – the extreme example of the outbreak infecting the top of the hierarchy: from firms to individual banks, to country level banking systems, to financial centers and, as contagion spreads and turns the global banking system into a deficit system, to the Fed – the only entity that can serve as a surplus agent to match the needs of a deficit system.

No, that's not an overstatement. We saw something similar in September!

Part III – Immune Systems and Liquidity Buffers

Firms burning through their dollar balances on their way to becoming deficit agents won't show up as funding stresses in interbank markets right away due to some dampeners.

In the case of the tech supply chain, cash-rich firms atop the value chain presumably serve as important dampeners as they extend intra-firm credit. Other dampeners include the Federal Reserve which is currently adding liquidity through bill purchases and repos, the equity market selloff, and last but not least banks' HQLA portfolios, thanks to Basel III.

That said, dampeners are just that – they are no panacea: cash-rich tech firms can help their suppliers for a limited time only; the Fed is planning to stop adding liquidity soon; the benefits from an equity market selloff are limited; and the outbreak has the potential to reveal some design weaknesses in the structure of Basel III. We'll discuss each in turn.

First, anecdotally, cash-rich firms atop tech supply chains are currently dampening the funding fallout from the coronavirus – as an example, think about flows from cash-rich tech firms' bank accounts going to suppliers' bank accounts in Japan, Korea or Taiwan, thereby slowing the burn of suppliers' dollar balances and delaying their day of reckoning – the day when they flip-flop from surplus to deficit agents *vis-à-vis* their bank. But the cash balances of tech firms are limited, as most of their wealth is in bonds (see [here](#)), and if the outbreak worsens, tech firms will have to repo bonds to help their suppliers. Such forms of financing will cause contagion in funding markets (pun intended) – a theme that has many variants and which we'll return to in more detail in part four of our analysis.

Second, the Fed's bill purchases and repo operations are adding liquidity for now – the best kind of liquidity at that, which are reserves. The bulk of these injections ended up with foreign banks' New York branches (see Figure 5). These are on top of the temporary HQLA surplus from the dropoff in demand for trade, shipping and commodity financing and are an additional dampener that currently help some banks fund the outflow of corporate deposits and others recycle corresponding inflows through interbank markets.

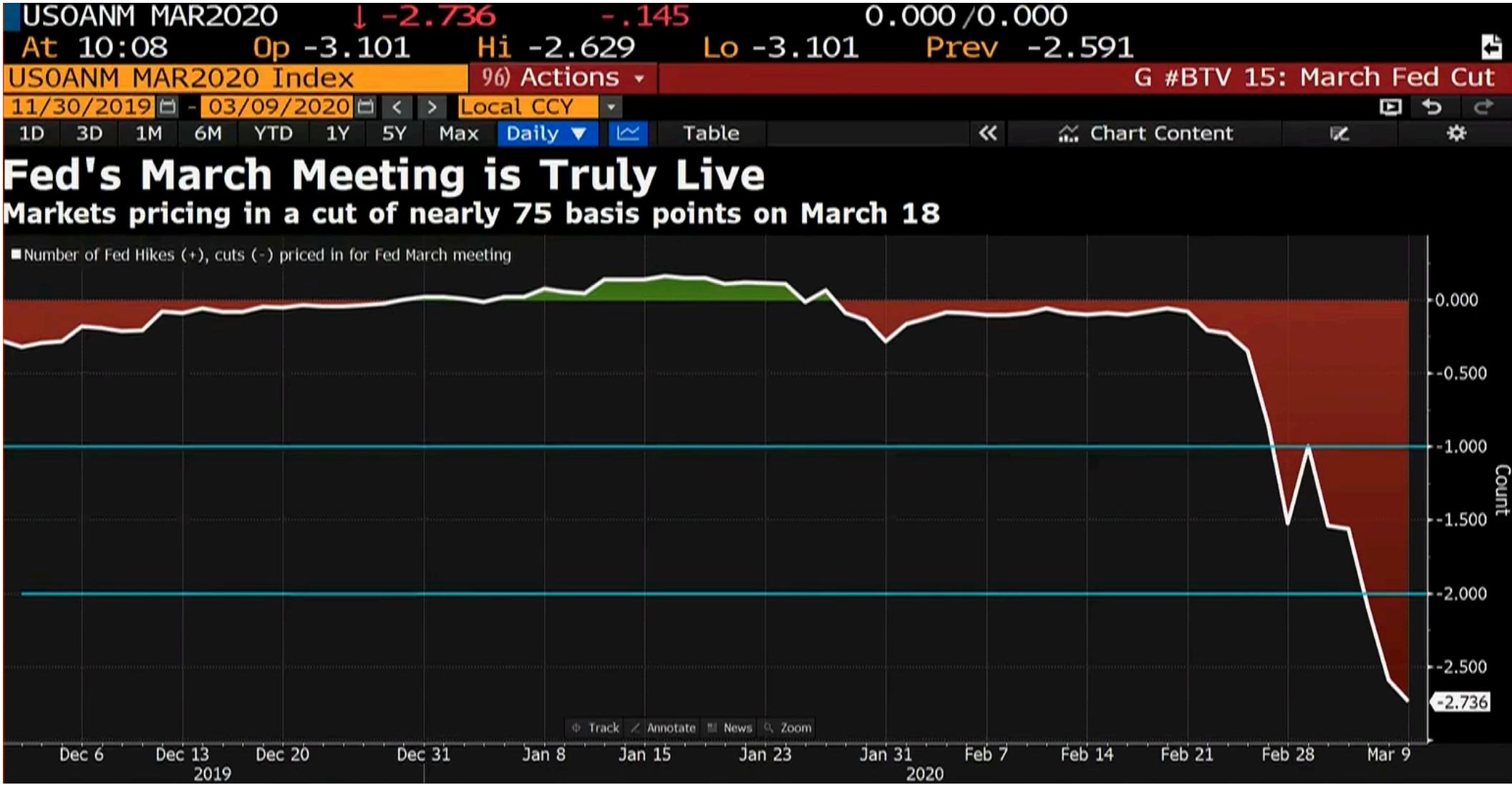
Third, the equity market selloff serves as a dampener too. Without going into too much technical detail here, the equity market selloff has a positive funding market impact through two channels: equity derivatives desks at banks need less unsecured funding to fund their equity inventories (see [here](#)) and, as investors go from equities to Treasuries, Treasury desks at primary dealers get to reduce their Treasury inventories and see a rotation in their HQLA portfolios from bonds to cash – the reverse of last year (see [here](#)).

Fourth, and most important, we now have a global banking system where all major banks have to pre-fund 30-day outflows by running HQLA portfolios. Maybe the biggest reason why we have not seen funding stresses from missed payments due to the outbreak yet, are these portfolios. In that sense, this crisis is playing out differently from the GFC, where funding stresses showed up real time ("T+1"), as banks had no liquidity buffers to tap into as deposits slipped away from them. HQLA portfolios are powerful dampeners.

That said, the LCR and HQLA portfolios are not panacea.

Some jurisdictions already mandate currency matching HQLA portfolios with outflows, but some jurisdictions do not, and in those jurisdictions the outflow of dollar deposits can quickly show up in the FX swap market if HQLA is held mostly in local currency assets...

...and that's the least of potential problems.



-VE RATE PRICING BEFORE SAUDI-RUSSIAN DICK MEASURING CONTEST BEGAN,,,

Key themes from swaption market activity

Themes from Swap Data Repository (SDR) swaption data for the past 2 weeks

Theme 1: Investors are positioning for a negative policy rate in significant numbers for the first time

- There was more than 1.7 million dv01 notional in swaption trades taking place with strikes implying negative policy rates in the previous two weeks, while there were almost no trades earlier this year.
- We also observed several cases where investors appear to have terminated receivers that were executed earlier in the year that are now in the money and have restruck them lower, which suggests that the need for low strike protection remains.

Theme 2: Curve trades involving 30y turned bullish

- Conditional curve trades involving 30y rates are now overwhelmingly bullish (e.g. 1y*2s30s through L.S. receiver) in contrast with the previous tendency for these trades to be executed through H.S. payers.

Theme 3: Short gamma halved; daily vega increased by 50% compared with yearly average

- Our measure of systematic short gamma – the volume traded in 1m*10y straddles – has halved, despite the fact that daily vega volume trade in swaptions has increased by 50%, suggesting that vol sellers have been stopped out.

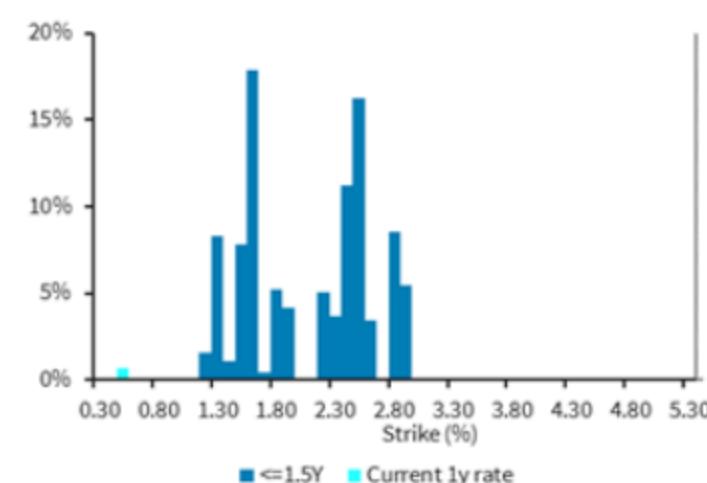
Average Daily Vega (thousands) in off-SEF swaption trades over the past two weeks (vol change in parentheses)

tenor / expiry(m)	bp vega over the past 2 weeks (thousands, daily average)										Sum across tenor
	<=1.5Y	1.5Y-2.5Y	2.5Y-3.5Y	3.5Y-4.5Y	4.5Y-6Y	6Y-8.5Y	8.5Y-12.5Y	12.5Y-17.5Y	17.5Y-25Y	>=25Y	
0.5M-2M	5 (37)	21 (29)	0 (33)	0 (37)	31 (41)	2 (45)	91 (50)	4 (55)	0 (58)	46 (61)	200
2M-4.5M	22 (14)	39 (12)	8 (16)	0 (19)	87 (22)	0 (25)	246 (29)	2 (32)	0 (34)	139 (36)	543
4.5M-9M	46 (-3)	34 (-3)	1 (1)	1 (5)	77 (10)	0 (13)	160 (17)	0 (19)	3 (20)	85 (22)	406
9M-1.5Y	53 (-11)	65 (-10)	21 (-6)	1 (-2)	124 (2)	7 (4)	552 (8)	0 (9)	19 (10)	155 (12)	997
1.5Y-2.5Y	62 (-10)	98 (-10)	16 (-7)	0 (-5)	138 (-3)	0 (-1)	545 (2)	8 (4)	14 (5)	408 (6)	1289
2.5Y-4Y	43 (-10)	18 (-9)	0 (-7)	0 (-5)	42 (-3)	0 (-2)	68 (1)	0 (1)	23 (2)	141 (3)	335
4Y-6Y	3 (-7)	2 (-6)	3 (-5)	6 (-4)	199 (-4)	0 (-2)	284 (0)	0 (1)	88 (2)	164 (2)	750
6Y-8.5Y	0 (-5)	0 (-4)	0 (-4)	0 (-3)	0 (-3)	0 (-2)	133 (0)	0 (1)	84 (2)	25 (2)	242
8.5Y-20Y	16 (-2)	0 (-1)	0 (-1)	0 (-1)	0 (-1)	0 (-1)	246 (0)	87 (1)	55 (1)	73 (2)	476
>=20Y	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	24 (0)	0 (1)	0 (1)	0 (1)	24
Sum across expiry	249	277	48	9	698	9	2348	101	285	1237	5261
	>=3				>=1.5			>=0.5			<0.5

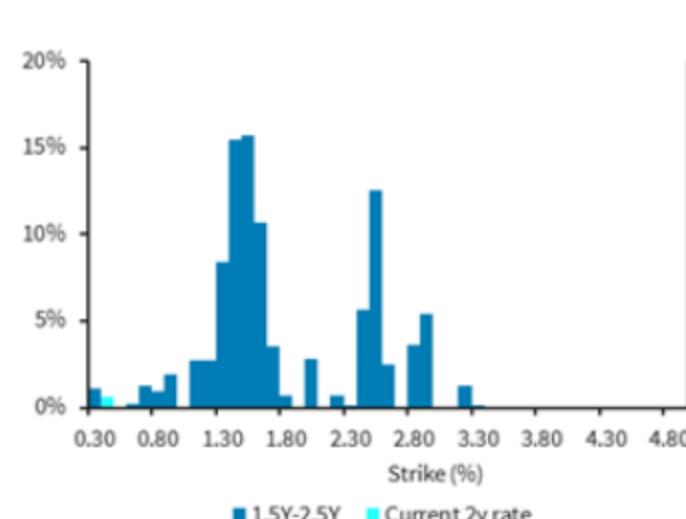
Source: DTCC SDR, Barclays Research Note: The shading represents daily average for the past two weeks divided by the historical average since 2019. The vol change is Friday close-over-Friday close.

Historical distribution of strike for options expiring the next 2 weeks

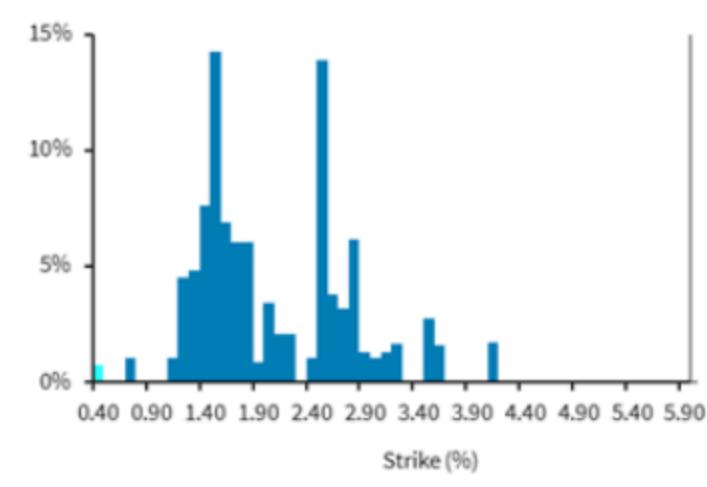
Tenor: <=1.5y



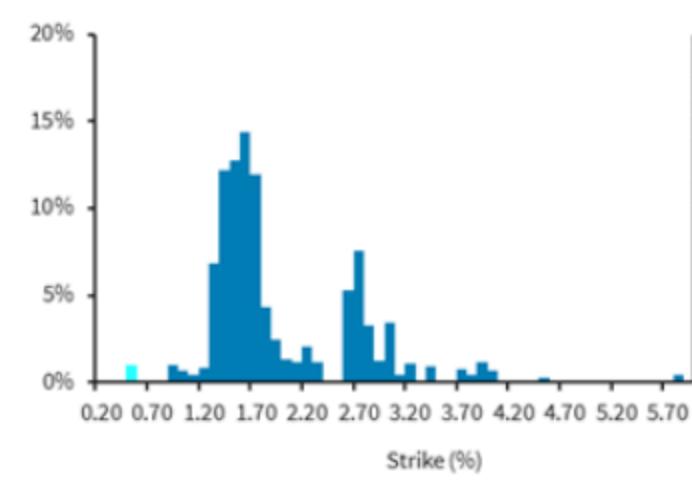
Tenor: 1.5y-2.5y



Tenor : 4.5y-6y



Tenor: 8.5y-12.5y





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Federal Reserve increases capacity of overnight and term repo operations

To address potential liquidity strains, the Fed increased the size of this week's open market operations (OMOs). The increase was earlier and more aggressive than we expected. Beginning today, the overnight operation will be \$150bn (up from \$100bn). The 2-week term operation sizes have been increased to \$45bn from \$20bn. We expect the Fed to keep these sizes when it announces its operation schedule for March and early April on Thursday.

Our sense is that today's increase is meant to boost confidence and prevent any future tightening in secured funding, rather than counteracting current pressure. Indeed, market repo rates were trading about 8bp above the fed funds rate early this morning, and term rates have risen over the past few days. Relative to September's spike, when repo rates moved more than 200bp above the fed funds rate, the current pressure is mild. By contrast, LOIS has widened sharply in the past week. But our sense is that the increase is driven more by deteriorating market sentiment about credit and recession risks than a genuine pullback in unsecured funding markets. Daily overall CP issuance has fallen 6% since February 21, and WAMs have lengthened. This suggests to us that while secured and unsecured funding rates are higher, lenders are still engaged in the market and are not – at least for the moment – moving to hoard liquidity.

Increasing the OMOs gives the Fed some "cheap" protection. It can expand the level of bank reserves, immediately boosting market liquidity, without having to increase or shift its current bill purchases. While we cannot rule out changes to its purchase operations, the increased OMOs buy the Fed some time to cut rates further and reconsider QE. As we wrote in [What comes next? Understanding the potential monetary and fiscal tool kits](#), 6 March 2020, we expect the FOMC to consider a number of policy options in the event that the policy rate is pushed to its effective lower bound. We think the Fed would prefer yield curve control (YCC) over large-scale asset purchases, given the low level of interest rates and lack of term premium, although, as we note above, Fed bill purchases could be extended beyond Q2 to promote reserve abundance. YCC could help reinforce forward guidance, particularly if the Fed shifts to makeup strategies that tie policy rate guidance to inflation outcomes. We doubt the Fed is actively considering negative policy rates.

Beyond expanding the capacity of its daily and term OMOs, the Fed could take a number of additional steps to improve liquidity, credit provision, and market functioning should conditions deteriorate. Pricing on standing FX swap facilities could be reduced, and financial stress could lead to a reopening of the Primary Dealer Credit Facility. Should credit to households or business become constrained, crisis-era liquidity facilities such as the TAF and TALF could also be resurrected.

US Money Markets

Unusual and exigent

Last week, we briefly reviewed some steps the Federal Reserve might take to restore liquidity in key markets such as the Term Asset-backed securities Loan Facility (TALF) and the Term Auction Facility (TAF).¹ This week, we briefly review liquidity conditions and examine some of the limits placed on the Fed's ability to create emergency liquidity facility by the Dodd-Frank Act (DFA, 2010). We also consider what a "broader range" of asset purchases might entail.²

- Signs of liquidity stockpiling have begun. Gov-only money balances are rising and daily CP issuance has slowed. Tier 2 borrowers have seen significant spread widening this week.
- To counter a potential intensification of liquidity pressures, the Fed increased the size of this week's open market operations.
- In addition, we expect it to increase pace of its monthly bill purchases while extending them through Q3.³
- The Fed's charter prevents it from purchasing corporate bonds and municipal debt longer than six months.
- Targeted lending programs such as the TALF, CPFF (commercial paper funding facility) and TSLF (term securities lending program) were created under the Fed's "unusual and exigent circumstances" clause.
- These programs may be more helpful in stimulating consumer and business lending than simply lowering the fed funds rate or expanding bank reserves.
- DFA limits, but does not prevent emergency lending from the Fed under this clause.
- Specifically, lending must be broad-based and not targeted to a specific firm. Borrowers must be solvent and the lending rate is meant to be a penalty rate.
- Pre-approval from the Treasury Secretary is required before any program can be authorized. Congress must be informed within seven days.
- The Fed might have more flexibility with a discount window or TAF program.

Finally, as we noted last week, the Treasury and Administration are considering programs to provide small business loans, lower payroll taxes, and paid sick leave.

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Targeted lending may be more effective than reserve expansion

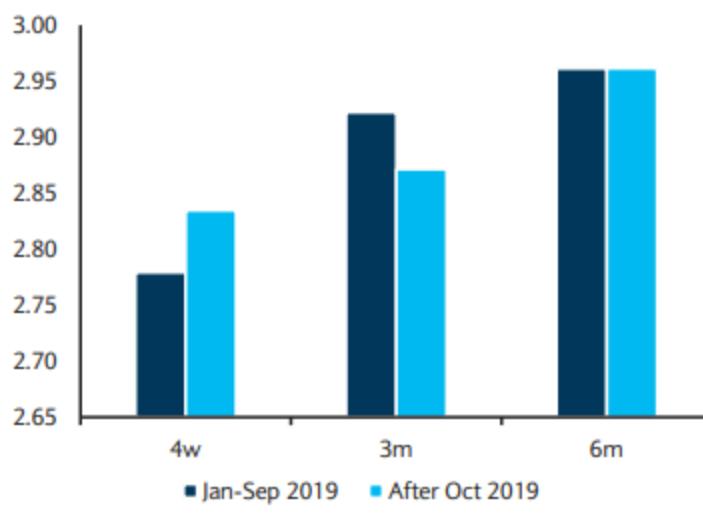
Unusual and exigent

Clearly, if the stress in funding markets is tied to a specific sector or a general re-assessment of counterparty credit risk, then simply expanding the level of bank reserves may do little to stimulate lending to households and businesses. Instead, the Fed might have to reconsider some of the tools it used during the financial crisis to unlock liquidity. These tools were created under the “unusual and exigent circumstances” clause of the Federal Reserve Act. Section 13(3) allows the Fed – in times of severe market stress to provide credit to non-banks. Section 13(3) lending programs included Federal Reserve loans to JPM to purchase Bear Stearns and as well as to support AIG. It also included the TALF and CPFF programs as well as the TSLF. We believe these programs were some of the Fed’s most successful crisis tools. At their peak in November 2008, the Fed’s Section 13(3) lending exceeded \$710bn.

TALF and CPFF were focused on unfreezing corporate credit

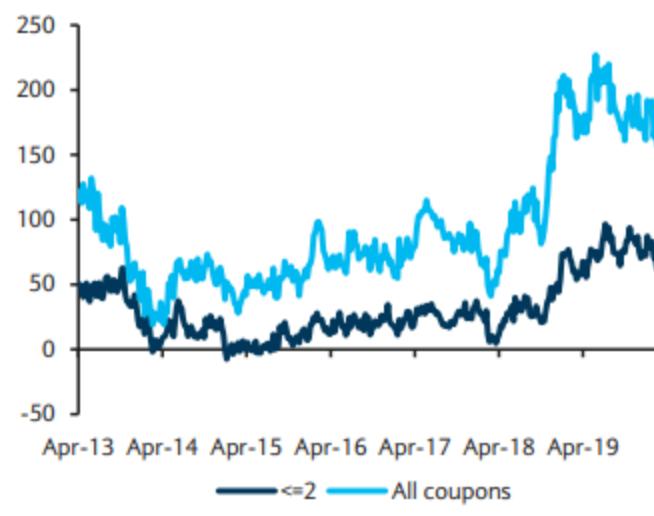
The TALF and CPFF programs focused directly on corporate credit – although two very different segments of that market. Under the TALF the Federal Reserve Bank of New York, lent \$200bn to holders of asset-backed securities backed by new or recently issued consumer or small business loans. The Treasury provided a \$20bn credit protection line to the Fed. This credit protection came from the Treasury’s Troubled Asset Relief Program (TARP). The commercial paper funding facility (CPFF) was a special purpose vehicle created by the Federal Reserve Bank of New York that instead focused on very short-maturity secured and unsecured corporate credit. The CPFF would buy 3m CP directly from issuers at a spread of 100bp above 3m OIS. The CPFF was created because the market for short-term unsecured debt had stopped functioning in September 2008. (It ultimately became the largest of the Fed’s liquidity programs at \$350bn at its January 2009 peak). Liquidity hoarding and counterparty risk fears made investors unwilling to lend to the best non-bank companies at short maturities or at longer maturities against high quality loans and securities backed by loans on cars and other assets.

FIGURE 3
Average bill auction bid-cover ratios



Source: US Treasury, Barclays Research

FIGURE 4
Dealer holdings (\$bn)



Source: Federal Reserve, Barclays Research

#liquiditysqueeze

US Money Markets

Bifurcating Treasury market structure: What the TRACE data reveal

Despite the size and depth of the Treasury market, our understanding of traded activity, venues, and counterparties is somewhat limited. The Treasury and FINRA (Financial Industry Regulatory Authority) began collecting more detailed data in 2017 and will begin publishing these statistics this week.

We examine the structure of the Treasury market with a focus on what the TRACE (Trade Reporting and Compliance Engine) data reveal about the activity on electronic platforms and by principal trading firms (PTFs).

- Daily trading volumes are concentrated in the most recently issued securities – particularly the 5y, 10y, and 2y.
- Nonetheless, activity in off-the-run issues is still significant at \$175bn/day. Daily trading in bills is approximately \$100bn/day.
- Treasuries trade in two roughly equally sized markets – interdealer and dealer-to-customer (DTC). The interdealer market is largely electronic, while the DTC market is traded via voice.
- Primary dealers still make up the bulk of Treasury trading across both platforms (51%), but PTFs account for 20% of daily trading activity.
- However, PTF activity is concentrated on electronic interdealer platforms where they account for 60% of activity. They mostly trade the on-the-run (OTR) or most recently issued coupons.
- About one-third of electronic trading on these platforms is between two PTFs. Another 55% involves trades between a PTF and a non-PTF.
- Bills and off-the-runs account for most DTC activity. Transaction sizes are typically larger than on the interdealer platform.

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Data collection

The Treasury and other regulators recognized that their understanding of the causes of the October 2014 “flash rally” was hampered by a lack of data. While the Federal Reserve has been collecting Treasury volume data for decades, the most detailed information is limited to trades in which one leg goes through a primary dealer. Counterparty activity is limited to interdealer activity and a residual “other” category meant to capture dealer-to-customer (DTC) activity. The Fed only began collecting data on activity on the on-the-run (OTR) or most recently issued securities in the past few years.

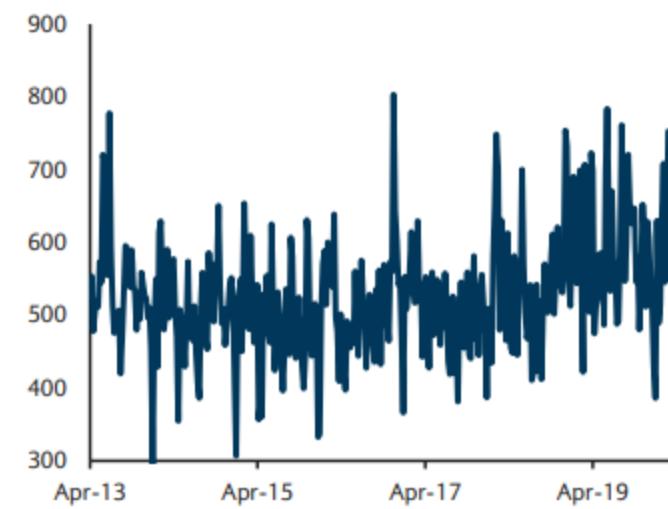
Federal Reserve data: What we know

According to the primary dealer statistics, average daily Treasury volume this year has been around \$560bn/day. Activity has hovered near this level for several years – although it jumped to \$750bn/day in the week ending February 26 (Figure 1). About 60% of the trading is on the OTR issues. Approximately two-thirds of daily average OTR volume occurs in just three issues: 5y, 10y, and 2y notes. Daily volume in the OTR 5y is about \$70bn/day this year. Activity in the 10y and 2y is \$65bn/day and \$45bn/day, respectively. This year, daily average trading in bills is about \$122bn/day or about 20% of overall primary dealer Treasury trading volumes. Daily activity in TIPs is around \$20bn/day.

Roughly one-third of primary dealer trading occurs through interdealer brokers. The remainder is with “others,” which includes customers, other dealers and the Federal Reserve. This interdealer share, however, is biased lower as we include bills, TIPs and FRNs in the total. Close to half of primary dealer trading in the OTR coupons occurs on interdealer platforms.

FIGURE 1

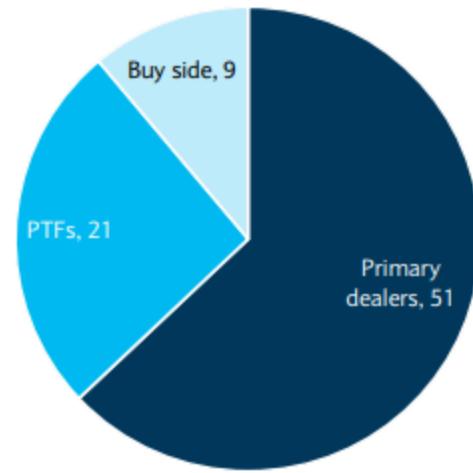
Primary dealer Treasury trading volume (\$bn/day)



Source: Federal Reserve, Barclays Research

FIGURE 2

Treasury trading activity (%)



Note: Using TRACE data. Source: Federal Reserve, Barclays Research

How useful is the Fed's data?

Primary dealers account for about 50% of daily trading across both the interdealer and DTC segments of the Treasury market. However, if primary dealers are making markets and providing liquidity in roughly half of the daily Treasury market activity, who (and how) is intermediating in the other half?

Dealer concentration

Primary dealer Treasury trading is concentrated. Of the 24 primary dealers, the top five (by activity) generally have a market share exceeding 50%. In coupons, the highest concentration is in the bond sector where these dealers account for nearly 60% of trading in securities with maturities longer than 11y. In the bill market, their market share is about 52%. Primary dealer concentrations are even higher in the less actively traded securities such as FRNs and TIPs. There the top five dealers account for between 60 and 68% of daily trading depending on the maturity of the security.

Within the top five, we suspect activity is also concentrated, although this is harder to show. In coupons, the smallest of the top five dealers has a market share of between 7 and 8%. The remaining four dealers split up the remaining 40% of the daily market activity. By comparison, the Treasury tri-party repo market appears to be somewhat less concentrated. There, the top three dealers (by volume) share about 25% of the activity.

TRACE data collection

Since July 2017, FINRA member firms have been required to report their Treasury transactions through the TRACE (Trade Reporting and Compliance Engine) system. TRACE reporting requirements apply to bills, coupons, FRNs, TIPs, and STRIPs. It does not apply to repo or to securities purchased at a Treasury auction. TRACE data, however, include all when-issued transactions. Trades between FINRA members are reported by both counterparties. Last April, FINRA began collecting counterparty data on trades executed by interdealer brokers together with more information on PTF activity.

Weekly TRACE data will be released this month

The Treasury and FINRA will begin releasing weekly aggregated Treasury TRACE data this week. The volume data will be divided across maturity buckets by OTR and off-the-run issues. Keep in mind that all the data that Treasury and FINRA will be releasing is aggregated – they will not be releasing activity in individual CUSIPs. Volume statistics will be split further into interdealer and DTC activity. Data on PTF activity, however, is for official use only.

What we are learning

The Treasury released a few preliminary statistics last fall and the Federal Reserve Bank of New York has done some analysis of the data as well.¹

Daily activity is concentrated in OTRs...

The TRACE data corroborate some of the details in the primary dealer statistics. Overall trading volume was around \$575bn/day over the period between August 2017 and July 2018.² This is somewhat (12%) higher than the corresponding primary dealer statistics from the Federal Reserve. However, trading volumes in the TRACE data are also skewed to the OTR issues – about 70% of daily TRACE activity is in the most recently issued coupons (compared to 60% in the Fed data). Among the OTRs, most activity is in the 5y (\$115bn/day), followed by the 10y (\$93bn/day), and 2y notes (\$52bn/day).³

¹ See, "Remarks of Deputy Secretary Justin Muzinich at the 2019 US Treasury Market Structure Conference", September 23, 2019, Federal Reserve Bank of New York. See also, "Unlocking the Treasury Market through TRACE".

PTFs are 21% of overall daily Treasury trading...

...but over 60% of electronic interdealer activity

Two different markets

Just over half of daily Treasury trading volume is done through primary dealers. PTFs and buy side firms such as insurance companies account for the rest (Figure 2). This distribution of daily trading volume has been fairly steady – at least since August 2017. Within the two segments, trading volumes in the interdealer and DTC markets are roughly equal and each accounts for about half of the reported \$575bn/day that trades in the Treasury market.

In the interdealer market, trading is roughly equally divided between primary dealers and PTFs. Buy-side firms account for the remaining 10%. Interdealer trading is both electronic (or automated) and voice. As PTFs' trading strategies are skewed toward algorithmic and high frequency transactions, it is not surprising that they account for over 60% of the electronic or automated interdealer market. About one-third of the trading on automated interdealer platforms is between two PTFs. Another 55% of interdealer trades is between PTFs and non-PTFs.

By contrast, primary dealers perform most of their interdealer trading by voice. They account for approximately 80% of all interdealer voice trading. Buy-side firms also tend to do more of their trading in the voice interdealer market.

PTF activity is concentrated in OTRs – they do very little trading in the off-the-run issues. By contrast, primary dealers trade a wider mix of securities. They are the principal market makers in off-the-runs, bills, FRNs, and TIPs. The frequency of their trades is lower than for PTFs, but their transaction sizes tend to be significantly larger.

Has market structure caused changes in liquidity?

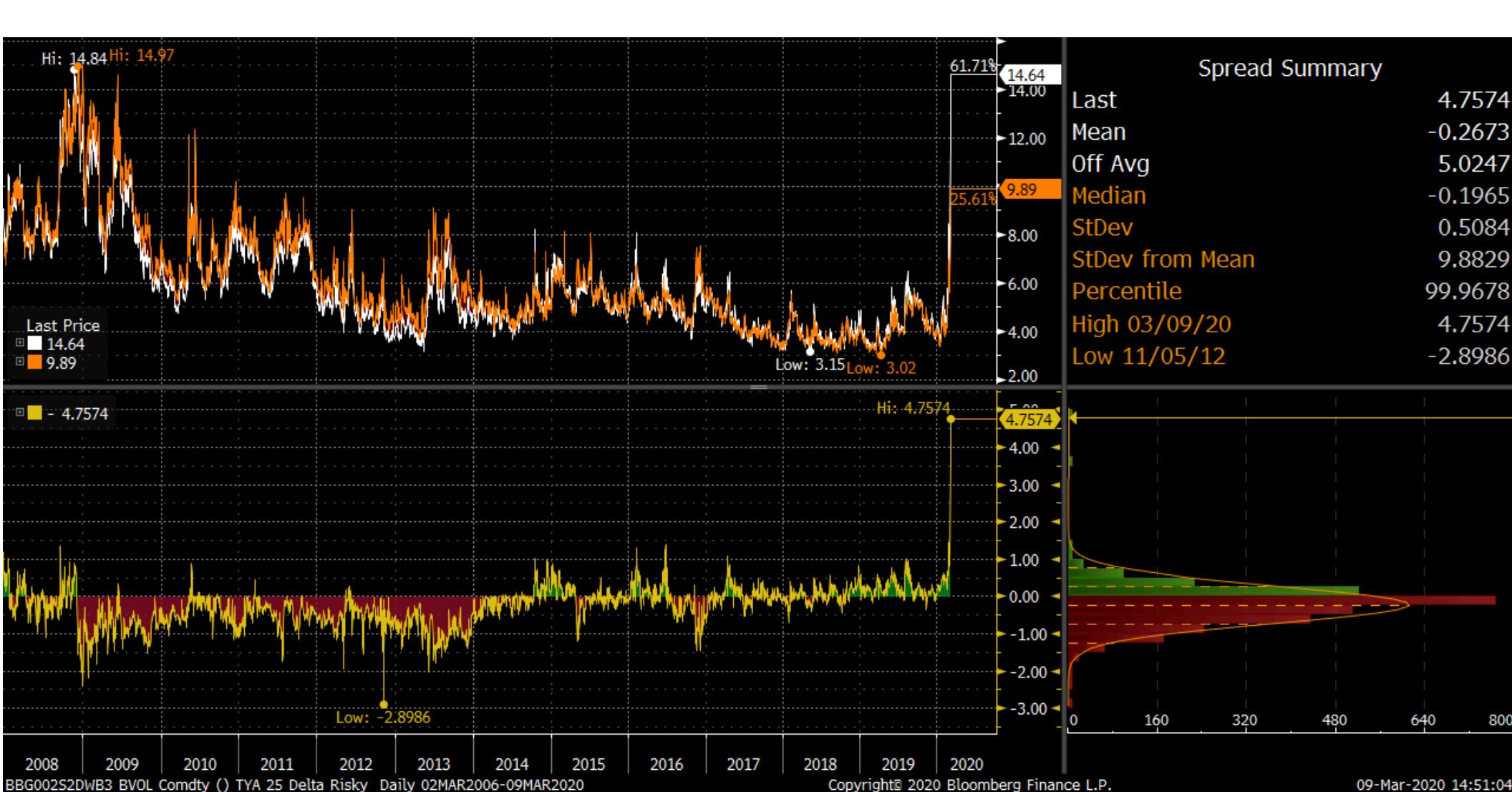
The TRACE data reveal two key points. First, there is significantly more activity in the off-the-runs than was initially feared following the introduction of the leverage ratio in 2015. Primary dealers make markets in these securities – as well as bills, FRNs, and TIPs – often in large lots and as agents for customers as well as themselves. Moreover, market making is not limited to recently issued securities – even very old vintages trade and account for about 14% of daily activity.

Second, liquidity provision in the Treasury market is bifurcated: OTRs trade in a separate market with a different set of market makers than other Treasuries. PTFs play a significant intermediating role in the OTR market – but elsewhere their activity is non-existent. This reflects the nature of their trading activity as well as their structure. Without clients and typically less capital than primary dealers, the PTFs have very little ability to sit on inventories of unsold Treasuries. As a result, they limit their activity to trading only the most liquid issues (the OTRs) in the deepest (electronic) venues. By contrast, primary dealers can act as agents for their clients as well as take proprietary positions like the PTFs. Because they can hold inventories and do not need to end the evening flat, they have more capacity to wait out market swings and slowly distribute their holdings.

Have changes in market structure affected liquidity in the Treasury market?

This raises questions about how the behavior of dealers and PTFs may be different in response to a sudden shock. If PTFs have little capacity to hold onto issues – until calmer markets return, say the next day – is the liquidity they provide from market making less

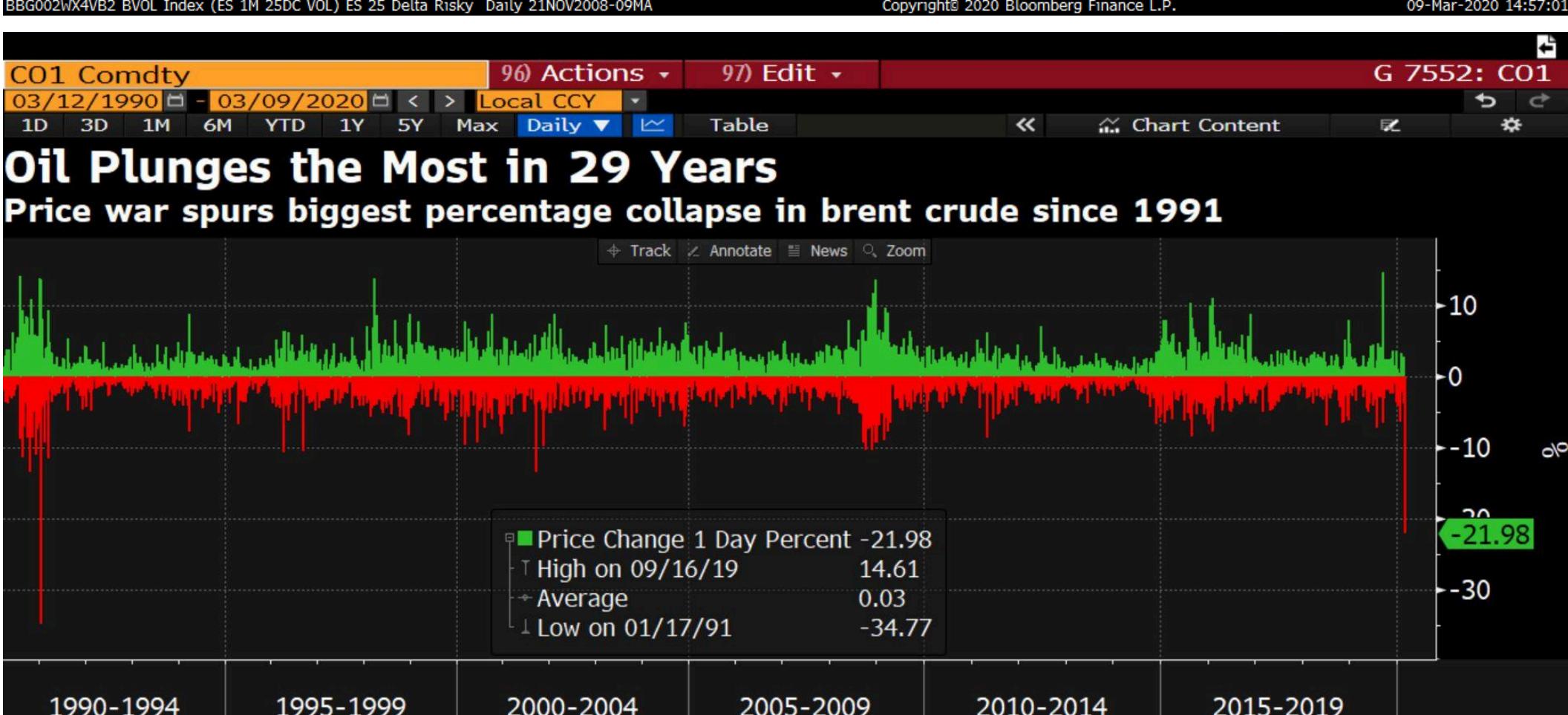
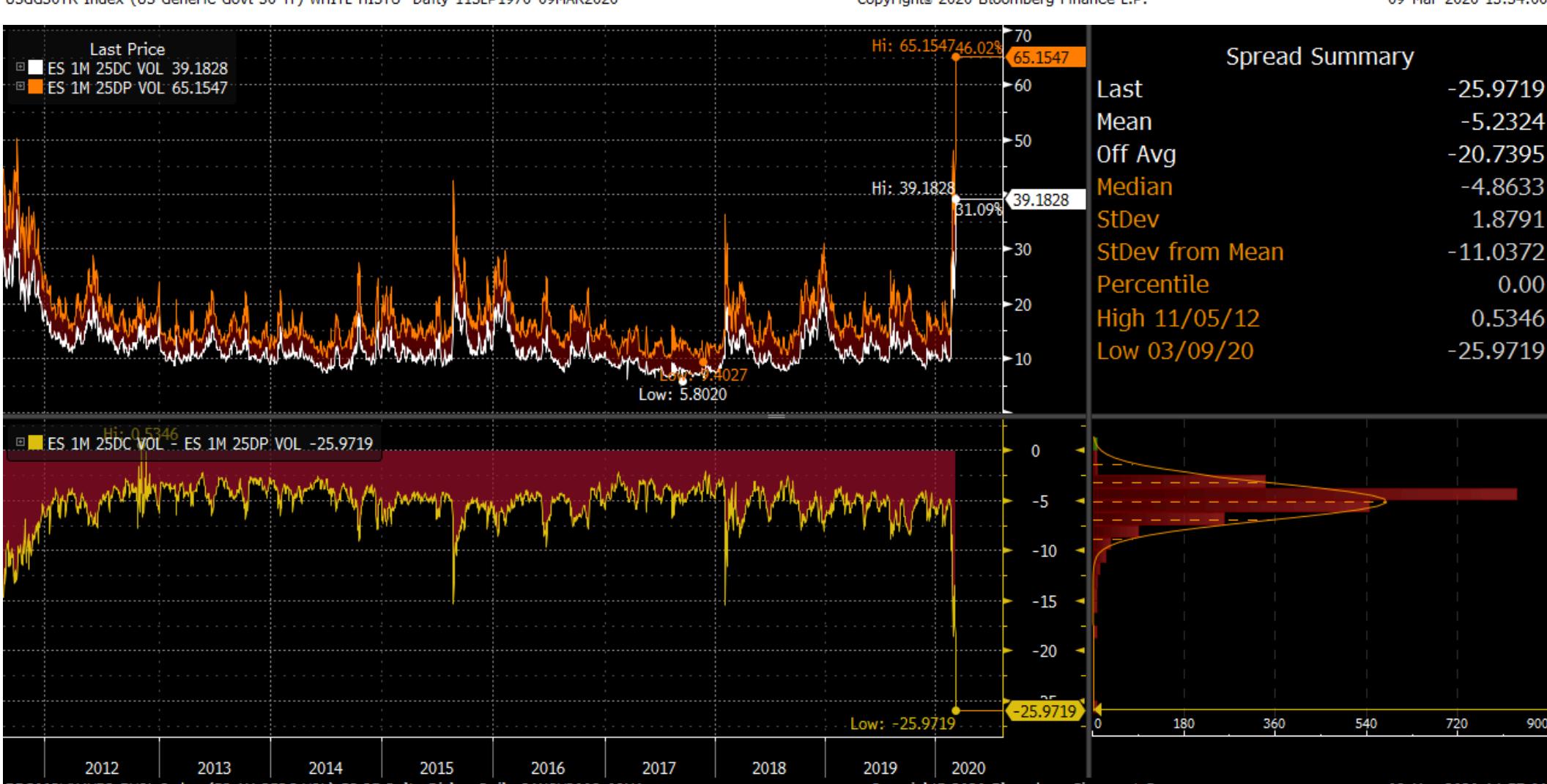
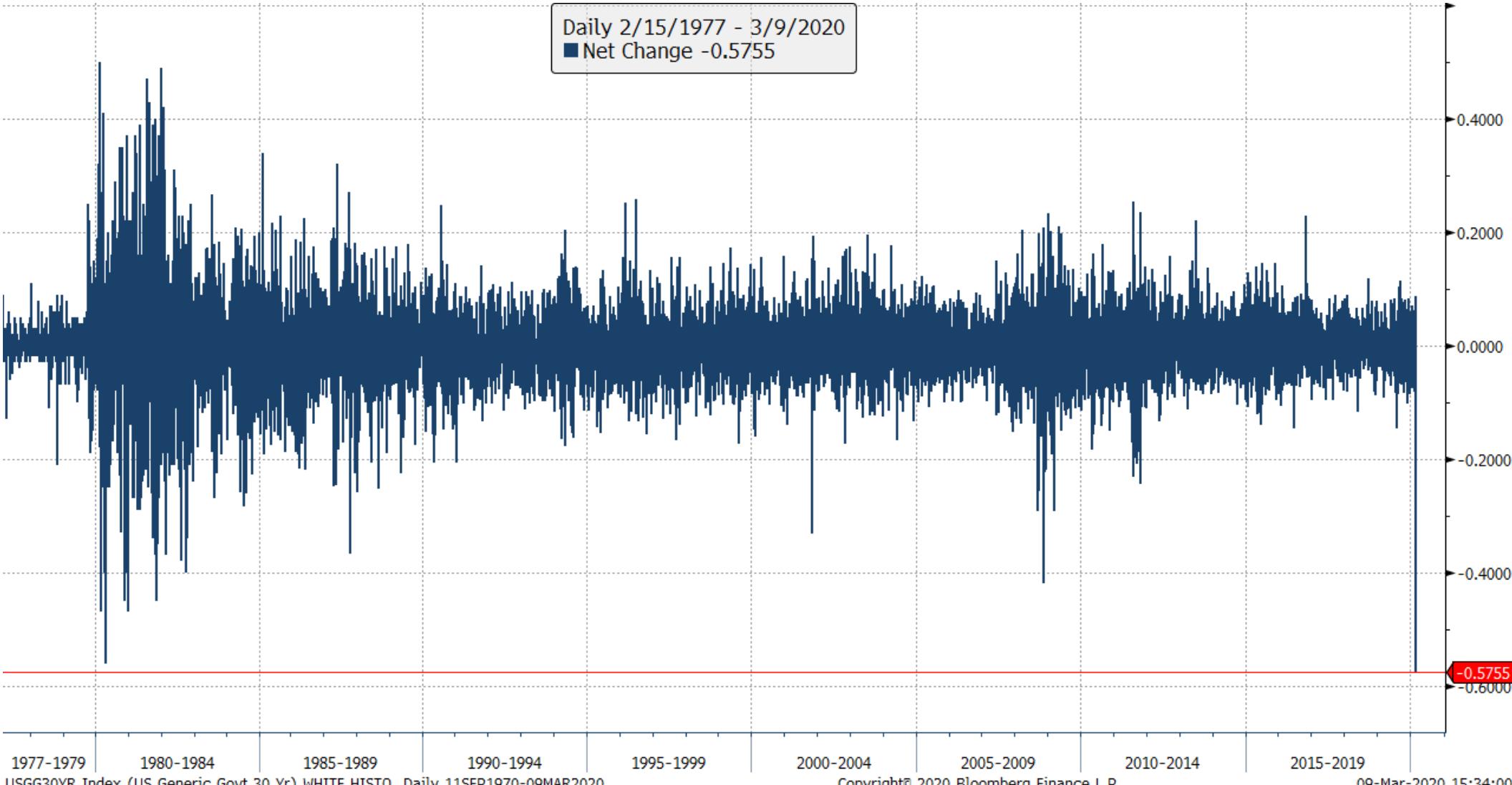
⁴ "Breaking Down TRACE Volumes Further," November 29, 2018



TYM0 Comdty 95) Actions ▾ 96) Export ▾ 97) Settings ▾ Option Monitor
 US 10YR NOTE (CBT)Jun20 ↑139-17 1-19+ 1.1669% 139-16+ / 139-17+ Hi 139-30 Lo 138-15 Volm 389484 HV 6.32
 Center 145-00 Strikes 50 Exp Apr-20 on TYM0 Exch Calc Mode

81) Center Strike		82) Calls/Puts		83) Calls		84) Puts		85) Term Structure		86) Straddle									
		Calls		Strike				Puts											
Ticker	Bid	Ask	Last	sEPx	IVL	DL	Time	Volm	Ticker	Bid	Ask	Last	sEPx	IVL	DL	Time	Volm		
Apr-20 (18d 3/27/20); CSize 100000; TYM0 139-17									50										
1) TYJ0C 139	1'45	2'07	1'60	1'60	13.52	.55	09:09	2738	139	51	TYJ0P 139	1'24	1'31	1'29	1'29	12.94	-.46	09:42	25
2) TYJ0C 139.25	1'44	1'58	1'62	1'62	14.01	.54	08:34	4	139.25	52	TYJ0P 139.25	1'27	1'40	1'34	1'34	13.90	-.45	10:42	18
3) TYJ0C 139.5	1'38	1'52	1'49	1'49	14.00	.51	08:55	3	139.5	53	TYJ0P 139.5	1'37	1'50	2'31y	2'31	11.85	-.65	13:00	
4) TYJ0C 139.75	1'33	1'47	1'39	1'39	14.04	.48	10:30	361	139.75	54	TYJ0P 139.75	1'47	1'60	2'43y	2'43	12.01	-.67	13:00	
5) TYJ0C 140	1'27	1'41	1'40	1'40	14.81	.46	15:18	1443	140	55	TYJ0P 140	1'58	2'07	1'62	1'62	14.53	-.52	10:49	1
6) TYJ0C 140.25	1'22	1'36	1'23	1'23	14.34	.42	09:54	10	140.25	56	TYJ0P 140.25	1'63	2'23	3'05y	3'05	12.49	-.71	13:00	
7) TYJ0C 140.5	1'17	1'31	1'30	1'30	15.23	.42	08:55	4096	140.5	57	TYJ0P 140.5	2'10	2'34	3'18y	3'18	12.69	-.72	13:00	
8) TYJ0C 140.75	1'13	1'26	1'17	1'17	15.11	.39	09:53	152	140.75	58	TYJ0P 140.75	2'22	2'46	3'31y	3'31	12.85	-.74	13:00	
9) TYJ0C 141	1'09	1'22	1'11	1'11	15.17	.37	14:49	2196	141	59	TYJ0P 141	2'33	2'57	3'44y	3'44	12.98	-.76	13:00	
10) TYJ0C 141.25	1'05	1'18	'37y	'37	13.22	.23	13:00		141.25	60	TYJ0P 141.25	2'45	3'05	3'58y	3'58	13.24	-.77	13:00	
11) TYJ0C 141.5	1'01	1'14	'48	'48	14.15	.28	07:19	394	141.5	61	TYJ0P 141.5	2'58	3'17	4'08y	4'08	13.46	-.78	13:00	
12) TYJ0C 141.75	'61	1'10	1'15	1'15	16.50	.36	10:48	70	141.75	62	TYJ0P 141.75	3'06	3'29	4'22y	4'22	13.67	-.79	13:00	
13) TYJ0C 142	'58	1'06	1'10	1'10	16.46	.34	10:49	2118	142	63	TYJ0P 142	3'19	3'42	4'36y	4'36	13.85	-.80	13:00	
14) TYJ0C 142.25	'55	1'03	'57	'57	15.94	.29	07:58	81	142.25	64	TYJ0P 142.25	3'32	3'54	4'50y	4'50	14.01	-.82	13:00	
15) TYJ0C 142.5	'52	1'00	'48	'48	15.77	.26	07:44	25	142.5	65	TYJ0P 142.5	3'45	4'03	5'00y	5'00	14.13	-.83	13:00	
16) TYJ0C 142.75	'49	'61	'25y	'25	14.20	.16	13:00		142.75	66	TYJ0P 142.75	3'58	4'16	5'14y	5'14	14.24	-.84	13:00	
17) TYJ0C 143	'47	'58	'23y	'23	14.27	.15	13:00	569	143	67	TYJ0P 143	4'07	4'29	5'28y	5'28	14.31	-.85	13:00	
18) TYJ0C 143.25	'44	'56	'51	'51	16.96	.25	08:52	2	143.25	68	TYJ0P 143.25	4'21	4'42	5'43y	5'43	14.56	-.86	13:00	
19) TYJ0C 143.5	'42	'53	'51	'51	17.27	.25	08:35	1	143.5	69	TYJ0P 143.5	4'35	4'56	5'58y	5'58	14.80	-.86	13:00	





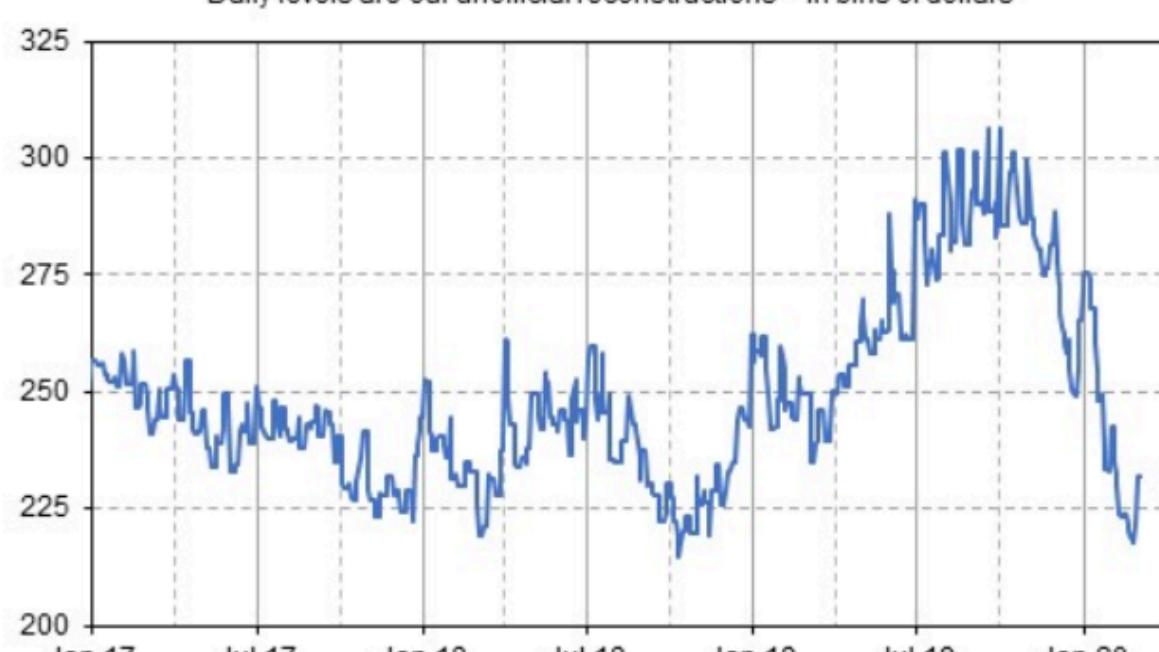
Market Indices	Spread	Chg	Spread	Basis	Roll	Historical Data			Spread	+/-	3M Chg
						Low	Range	High			
1) Americas											
10) CDX Investment Grade	82.85	+9.14		-9.7	6.0	44.0	84.1	49.4	+33.4	+33.4	
11) CDX High Yield	440.38*	+30.89		-21.6		274.0	440.4	301.4	+139.0	+119.3	
12) MCDX	75.35	+0.23			4.0	74.1	78.9	76.0	-0.7	-2.3	
13) CDX Latin America											
2) EMEA											
20) iTraxx Europe	108.17	+28.32		0.6	34.1	41.4	108.2	47.0	+61.1	+60.9	
21) iTraxx Crossover	514.28	+130.91		41.4	123.4	204.4	514.3	227.0	+287.3	+293.2	
22) iTraxx Sr Financial	130.67	+38.25		4.6	44.4	47.0	130.7	55.1	+75.5	+74.7	
23) iTraxx Sub Financial	187.82	+27.96		12.8	-0.8	98.1	193.1	116.1	+71.7	+68.0	
24) iTraxx SOVX CEEMEA											
3) Asia											
30) iTraxx Japan	90.45	+27.30		7.8	34.6	42.9	90.4	47.2	+43.3	+36.6	
31) iTraxx Asia Ex Japan IG	76.38	+5.61		3.8	20.5	47.5	76.4	56.5	+19.9	+11.8	
32) iTraxx Australia	80.18	+10.63		15.7	11.3	47.4	80.2	58.6	+21.5	+24.1	
Emerging Markets											
40) CDX Emerging Market	264.65*	+20.28		44.8		172.5	266.5	193.0	+71.7	+65.6	

Chart of the Week

Yet again this week, the chart we are highlighting from the Thursday night Fed data concerns the Fed's foreign repo pool. After sliding more or less steadily since year-end, the amount of cash invested in the Fed's internal pool rebounded by \$14 billion on a Wednesday-to-Wednesday basis in latest week.

We are tempted to speculate that some of the cash that flowed into the foreign repo pool this week came out of foreign official institutions' outright holdings of Treasuries. The Fed's custody holdings of Treasuries for other central banks fell by \$22 billion on a Wednesday-to-Wednesday basis, which would be more than enough to explain the build-up in cash positions in the foreign repo pool in the latest week. However, we are also mindful of the fact that the Fed works with a wide range of foreign official counterparties that may have very different cash management imperatives at any point in time. So we'll cheat a little and raise the possibility that the rebound in the repo pool last week was funded by the liquidation of Treasury securities by foreign official institutions, without actually claiming that we are sure about the sources of the actual flows.

The Fed's Foreign Official RRP Pool
Daily levels are our unofficial reconstructions – in blns of dollars



Quantitative Perspectives on Cross-Asset Risk Premia

Impacts from market shocks, growth revisions and falling rates, and latest model views

- COVID-19 inducing market shocks. How much rebound do we expect?** The global spread of COVID-19 triggered a massive equity sell-off at the end of February. Markets tend to over-react, and some rebound is possible (as we have seen this week). Compared with a few sell-off episodes, Rates Carry and Short Vol strategies may offer good opportunities in the next three months.
- Revising global growth forecasts:** While it is difficult to quantify the impact of COVID-19 on global GDP growth, a series of downward revisions have already been made, and we expect more to come. Rates Value and FX Momentum are some of the risk premia that have been most resilient to such negative revisions.
- Yield curve has inverted, and will likely bull steepen:** Since the first post-GFC yield curve inversion last year in March, the 10Y/3M slope was negative again in Feb 2020 amidst the 50bp rate cut. While financial data imply a much higher recession risk than economic data, investors may start to look at more defensive picks. We expect the curve to bull steepen, and Equity Quality tends to outperform in such a case. However, our analysis shows that it may be slightly expensive and crowded.
- Falling interest rates would benefit Equity Quality but hurt Value:** Using our attribution framework, we quantify the exposure of pure ERP portfolios to rates. Given that we expect rates to fall further, negative exposure to rates should benefit Quality. However, Value and Low Vol tends to be positively exposed to rates and could get hurt.

Views on cross asset risk premia

	GDP forecast revisions	Yield curve regime	Reactions after equity sell-off	Valuation spread	Crowdedness	Exposure to Rates
Expectations	Downward	Bull steepens	-	-	-	Rates to decrease, positive exposures get hurt
Observations	Downward	Bull steepens	Some risk premia may rebound stronger	Pure Low Vol and Size are slightly cheap Quality slightly expensive	Pure Quality and Value maybe crowded	US 10-year yield drops below 1%
Risk premia that may gain	Equity Low Vol FX Momentum Rates Value	FX Value, Momentum Rates Value, Momentum Credit Volatility, Momentum Equity Quality, Volatility	Rates Carry Equity Volatility Credit Volatility FX Value, Volatility	Equity Low Vol		Equity Quality
Risk premia that may loss	Equity Value Equity Vol Carry FX Carry Commodity Volatility	Rates Volatility FX Volatility Credit Value, Carry Equity Value, Momentum, Low Vol, Size	Equity Value Credit Momentum, Value	Equity Size	Equity Quality	Equity Value, Low Vol, Multi-factor

Source: J.P. Morgan Quantitative and Derivatives Strategy, Bloomberg

Global Quantitative and Derivatives Strategy

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Global Quantitative &
Derivatives Strategy

05 March 2020

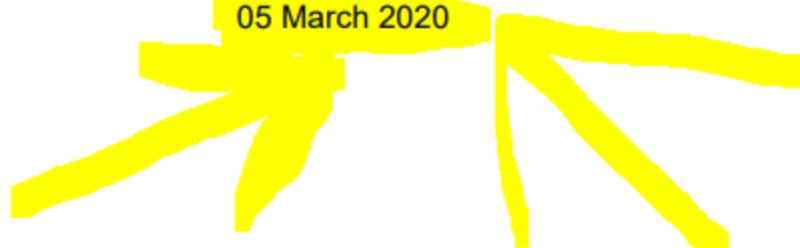
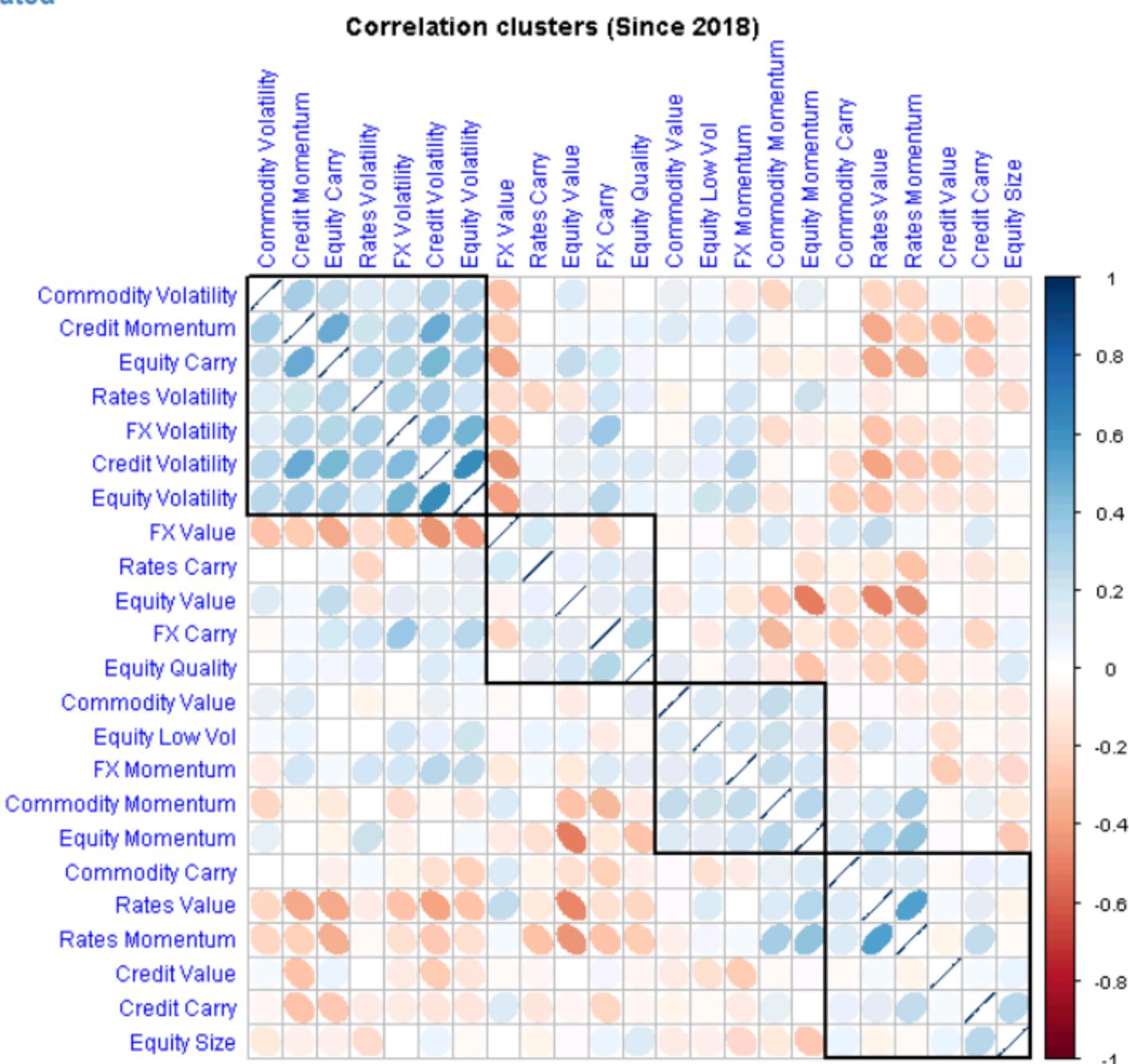


Figure 5: Correlation clusters since 2018: Many risk premia start to become more negatively correlated



Source: J.P. Morgan Quantitative and Derivatives Strategy

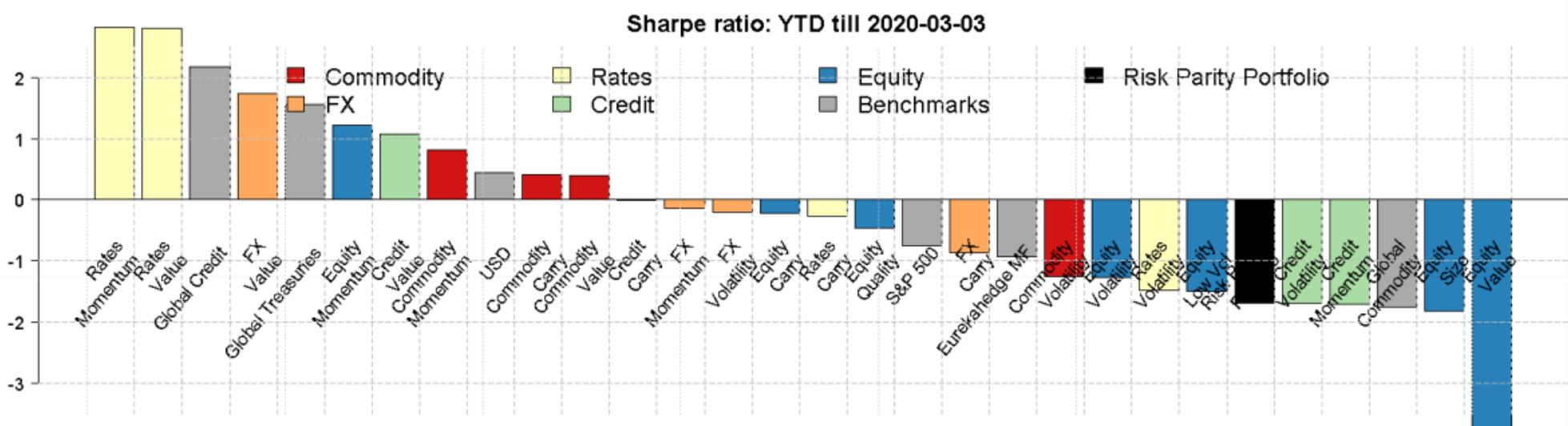
Table 1: J.P. Morgan cross-asset risk premia Indices; all indices are net of costs, and we apply t-cost assumptions when we rebalance the indices in our portfolio

Name	Asset	Style	Ticker	Strategy overview
Equity				
J.P. Morgan Equity Risk Premium – Global Pure Value	Equity	Value	JPQFVLW1	L/S strategy on Value factor
J.P. Morgan Equity Risk Premium – Global Pure Quality	Equity	Quality	JPQFQUW1	L/S strategy on Quality factor
J.P. Morgan US Volatility Term Premia Index	Equity	Carry	JPMZVP4G	Systematic long puts on VIX Futures
J.P. Morgan Equity Risk Premium – Global Pure Momentum	Equity	Momentum	JPQFMOW1	L/S strategy on Momentum factor
J.P. Morgan Equity Risk Premium – Global Pure Low Vol	Equity	Low Vol	JPQFLVW1	L/S strategy on Low Vol factor
J.P. Morgan Equity Risk Premium – Global Pure Size	Equity	Size	JPQFSZW1	L/S strategy on Size factor
J.P. Morgan US 5% Mean Reversion Short Volatility Index	Equity	Volatility	JPOSUS5M	Monetize carry between implied and realized volatility through options exposure in S&P (5% notional a day)
Credit				
J.P. Morgan Global Credit Value	Credit	Value	JCREGCV1	Aim to monetize the risk premia between major CDS indices using a fair value spread
J.P. Morgan Credit Global Curve Steeper	Credit	Carry	JCRECVSG	Track performance from a rolling 5s10s steeper on iTraxx Main and CDX IG
J.P. Morgan Global Credit Momentum USD	Credit	Momentum	JCREMOGU	Aim to capture cross-sectional momentum in global credit indices
J.P. Morgan Global HY Short Volatility	Credit	Volatility	JCRESV3H	Aim to monetize the high implied volatility relative to realized volatility in iTraxx Crossover and CDX HY options by selling straddles and delta hedging on a daily basis
Rates				
J.P. Morgan MAST Basket of 3 Index (USD)	Rates	Value	JPMSUBK3	Capture forward rate risk premium in 3-month USD, EUR and GBP Libor 1y forward
J.P. Morgan CarryMax 2 Futures-6 USD Index	Rates	Carry	JCMX2A6U	Capture yield differential in govt. bond futures
J.P. Morgan Helix 3 Index (USD)	Rates	Momentum	JHLXH3US	Capture trends in short-term interest rate markets using money market futures
J.P. Morgan JPVLBTYU Index	Rates	Volatility	JPVLBTYU	Capture value from the implied versus realized volatility of UST10Y Note futures by shorting option strangles and delta hedge
FX				
J.P. Morgan JPFCVA01 Index	FX	Value	JPFCVA01	Capture value in FX pairs in G10 using PPP
J.P. Morgan FX Carry JPFCARB1	FX	Carry	JPFCARB1	Long high yielding currencies and short low yielders on a large universe of currency pairs
J.P. Morgan JMCUFCTA Index	FX	Momentum	JMCUFCTA	Aim to extract the momentum effect from the underlying FX pairs
J.P. Morgan FX Volemont JPVOFX02 Index	FX	Volatility	JPVOFX02	Pure short gamma exposure across 5 USD currency pairs
Commodity				
J.P. Morgan Compendium Fundamental Index	Commodity	Value	JCOPCF	Using momentum on fundamental signals to go long-short commodities
J.P. Morgan Alpha Select II Index	Commodity	Carry	JMABDBSE	Capture commodity curve carry
J.P. Morgan JMCUCCTA Index	Commodity	Momentum	JMCUCCTA	Aim to extract the momentum effect from the underlying commodities
J.P. Morgan Custom JMAB279E Index	Commodity	Volatility	JMAB279E	Monetize the premium between implied and realized volatility with Breakeven Curve filter

Source: J.P. Morgan Quantitative and Derivatives Strategy

Figure 6 compares the Sharpe ratios of cross asset risk premia with a few asset class benchmarks. With US yields touching historical lows, credit and treasuries have rallied. The US dollar has actually dropped from recent high since rates have tumbled, but it has still gained since 2020. The risk parity risk premia portfolio has suffered, which is largely dragged by the recent drawdowns amongst equity risk premia.

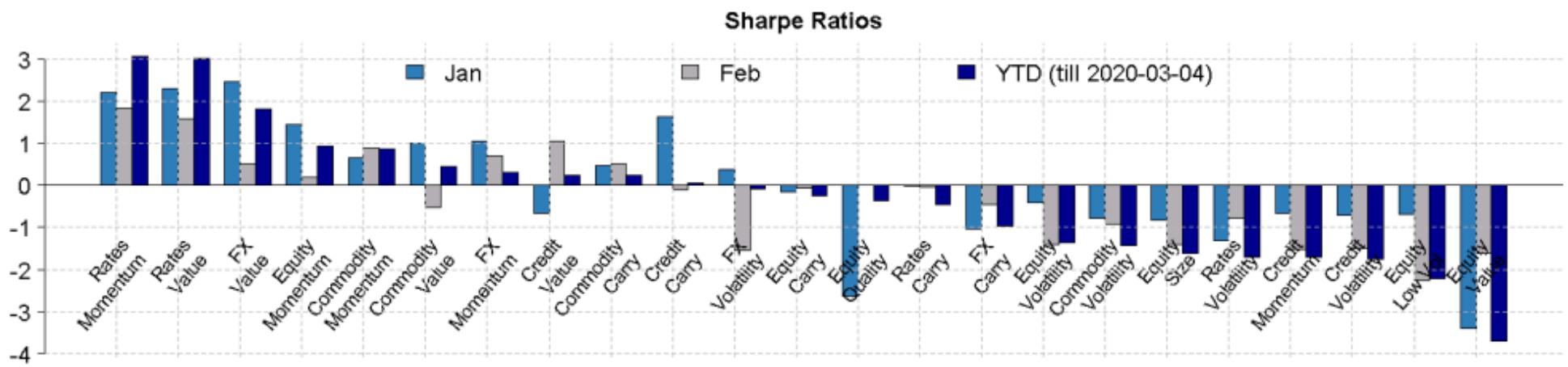
Figure 6: Recent Sharpe ratios of risk premia



Source: J.P. Morgan Quantitative and Derivatives Strategy

With this sudden and sharp pullback on yields, many risk premia react accordingly. The largest “beneficiaries” of yield decline are Rates Momentum and Rates Value, which have enjoyed superior Sharpe ratios YTD due to their implicit long durations. On the other hand, Equity Value, low vol and Size have the worst performance (Figure 2).

Figure 2: Sharpe ratios of risk premia

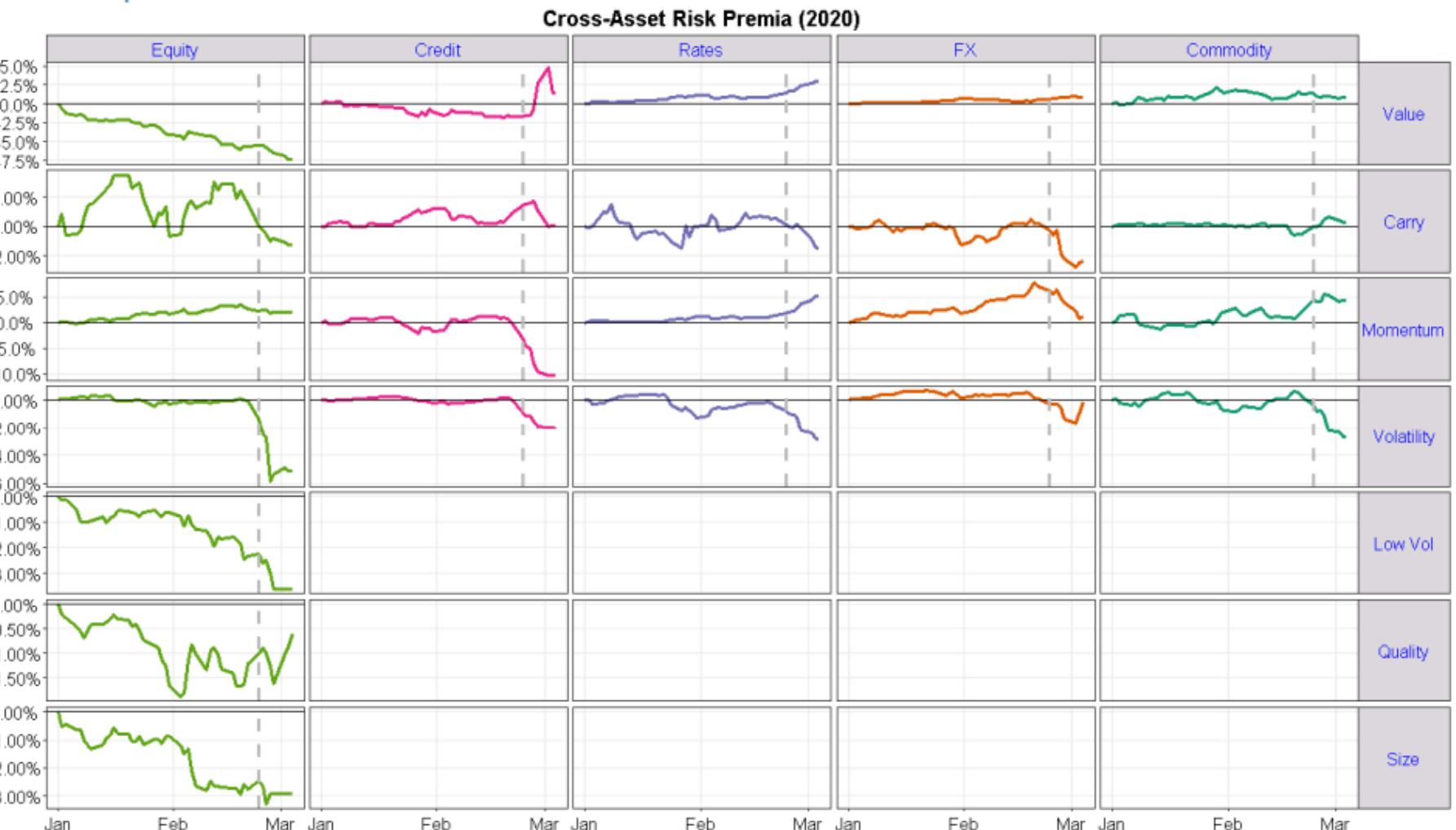


Source: J.P. Morgan Quantitative and Derivatives Strategy

Figure 3 shows the trajectories of cross asset risk premia since 2020. One can see the dramatic movements for most of them in the last week of February when the coronavirus went viral. Interestingly, we see two camps of risk premia: a few like

Credit Value, Rates Value and Momentum have gained, whilst the majority of Short Vol and Carry risk premia have tanked.

Figure 3: Risk premia cumulative returns since 2020



Source: J.P. Morgan Quantitative and Derivatives Strategy

The disparity of performances amongst the risk premia has drawn our attention to their recent correlation structures. As expected, we see an increasing absolute correlation while the average remains muted. This corresponds to the scenario where two negatively correlated clusters have emerged, as shown in Figure 5. On one hand, we have the short vol risk premia clusters which are highly positively correlated. On the other, a handful of risk premia are negatively correlated to those short vol strategies, which includes Rates Value and Momentum, Credit Value and Carry.

MISC



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11 March 2020

Omar Fall +44 (0)20 3134 6150 omar.fall@barclays.com Barclays, UK Completed: 11-Mar-20, 12:42 GMT
Lorenzo Gren +44 (0)20 3134 8811 lorenzo.gren@barclays.com Barclays, UK Released: 11-Mar-20, 12:42 GMT

Natixis SA H2O challenges

Stock Rating/Industry View: Equal Weight/Neutral

Price Target: EUR 4.20

Price (10-Mar-2020): EUR 2.50

Potential Upside/Downside: 68%

Tickers: KN FP / CNAT.PA

At 17% of group earnings, the difficult performance of macro fund affiliate H2O through recent market volatility is weighing on Natixis. The shares have lost some €1.7bn of relative performance since Thursday which given the €0.2bn earnings contribution of H2O, doesn't seem particularly unfair if the market factors in longer term impairment of the franchise (compounded by the challenges last year). We remain at Equal Weight.

NAV publication at H2O has led to significant share price underperformance at Natixis. As a reminder H2O is one of Natixis' asset management affiliates (Natixis has a 50% interest) and a global macro hedge fund. Although press reports have highlighted several of its funds, key ones include the below excluding mandates (NAV data is available on Bloomberg):

Figure 2

Key H2O funds

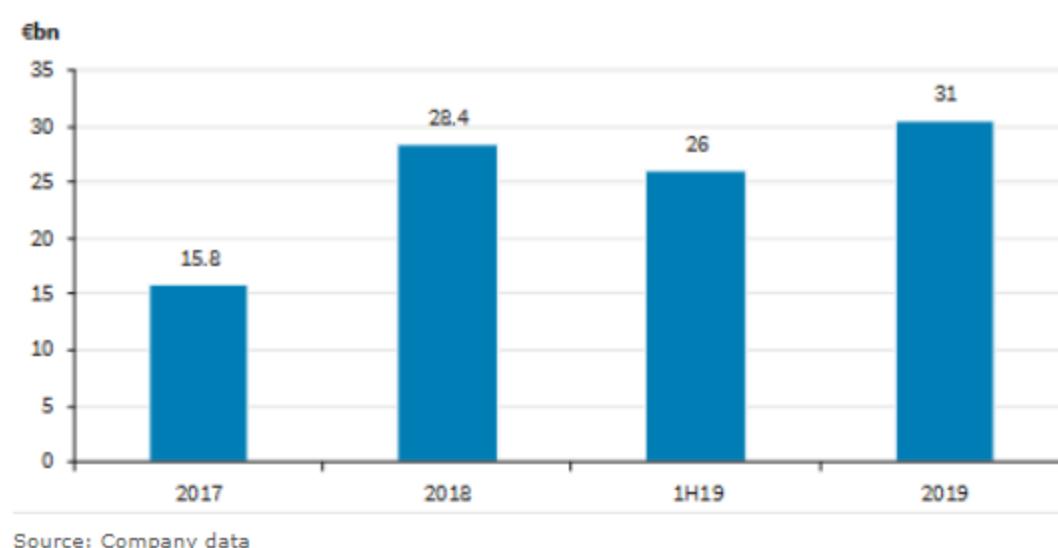
Fund name (Benchmark)	Style	1-yr Excess rtn		
		AuM - Jan '20 (€m)	1-yr net return (Jan '20)	vs benchmark (Jan '20)
H2O Multibonds (Eonia)	Global FICC multicurrency	5,217	30.70%	27.39%
H2O Adagio (Eonia)	Global macro	4,794	7.09%	6.45%
H2O Multiaggregate (Barc. Global Aggregate Strategy Aggregate)		2,527	17.59%	7.87%
H2O Moderato (Eonia)	Global macro	1,701	11.43%	9.67%
H2O Allegro (Eonia)	Global macro	1,602	38.45%	39.01%

Source: Company data

As of Monday the 9th, the Multibonds fund was down 37% YTD including a 20% decline on that Monday. Most of the other funds have seen similar declines.

Strong fund performance in 2019 allowed the H2O to offset the sizeable outflows in the summer driven by redemptions following Morningstar suspension of one of its funds due to concerns around exposure to illiquid bond investments. AuM at the end of 2019 was some €31bn. Clearly the risk is of further sizeable outflows in that context, particularly given the prior commitment of management not to gate (block redemptions).

Figure 3
H2O AuM



In terms of contribution to Natixis' earnings, H2O was some 17% of underlying net profit in 2019 or some €0.2bn. Applying a multiple to that of 8x in line with Man Group (2021E Bloomberg consensus), and this is close to the c.€1.7bn relative underperformance at Natixis since last week. This doesn't seem unfair if the market factors in longer term impairment of the franchise.

Figure 2
H2O contribution to Natixis

	2017	2018
% interest	49.99%	49.99%
H2O net income	167	360
Amt. of minority interest	89	187
Income attr. to minority owners	83	180
<i>Dividends paid to minority owners</i>	28	81
H2O contribution to group earnings	5%	12%

Source: Company data

We also include standalone accounts for H2O from UK companies house below.

Figure 4
H2O standalone P&L (companies house, pre-tax)

GBPm	2017	2018
Turnover	241.6	516.8
COGS	-25.5	-65.1
Gross profit	216.1	451.7
Admin expenses	-20.7	-30.9
Other operating income	0.1	0.8
Operating profit	195.5	421.6
Income from fixed assets	0.0	0.0
Amounts written off investments	0.0	1.6
Interest receivable	0.1	0.0
Interest payable	0.0	0.0
Profit before members' remuneration and profit share	195.6	423.3
Members' remuneration	-15.6	-24.5
Net profit	180.0	398.8

Source: Companies House

Exhibit 4: Asset performance in different UST curve scenarios

	Average Monthly Returns in UST Curve Scenarios			
	Bull Steepen	Bear Steepen	Bull Flatten	Bear Flatten
EQUITIES				
MSCI ACWI	-0.3%	0.8%	0.4%	0.7%
S&P 500	-0.4%	1.0%	0.7%	1.0%
MSCI Europe Local	-1.1%	1.0%	0.3%	0.9%
TOPIX	-1.2%	0.6%	-0.5%	0.9%
MSCI EM	-1.1%	1.7%	0.3%	1.2%
EM vs S&P 500	-0.7%	0.6%	-0.4%	0.2%
S&P 500 EQUITY SECTORS				
Comm Services vs Mkt	-0.6%	-0.8%	0.1%	0.0%
Cons. Disc vs Mkt	-0.2%	0.4%	0.0%	0.2%
Energy vs Mkt	0.4%	0.5%	-0.8%	-0.3%
Financials vs Mkt	-0.4%	0.4%	-0.2%	-0.3%
Healthcare vs Mkt	1.5%	-0.4%	0.3%	0.1%
Industrials vs Mkt	0.2%	0.3%	-0.1%	-0.4%
Materials vs Mkt	0.2%	0.5%	-0.7%	-0.3%
Real Estate vs Mkt	1.0%	-1.8%	1.5%	-0.2%
Staples vs Mkt	1.3%	-0.8%	0.4%	-0.1%
Tech vs Mkt	-0.8%	0.8%	0.3%	0.9%
Utilities vs Mkt	0.4%	-1.7%	0.9%	-0.5%
FX				
DXY	-1.1%	0.2%	0.1%	0.6%
EURUSD	1.3%	-0.1%	-0.1%	-0.6%
JPYUSD	1.6%	-0.7%	0.6%	-0.6%
GBPUSD	0.8%	0.2%	-0.4%	-0.4%
AUDUSD	0.1%	0.0%	-0.1%	0.0%
RATES				
UST 10Y	1.9%	-1.0%	1.9%	-0.6%
Bunds 10Y	1.3%	-0.5%	1.4%	0.0%
JGB 10Y	0.8%	0.0%	0.7%	-0.1%
CREDIT (Excess Return)				
US IG XS	-0.4%	0.3%	-0.1%	0.3%
US HY XS	-1.1%	1.2%	-0.3%	0.9%
COMMODITIES				
Brent	2.3%	2.8%	-0.9%	0.8%
Copper	0.1%	2.1%	-0.3%	0.8%
Gold	1.0%	0.0%	0.8%	-0.3%

Source: Bloomberg, Morgan Stanley Research; Note: We define bull/bear using monthly change in US 10Y yields and steepening/flattening using monthly change in UST 2s10s curve. Data from 1990, using price returns for equities, FX and commodities, total returns for rates and excess returns for credit.

Exhibit 5: How do returns over the last three months compare with what usually happens in bull-steepening scenarios?

	Average Monthly Returns			
	Bull Steepening Scenarios	Avg over Last 3 months	Same Direction?	Difference
EQUITIES				
MSCI ACWI	-0.3%	-2.0%	Yes	-1.7%
S&P 500	-0.4%	-1.9%	Yes	-1.5%
MSCI Europe Local	-1.1%	-2.8%	Yes	-1.6%
MSCI EM	-1.1%	-1.0%	Yes	0.1%
EM vs S&P 500	-0.7%	1.0%	No	1.7%
S&P 500 EQUITY SECTORS				
Comm Services vs Mkt	-0.6%	0.7%	No	1.4%
Cons. Disc vs Mkt	-0.2%	0.4%	No	0.7%
Energy vs Mkt	0.4%	-5.2%	No	-5.6%
Financials vs Mkt	-0.4%	-2.1%	Yes	-1.7%
Healthcare vs Mkt	1.5%	-0.1%	No	-1.6%
Industrials vs Mkt	0.2%	-1.5%	No	-1.7%
Materials vs Mkt	0.2%	-2.1%	No	-2.3%
Real Estate vs Mkt	1.0%	0.5%	Yes	-0.4%
Staples vs Mkt	1.3%	-0.1%	No	-1.3%
Tech vs Mkt	-0.8%	2.2%	No	3.0%
Utilities vs Mkt	0.4%	1.6%	Yes	1.2%
FX				
DXY	-1.1%	0.0%	Yes	1.1%
EURUSD	1.3%	0.0%	Yes	-1.3%
JPYUSD	1.6%	0.5%	Yes	-1.1%
GBPUSD	0.8%	-0.2%	No	-1.1%
AUDUSD	0.1%	-1.2%	No	-1.3%
RATES				
UST 10Y	1.9%	1.9%	Yes	0.0%
Bunds 10Y	1.3%	0.6%	Yes	-0.6%
JGB 10Y	0.8%	0.2%	Yes	-0.6%
CREDIT				
US IG XS	-0.4%	-0.5%	Yes	-0.1%
US HY XS	-1.1%	-0.6%	Yes	0.5%
COMMODITIES				
Brent	2.3%	-3.5%	No	-5.8%
Copper	0.1%	-0.9%	No	-1.0%
Gold	1.0%	2.1%	Yes	1.1%

Source: Bloomberg, Morgan Stanley Research; Note: We define bull/bear using monthly change in US 10Y yields and steepening/flattening using monthly change in UST 2s10s curve. Data from 1990, using price returns for equities, FX and commodities, total returns for rates and excess returns for credit.

Against our expectations, but closer to market pricing, the Federal Reserve made an inter-meeting rate cut of 50bp. We think that the current round of easing is not directly comparable to episodes of 2012 and 2019, when challenges to markets (high real interest rates, a lack of demand for European bonds) were issues monetary policy could directly address. Historically, risk asset performance after "emergency" rate cuts has been poor ([Exhibit 1](#)), which makes sense, given these cuts mostly happened at times of rising economic risk. **Given this, we continue to urge patience.**

Exhibit 1: Historical median market performance after Fed 50bp+ emergency cuts

Asset	Returns After Fed Cuts 50bp+ Inter-Meeting					
	1d	2d	1wk	1m	3m	6m
EQUITIES						
MSCI ACWI	0.3%	-0.1%	-0.8%	4.2%	1.7%	-5.7%
S&P 500	-0.3%	-1.1%	-1.6%	2.5%	-0.4%	-7.3%
Eurostoxx 50	-0.4%	-0.4%	-1.5%	0.7%	-2.5%	-9.2%
TOPIX	1.5%	2.0%	4.0%	3.0%	-0.2%	-4.1%
MSCI EM	1.8%	2.5%	3.5%	7.9%	6.8%	1.4%
EQUITY SECTORS						
Cons Disc vs Mkt	0.6%	0.7%	0.4%	1.3%	1.7%	1.5%
Cons Staples vs Mkt	-0.4%	-0.1%	-1.3%	0.2%	3.1%	3.0%
Energy vs Mkt	-1.7%	-0.1%	-0.4%	2.0%	4.3%	6.9%
Financials vs Mkt	-0.6%	-0.4%	-0.4%	-2.2%	-2.5%	-4.3%
Healthcare vs Mkt	-1.5%	-1.5%	-1.4%	-0.3%	3.1%	1.3%
Industrials vs Mkt	0.6%	0.4%	0.1%	0.7%	1.7%	1.9%
IT vs Mkt	0.6%	0.0%	0.7%	0.1%	0.0%	-0.3%
Materials vs Mkt	1.2%	1.3%	0.9%	4.2%	7.5%	12.8%
Telecom vs Mkt	-0.5%	-0.5%	1.7%	-0.4%	-1.4%	-5.3%
Utilities vs Mkt	-0.7%	-2.2%	-0.9%	-1.3%	3.1%	3.0%
Small vs. Large Cap	-0.2%	-0.2%	0.2%	-0.4%	2.4%	6.0%
Value vs Growth	0.2%	0.3%	1.1%	-0.9%	-1.5%	-5.4%
FX						
DXY	-0.1%	-0.5%	-0.7%	-0.5%	-0.3%	-0.8%
EURUSD	0.1%	0.6%	1.1%	0.7%	0.5%	1.6%
JPYUSD	-0.4%	-0.6%	-0.7%	-1.0%	0.9%	-0.3%
AUDUSD	1.4%	1.4%	0.3%	3.6%	6.4%	8.0%
CHFUSD	0.4%	0.7%	0.3%	-0.4%	2.1%	3.1%
ZARUSD	-0.2%	-0.3%	-1.3%	-3.9%	-3.0%	-0.4%
BRLUSD	-0.4%	-0.6%	0.3%	2.8%	8.5%	16.3%
RUBUSD	0.0%	0.2%	0.4%	1.0%	2.2%	4.6%
KRWUSD	0.6%	0.6%	0.8%	1.7%	2.0%	1.7%
RATES						
UST 10yr	-0.6%	-0.6%	-0.4%	0.0%	2.5%	4.3%
Bunds 10Y	-0.1%	-0.1%	-0.3%	0.7%	1.0%	2.4%
JGB 10Y	-0.1%	-0.3%	-0.3%	0.2%	1.4%	1.2%
UST vs Bunds 10y	-0.3%	-0.3%	0.0%	-0.4%	1.5%	1.6%
CREDIT						
US IG	0.0%	0.1%	0.2%	0.2%	0.3%	-0.6%
US HY	-0.3%	-0.1%	0.8%	0.8%	-2.2%	-5.0%
EU IG	0.0%	0.0%	-0.1%	-0.6%	-0.3%	-0.8%
EU HY	0.0%	0.0%	-0.4%	-1.5%	-2.0%	-10.1%
Commodity						
SPGSCI	-1.5%	-1.6%	-1.6%	1.9%	-9.7%	-14.0%
Oil	-1.8%	-2.1%	-0.7%	8.1%	-3.1%	-3.2%
Gold	-0.5%	0.2%	0.1%	2.7%	-0.6%	3.0%
Copper	-0.4%	-0.5%	0.7%	1.2%	-3.2%	-2.4%

Source: Bloomberg, Morgan Stanley Research; Note: Includes 6 emergency Fed cut episodes (with 50bp or more) from 2001. Note: We show total returns across equities, FX and rates, price returns for commodities and excess returns for credit.

Appendix: Market Performance Post Inter-Meeting Cuts in Charts

Exhibit 3: S&P 500 performance post emergency cut

Date	Size of Fed Cut (bp)	S&P 500 Performance Post Cut					
		1d	2d	1wk	1m	3m	6m
03-Jan-01	-50	-1.1%	-3.6%	-2.5%	0.2%	-17.9%	-9.0%
18-Apr-01	-50	1.3%	0.4%	-0.8%	4.5%	-2.1%	-12.4%
17-Sep-01	-50	-0.6%	-2.2%	-3.4%	3.8%	9.6%	13.0%
17-Aug-07	-50	0.0%	0.0%	2.3%	2.3%	1.4%	-5.6%
22-Jan-08	-75	2.1%	3.2%	4.0%	2.7%	5.6%	-1.5%
08-Oct-08	-50	-7.6%	-8.7%	-7.8%	-5.3%	-7.2%	-14.9%
Median		-0.3%	-1.1%	-1.6%	2.5%	-0.4%	-7.3%
Average		-0.2%	-0.6%	-1.2%	2.6%	0.5%	-6.5%

Source: Bloomberg, Morgan Stanley Research; Note: We use total returns here.

Exhibit 4: MSCI ACWI performance post emergency cut

Date	Size of Fed Cut (bp)	MSCI ACWI Performance Post Cut					
		1d	2d	1wk	1m	3m	6m
03-Jan-01	-50	0.2%	-1.0%	-1.7%	0.9%	-15.4%	-10.3%
18-Apr-01	-50	1.5%	1.0%	0.1%	3.6%	-4.9%	-13.1%
17-Sep-01	-50	-0.4%	-1.3%	-3.5%	4.9%	8.6%	12.4%
17-Aug-07	-50	0.9%	0.9%	4.1%	4.9%	8.2%	-1.1%
22-Jan-08	-75	0.5%	3.6%	4.9%	4.9%	9.5%	0.7%
08-Oct-08	-50	-3.9%	-8.6%	-4.5%	-6.3%	-5.3%	-13.9%
Median		0.3%	-0.1%	-0.8%	4.2%	1.7%	-5.7%
Average		0.4%	0.4%	-0.3%	4.6%	5.0%	-3.4%

Source: Bloomberg, Morgan Stanley Research; Note: We use total returns here.

Exhibit 5: UST 10Y performance post emergency cut

Date	Size of Fed Cut (bp)	UST 10Y Performance Post Cut					
		1d	2d	1wk	1m	3m	6m
03-Jan-01	-50	0.8%	1.6%	0.7%	1.0%	3.1%	1.9%
18-Apr-01	-50	-0.8%	-0.7%	-0.4%	-1.1%	1.8%	6.8%
17-Sep-01	-50	-0.4%	-0.5%	-0.3%	1.1%	-2.0%	-1.7%
17-Aug-07	-50	0.4%	0.4%	0.5%	2.1%	5.0%	9.6%
22-Jan-08	-75	-1.1%	-1.8%	-1.6%	-1.7%	-0.5%	-2.3%
08-Oct-08	-50	-1.1%	-1.5%	-2.4%	-1.1%	9.3%	8.3%
Median		-0.6%	-0.6%	-0.4%	0.0%	2.5%	4.3%
Average		-0.7%	-0.6%	-0.4%	-0.5%	2.2%	5.6%

Source: Bloomberg, Morgan Stanley Research; Note: We use total returns here.

Exhibit 6: US HY (excess) performance post emergency cut

Date	Size of Fed Cut (bp)	US HY (Excess) Performance Post Cut					
		1d	2d	1wk	1m	3m	6m
03-Jan-01	-50	-0.1%	-0.2%	1.1%	6.6%	2.0%	1.3%
18-Apr-01	-50	0.4%	0.4%	0.6%	2.0%	-2.4%	-9.8%
17-Sep-01	-50	-6.7%	-6.7%	-6.5%	-8.3%	-2.3%	-1.7%
17-Aug-07	-50	0.0%	0.0%	0.9%	0.7%	-2.0%	-8.4%
22-Jan-08	-75	-0.4%	1.4%	2.6%	0.8%	3.7%	1.7%
08-Oct-08	-50	-1.3%	-6.1%	-5.3%	-9.0%	-10.1%	-8.3%
Median		-0.3%	-0.1%	0.8%	0.8%	-2.2%	-5.0%
Average		-0.3%	-0.1%	0.7%	0.7%	-2.2%	-6.7%

Source: Bloomberg, Morgan Stanley Research; Note: We use excess returns here.

Exhibit 7: Gold performance post emergency cut

Date	Size of Fed Cut (bp)	Gold Performance Post Cut					
		1d	2d	1wk	1m	3m	6m
03-Jan-01	-50	-0.3%	-0.1%	-1.4%	-0.8%	-4.4%	-2.0%
18-Apr-01	-50	1.5%	1.3%	0.4%	10.1%	3.3%	7.9%
17-Sep-01	-50	-0.6%	0.4%	-0.2%	-2.4%	-4.5%	0.3%
17-Aug-07	-50	0.0%	0.0%	1.7%	8.6%	18.7%	35.6%
22-Jan-08	-75	-0.8%	1.7%	3.9%	6.3%	3.3%	5.7%
08-Oct-08	-50	-2.2%	-5.3%	-7.5%	-18.8%	-7.0%	-2.3%
Median		-0.5%	0.2%	0.1%	2.7%	-0.6%	3.0%
Average		-0.5%	0.3%	0.3%	4.5%	1.4%	4.3%

Source: Bloomberg, Morgan Stanley Research; Note: We use price returns here.

Exhibit 8: Brent performance post emergency cut

Date	Size of Fed Cut (bp)	Brent Performance Post Cut					
		1d	2d	1wk	1m	3m	6m
03-Jan-01	-50	1.3%	0.6%	1.2%	19.7%	2.7%	7.3%
18-Apr-01	-50	-1.7%	-3.3%	-1.7%	7.4%	-8.9%	-20.8%
17-Sep-01	-50	-3.9%	-7.3%	-22.4%	-24.9%	-33.2%	-13.7%
17-Aug-07	-50	-0.8%	-0.8%	0.3%	9.7%	32.5%	38.6%
22-Jan-08	-75	-2.1%	0.7%	4.0%	8.7%	32.3%	45.7%
08-Oct-08	-50	-2.0%	-12.2%	-16.1%	-33.5%	-53.1%	-54.6%
Median		-1.8%	-2.1%	-0.7%	8.1%	-3.1%	-3.2%
Average		-1.9%	-2.7%	-1.2%	7.8%	-6.0%	-8.5%

Source: Bloomberg, Morgan Stanley Research; Note: We use price returns here.

Insights from our Q-MAP model

Asset class	Tools	Level	Trend	Key messages
Equities	Expected return	**	⬇️	Highest for US equity
	Expected volatility	**	=	Highest for China equity
	Weight	UW	⬇️	Favour US equity
Bonds	Expected return	**	⬇️	Declined for USTs
	Expected volatility	*	⬇️	UK linkers are most volatile
	Weight	OW	⬇️	Prefer JGBs and eurozone government bonds
Currencies	Expected return	*	=	Highest for USD
	Expected volatility	*	⬇️	JPY is the most volatile
	Weight	UW	=	Prefer GBP
Investment-grade credit	Expected return	**	⬇️	Highest for US IG
	Expected volatility	**	⬇️	Euro IG is least volatile
	Weight	N	⬆️	Prefer Asia IG
High-yield credit	Expected return	**	⬇️	Highest for Asia HY
	Expected volatility	**	=	Us and Asia high yield are more volatile
	Weight	N	=	Prefer Asia HY
Commodities including Gold	Expected return	**	=	High for gold
	Expected volatility	*	⬇️	Double-digit volatility
	Weight	OW	=	Full allocation to gold

3m trend: change. Level: from * (the lowest level) to *** (the highest level). Weight: based on the common currency risk-balanced portfolio. Source: SG Cross Asset Research/Global Asset Allocation

Expected returns

Over the past three months, expected return improved marginally for developed equities but fell sharply for EM equities. Within equities, the US equity market is expected to deliver the best return over the next 12 months. Within government bonds, EM local currency bonds are attractive from an expected return perspective. Gold is another asset class where expected return is high.

Expected volatility

Over the past three months, expected volatility has largely remained the same for equities but fallen for government bonds. From a historical perspective, volatility across equity and government bonds still remains quite low. Within equities, China is expected to be the most volatile equity market. Within government bonds, USTs are expected to be more volatile than other sovereign bonds.

Correlation

Average cross-asset correlation (average of the pairwise correlation on Q-MAP assets) is low. The correlation between equity markets remains above the historical average while the correlation between government bonds is low. The correlation between equities and bonds is low and in negative territory. This means that a fall in the equity market is accompanied by a rise in bond prices.

Portfolio changes

In our Q-MAP balanced portfolio, the equity allocation has declined from 44% to 41%, driven by a reduced allocation to Europe-ex-UK equity (from 16% to 4%). Our model continues to favour US equity (37% allocation). Allocation to fixed income (government bonds and corporate credit) has gone up (from 41% earlier to 44%). Q-MAP remains fully invested in gold (10%).

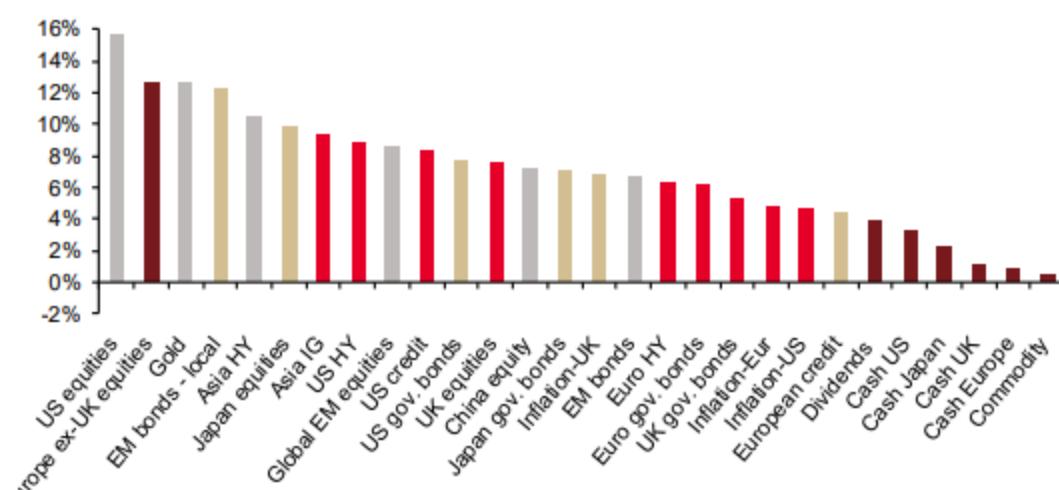
6 March 2020

39

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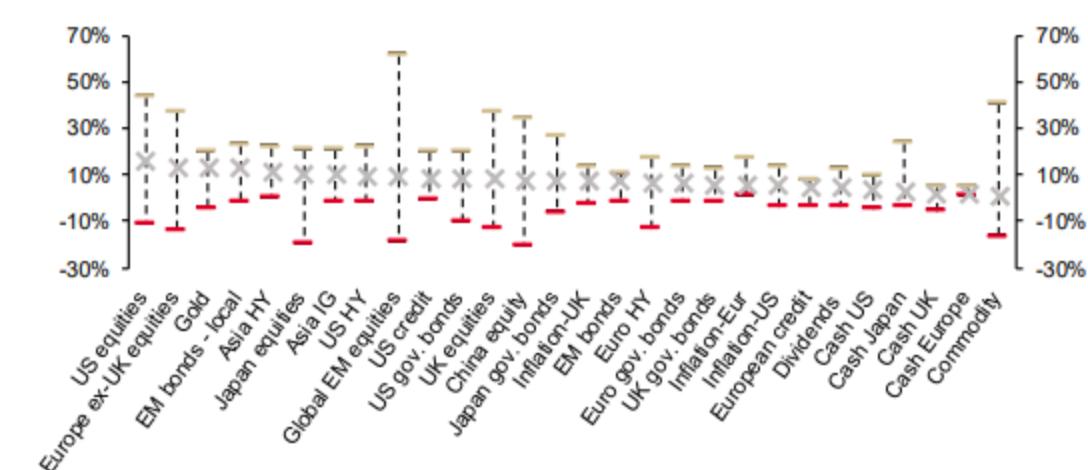
How do we calculate our expected return? Investor return expectations are a function of historical returns (normalised expected return), recent returns (momentum expected return) and risk-return profile expectations (risk-derived expected return). These three return components are combined to arrive at an expected total return of the asset class over a 12-month horizon.

Hierarchy of the current 12-month expected return (%)



Common currency: euro. Expected return: the estimated future performance of an asset, based on a mix of a normalised, momentum and risk-derived approach. Source: SG Cross Asset Research/Global Asset Allocation

Where the current expected return stands compared to the historical range (since 1994)

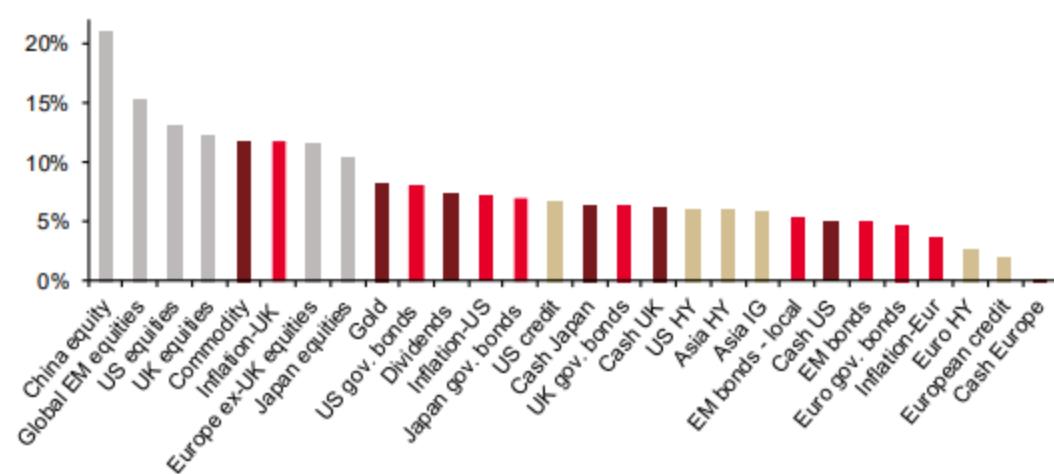


Common currency: euro. Expected return: the estimated future performance of an asset, based on a mix of a normalised, momentum and risk-derived approach. Cross corresponds to current expected return. Max and Min computed over the period from 29/04/94 to 07/02/2020. Source: SG Cross Asset Research/Global Asset Allocation

6 March 2020

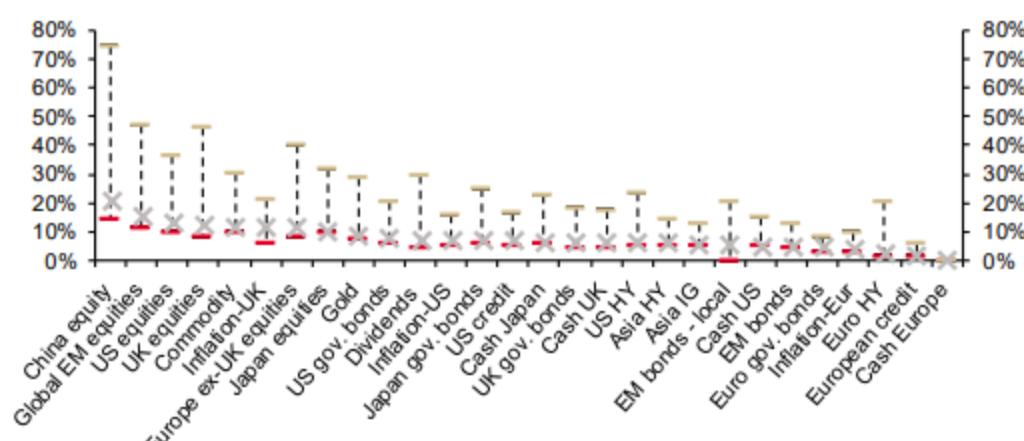
43

Expected volatility (%) – Current



Common currency: euro. 12-month forward volatility is based on the EWMA model. Source: SG Cross Asset Research/Global Asset Allocation

Where current expected volatility stands compared to the historical range (since 1994)



Common currency: euro. 12-month forward volatility is based on the EWMA model. Cross corresponds to current conditional volatility as of 07/02/2020.
Max and min computed over the period from 25/03/94 to 07/02/2020. Source: SG Cross Asset Research/Global Asset Allocation

How to read this chart?

Hierarchy is in function of the historical percentile: asset classes with the current expected volatility closest to their historical maximum (or minimum) are located on the left (or right) of the chart

DM CREDIT

Trading ‘Pointless’ in Europe’s Paralyzed Junk Debt Market

- Buying and selling of junk bonds and loans goes into lockdown
- Primary market remains closed as borrowing costs rocket

By Katie Linsell and Ruth McGavin

(Bloomberg) -- The debt markets for Europe’s riskiest firms ground to a halt on Thursday as the inexorable spread of the coronavirus paralyzed borrowers and lenders alike.

Investors are staying on the sidelines as the gap between securities’ buy and sell prices widens. The cost of credit insurance on Europe’s high-yield companies jumped to the highest since 2012.

“Market liquidity is absolutely broken,” said Olivier Monnoyeur, a portfolio manager at BNP Paribas Asset Management, which oversees 440 billion euros (\$495 billion) of assets. “I’m not trading at all. It’s pointless. We are waiting until we have some conviction that the market has hit the bottom.”

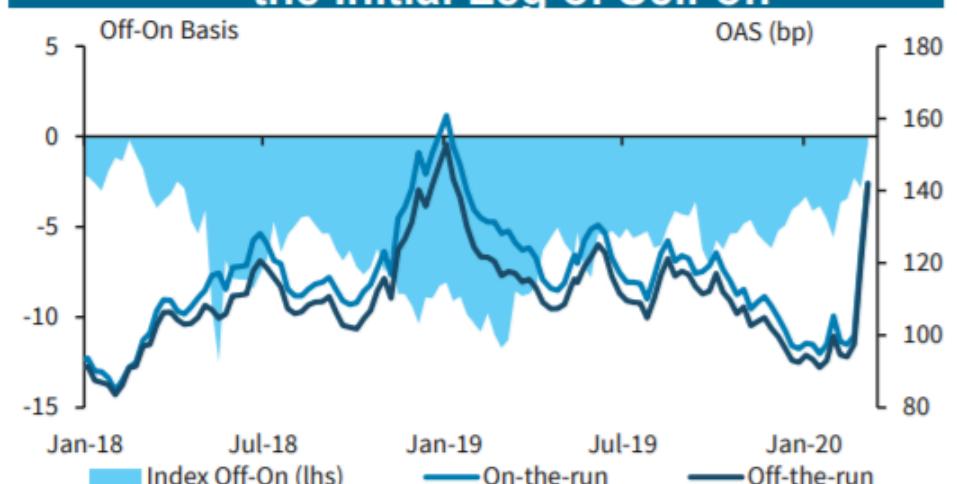
Traders are struggling to put a price on highly-indebted companies as markets reel on expectations that the virus will severely dent the global economy. On

Liquidity has remained front and center during the sell-off, with the more liquid cohorts generally underperforming

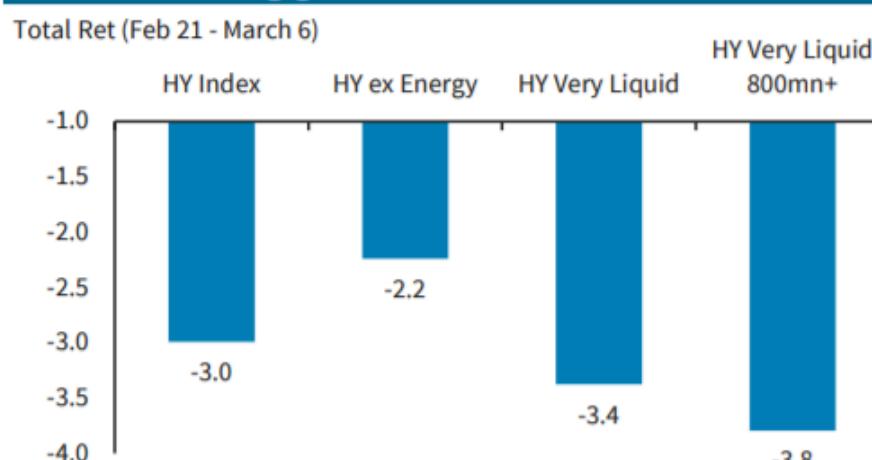
More Liquid Fins Have Lagged Industrials



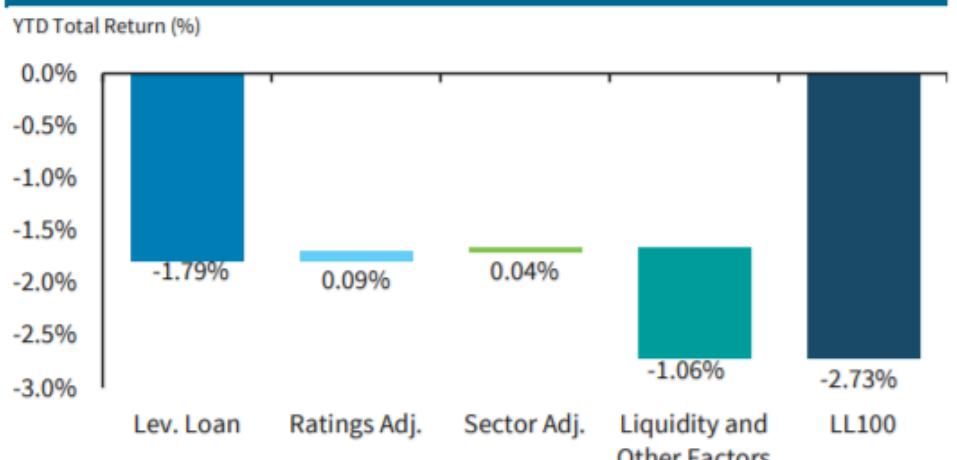
Unlike Previously, Off-the-Runs Lagged in the Initial Leg of Sell-off



Larger and More Liquid HY Bonds Have Lagged Index Performance



This has also Happened with Loans

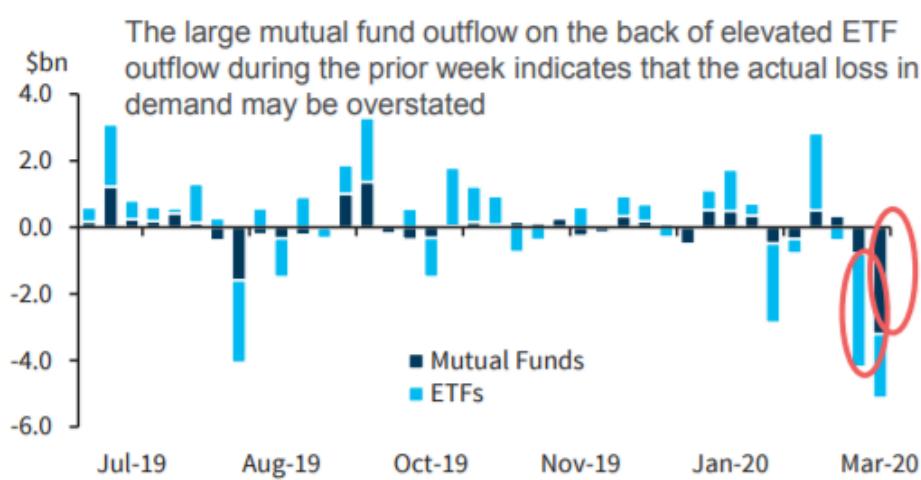


Source for all charts: Bloomberg, Barclays Research

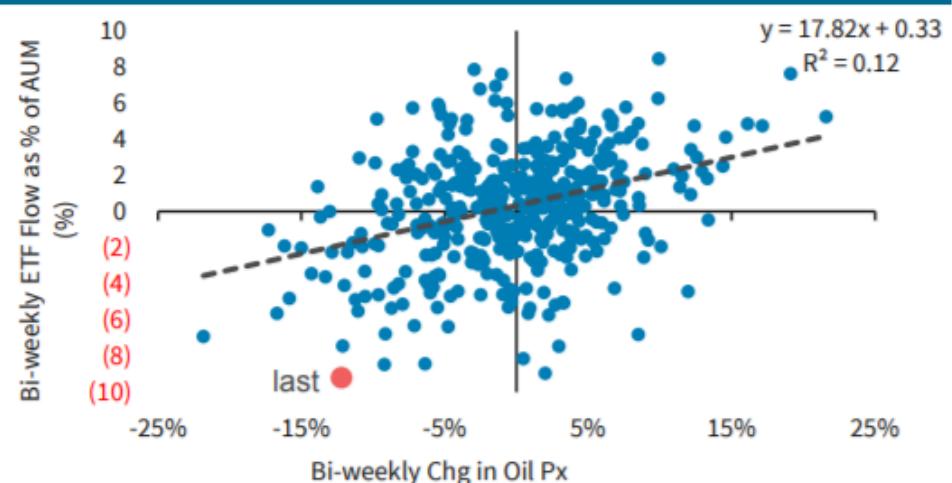


This has been exacerbated by retail outflows which accelerated in HY and have started in IG; investors have also cut risk in the CDX indices

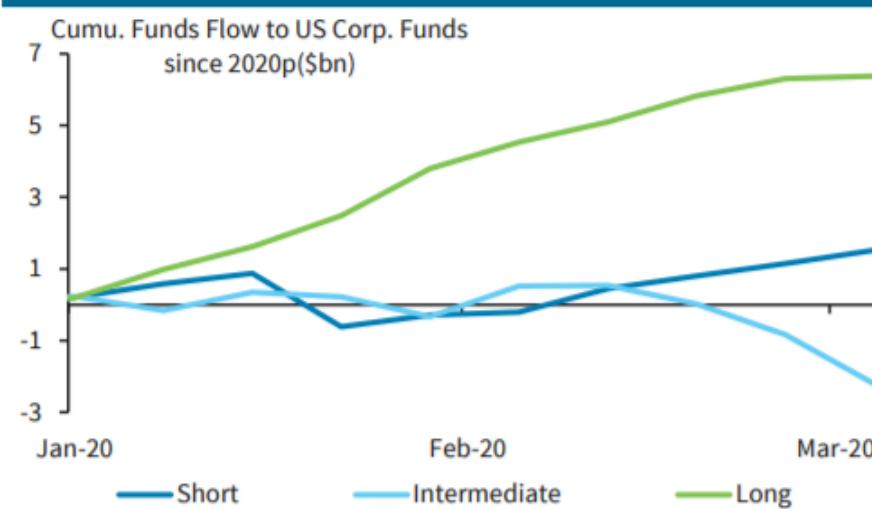
HY Flow: 4th Largest All-time, 2nd to Feb '18



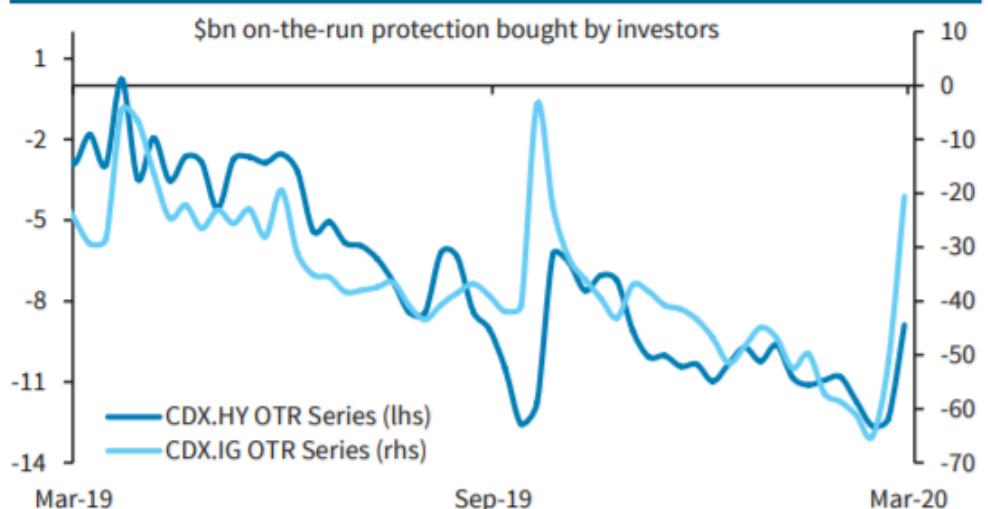
Outflow Larger than Implied by Oil Px Chg*



First Week of IG Outflows in 2020



Investor Cut Long Positioning in CDX

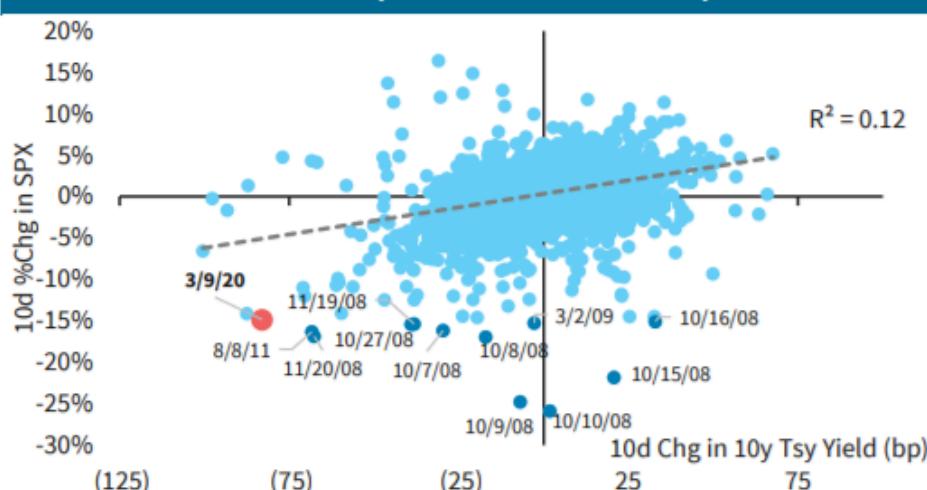


Note: *: the bi-weekly calculation uses Wednesday to Wednesday levels, in line with funds flow reporting frequency. Source for all charts: EPFR, DTCC, Bloomberg, Barclays Research

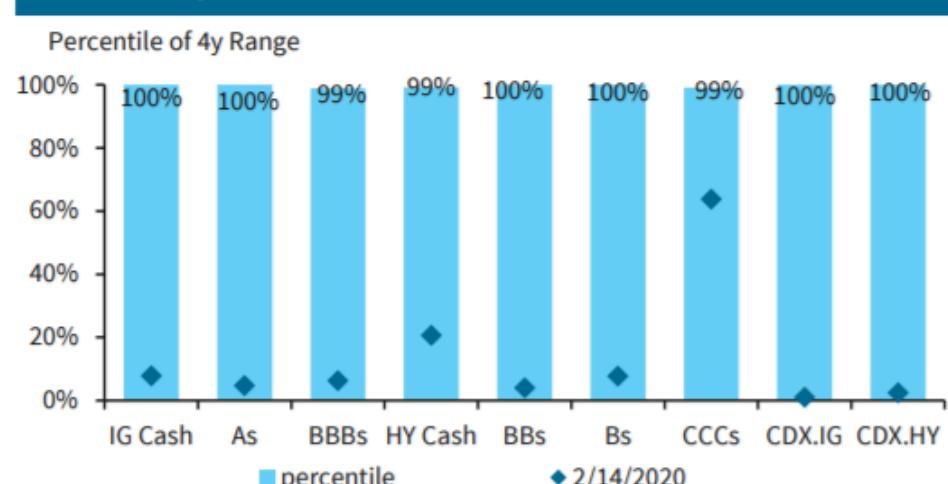


Credit spreads widened back to post '16 rout levels; sector dispersion has picked up, and higher-quality cohort dispersion is more elevated

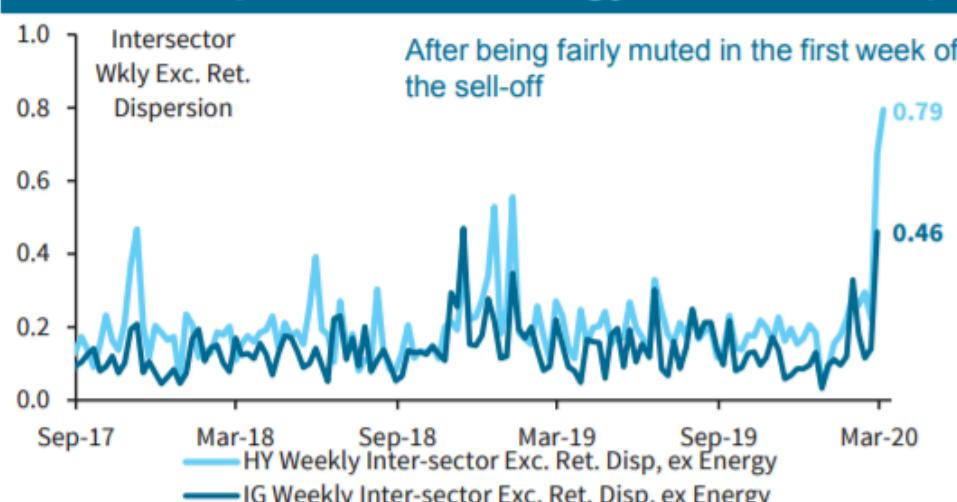
10d SPX Decline (Worst since '11) vs. Rates



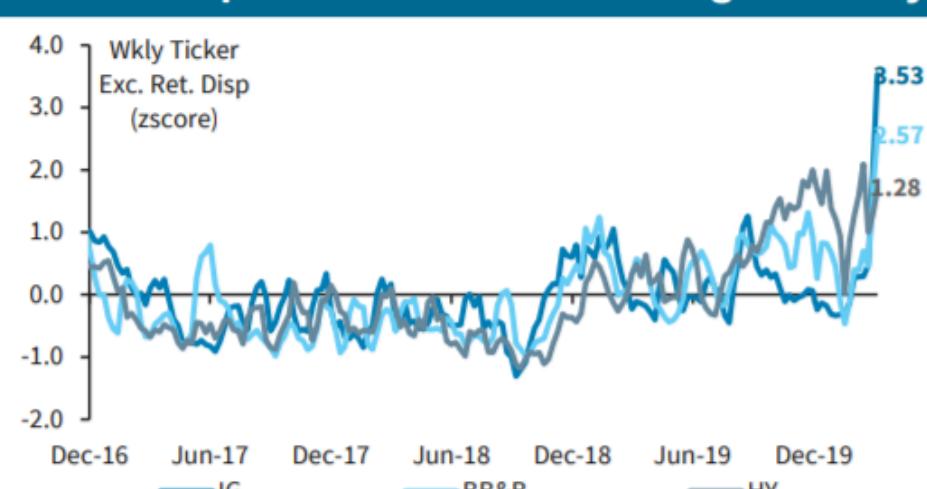
Credit Sprds Back to Post 2016 Sell-off Lvl



Sector Dispersion ex. Energy has Picked Up



Ticker Disp. More Elevated for High-Quality

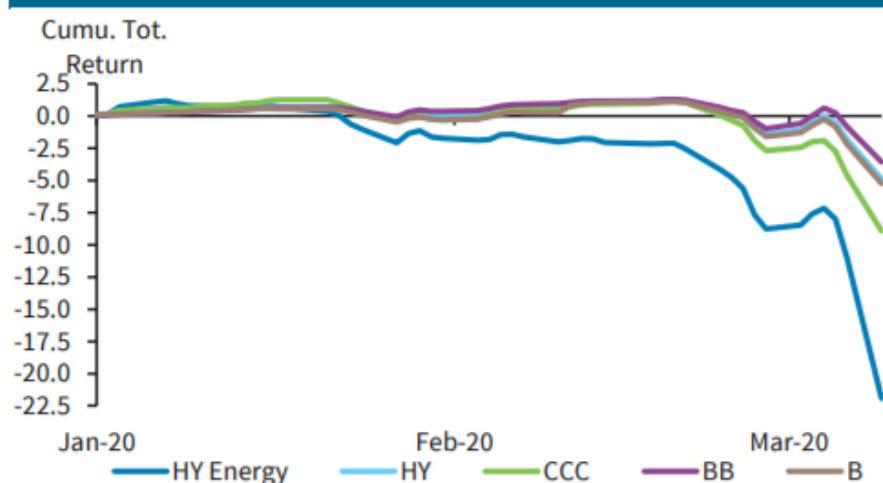


Source for all charts: Bloomberg, Barclays Research

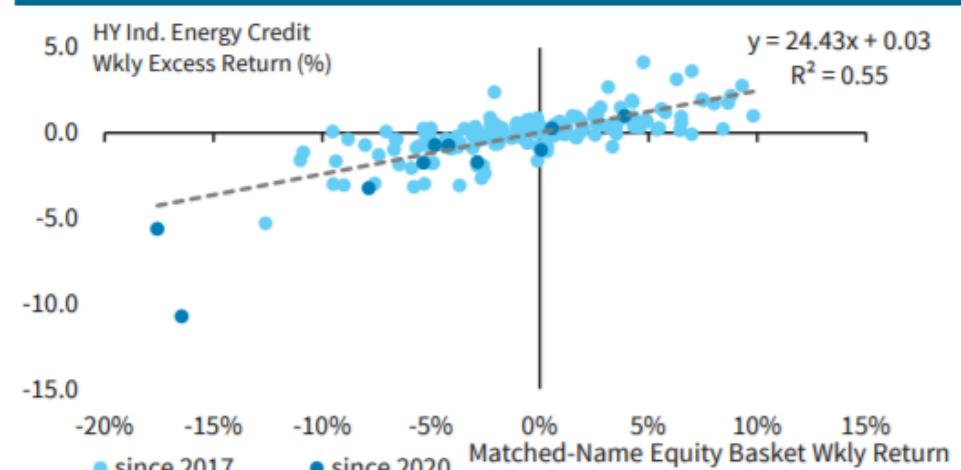


Looking closer, cyclicals have significantly lagged non-cyclicals even outside Energy; HY energy credit lagged equities and other cyclical credit

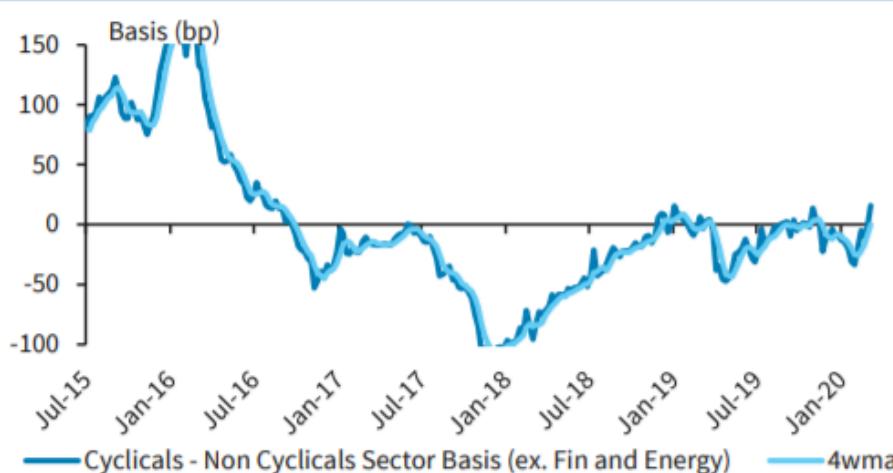
HY Energy Ret in 2020 Has Plummeted



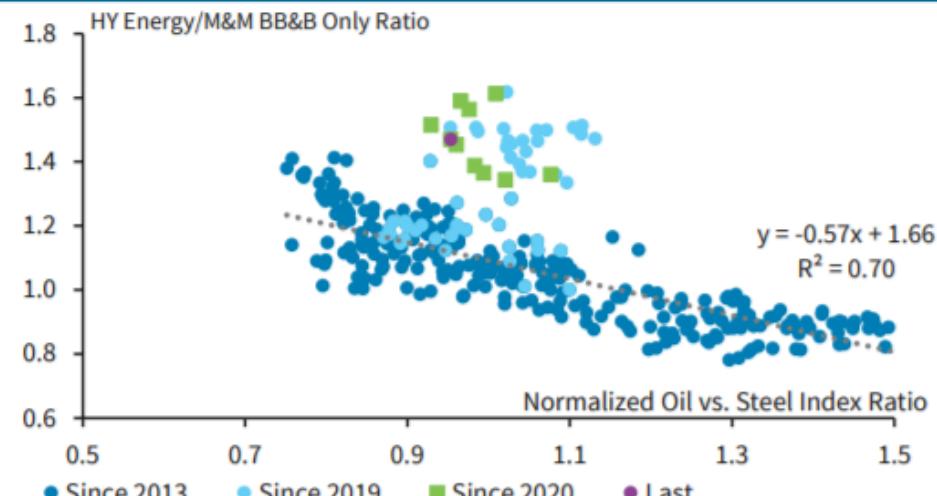
HY Energy Credit Lagged Eqty Significantly



Cyc – Non-cyc Basis at the Recent Wides



HY BB&B Energy Lagged Metals as Well

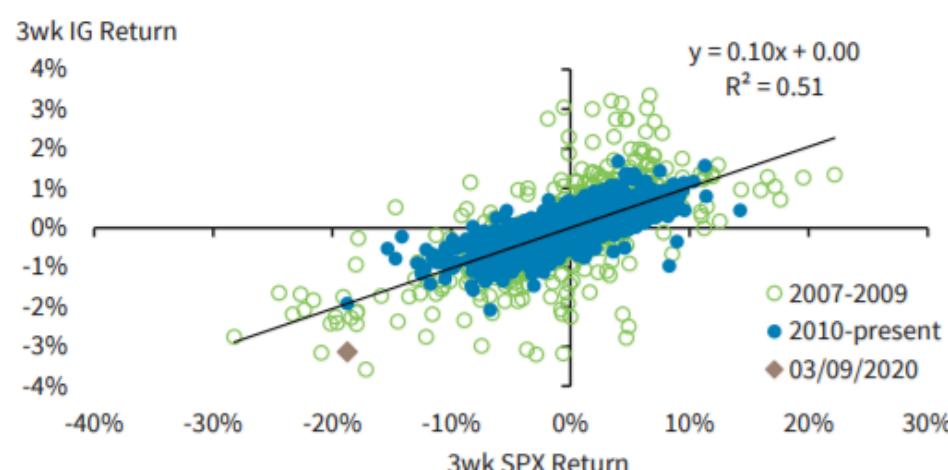


Note: Returns as of March 6, 2020. Source for all charts: Company Reports, Bloomberg, Barclays Research

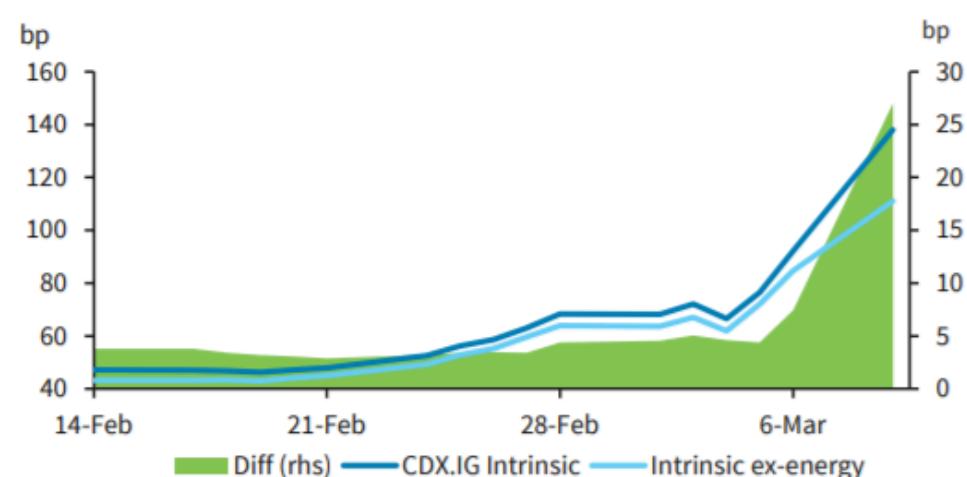


Credit underperformance has also been evident at a macro level, with CDX.IG underperforming SPX, and energy at least partly to blame

IG Has Meaningfully Underperformed Equity



Energy at Least Partly to Blame



Spread Change by DTCC Sector

Sector	Count	Average Spread (bp)		
		2/14/2020	3/9/2020	Chg
Basic	8	46	100	55
Cons Goods	16	61	137	77
Cons Svcs	23	51	163	113
Energy	15	82	364	281
Fins	19	33	96	63
Health	10	32	51	19
Ind	19	32	88	56
Tech	6	59	138	79
Telco	2	52	112	60
Util	7	25	41	16
	47	141	93	

Worst 1-day IG Sell-offs Since 2007

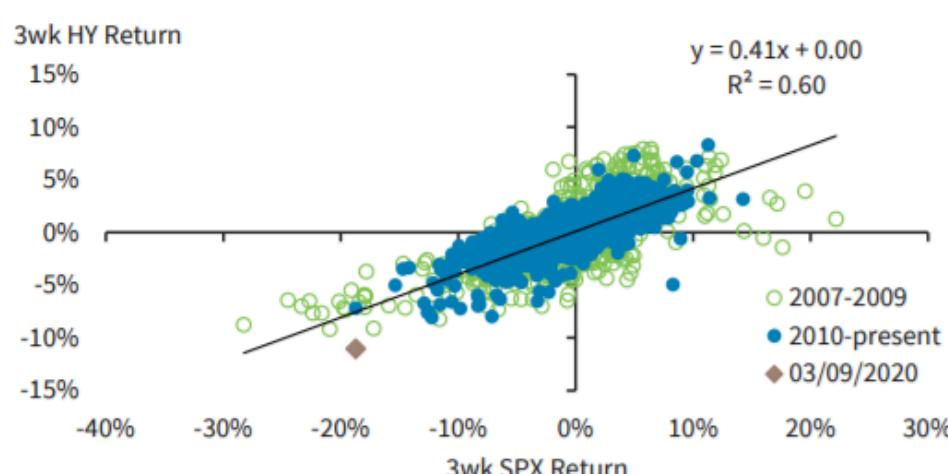
Date	CDX.IG Close (bp)	CDX.IG Chg (bp)	SPX Return
11/20/2008	285	41	-6.71%
09/15/2008	183	37	-4.71%
10/10/2008	228	30	-1.18%
03/09/2020	111	27	-7.60%
05/06/2010	127	23	-3.24%

Source for all charts: Bloomberg, Barclays Research

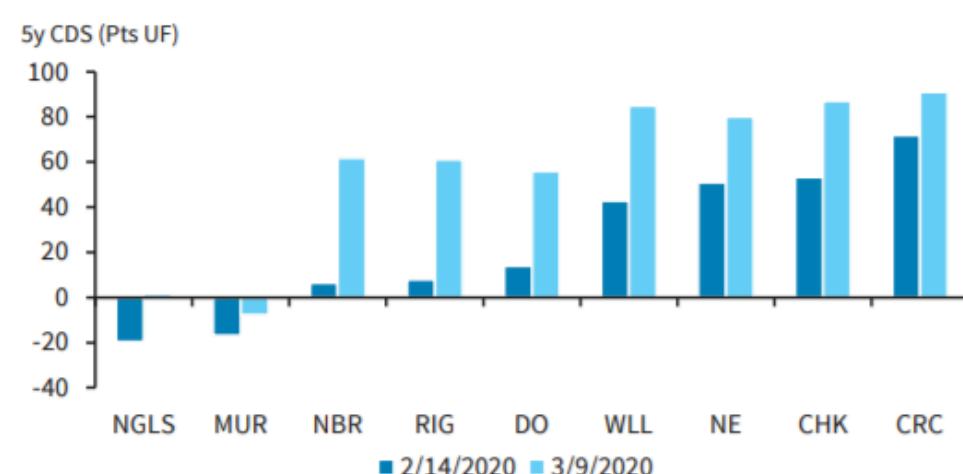


It has been a similar story for CDX.HY, with energy credits leading the move wider

CDX.HY Has Also Underperformed Equity



Energy Leading the Widening*



Change* in Pts Upfront by DTCC Sector

Average 5y CDS (Pts UF)				
Sector	Count	2/14/2020	3/9/2020	Change
Basic	8	-15.0	-5.3	9.6
Cons Goods	13	-15.3	-6.9	8.5
Cons Svcs	23	-8.3	1.7	10.0
Energy	10	19.1	50.4	31.3
Fins	12	-14.5	-7.5	7.0
Health	7	-12.0	-4.0	8.0
Ind	11	-15.6	-4.5	11.0
Tech	6	-15.2	-9.4	5.8
Telco	4	-1.6	5.5	7.0
Util	4	-12.4	-6.1	6.3
		-9.1	1.9	11.0

Worst 1-day HY Sell-offs Since 2007

Date	CDX.HY Close (\$)	CDX.HY Chg (\$)	SPX Return
03/09/2020	98.0	-4.5	-7.60%
10/06/2008	84.8	-4.1	-3.85%
03/30/2007	99.4	-3.9	-0.12%
08/08/2011	92.9	-3.9	-6.66%
09/28/2015	99.8	-3.8	-2.57%

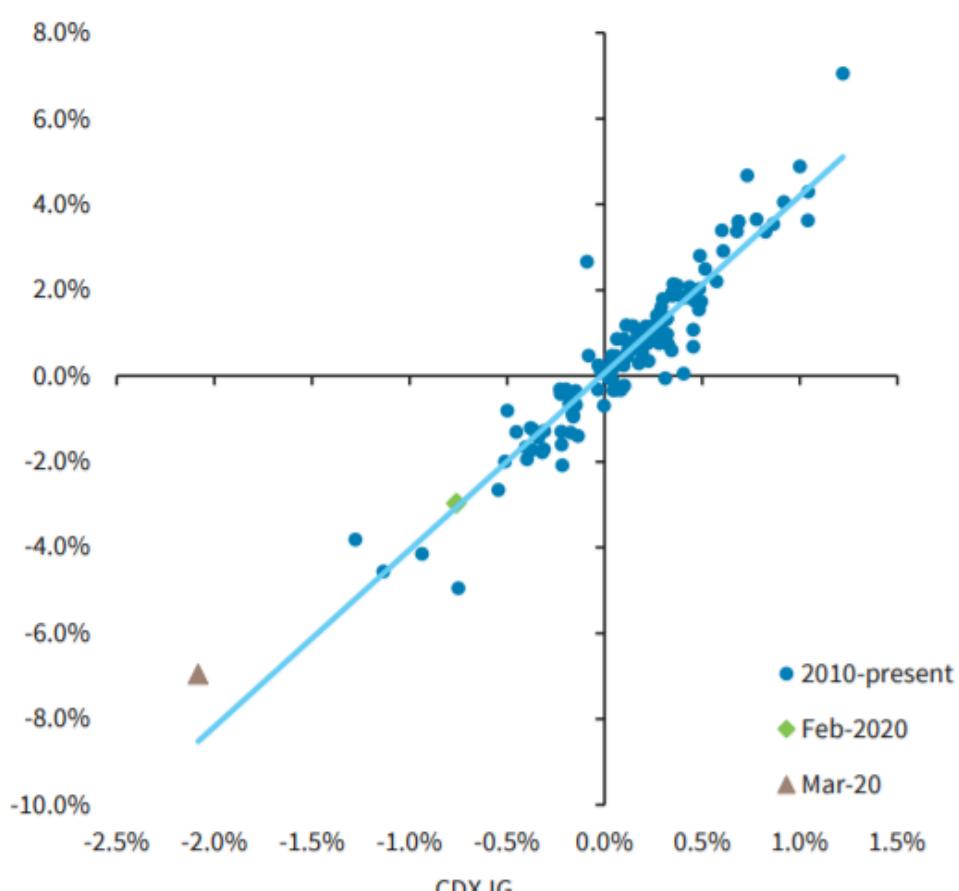
*Assumes SNAC500 for all contracts. Source for all charts: Bloomberg, Barclays Research



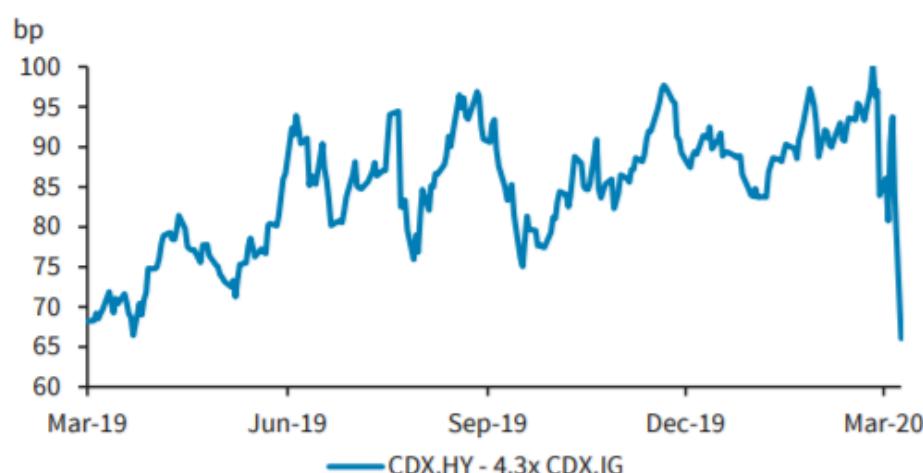
CDX.HY has managed to outperform CDX.IG beta-adjusted. We think this could reverse in a rally or if growth concerns intensify

CDX.HY Has Outperformed IG Beta-adj...

CDX.HY
Chart shows monthly returns since 2010; Mar-20 returns as of Mar 9



...Leading to Compression



Catalysts for Decompression

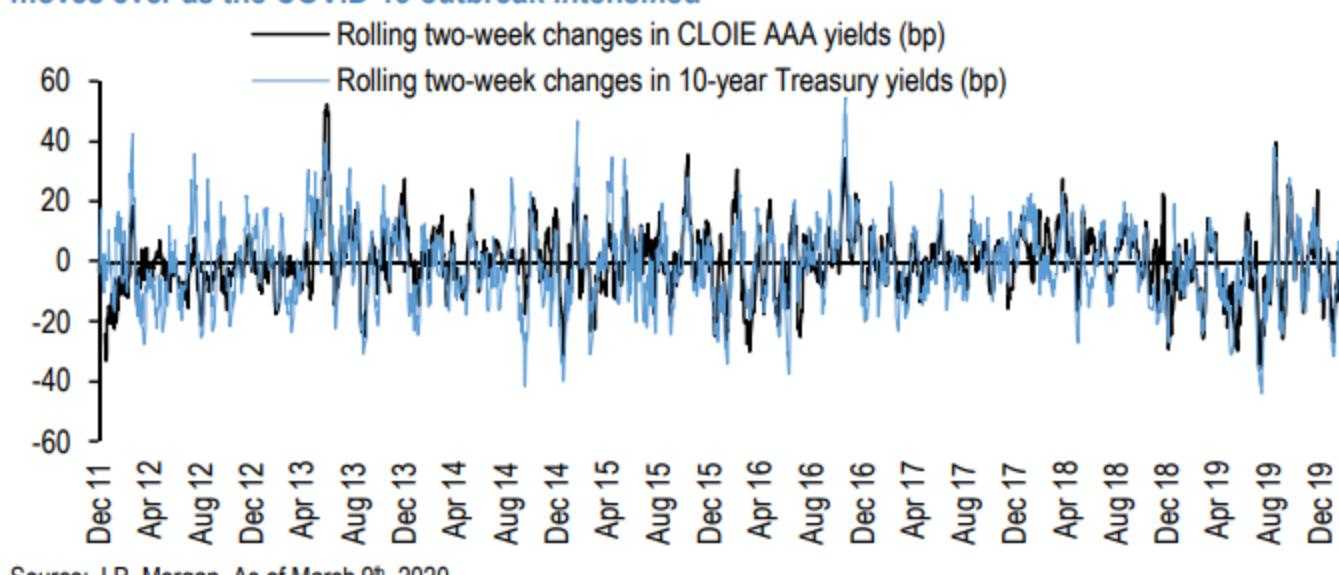
- If systemic risk concerns start to diminish, long-risk positioning in CDX.IG could return (down 67% over the 2-wk period ending 2/28), which could drive outperformance
- On the other hand, if the sell-off continues, growth concerns could intensify, which should have a greater effect on CDX.HY

For more details, see "[Assessing Relative Value across Macro Credit](#)", March 6, 2020. Source for all charts: Bloomberg, Barclays Research



11

Exhibit 2: Markets as disparate as CLOs and US Treasuries experienced some of their largest moves ever as the COVID-19 outbreak intensified



Source: J.P. Morgan. As of March 9th, 2020.

Liquidity in the Time of Social Distancing: CLO Special Report

We have been taking a defensive posture, minimizing spread duration and lowering credit risk to shorter and more senior bonds ([Mar 6th](#), [Mar 4th](#), [Feb 27th](#)), and reiterate this as the risk of an uncontained COVID-19 pandemic is rising. On [Mar 9th](#), we introduced downside cases for supply (-50% y/y to \$50bn-70bn) and secondary spreads (AAA 180-200bp), only to have spreads just about reach this in a matter of days. **By how much has CLO valuation de-rated?** Since Feb 21st, on a normalized basis CLO BB/B spread moves are in line with Loans (~47% widening) whereas CLO Single-A and BBB have widened the most (81-88%). IG/HY bonds have widened 66% on a normalized basis to 219bp (JULI) and 736bps (HY Bonds). There is significant tiering in CLOs, e.g. BBs range ~ 875-1250bps as of March 11th close.

Exhibit 1: CLO spread widening versus credit markets

	<u>March 11th close</u>	<u>Change Since Feb 21st</u>	<u>% Change</u>	'15-'16 Energy wides	GFC wides
IG Bonds	219	+87	66%	247	560
HY Bonds	736	+291	66%	920	1929
Loans	665	+213	47%	693	2088
CLO AAA	180	+74	70%	180	700
CLO AA	278	+125	81%	280	1140
CLO A	375	+175	88%	415	1848
CLO BBB	555	+235	73%	650	2305
CLO BB	1063	+348	49%	1100	2700
CLO B	1450	+445	44%	1700	

Source: J.P. Morgan. Data as of March 11th, 2020 close. JULI (all ex EM) spread to TSY, JPM Domestic HY Bond Spread to worst, JPM Loan index spread fwd to 3Y, and weekly CLO secondary spreads. Based on US 3.0 Secondary CLO Spreads (2016-current) and US Benchmark (Pre-Crisis) CLO Spreads (2007-2016).

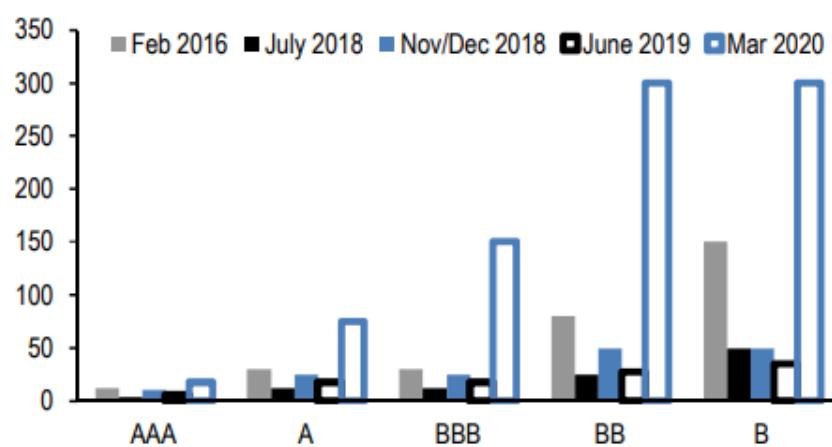
The economic consequences of COVID-19 may not yet be fully clear, but the outbreak has already been felt in market volatility. Our colleagues have discussed how market depth and liquidity amplified moves in markets such as US Treasuries ([here](#) and [here](#)). This is harder to quantify in CLOs given less transparency. In considering the data at hand, it seems reasonable to conclude the market is functioning with higher BWIC volumes, albeit higher DNT's, with gappy spread moves, and rising dispersion. It's also possible that increasing use of social-distancing policies will impact CLOs as participants deal with informational challenges, exacerbating market moves.

For context, our colleagues observed that the drop in 10-year Treasury yields over the last two weeks has been the largest since August 2011 ([link](#)). The rolling two-week change in CLOIE AAA yields moved in a similar trend, with the index its biggest decline in yield of -56bp on March 4, 2020, since inception in 2012.

Bid/ask: standardized and normalized

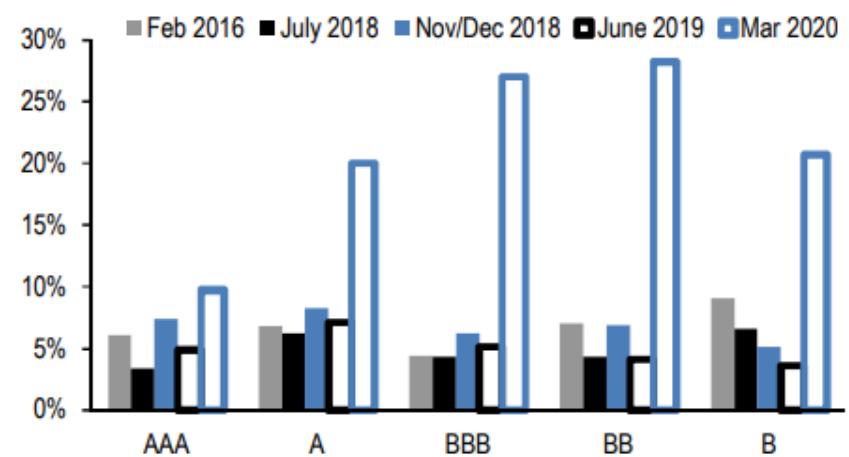
Given a fluctuating market, we refresh generic bid/ask spread observations for additional perspective on CLO market liquidity and trading friction. We caveat that these are indicative levels and there is a range of bid/ask spreads at each tranche level with the tiering and price discovery the market 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.

Volatility snapshot

	Current	1wk ago		1mth ago		Changes		12mth...		12m Range	
		09-Mar	02-Mar	07-Feb	-1wk	-1mth	Low	Average	High		
		Index Levels (bp)								♦ Avg	◆ Current
Main	102.5	68.1	43.6	34.4	58.9	41.4	55.5	102.5	102.5	102.5	102.5
SenFin	120.0	78.1	49.1	41.9	70.8	46.7	66.3	120.0	120.0	120.0	120.0
Cross	456.11	308	216	148	240	199	239	456	456	456	456
CDXIG	112.4	64.8	46.3	47.7	66.1	44.0	57.4	112.4	112.4	112.4	112.4
CDXHY	557	365	290	192	266	275	332	557	557	557	557
3m Implied Vol											
Main	100.6	77.5	40.6	23.1	60.0	38.7	46.1	100.6	100.6	100.6	100.6
SenFin	114.4	87.3	47.5	27.0	66.9	45.9	57.2	114.4	114.4	114.4	114.4
Cross	86.5	64.5	34.8	22.0	51.7	32.5	41.9	86.5	86.5	86.5	86.5
CDXIG	103.5	68.5	48.0	35.0	55.5	37.0	45.1	103.5	103.5	103.5	103.5
CDXHY	87.5	52.2	36.5	35.3	51.0	27.8	35.1	87.5	87.5	87.5	87.5

Source: Barclays Trading, Barclays Research

Spread and premium snapshot

US IG		Current	Chg	LTM	EUR IG		Current	Chg	LTM
		11-Mar	-1wk	Pctl Rank			11-Mar	-1wk	Pctl Rank
Spreads (bp)									
US IG L-OAS	201	67	100%		EUR IG L-OAS	105	29	100%	
CDX.IG Spread	116	51	100%		Main Spread	103	39	100%	
Premium/Discount to NAV (bp)									
LQD	-330	-324	100%		IEAC	-53	-58	99%	
iBoxx IG	-1348	-1298	100%		iBoxx EUR	-247	-230	99%	
CDX.IG	-15	-13	1%		Main	0	-1	99%	
US HY		Current	Chg	LTM	EUR HY		Current	Chg	LTM
		11-Mar	-1wk	Pctl Rank			11-Mar	-1wk	Pctl Rank
Spreads (bp)									
US HY L-OAS	652	193	100%		EUR HY L-OAS	509	135	99%	
CDX.HY Spread	589	246	100%		Cross Spread	476	183	100%	
Premium/Discount to NAV (bp)									
HYG	-59	-97	100%		IHYG	-186	-209	99%	
iBoxx HY	-400	-433	100%		iBoxx MJA	-979	-872	99%	
CDX.HY	35	46	100%		Cross	35	25	99%	

Pctl Rank: 0% = rich; 100% = cheap. Source: IHS Markit, Bloomberg, Bloomberg Barclays Indices, Barclays Research

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).

4

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Global
Liquidity in the Time of Social Distancing
12 March 2020

J.P.Morgan

Exhibit 5: Monthly US CLO IG (AAA-BBB) DNT % Versus US AAA secondary spread

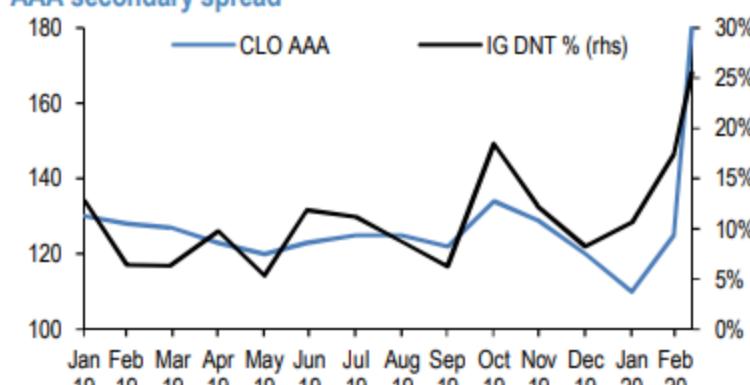
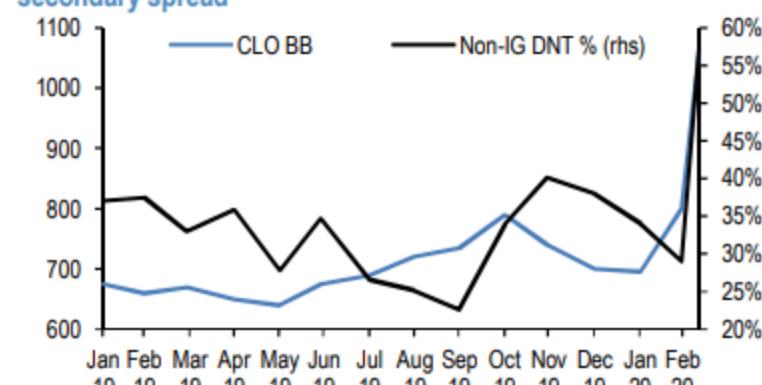


Exhibit 6: Monthly US CLO non-IG (BB-B) DNT % Versus US BB secondary spread



Source: J.P. Morgan. Spread levels as of March 11th, 2020 close. BWIC data as of March 9th, 2020.

Source: J.P. Morgan. Spread levels as of March 11th, 2020 close. BWIC data as of March 9th, 2020.

Exhibit 7: US CLO BWIC volumes as a percentage of CLO Market Size (\$bn) and DNT % of BWICs

Year	IG	Non-IG	EQ	Total US CLO BWICs	CLO Market Size (\$bn)	BWIC Volumes / Market Size	Total US CLO BWIC DNT	DNT Volumes/BWIC Volumes
2011	13.21	1.44	1.66	16.31	284	5.7%	3.19	19.6%
2012	17.30	1.20	2.59	21.09	298	7.1%	3.38	16.0%
2013	18.29	3.37	2.94	24.60	314	7.8%	5.05	20.5%
2014	15.69	3.39	3.26	22.33	381	5.9%	4.35	19.5%
2015	25.55	4.62	3.77	33.94	438	7.8%	6.81	20.1%
2016	18.50	6.23	2.96	27.68	464	6.0%	5.31	19.2%
2017	9.56	6.02	2.43	18.01	519	3.5%	2.53	14.0%
2018	20.12	4.74	2.66	27.52	603	4.6%	4.24	15.4%
2019	26.81	6.16	2.66	35.63	691	5.2%	6.01	16.9%
YTD	5.89	1.77	0.69	8.36	711	1.2%	2.13	25.5%

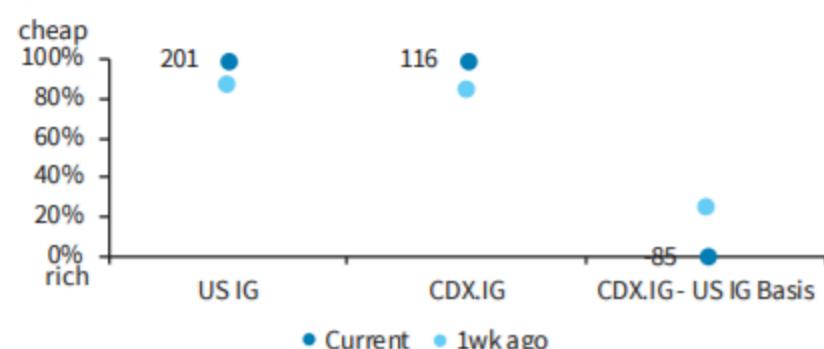
Source: J.P. Morgan. Data as of March 9, 2020. CLO market size estimates are as of the end of each year. YTD is as of March 2nd, 2020.

In Europe, spreads have drifted wider 25-90bps in IG and ~135bps in mezz over the last week. The secondary market has been active YTD, with €2.9bn BWICs (compared to €1.1bn in 2019YTD). The European CLO market is now ~€151bn in size and annual BWIC volumes are an average 6% of market size since 2013 with a maximum 8% in 2015 and a minimum 4% in 2019. Recently, the proportion of BWICs that Did Not Trade (DNT) increased to 13.3% on an YTD basis with the global market volatility.

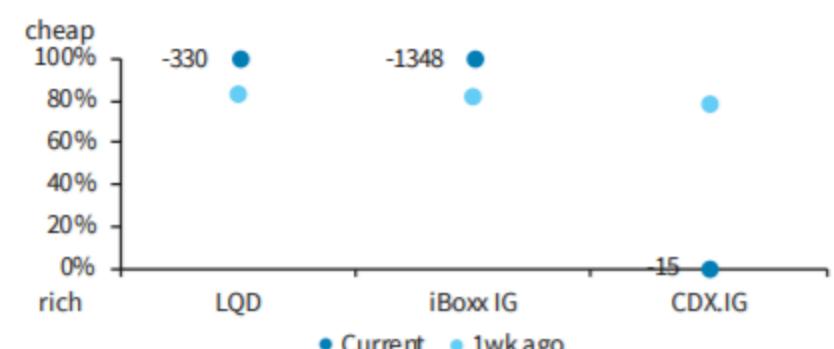
Trading Volume (TRACE)

As BWICs don't fully capture CLO market activity, we also track TRACE data as a supplementary data source for trading volumes (Exhibit 8). Recall, TRACE captures all US CDO activity (combining CBOs, CDOs and CLOs) and the data is only broken out by IG and non-IG. 2020 YTD TRACE volumes total \$34bn which compares to \$21bn over the same period last year. TRACE volumes had reached a high of \$111bn buys and sells in 2019.

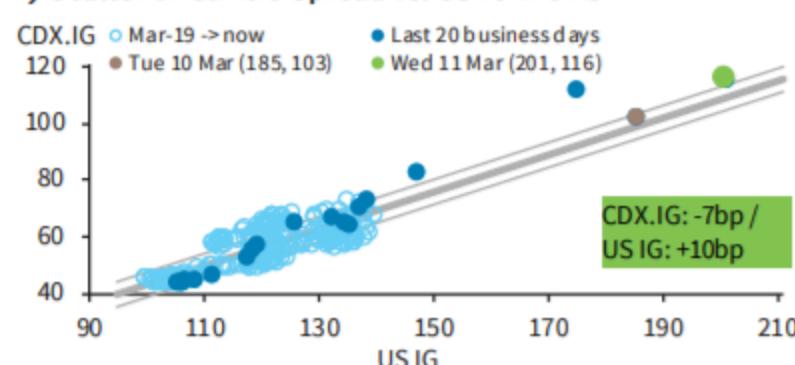
Spreads: LTM Percentile Ranks and Current Levels



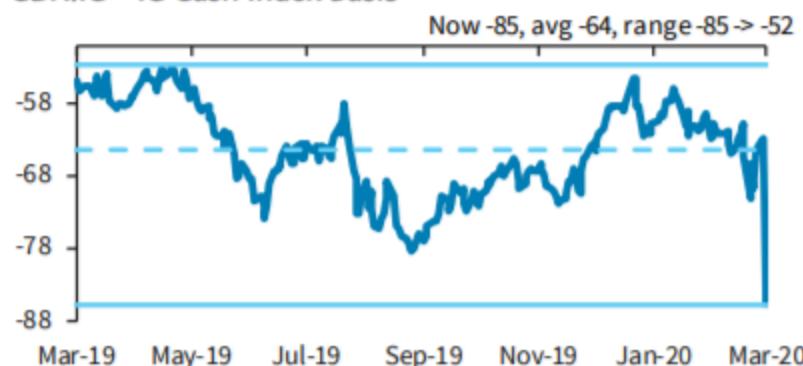
Premiums: LTM Percentile Ranks and Current Levels



1y Scatter of CDX.IG Spread vs. US IG L-OAS



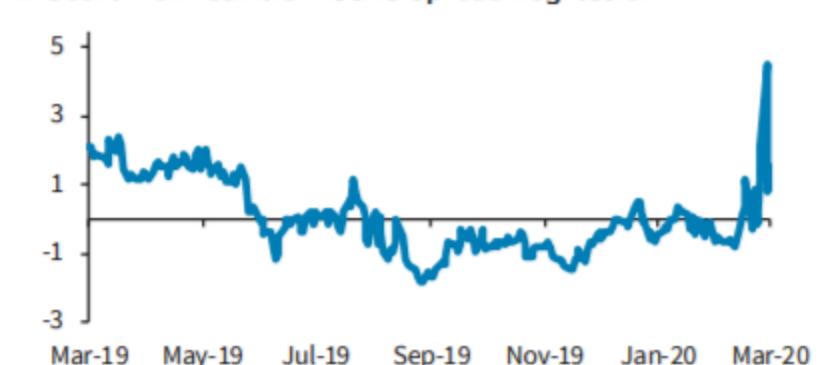
CDX.IG – IG Cash Index Basis



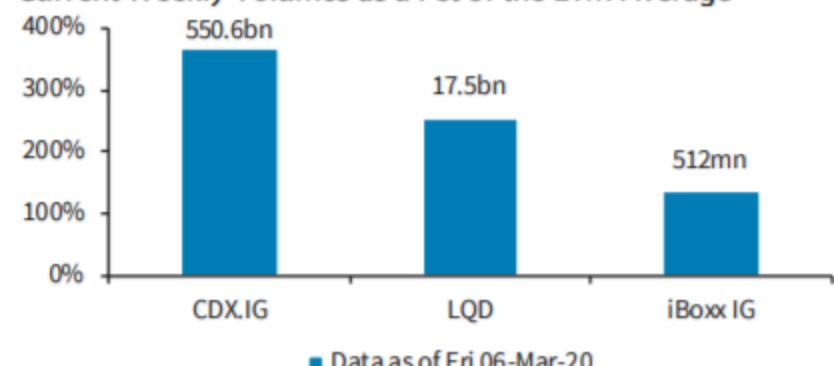
CDX.IG OTR Index Positioning



Z-Score from CDX.IG – US IG Spread Regression



Current Weekly Volumes as a Pct of the LTM Average

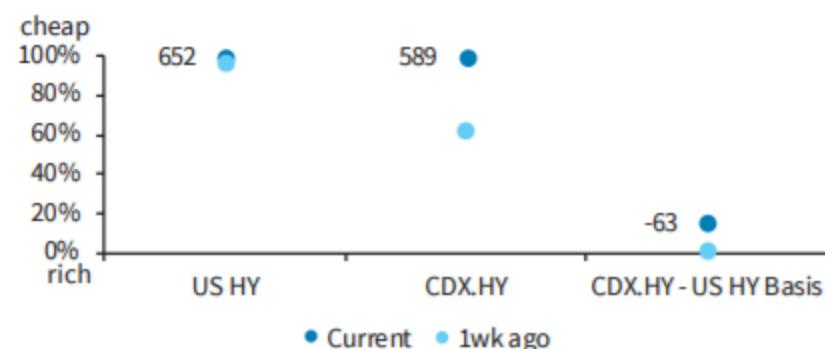


LQD AUM and Fund Flows

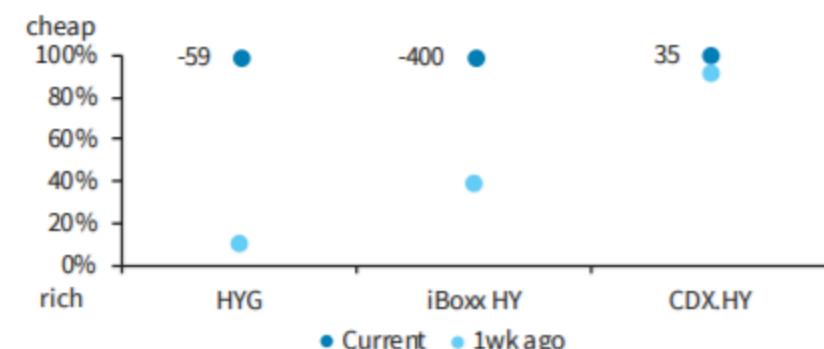


Source for all charts and tables on this page: IHS Markit, DTCC, Bloomberg Barclays Indices, Bloomberg, Barclays Research

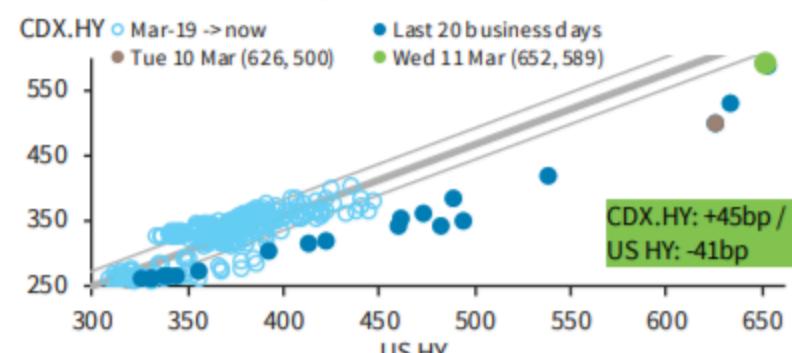
Spreads: LTM Percentile Ranks and Current Levels



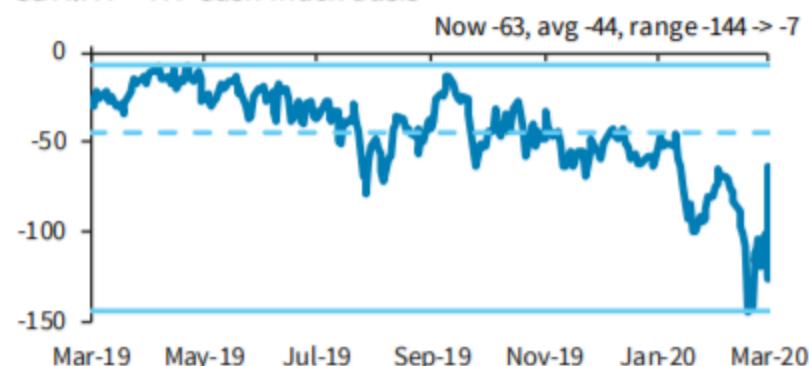
Premiums: LTM Percentile Ranks and Current Levels



1y Scatter of CDX.HY Spread vs. US HY L-OAS

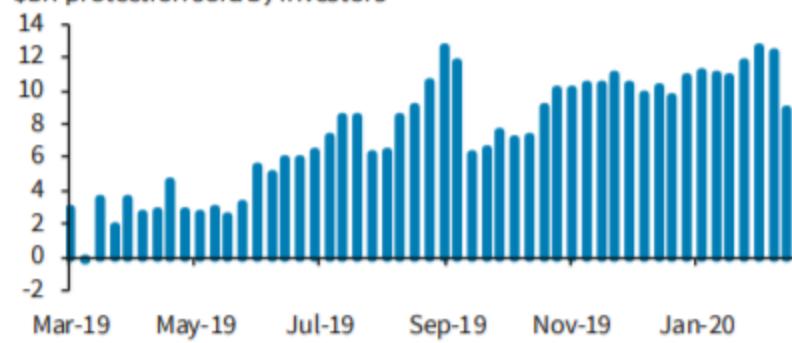


CDX.HY – HY Cash Index Basis



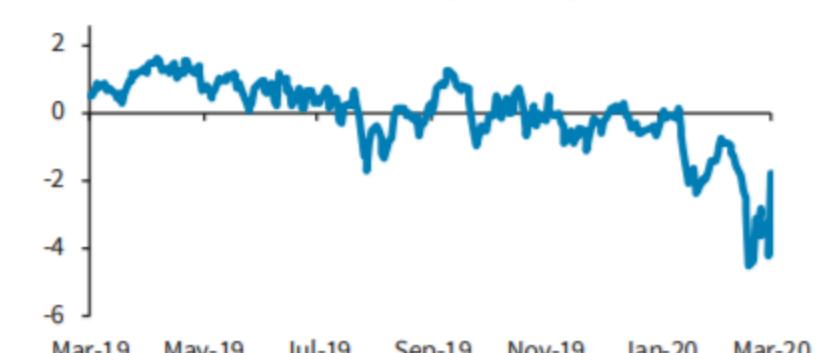
CDX.HY OTR Index Positioning

\$bn protection sold by investors

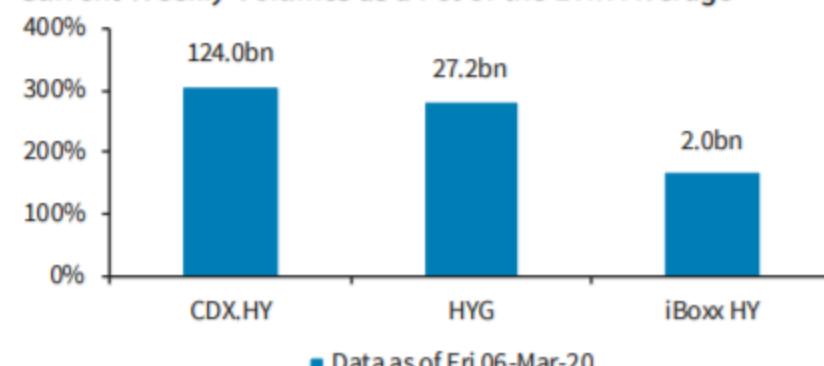


Source for all charts and tables on this page: IHS Markit, DTCC, Bloomberg Barclays Indices, Bloomberg, Barclays Research

Z-Score from CDX.HY – US HY Spread Regression



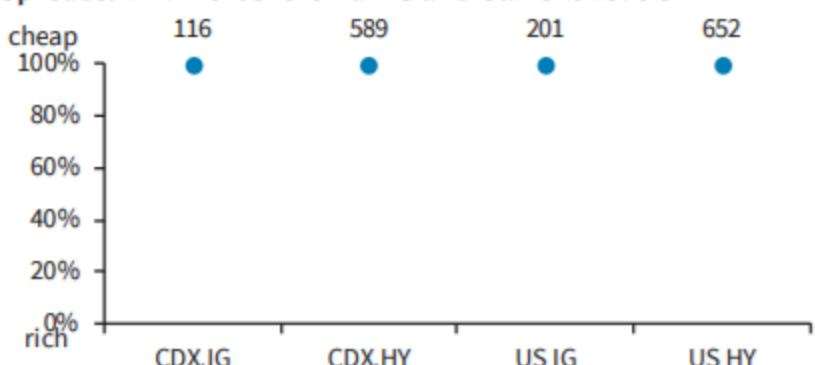
Current Weekly Volumes as a Pct of the LTM Average



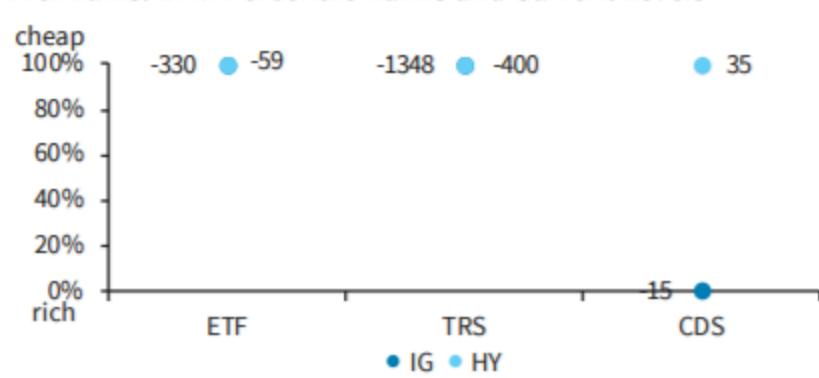
HYG AUM and Fund Flows



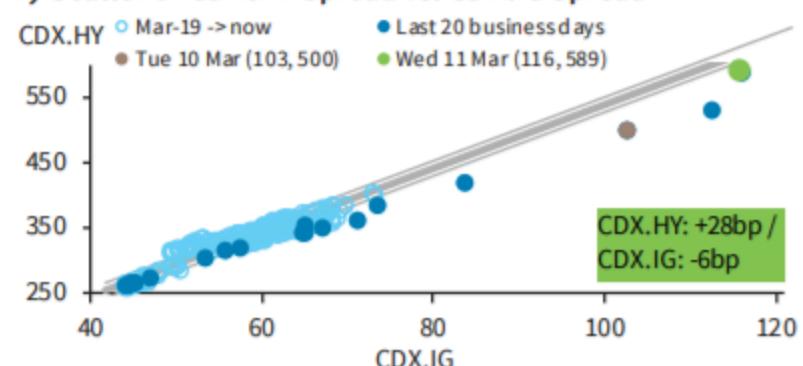
Spreads: LTM Percentile Ranks and Current Levels



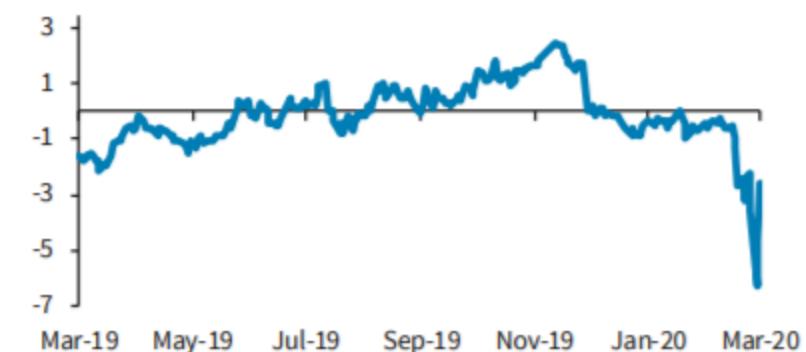
Premiums: LTM Percentile Ranks and Current Levels



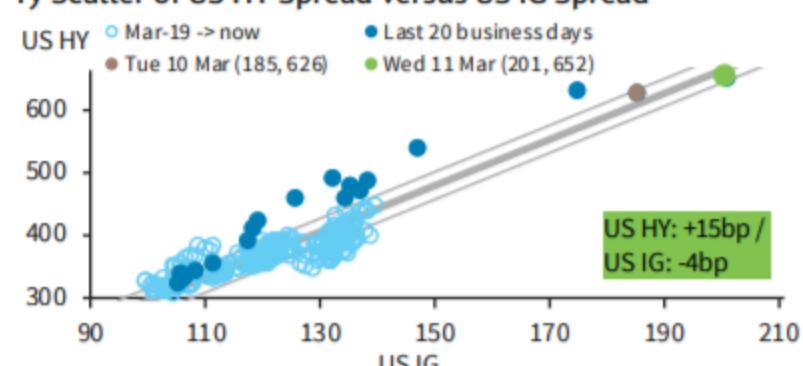
1y Scatter of CDX.HY Spread vs. CDX.IG Spread



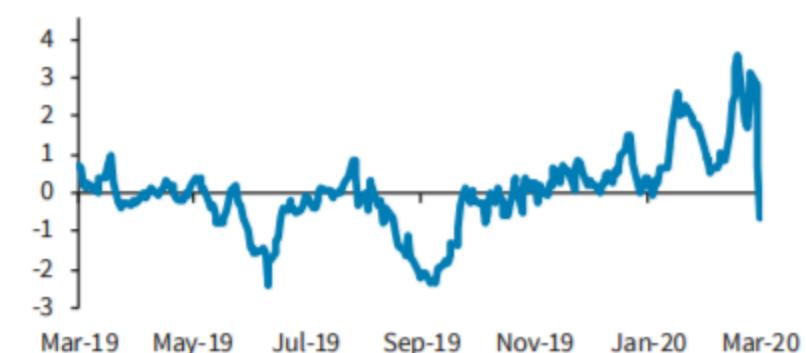
Z-Score from CDX.HY – CDX.IG Spread Regression



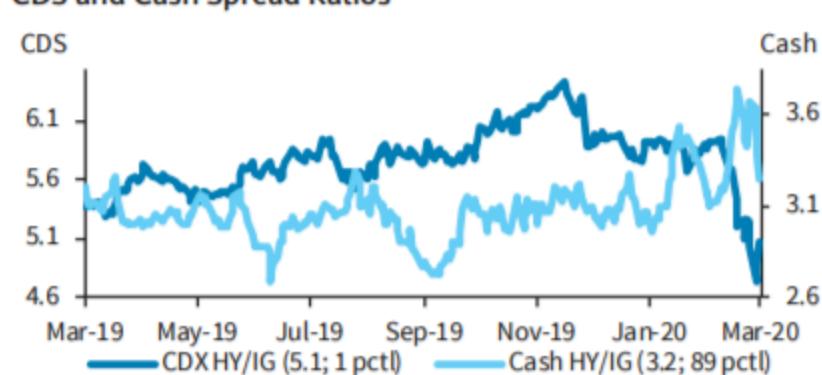
1y Scatter of US HY Spread versus US IG Spread



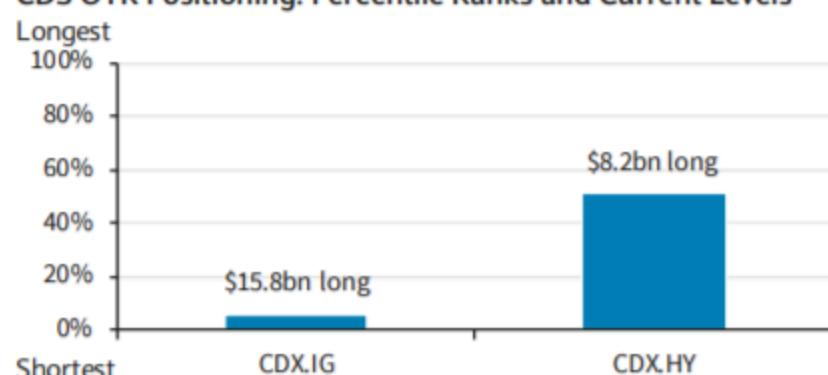
Z-Score from US HY – US IG Spread Regression



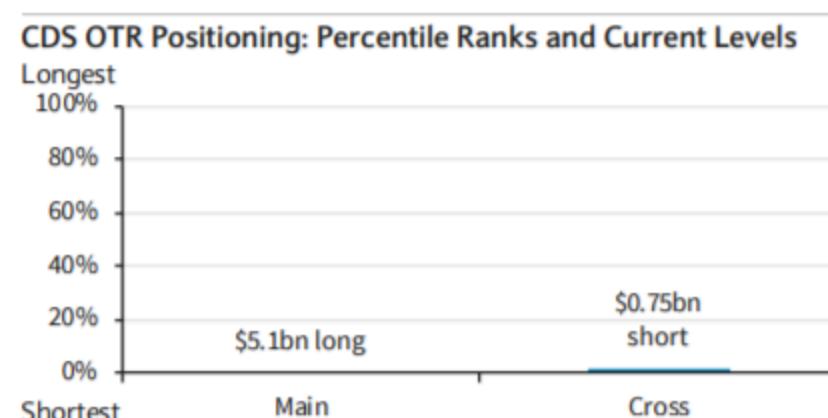
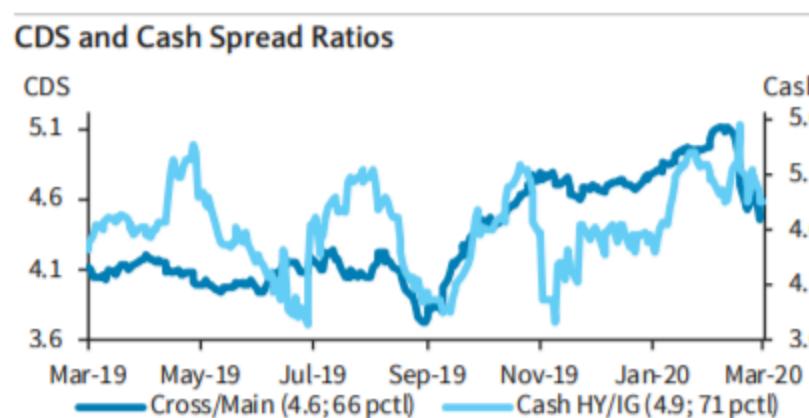
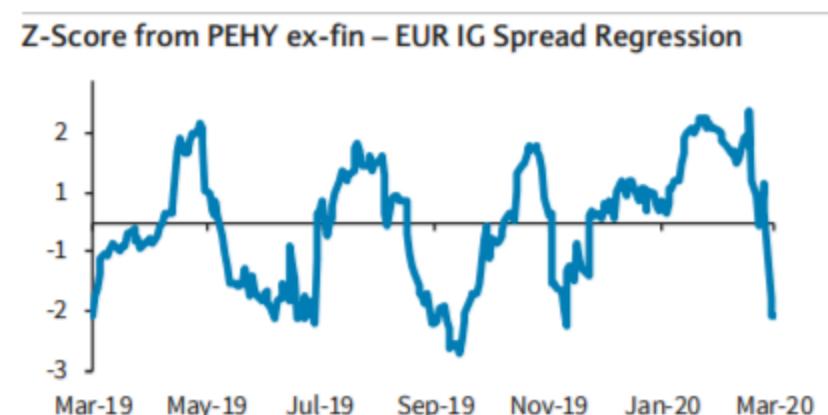
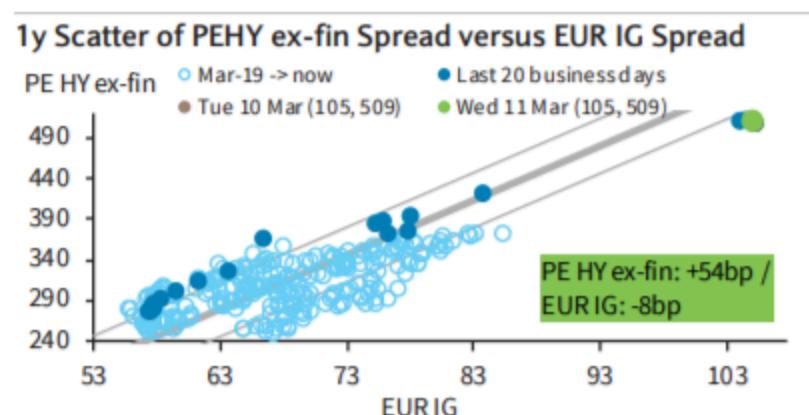
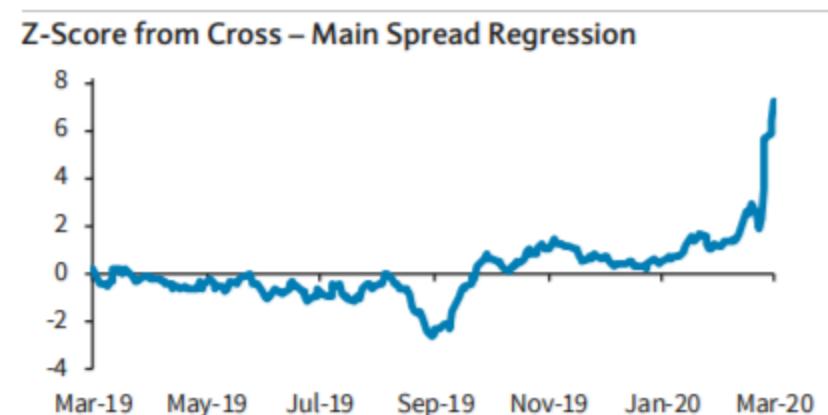
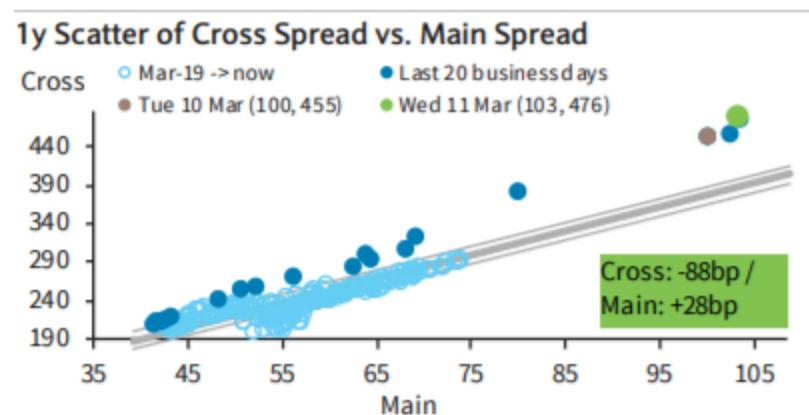
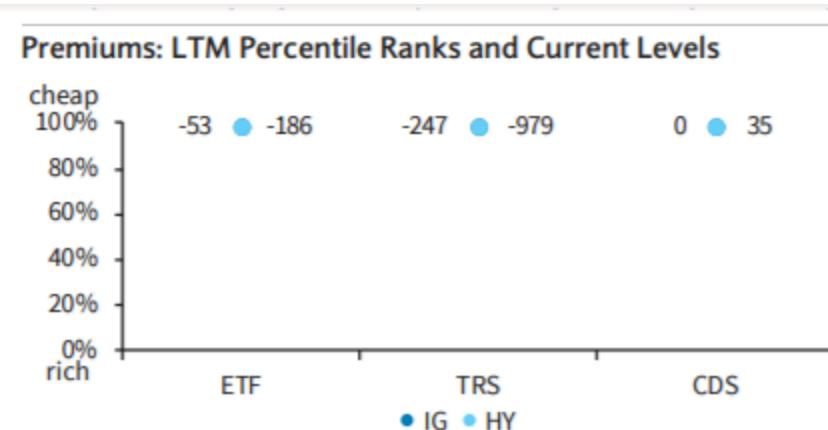
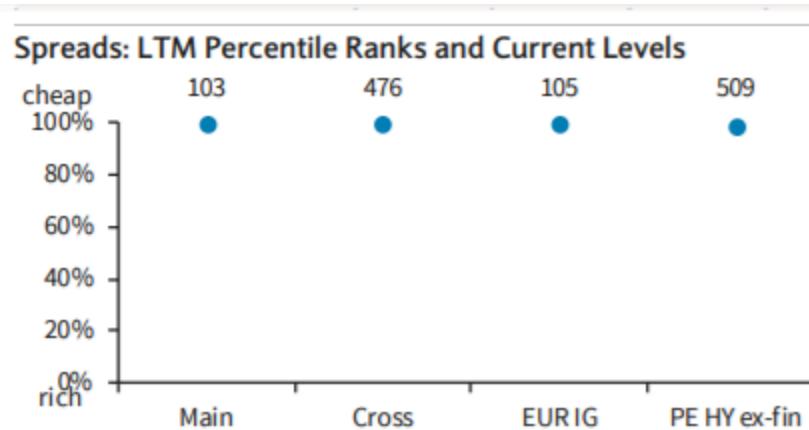
CDS and Cash Spread Ratios



CDS OTR Positioning: Percentile Ranks and Current Levels



Note: Premium comparisons based on the following: ETFs – LQD and HYG; TRS – IBOXIG and IBOXHY; CDS – CDX.IG and CDX.HY.
Source for all charts and tables on this page: IHS Markit, Bloomberg Barclays Indices, Bloomberg, Barclays Research



Note: Premium comparisons based on the following: ETFs – IEAC and IHYG; TRS – QW5A and IBOXXMJA; CDS – Main and Cross.
Source for all charts and tables on this page: IHS Markit, Bloomberg Barclays Indices, Bloomberg, Barclays Research

Global Markets Daily: Corporate Credit: Risks From a Twin Oil-Virus Shock (Karoui)

- Growing downside risks to growth—coupled with collapsing oil prices—continue to fuel concerns over the risk of increased stress in US credit markets. Two concerns are frequently encountered: 1) rising financial distress leading to an uptick in defaults and downgrades; and 2) an abrupt contraction in the supply of credit, akin to a credit crunch that would constrain funding for otherwise creditworthy firms. In our view, default and downgrade risks have increased to their highest levels since the start of the current business cycle. But the bar for a credit crunch remains high despite the recent notable deceleration in primary market activity.
- We view risks of rising financial distress and reduced credit availability as "*known knowns*", reflecting cyclical patterns. Defaults and downgrades typically increase in periods of sharp growth deceleration. Similarly, reduced credit availability, particularly for low quality corporate borrowers, is common when the risk of a large aggregate demand shock is high. More concerning to us is the post-crisis deterioration in secondary market liquidity conditions, which is a "*known unknown*" that further selling pressure may eventually test. The corporate bond market's greater fragmentation and reduced depth represent a major source of vulnerability given recent price action.

Lotfi Karoui

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Goldman Sachs & Co. LLC

provided by dealers has contracted. Finally, the single-name CDS market, a key channel through which investors can express short views on credit risk, has significantly contracted, depriving market participants of a valuable tool to manage and intermediate risk.

These structural shifts reflect to a large extent regulatory changes following the passage of the Dodd-Frank Act and the implementation of the Basel III standards. The combined effect of higher capital requirements and the implementation of the liquidity coverage ratio (LCR), the net stable funding ratio (NSFR), the supplementary leverage ratio (SLR), and the total loss-absorbing capital (TLAC) rules have improved the resilience of banks. But this improved resilience has also reduced balance sheet flexibility and diminished the ability to respond to stronger liquidity demand at times of elevated market stress.

As we documented in previous research, the evidence suggests that liquidity conditions have deteriorated since the crisis. While bid-ask spreads have compressed to pre-crisis levels, this compression masks two negative shifts. First and foremost, the average size for institutional trades has substantially declined, suggesting greater fragmentation and thus higher aggregate transaction costs (Exhibit 5). Second, the post-crisis decline in market turnover suggests that TRACE-based bid-ask measures capture a smaller and relatively more liquid segment of the market relative to the pre-crisis period (Exhibit 6). In our view, the deterioration in market liquidity conditions is a major source of vulnerability given recent price action.

Exhibit 5: The average size for institutional trades has substantially declined, suggesting greater fragmentation and thus higher aggregate transaction costs

Average trade size in the investment grade market



Source: TRACE, Goldman Sachs Global Investment Research

Exhibit 6: The turnover in the corporate bond market has significantly declined since the crisis

Source: TRACE, Goldman Sachs Global Investment Research



KEY THEMES AND VIEWS

Market view: there's value in credit, but need policy catalyst.

- What's new:** the sell-off has been driven by CDS index and CDS option buying consistent with hedging. CDS net positioning has shifted from very long to quite short risk in two weeks. Skew (index vs single-name CDS) in XOver for instance is at Euro-crisis levels. Corporate bond funds on the other hand have only recently experienced outflows. Dealer inventories remain high.
- Our view:** In risk-terms, stabilisation requires a bit of the China template ie virus containment and policy support. US, Europe is getting some of the latter, not yet much of the former. In market terms, it requires clean positioning and that is now the case for many CDS indices.

€ Cash/CDS – the Basis is a Short for the next two weeks

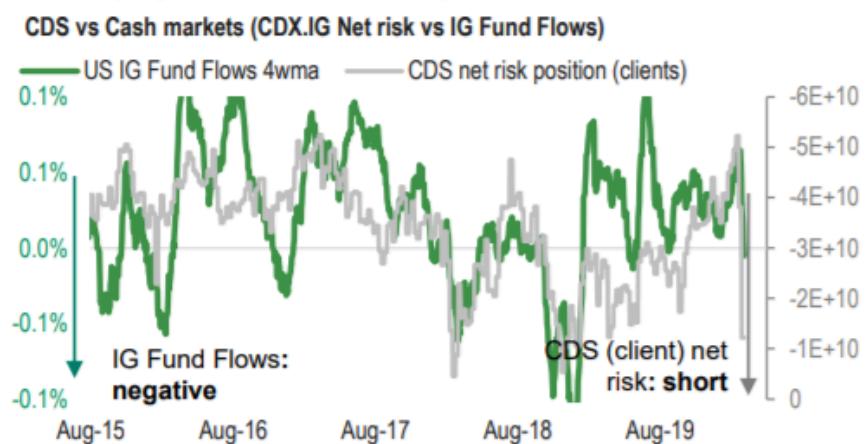
What's new: iTraxx indices have underperformed Cash products in the sell-off due to their higher liquidity.

Our view: we expect Synthetic to outperform Cash in the next two weeks, regardless of the direction of the market. In a bearish scenario, any further reduction of risk is likely to affect bonds (as a consequence of outflows) while the Long via the Synthetic products has already been massively reduced. In a bullish scenario (ECB intervention via an increase of its QE programme), Cash rallies and Primary reopens but the squeeze of iTraxx indices could be even more significant as investors reset the Long positioning via the more liquid products; note that CDS outperformed Cash in the two weeks prior to the Roll in 15 of the last 18 Rolls.

AUTHORS

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The hedging is done, cash selling has been more limited



€ IG Financials Senior and Non-Financials Cash/CDS basis

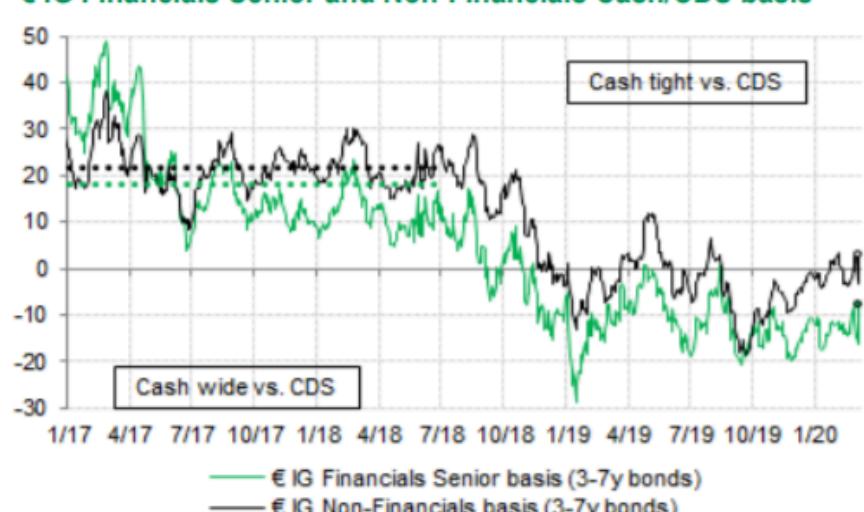
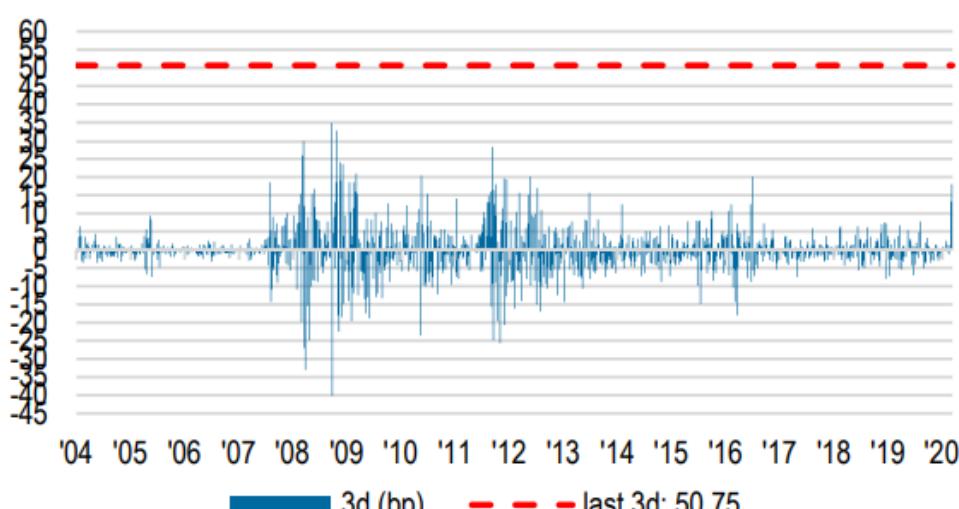


Figure 1: iTraxx Main 3d move (+51bp) in context



The bank for a changing world

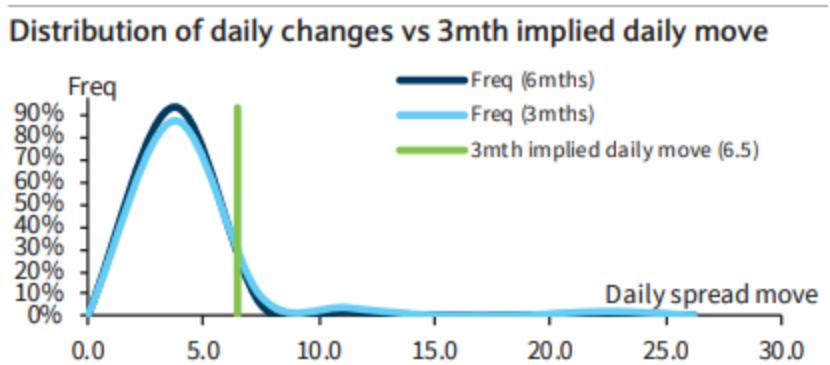
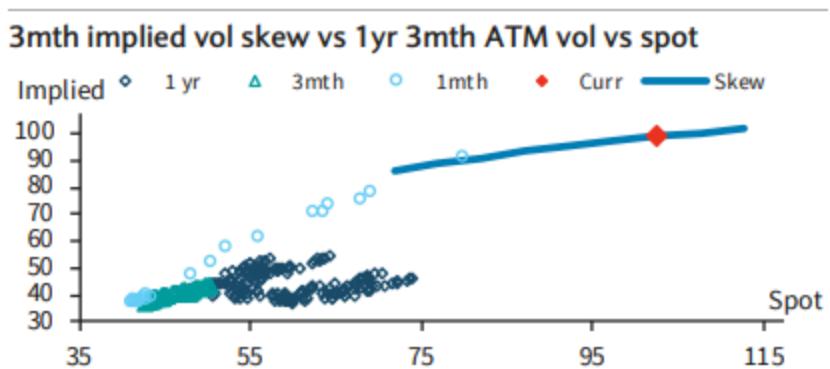
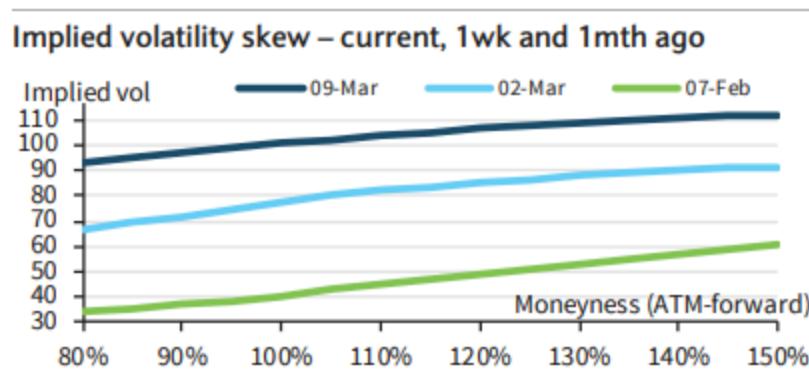
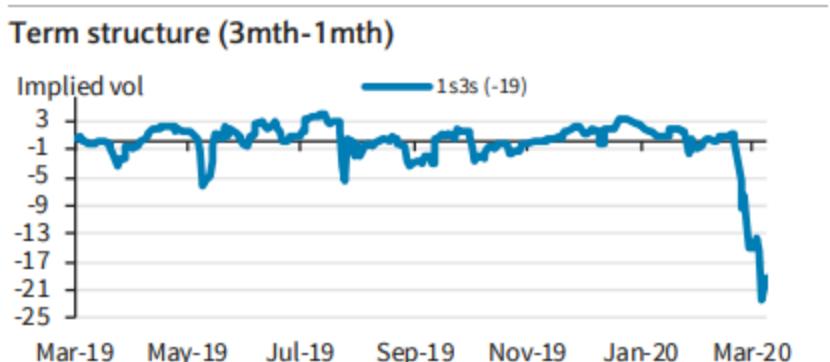
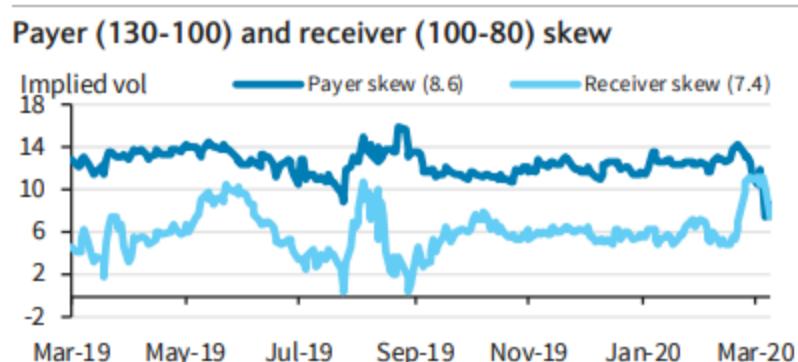
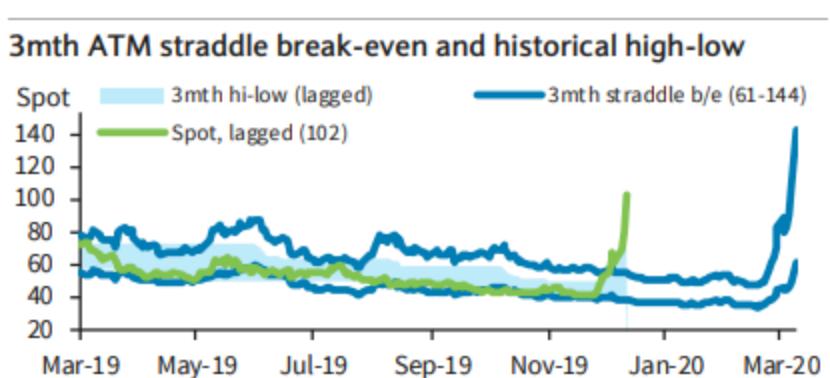
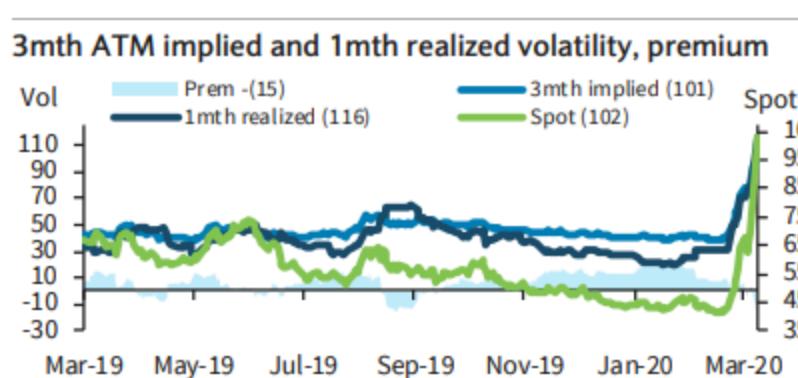
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Table 1: iTraxx Main Sector moves

Spread changes since 20-Feb, ranked by %age spread move. Single-name movers on the next page.

Index		Live	Chg	in %	Count
	Main	115	73	171	
SenFin		135	87	178	
Single-Names	Energy	118	87	279	6
	Basic Materials	180	118	192	9
	Consumer, Cycl.	146	90	162	16
	Financial	116	70	160	31
	Industrial	115	68	148	13
	Consumer, Non-c.	62	33	123	18
	Communications	93	48	116	17
	Technology	63	33	108	1
	Utilities	67	30	80	14

Source: J.P. Morgan. Spreads as of 9-Mar intraday.



Source for all charts and tables on this page: Barclays Trading, Barclays Research

10 March 2020

2

KEY THEMES AND VIEWS

US: Yield pick-up from TSY to Single-As at post-crisis high

What's new: Absolute corporate yields are at historically low. However, the yield pickup over TSY is at its highest level outside of the credit crisis. TSY yields are trading much lower than their previous all-time lows. At the same time, corporate bond spreads widened to early 2019 levels, but still far from recession levels.

Our view: The virus situation has led to a swift flight to safety and driven the TSY move. At the same time, the bid for the next safest asset in fixed income, single-A corporate bonds, has been limited. The current level of yield pickup between the safest and the next safest asset looks quite attractive vs the virus risk, which we believe is temporary. One issue that might limit demand is that absolute levels of yields are low and spreads are not that wide.

US IG: LDI demand likely limited despite the spread widening

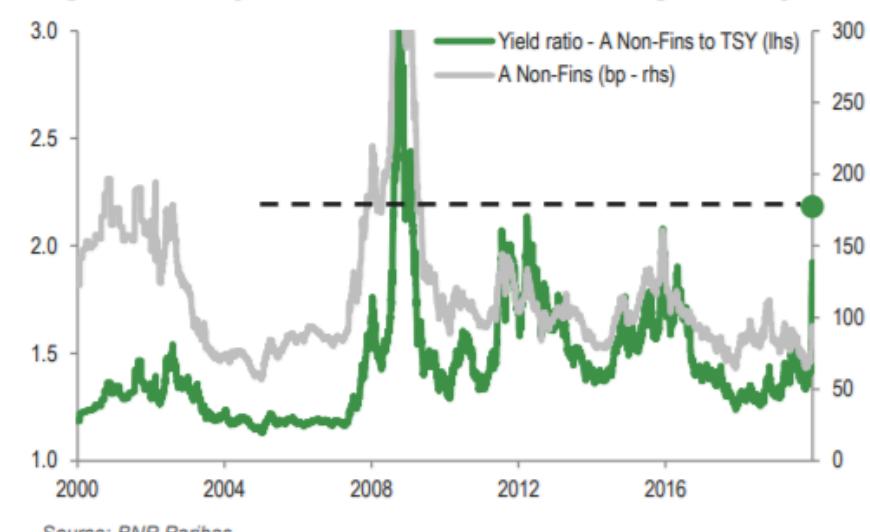
What's new: The TSY rally and the SP500 sell-off means that the mismatch between assets and liabilities has increased for pension funds and life insurance companies. For instance, we estimate that the private defined benefit pension funds funding ratio is now below 80%, its lowest level since mid-2016.

Our view: We expect LDI accounts to mostly remain on the sidelines. Buying bonds here would crystallize their low funding ratios. Furthermore, companies are unlikely to contribute to their pension funds in the short term, as cash and liquidity are likely to be king amidst the virus risk. Finally, current yields look too low and bond prices are too high for hold-to-maturity investors.

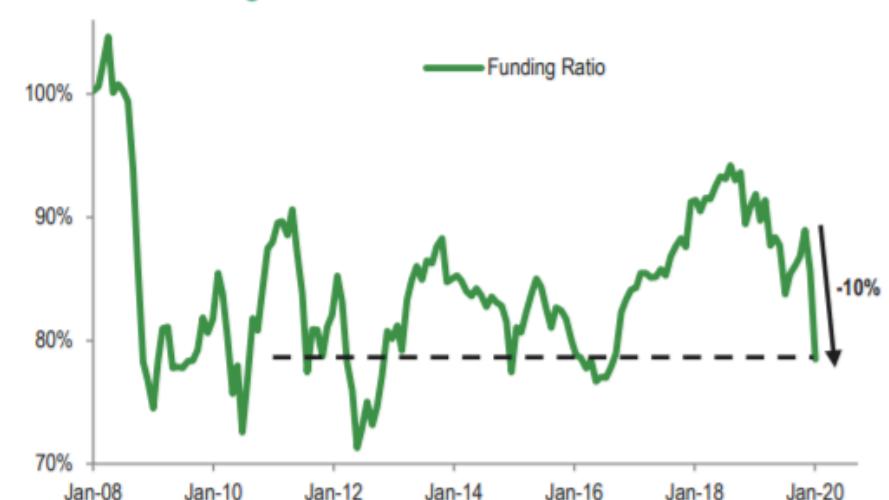
AUTHORS

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Single-A bonds yield more than 2x the matching Treasury



Pensions' funding ratio is much lower after the recent market moves



KEY THEMES AND VIEWS

Fund flows: What happens next?

What's new: Last week marked a sharp acceleration of outflows, with IG funds also suffering as the sell-off intensified. US IG and HY funds experienced outflows of \$14bn (1% of AuM), while Europe fared worse with 2% of AuM lost. Similar moves were last recorded in 3Q and 1Q18 and for € HY in 3Q15.

Our view: The last sell-off in 4Q18 occurred in a less volatile environment but still cost funds 6-10% of AuM. This suggests that the de-risking process has only just started and is likely to run into weeks, if not months. In such a flow backdrop, and with persisting economic uncertainty, a buying opportunity can only emerge once the bulk of the positions has been cleared. Short-term, this bodes for a continuation of the sell-off.

Time to reverse the Basis in Europe

What's new: The unusually large amount of supply in € IG has led to additional cheapening of the Cash/CDS Basis. With the European earnings season only halfway through, we expect the primary market to stay open.

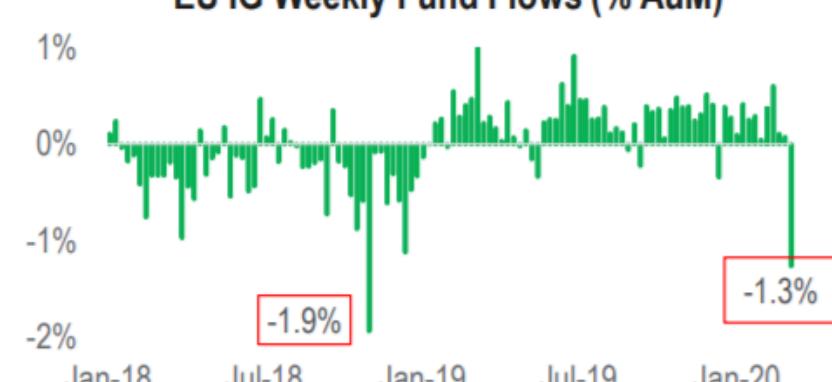
Our view: With Roll-related technicals approaching, we have closed our macro and micro negative Basis. We also recommend selling the Basis via CDS iTraxx Main 10y, hedged by a basket of expensive 7-10y bonds. Our trade could potentially benefit from (i) a flattening of the iTraxx Main 5/10y (record steep level given the 5y point), and (ii) a repricing of € IG Cash if supply continues to beat records.

AUTHORS

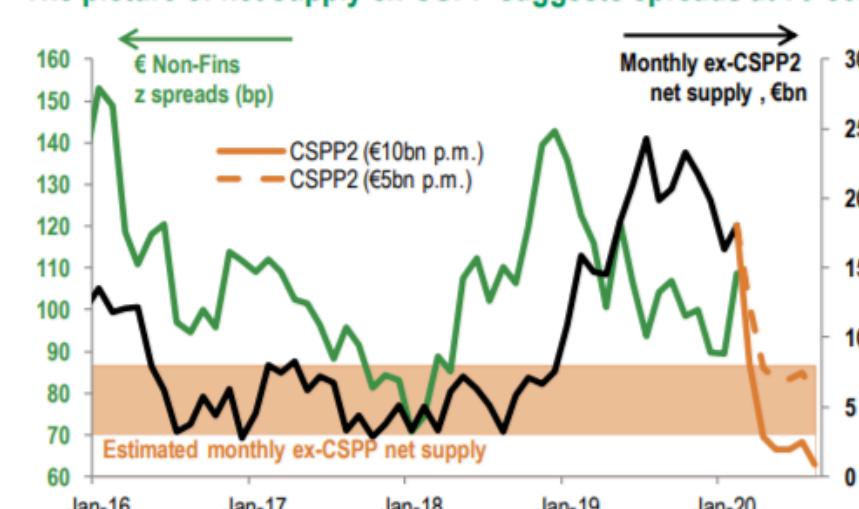
Viktor Hjort | BNP Paribas London Branch; Paola Lamedica | BNP Paribas London Branch

IG funds are also coming under pressure

EU IG Weekly Fund Flows (% AuM)



The picture of net supply ex-CSPP suggests spreads at 70-80bp



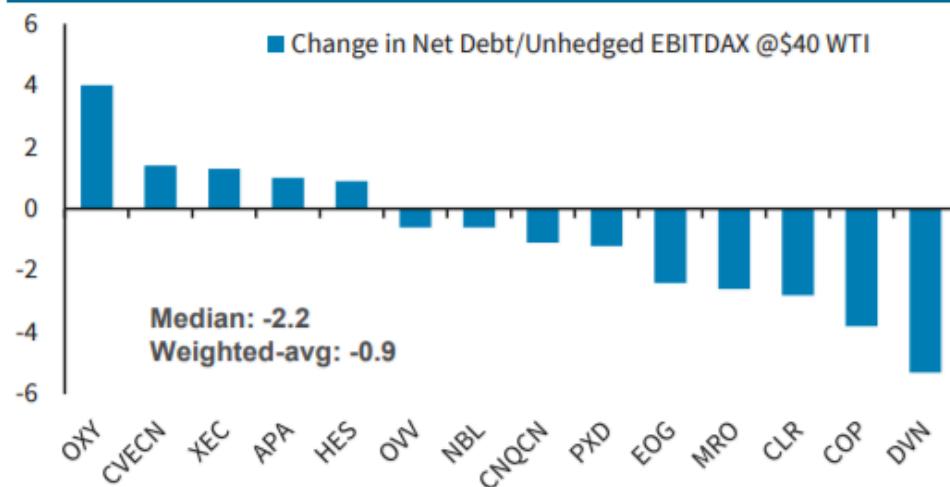
BNP PARIBAS

The bank for a changing world

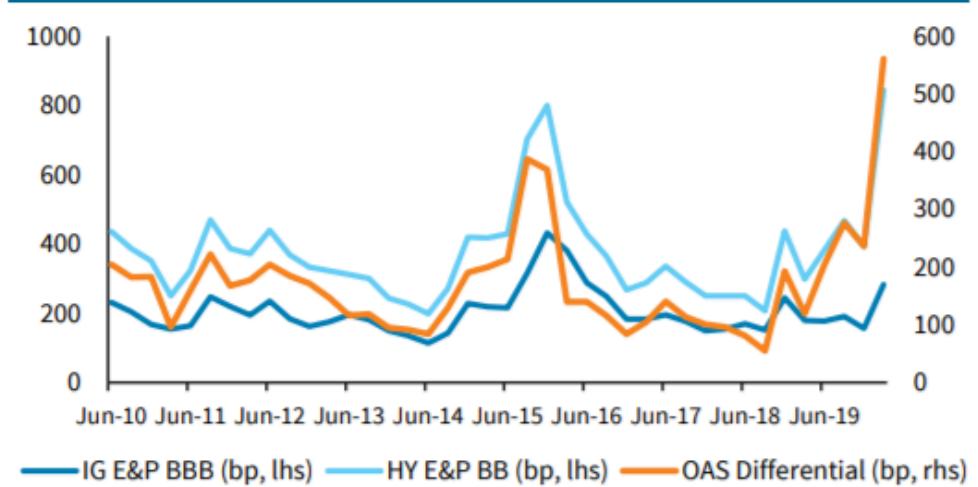
CREDIT360

While producers have better B/S vs '15, IG E&P will have a BB leverage profile with oil at \$40/bbl or lower, and we lower our sector ratings to UW

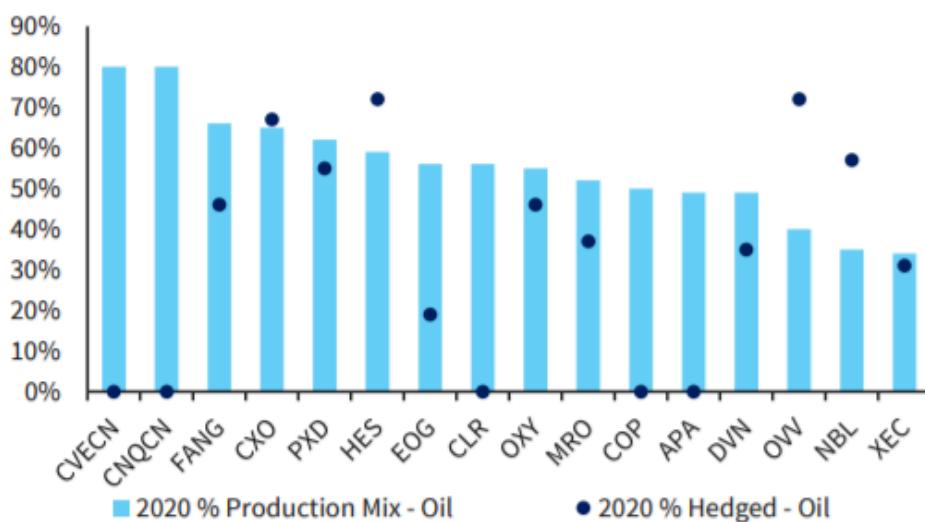
The Good: IG Producer has Materially Better B/S than in 2015-16



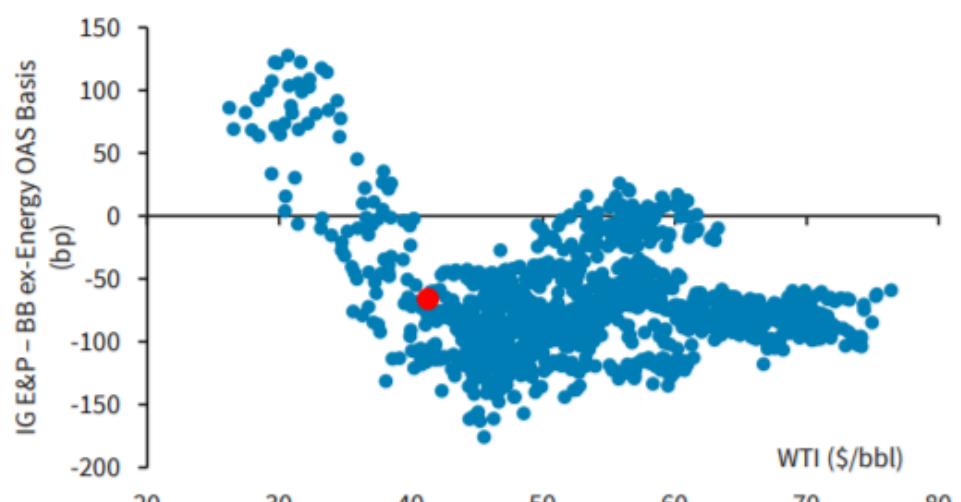
BB E&P OAS Widened vs. BBB E&P in the Past when Oil Px was Under Pressure



IG E&P Oil Prod. Mix and % Hedged Stats



IG E&P to Trade wide of BB ex-Energy



For more detail, see "E&P: Black Friday, Redux – Downgrade Sector to UW", March 9, 2020. Source for all charts: Bloomberg, Barclays Research



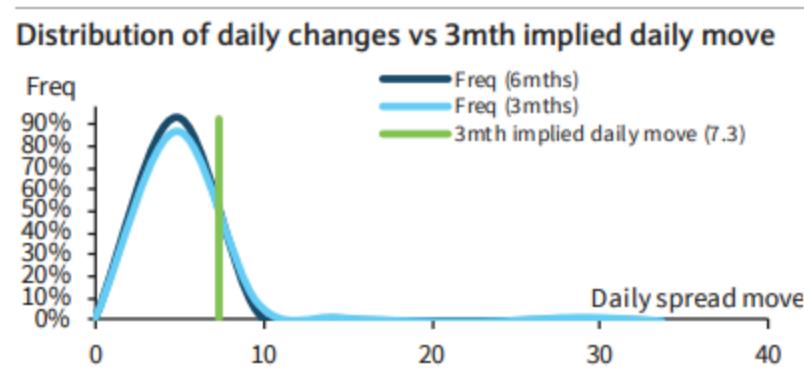
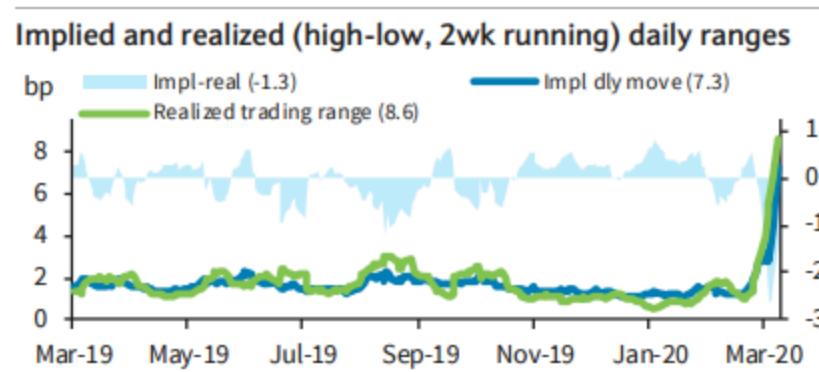
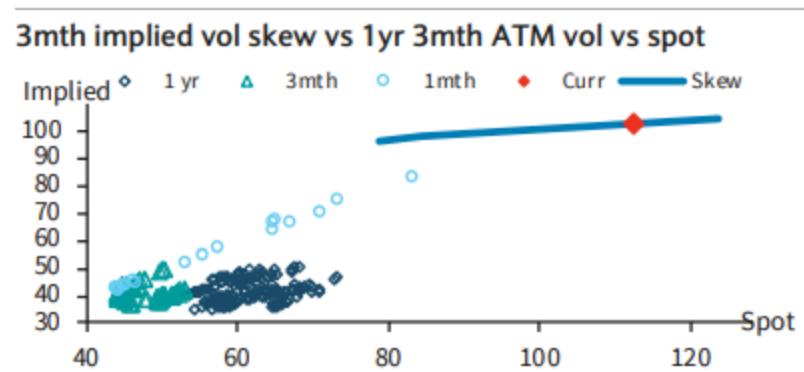
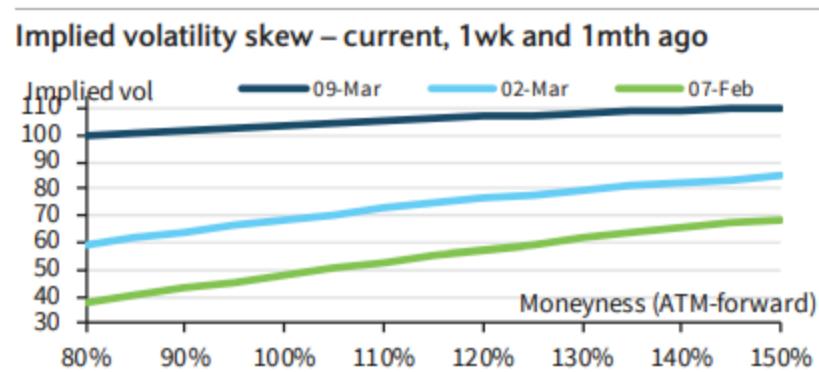
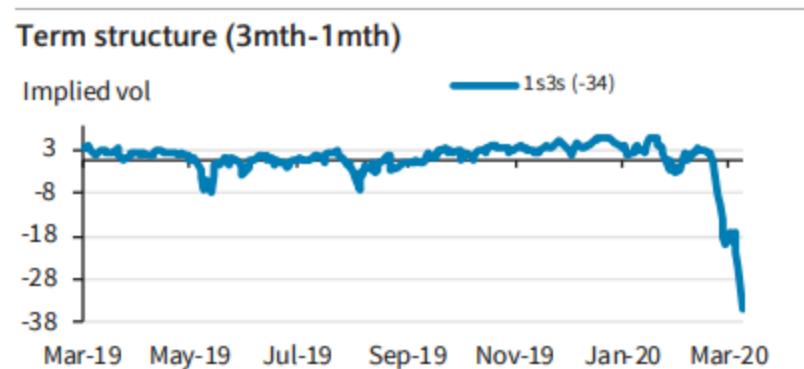
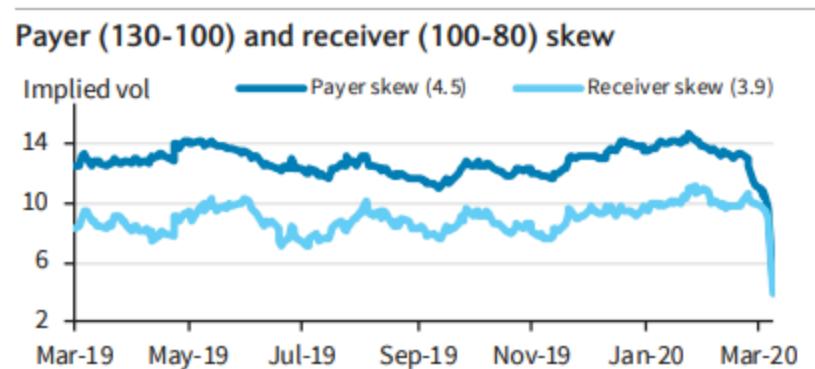
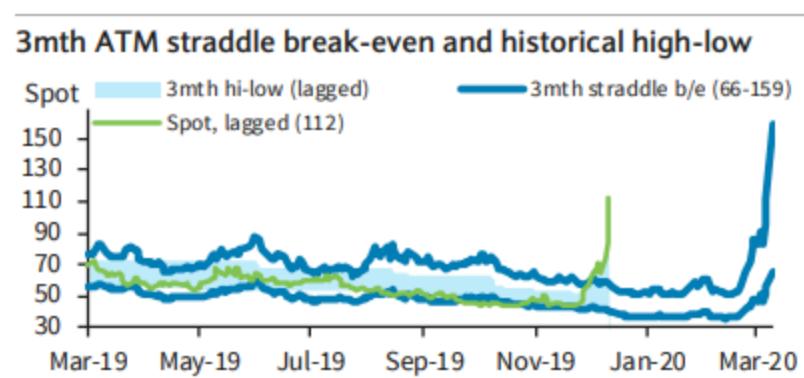
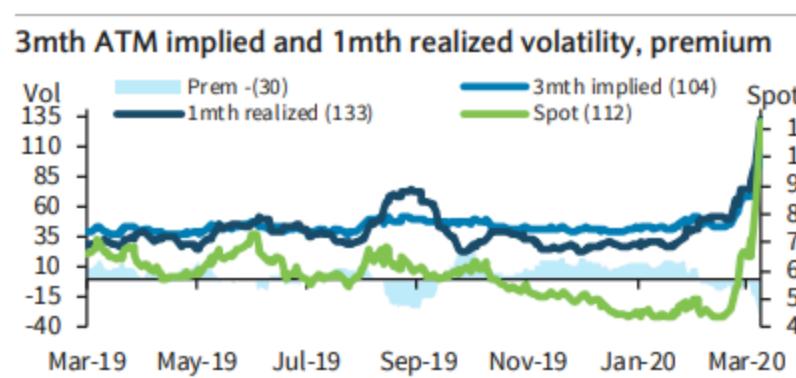
15

Restricted – External

CDX IG

Snapshot

	Current	1wk ago	1mth ago	Changes		12mth...			Pctile
	09-Mar	02-Mar	07-Feb	-1wk	-1mth	Low	Average	High	
Spot (bp)	112.4	64.8	46.3	47.7	66.1	44.0	57.4	112.4	100%
3mth ATM Implied	103.5	68.5	48.0	35.0	55.5	37.0	45.1	103.5	100%
1mth Realized	133.2	76.3	50.5	56.9	82.7	23.2	40.6	133.2	100%
Impl-Real (pct vol)	-29.6	-7.8	-2.5	-21.9	-27.1	-29.6	4.5	24.5	0%
Impl/Real (pct vol)	0.8	0.9	1.0	-0.1	-0.2	0.7	1.2	2.1	6%
Implied Vol Price	5.3	2.1	1.1	3.2	4.2	0.9	1.2	5.3	100%
1mth Realized	5.5	2.0	1.2	3.5	4.3	0.6	1.2	5.5	100%
Impl-Real (price vol)	-0.2	0.1	-0.1	-0.3	-0.1	-29.6	4.5	24.5	18%
Impl/Real (price vol)	1.0	1.0	0.9	-0.1	0.1	0.7	1.2	2.1	28%
Implied Daily Move (bp)	7.3	2.8	1.4	4.5	5.9	1.1	1.6	7.3	100%
Straddle B/E Range (bp)	93.1	35.5	17.8	57.6	75.3	14.5	20.9	93.1	100%
Payer skew 130-100	4.5	10.9	13.4	-6.3	-8.9	4.5	12.7	14.6	0%
Receiver skew 100-80	3.9	9.7	10.1	-5.9	-6.3	3.9	8.9	11.1	0%



Source for all charts and tables on this page: Barclays Trading, Barclays Research

10 March 2020

CDX HY

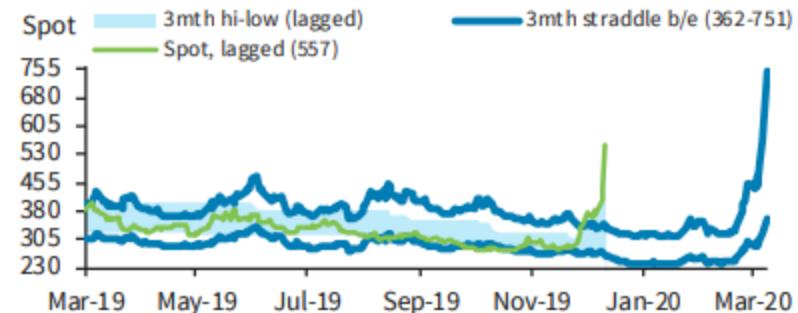
Snapshot

	Current	1wk ago	1mth ago	Changes		12mth...			
	09-Mar	02-Mar	07-Feb	-1wk	-1mth	Low	Average	High	Pctile
Spot (bp)	556.5	364.6	290.2	191.9	266.4	275.3	331.8	556.5	100%
3mth ATM Implied	87.5	52.2	36.5	35.3	51.0	27.8	35.1	87.5	100%
1mth Realized	100.3	57.6	36.6	42.7	63.6	15.7	30.3	100.3	100%
Impl-Real (pct vol)	-12.7	-5.4	-0.1	-7.4	-12.6	-17.5	4.8	19.2	4%
Impl/Real (pct vol)	0.9	0.9	1.0	0.0	-0.1	0.7	1.3	2.1	10%
Implied Vol Price	18.4	8.3	4.9	10.1	13.5	3.9	5.3	18.4	100%
1mth Realized	18.4	8.2	4.8	10.3	13.6	2.0	4.5	18.4	100%
Impl-Real (price vol)	0.0	0.1	0.1	-0.1	-0.1	-17.5	4.8	19.2	22%
Impl/Real (price vol)	1.0	1.0	1.0	0.0	0.0	0.7	1.3	2.1	22%
Implied Daily Move (bp)	30.7	12.0	6.7	18.7	24.0	5.4	7.4	30.7	100%
Straddle B/E Range (bp)	389.7	152.2	84.8	237.4	304.9	68.1	95.4	389.7	100%
Payer skew 130-100	4.5	11.1	13.7	-6.6	-9.2	4.5	13.2	15.7	0%
Receiver skew 100-80	3.9	10.5	9.9	-6.7	-6.1	3.9	9.0	11.1	0%

3mth ATM implied and 1mth realized volatility, premium



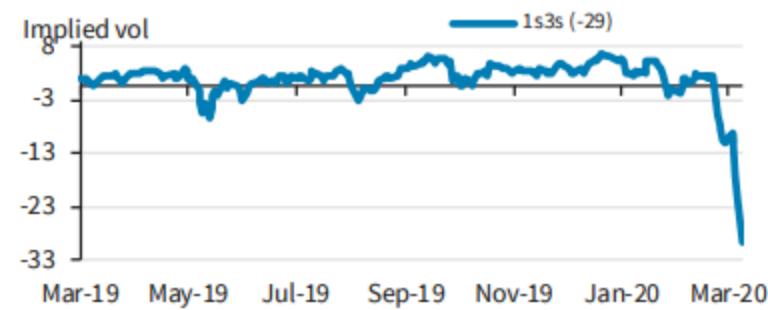
3mth ATM straddle break-even and historical high-low



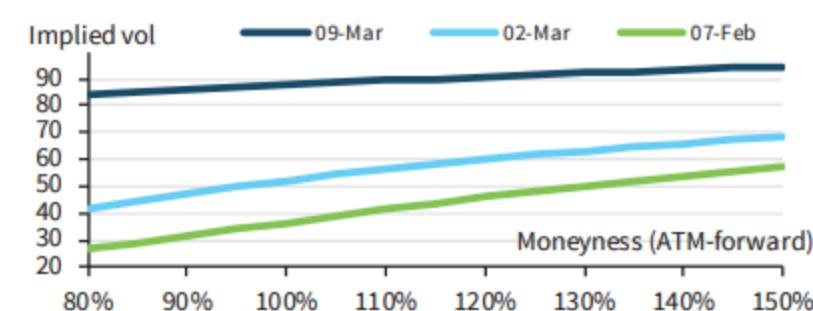
Payer (130-100) and receiver (100-80) skew



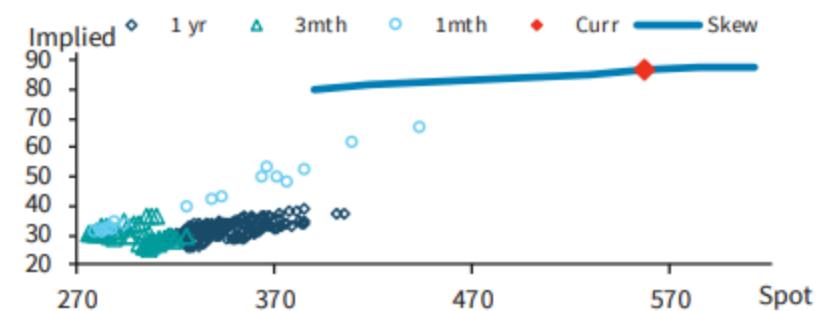
Term structure (3mth-1mth)



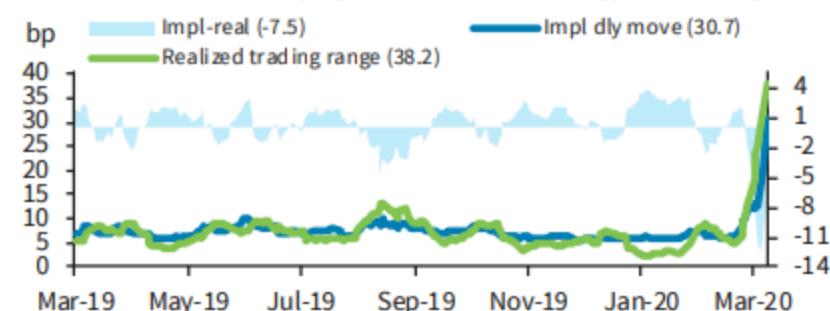
Implied volatility skew – current, 1wk and 1mth ago



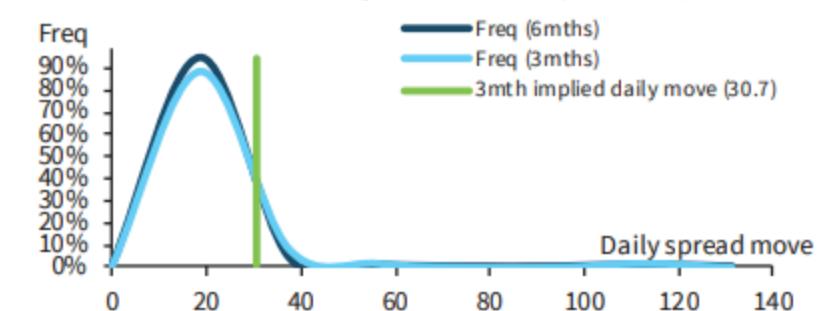
3mth implied vol skew vs 1yr 3mth ATM vol vs spot



Implied and realized (high-low, 2wk running) daily ranges



Distribution of daily changes vs 3mth implied daily move



Source for all charts and tables on this page: Barclays Trading, Barclays Research

iTraxx Main vs CDX.IG, iTraxx Cross vs CDX.HY

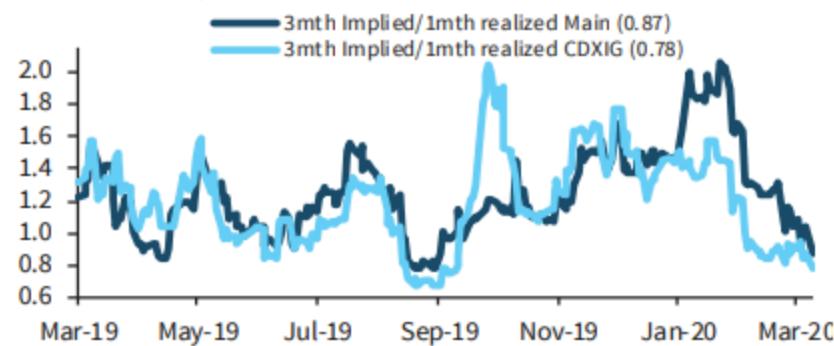
Main-CDX.IG

	Current	1wk ago	1mth ago	Changes	
	09-Mar	02-Mar	07-Feb	-1wk	-1mth
Spot					
Main	102.5	68.1	43.6	34.4	58.9
CDXIG	112.4	64.8	46.3	47.7	66.1
3mth ATM vol					
Main	100.6	77.5	40.6	23.1	60.0
CDXIG	103.5	68.5	48.0	35.0	55.5
3mth Implied/1mth realized					
Main	0.87	1.08	1.32	-0.21	-0.45
CDXIG	0.78	0.90	0.95	-0.12	-0.17
Betas					
3mth implied	1.13	0.84	1.26	0.29	-0.13
3mth realized	1.29	1.20	1.54	0.10	-0.24

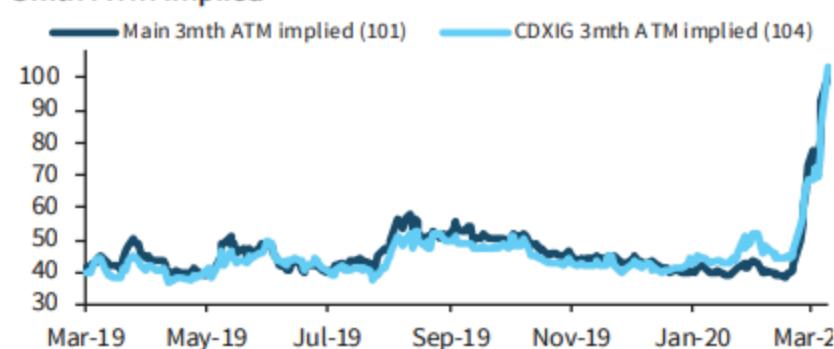
Cross-CDX.HY

	Current	1wk ago	1mth ago	Changes	
	09-Mar	02-Mar	07-Feb	-1wk	-1mth
Spot					
Cross	456.1	308.5	216.1	147.6	240.0
CDXHY	556.5	364.6	290.2	191.9	266.4
3mth ATM vol					
Cross	86.5	64.5	34.8	22.0	51.7
CDXHY	87.5	52.2	36.5	35.3	51.0
3mth Implied/1mth realized					
Cross	0.87	1.09	1.06	-0.22	-0.19
CDXHY	0.87	0.91	1.00	-0.03	-0.12
Betas					
3mth implied	1.23	0.96	1.41	0.28	-0.17
3mth realized	1.34	1.42	1.38	-0.07	-0.03

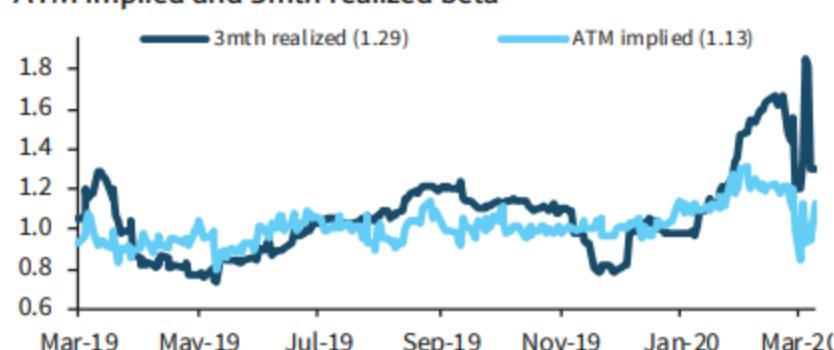
3mth ATM implied/1mth realized



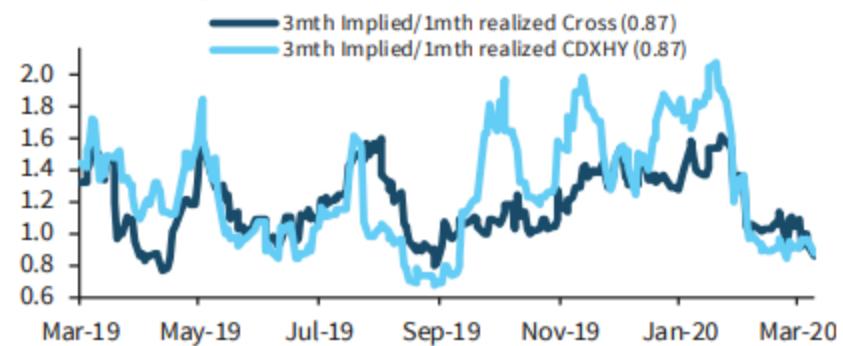
3mth ATM implied



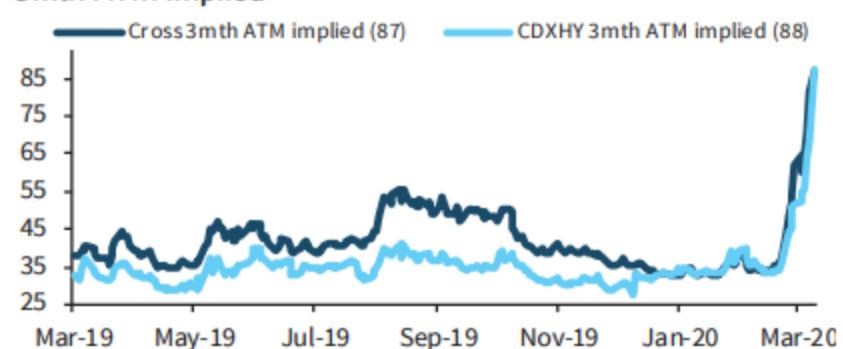
ATM implied and 3mth realized beta



3mth ATM implied/1mth realized



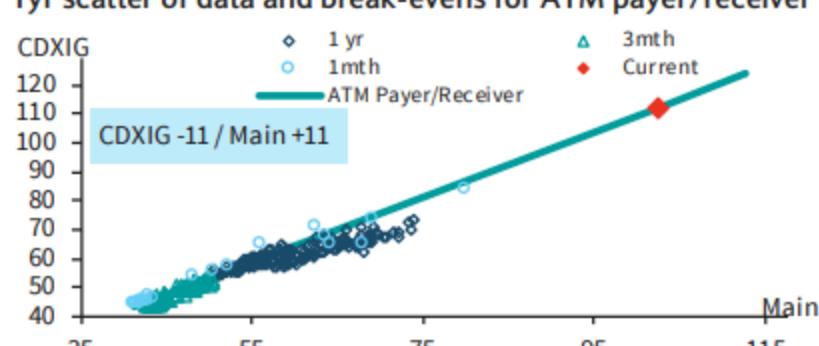
3mth ATM implied



ATM implied and 3mth realized beta



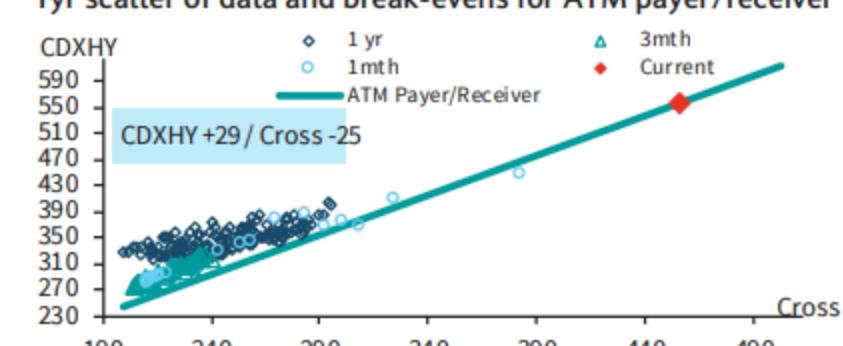
1yr scatter of data and break-evens for ATM payer/receiver



Source for all charts and tables on this page: Barclays Trading, Barclays Research

10 March 2020

1yr scatter of data and break-evens for ATM payer/receiver



11

CDX.IG vs CDX.HY and SPX

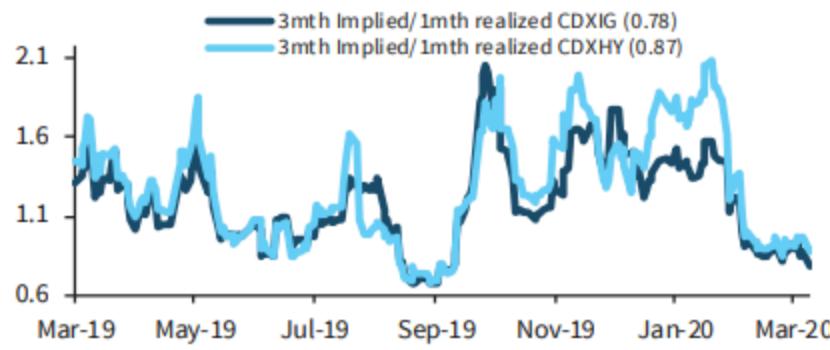
CDX.IG-CDX.HY

	Current	1wk ago	1mth ago	Changes	
	09-Mar	02-Mar	07-Feb	-1wk	-1mth
Spot					
CDXIG	112.4	64.8	46.3	47.7	66.1
CDXHY	556.5	364.6	290.2	191.9	266.4
3mth ATM vol					
CDXIG	103.5	68.5	48.0	35.0	55.5
CDXHY	87.5	52.2	36.5	35.3	51.0
3mth Implied/1mth realized					
CDXIG	0.78	0.90	0.95	-0.12	-0.17
CDXHY	0.87	0.91	1.00	-0.03	-0.12
Betas					
3mth implied	4.18	4.29	4.76	-0.10	-0.58
3mth realized	4.02	4.66	4.64	-0.63	-0.62

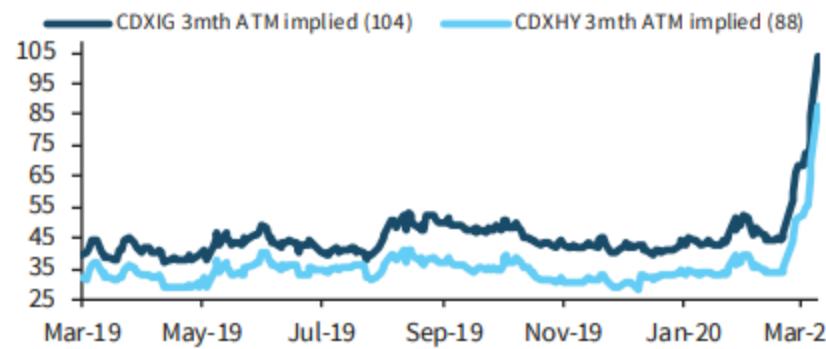
CDX.IG-SPX

	Current	1wk ago	1mth ago	Changes	
	09-Mar	02-Mar	07-Feb	-1wk	-1mth
Spot					
CDXIG	112.4	64.8	46.3	47.7	66.1
SPX	2746.6	3090.2	3327.7	-343.7	-581.2
3mth ATM vol					
CDXIG	103.5	68.5	48.0	35.0	55.5
SPX	40.7	23.3	13.1	17.5	27.6
3mth Implied/1mth realized					
CDXIG	0.78	0.90	0.95	-0.12	-0.17
SPX	0.92	0.78	0.99	0.15	-0.07
Betas					
3mth implied	9.51	16.07	19.43	-6.56	-9.92
3mth realized	13.67	23.84	19.58	-10.17	-5.91

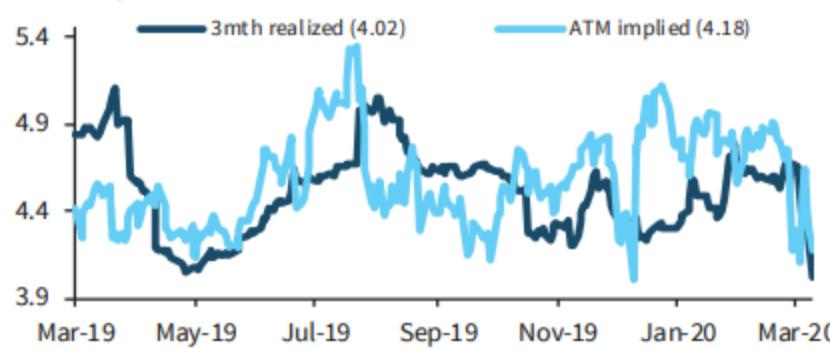
3mth ATM implied/1mth realized



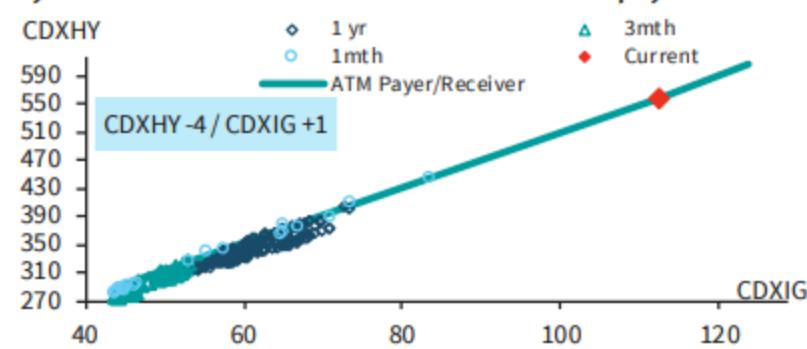
3mth ATM implied



ATM implied and 3mth realized beta



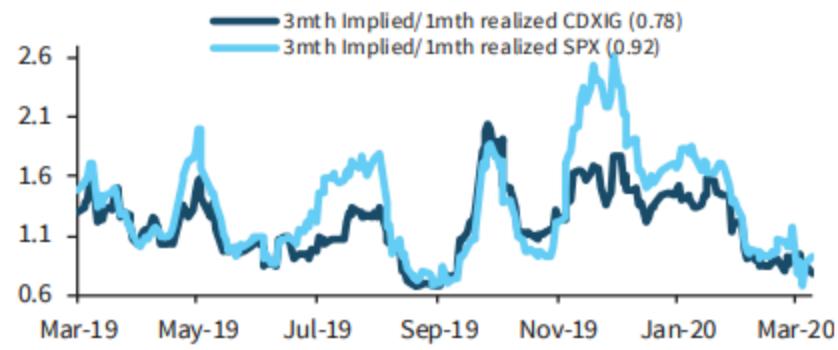
1yr scatter of data and break-evens for ATM payer/receiver



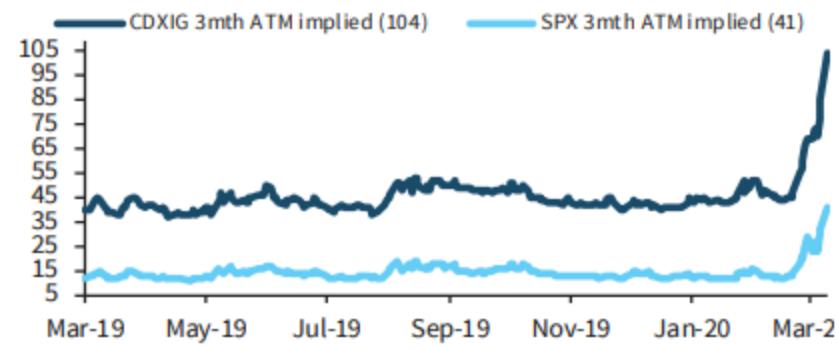
Source for all charts and tables on this page: Barclays Trading, Barclays Research

10 March 2020

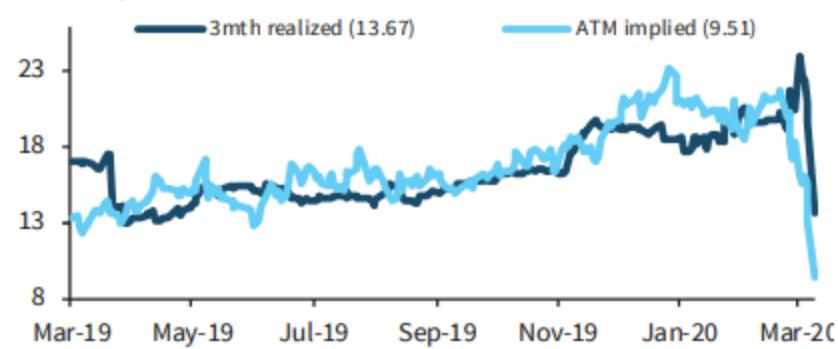
3mth ATM implied/1mth realized



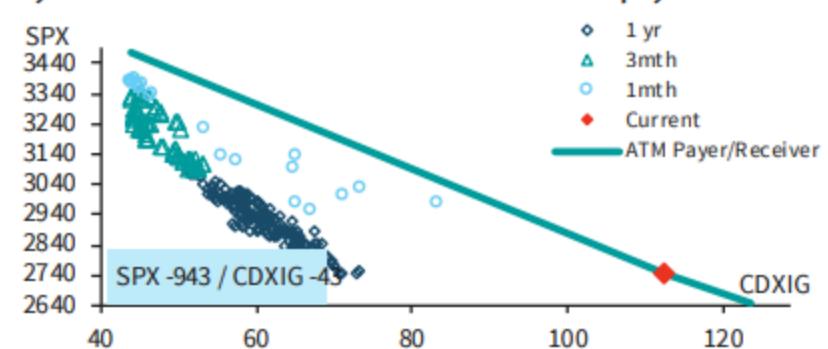
3mth ATM implied



ATM implied and 3mth realized beta



1yr scatter of data and break-evens for ATM payer/receiver



12

FIGURE 5. Top 20 industry exposures in US BSL and European CLOs

US BSL CLOs			European CLOs		
Moody's Industry	Median Wtd. Avg. Exp.	Price	Moody's Industry	Median Wtd. Avg. Exp.	Price
1 Healthcare & Pharmaceuticals	12.5%	95.4	1 Chemicals, Plastics & Rubber	14.0%	95.4
2 High Tech	10.2%	96.8	2 Beverage, Food & Tobacco	10.7%	95.9
3 Banking, Finance, Insurance & Real Estate	7.4%	97.7	3 Healthcare & Pharmaceuticals	10.0%	98.5
4 Services: Business	6.7%	95.3	4 High Tech	9.7%	98.3
5 Hotels, Gaming & Leisure	5.8%	94.1	5 Retail	7.8%	95.1
6 Media: Broadcasting & Subscription	5.3%	96.6	6 Hotels, Gaming & Leisure	7.8%	92.8
7 Telecommunications	4.5%	93.6	7 Construction & Building	7.4%	98.1
8 Beverage, Food & Tobacco	4.0%	95.1	8 Services: Business	5.0%	97.8
9 Chemicals, Plastics & Rubber	3.9%	96.3	9 Containers, Packaging & Glass	4.4%	96.7
10 Capital Equipment	3.5%	95.0	10 Services: Consumer	3.9%	98.0
11 Automotive	3.3%	93.9	11 Telecommunications	3.2%	97.4
12 Retail	3.1%	90.8	12 Automotive	3.0%	95.1
13 Containers, Packaging & Glass	2.9%	96.3	13 Capital Equipment	2.5%	95.7
14 Construction & Building	2.8%	97.6	14 Banking, Finance, Insurance & Real Estate	2.5%	90.2
15 Energy: Oil & Gas	2.6%	87.8	15 Media: Broadcasting & Subscription	2.0%	94.9
16 Aerospace & Defense	2.6%	97.1	16 Consumer Goods: Durable	1.5%	91.5
17 Utilities: Electric	2.5%	97.1	17 Consumer Goods: Non Durable	1.0%	92.1
18 Services: Consumer	2.4%	96.2	18 Aerospace & Defense	0.5%	98.3
19 Consumer Goods: Non Durable	1.8%	92.7	19 Wholesale	0.5%	87.0
20 Transportation: Consumer	1.5%	90.8	20 Environmental Industries	0.5%	89.9

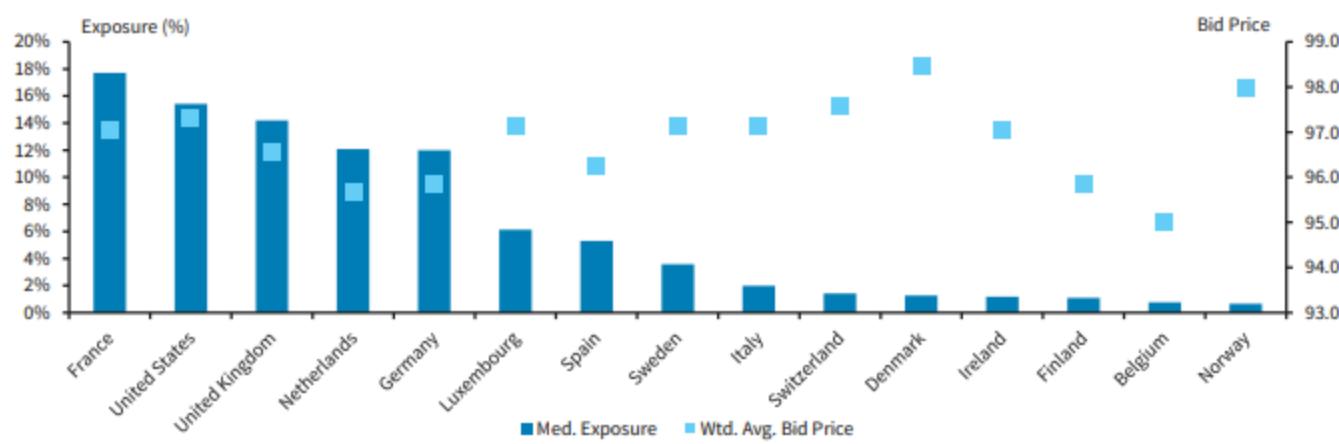
Note: Most used Moody's industry name used. Price data as of 6 March 2019.

Source: Kanerali, Markit, Intex, Barclays Research

Country exposure

Questions around country exposures has also arisen, specifically for European CLOs (vast majority of US BSL CLO portfolios have US issuers), as COVID-19 poses risks of differing economic effects across the globe. Across European CLOs, France, US and UK exposure is the highest at 17.7%, 15.4% and 14.2%. Italian exposure is more limited at just 2.0%, on average (Figure 6).

FIGURE 6. Top 20 country exposures in European CLOs



Note: Only managers with at least two in-reinvestment deals. Price data as of 6 March 2019.

Source: Kanerali, Markit, Intex, Barclays Research

Global CLO b-wic round-up: sellers flock to secondary market as trade rate hits 71%

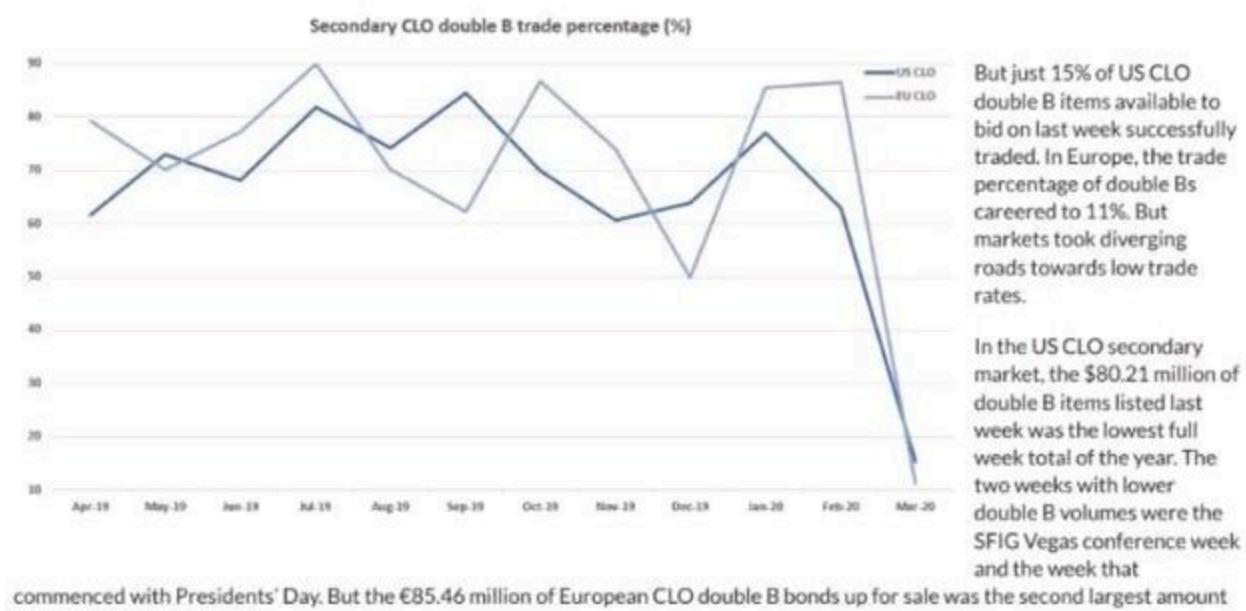
By Charlie Dinning

Monday, March 09, 2020

The coronavirus-led sell off reached the CLOs last week, with investors lining up to list their positions in the CLO secondary market. \$1.25 billion of US CLOs was up for sale in b-wics last week along with €300.48 million of European CLOs, according to CLO-i.

But with the demand not moving with the supply, many positions were left untraded or sellers found themselves having to accept below market prices to raise cash. As *Creditflux* reported last week, most of the trading was centred on investment-grade CLO tranches.

Across the CLO secondary market last week, 70.5% of volumes traded, in February the figure was above 75%, with junior mezzanine leading the did-not-trade brigade.



But just 15% of US CLO double B items available to bid on last week successfully traded. In Europe, the trade percentage of double Bs careered to 11%. But markets took diverging roads towards low trade rates.

In the US CLO secondary market, the \$80.21 million of double B items listed last week was the lowest full week total of the year. The two weeks with lower double B volumes were the SFIG Vegas conference week and the week that

One factor that did drop a lot in both markets was the average price at which the double B bonds traded. In the US, the average cover on a double B rated item was 90.457 of par, which is a big drop from the average of 95.328 in February.

For European CLO double Bs, the discount was even greater. Throughout February the average cover on a double B bond was 97.5, but last week that figure dropped below 90 for the first time this year.

This has led to a vicious widening of spreads for secondary CLO items. The estimated spread levels of each US CLO rating band is close to June 2016 levels, according to market sources with DMs of US CLO double B items reaching 1,000bp, a widening of around 75-125bp.

One firm marked European triple A discount margins at 150bp area at the end of last week, but added 20-30bp to that today. Double Bs were 695bp on Friday, but 75-100bp wider today, while single Bs moved from 1,000bp to 1200bp area.

Average covers by rating

US CLO						European CLO					
Rating	Highest Cover	Manager	Deal Cover	Market Avg. Cover	Coupon (bp)	Highest Cover	Manager	Deal Cover	Market Avg. Cover	Coupon (bp)	
AAA/Aaa	Elmwood III	Elmwood	100.130	99.380	137	-	-	-	-	-	
AA/Aa2	Madison Park XV	CSAM	99.840	99.171	150	Voya Euro II	Voya	99.760	99.020	190	
A/A2	Bardot, Pikes Peak 4	Invesco, Partners	100.100	97.849	275, 290	Voya Euro II	Voya	100.050	99.439	275	
BBB/Baa2	Madison Park XXXIV	CSAM	99.530	96.930	370	BlackRock III	BlackRock	99.800	97.469	320	
BB/Ba2	Octagon 44	Octagon	95h	90.457	679	Dryden 44	PGIM	94h	89.500	560	
B/B2	-	-	-	-	-	-	-	-	-	-	
Equity	-	-	-	-	-	-	-	-	-	-	

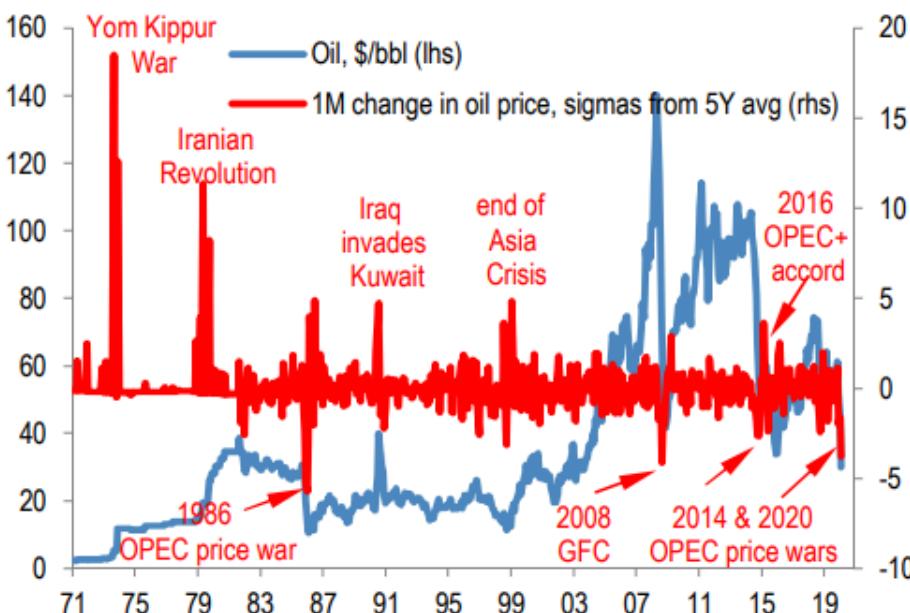
Investors' attempts to raise cash have left some parts of the CLO capital structure on the side lines. CLO equity has all but disappeared from the secondary market with only \$23.5 million of US CLO equity and €15.5 million of European CLO equity being listed in the last four weeks. Last week just one equity position listed, an \$8 million piece of Credit Suisse Asset Management's 2019 vintage CLO, Madison Park 37. The bond traded with no colour.

Trade Date	Deal	Manager	Amt (\$m)	% of Tranche	Cover	Vintage	RP	Current Arb(%)	Current lev
03-Mar-	Madison Park	CSAM	8	15.79	TRD	2019	15-Jun-	1.762	10.8x

CRUDE

Chart 1: Oil's collapse in standardized terms is comparable to GFC demand shock and 1986 OPEC supply shock

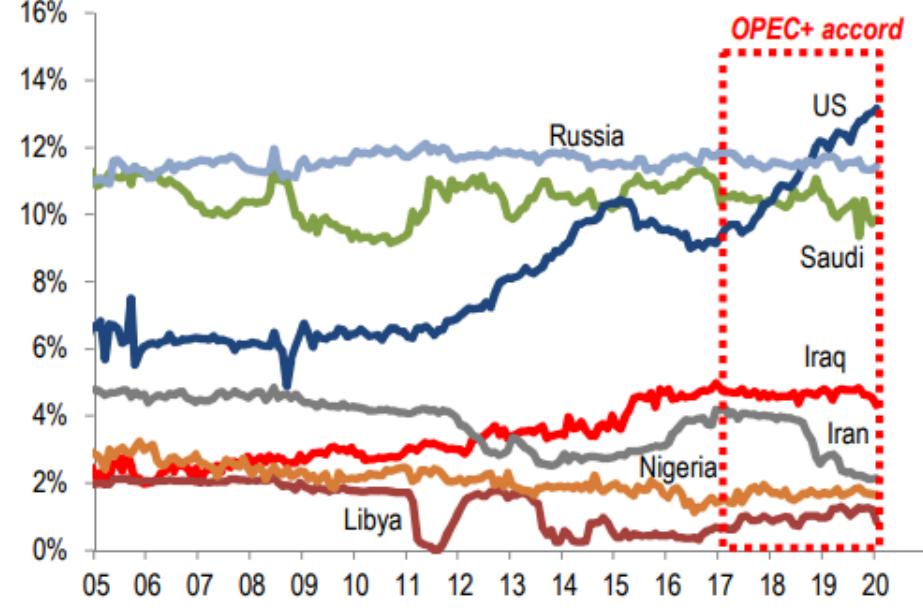
Oil price versus 1M change in standardized terms



Source: J.P. Morgan

Chart 2: At some point OPEC+ needed to respond to an unprecedented loss of market share to the US

Oil production by country as share of global supply



Source: J.P. Morgan

Oil's collapse has accelerated the convergence of central bank rate expectations and long-end bond yields towards zero. Fed funds is now priced for three cuts at the March 18th meeting and for a terminal rate near 0% by the second half of 2020. If such cuts occur, policy rates for the Fed, ECB and BoJ would converge around zero for the first time in history. (Even during the GFC, the ECB refi rate only fell to 1%). US 10Y rates are now only +0.4% so could easily reach zero with or without much Fed easing. The German 10Y continues to make new record lows even from negative levels (now -0.8%). JGB 10Y yields would probably be at record lows too if it were not for the BoJ's maintenance of target band of +/- 20bp around 0%.

As policy rates converge to zero and bond yields converge or undershoot the policy rate, investors and hedgers should rethink the optimal hedges for a macro environment that has become recession-like through the intersection of a public health crisis and a geopolitical conflict. Regardless of their myriad causes, both recessions and financial crises are familiar events to many investors and risk managers, which is why they reflexively flock to traditional, defensive hedges, such as owning DM Bonds (ex peripheral Europe), funding currencies (USD versus EM FX, JPY vs USD, CHF vs EUR), Gold vs USD, Defensive vs Cyclical stocks and Quality vs Value stocks. Those with a more extreme view of the world involving a complete loss of faith in fiat money plus a collapse in the payments system focus on cryptocurrencies, whose diversification benefits we have discussed in a few recent publications (see [Cryptocurrencies as portfolio diversification: Questionable, despite low correlations](#) from February 2018 and [Cryptocurrencies for portfolio diversification: Struggling to prove uniqueness](#) from February 2020).

Cross-Asset Brief | North America

The Oil Bear Market Almanac 2020 Edition

Crude has just seen the biggest one-day drop since 1991. We look at 19 other prior episodes of large oil sell-offs to draw insights about cross-asset performance.

Oil enters bear market: Increase in OPEC supply led to WTI having the sharpest one-day decline since 1991, and we are now near a 50% price drop since oil's peak on 6 January 2020. The move is historic, and comes at a time when other risk assets are already facing stress.

Putting the move in context – yes, it's that extreme: Friday and Monday's price actions both rank in the top 20 largest daily declines since 1983. The current sell-off is the most severe from-peak decline across all oil bear markets since records have been kept, compared to the median decline of 34% in prior sell-offs.

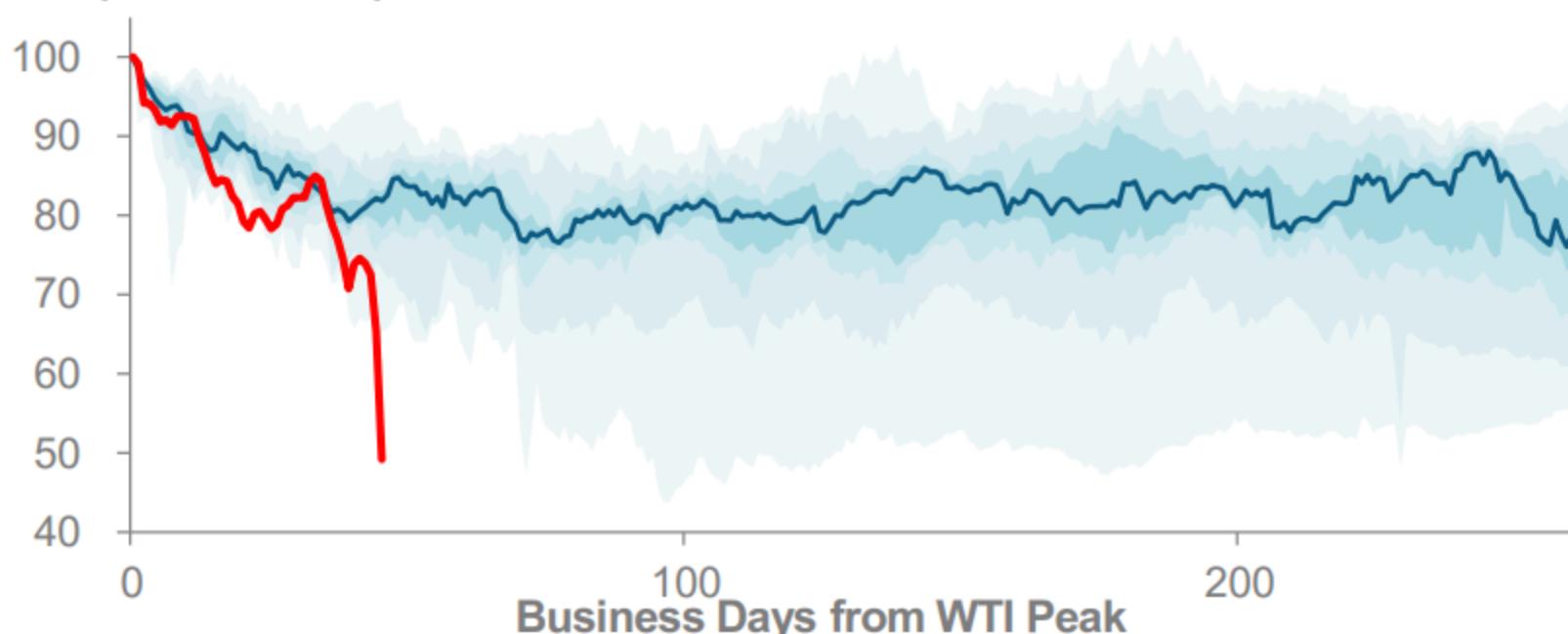
Lessons from history – risk assets tend to underperform after WTI peaks: During prior oil bear markets, stocks tend to underperform – especially the EM and Energy sectors – credit spreads widen, yields move lower, USD strengthens, and the commodities complex, including gold, weakens.

Which markets stand out? DM Stocks have fallen more than normal, Bonds have rallied more than normal: MSCI ACWI and other regional markets' reaction in recent weeks means equities in general are trading much weaker than what's historically seen after oil peaks, while yields have declined much more.

Is a recession nigh? No clear conclusion: The three US recessions since 1983 all started within 12 months of oil bear markets, but not all oil bear markets are followed by US recessions. However, the oil sell-offs in 1990, 2000 and 2008, which were followed by recessions, were all relatively severe, and accompanied by equity bear markets too, not unlike today's environment.

Exhibit 1: Move in WTI look extreme compared to prior large sell-offs

WTI (Peak = 100)



Source: Bloomberg, Morgan Stanley Research; Note: Shows summary of bear market episodes. Each band represents observation decile starting at 10% to 90%, solid line is median. Red line is current sell-off. Data since 1983, or whenever data history begins.

EIA Weekly Data

Key Takeaways for Week of 3/6 Data

Another solid product draw on domestic demand, while crude builds on net imports. EIA data showed a total clean product draw of 11.453mm bbls (five-year seasonal average 5.092mm bbl draw). Gasoline drew for the sixth straight week, while still remaining in the upper half of the five-year range, while diesel drew for the eighth straight week, now at the bottom of the five-year seasonal range. Moving to the details, commercial crude built for the seventh straight week, by 7.664mm bbls (SPR flat). Cushing crude built following last week's draw, by 704k bbls. Cushing inventories are now ~37.9mm bbls, in the bottom half of the five year range. The overall build was driven by higher net imports (+918kbpd w/w on higher imports by 174kbpd and lower exports by 744kbpd w/w), partially offset by lower production w/w (13.0mm bpd; L48 -100kbd, Alaska -1kbd based on the EIA's rounding methodology), while refinery runs were flattish (+6kbd w/w, utilization down 50bps to 86.4%, ex-PADD 1 down 73bps to 88.3%). The variance factor had a ~5.6mm bbl absolute build effect this week. **Gasoline inventories** drew for the sixth straight week, by 5.049mm bbls (five-year avg.: -3.733mm bbls), driven by higher demand (+263kbd), partially offset by higher production (+199kbd) and higher net imports (+266kbd). The variance factor had a 37k bbl absolute build effect. **Diesel inventories** drew for the eighth straight week, by 6.404mm bbls (five-year avg.: -1.360mm bbls), driven by higher domestic demand (+479kbpd), partially offset by lower net exports (-80kbd) and higher production (+57kbd). **Fuel Oil inventories** built for the fourth straight week, by 886k bbls (five-year avg -244k bbls). From a **regional perspective**, **Gulf Coast** (VLO/MPC most exposed) results were positive for refiners on crude (inventory build) and positive on products (gasoline and diesel draws). **Mid-Continent** results (HFC and MPC most exposed) were positive for refiners on crude (inventory build, driven by Cushing) and positive on products (gasoline and diesel draws). **West Coast** results (MPC and PBF most exposed) were net positive for refiners, with a modest gasoline build and a large diesel draw. **East Coast** results (PBF most exposed) were net positive for refiners, with a modest gasoline build and a large diesel draw.

Table 1: US Crude and Products Inventory Change Summary

'000 bbls

	Crude Oil		Refined Products	
	Total US	Cushing	Gasoline	Diesel
Actual	7,664	704	(5,049)	(6,404)
BBG Est.	2,105	N/A	(2,691)	(2,203)
API Est.	6,410	364	(3,090)	(4,680)

Source: EIA.

Figure 1: Overall US – Crude Production
kbpd

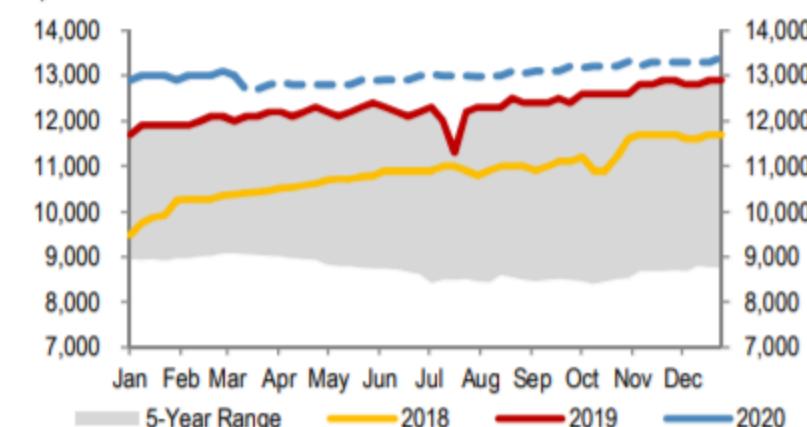
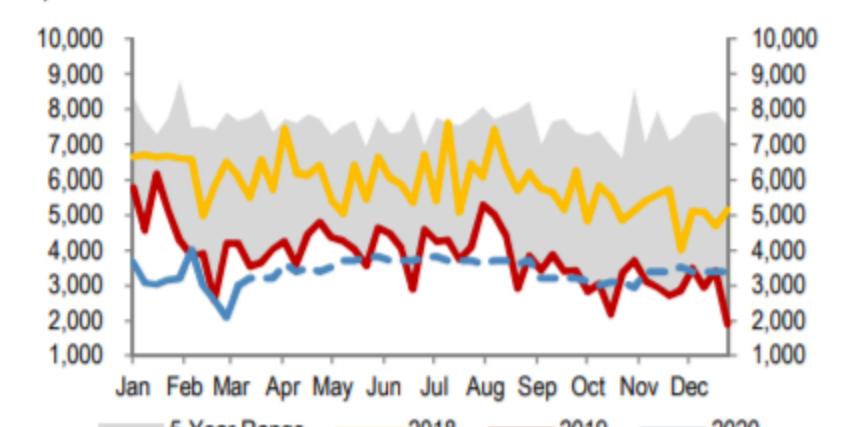
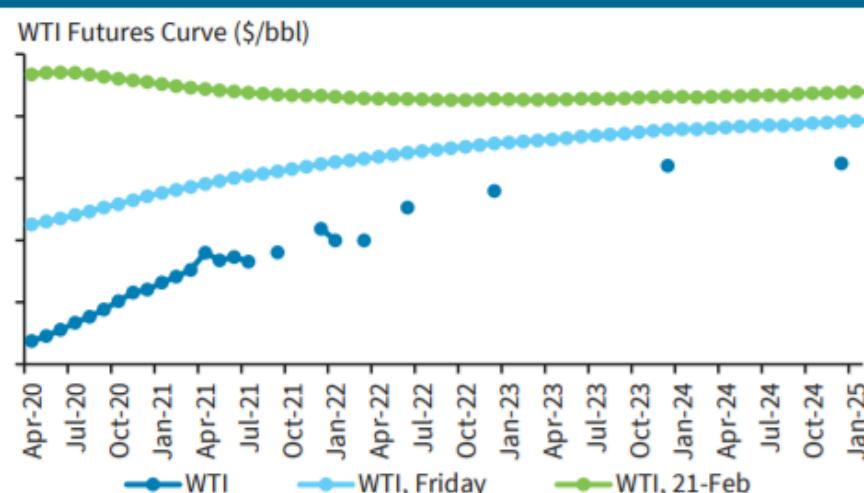


Figure 2: Overall US – Net Imports
kbpd

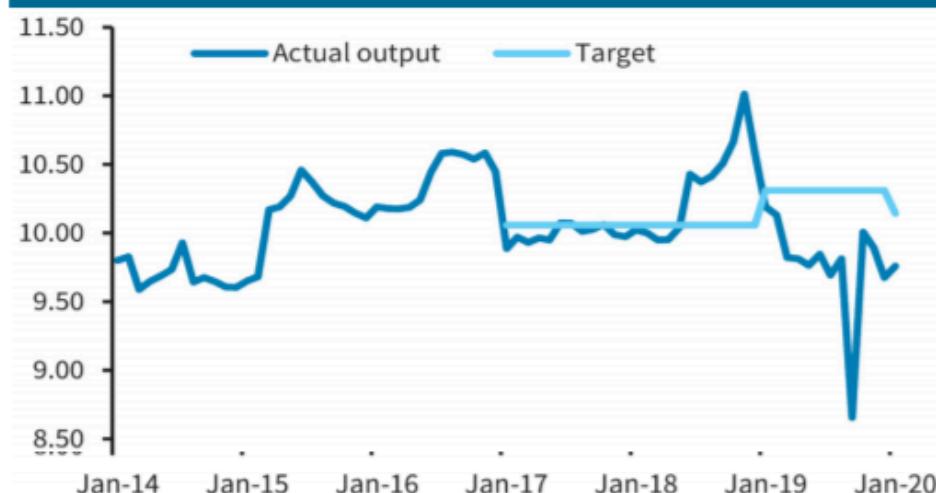


The outcome of OPEC+ meeting was the worst-case scenario for energy credit; spreads need to widen significantly as oil prices deteriorated sharply

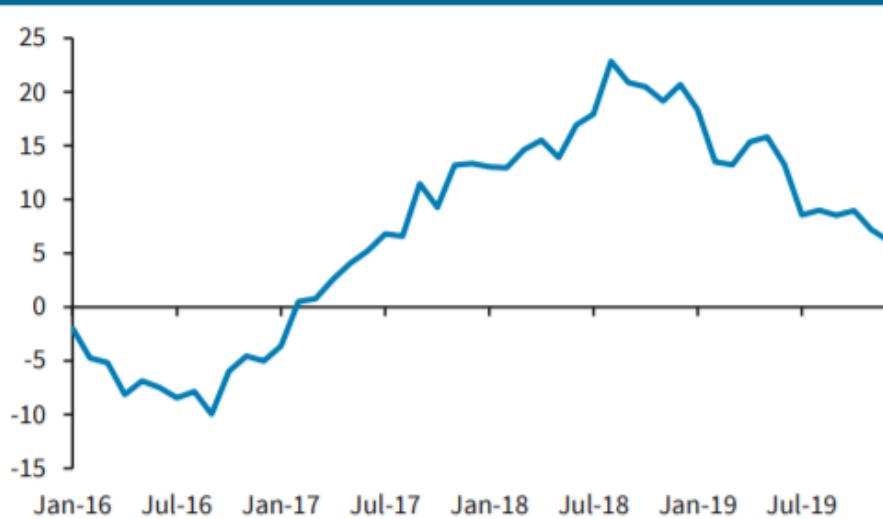
WTI Futures Curve



Saudi Can Increase its Output by >1mb/d



US Shale Production Growth yoy



Our Considerations

1. Comp to '15-'16 not as useful as demand was significantly lower driven by COVID-19, see oil px lower for longer
2. Excess supply to drive storage cost higher, rendering futures in contango
3. On a ticker level, hedges and cash/liquidity run-way will be on top of mind
4. Deterioration in Debt/EV worth watching

For more detail, see "[E&P: Black Friday, Redux – Downgrade Sector to UW](#)", March 9, 2020. Source for all charts: IEA, EIA, OPEC, MEES, Bloomberg, Barclays Research

The Oil Bear Market Almanac 2020 Edition

Oil prices fell sharply after an inconclusive ending to the OPEC+ meeting last week. From the end of March, there are no constraints to oil production for any member country, creating an incentive to maximize production to rebuild market share. This leaves the oil market looking heavily oversupplied, inducing a sharp correction in prices. For further detail and forecast levels, please see the latest publication from our oil strategy team ([North American Energy: OPEC No Longer Defends Price – Positioning For \\$30 \(or Lower\) Oil \(9 Mar 2020\)](#)).

We compare the latest sell-off to 19 other episodes of oil declines, and flag what this has historically meant for cross-asset performance. We define bear markets as a sell-off of 20% or more, with no recovery within 12 months from the peak. [Exhibit 3](#) summarizes these sell-offs in WTI, putting the latest move in context. What's notable:

- WTI was tracking the performance typically seen in past oil bear markets following the latest (January 6) peak until last week's moves, which have left the latest sell-off looking unique. The current sell-off represents the most severe from-peak declines across all oil bear markets since records have been kept.
- Friday's 10% and Monday's 25% drawdown both rank in the top 20 largest daily declines since 1983. We last saw moves of this magnitude in November 2014.
- On median, oil bear markets last 92 business days, with a price decline of 34%; so far, the sell-off has lasted 46 business days, with a price decline of 50%.
- Only six other sell-offs – November 1985, October 1990, January 1997, September 2000, July 2008, September 2013 – saw larger peak-to-trough declines in oil compared to what we've seen since January.
- The three US recessions since 1983 all started within 12 months of oil bear markets, but not all oil bear markets are followed by US recessions, meaning there's little direct read-across for growth. However, the oil sell-offs in 1990, 2000 and 2008 – which were followed by recessions – were all more severe than the median bear market.

Exhibit 3: WTI - 20%+ sell-offs in history, and current sell-off

Peak Date	Trough Date	Peak	Trough	Business Days	Drawdown	From Peak				From Trough				Recession starts XM from WTI Peak?
						1M	3M	6M	12M	1M	3M	6M	12M	
BEAR MARKET		19 obs.		92	-34%	-12%	-16%	-18%	-20%	15%	22%	36%	44%	
BEAR MARKET (<1yr)		13 obs.		77	-30%	-13%	-17%	-18%	-22%	15%	22%	37%	45%	12M 24M
02-Aug-83	29-Jan-85	32	25	391	-21%	-2%	-6%	-7%	-14%	5%	9%	8%	-21%	N N
20-Nov-85	31-Mar-86	32	10	94	-67%	-16%	-52%	-53%	-51%	28%	23%	43%	79%	N N
17-Jul-87	05-Oct-88	22	13	319	-44%	-11%	-10%	-24%	-34%	11%	36%	59%	60%	N N
20-Apr-89	07-Aug-89	23	18	78	-23%	-10%	-15%	-12%	-22%	8%	12%	25%	57%	N Y
11-Oct-90	17-Dec-93	40	14	832	-66%	-21%	-31%	-48%	-43%	7%	7%	49%	20%	Y Y
18-Oct-91	09-Jan-92	24	18	60	-26%	-9%	-21%	-16%	-8%	11%	14%	20%	6%	N N
11-Apr-96	05-Jun-96	25	20	40	-22%	-16%	-13%	-4%	-23%	8%	18%	26%	2%	N N
08-Jan-97	10-Dec-98	27	11	502	-60%	-16%	-28%	-27%	-37%	25%	33%	67%	144%	N N
07-Mar-00	10-Apr-00	34	24	25	-30%	-25%	-13%	-1%	-17%	18%	24%	34%	14%	N Y
20-Sep-00	15-Nov-01	37	17	302	-53%	-9%	-31%	-28%	-28%	10%	22%	60%	45%	Y Y
12-Mar-03	29-Apr-03	38	25	35	-33%	-26%	-14%	-22%	-5%	15%	20%	17%	49%	N N
14-Jul-06	18-Jan-07	77	50	135	-34%	-5%	-24%	-31%	-4%	18%	22%	50%	79%	N Y
03-Jul-08	24-Dec-08	145	35	125	-76%	-16%	-35%	-69%	-54%	31%	49%	94%	117%	Y Y
29-Apr-11	04-Oct-11	114	76	113	-34%	-10%	-16%	-18%	-8%	24%	36%	37%	21%	N N
24-Feb-12	28-Jun-12	110	78	90	-29%	-2%	-17%	-12%	-15%	16%	18%	17%	25%	N N
06-Sep-13	11-Feb-16	111	26	635	-76%	-6%	-12%	-7%	-16%	42%	78%	66%	102%	N N
08-Jun-16	02-Aug-16	51	40	40	-23%	-11%	-11%	-3%	-11%	9%	18%	34%	24%	N N
03-Oct-18	24-Dec-18	76	43	59	-44%	-17%	-39%	-18%	-31%	24%	38%	36%	42%	N N
23-Apr-19	07-Aug-19	66	51	77	-23%	-13%	-14%	-18%	NA	11%	10%	-1%	NA	?
06-Jan-20	09-Mar-20	63	31	46	-51%	-20%	NA	NA	NA	NA	NA	NA	NA	?

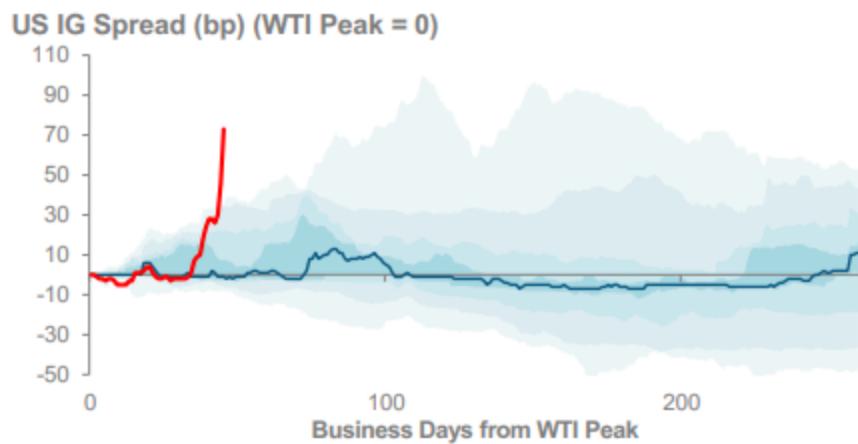
Source: Bloomberg, Morgan Stanley Research; Note: A "bear market" is defined as when WTI sells off 20% or more, with no recovery within 12 months.

Exhibit 4: Cross-asset performance around WTI price peaks

Asset	Returns vs Avg Before Oil Price Peak				Returns vs Avg After Oil Price Peak			
	6m	3m	1m	1wk	1wk	1m	3m	6m
EQUITIES								
S&P 500	1.3%	2.1%	-0.4%	0.5%	0.1%	1.7%	-0.3%	0.4%
Eurostoxx 50	1.4%	0.4%	2.4%	0.2%	-0.9%	-0.4%	-1.9%	0.5%
TOPIX	-3.3%	-1.2%	0.5%	-0.4%	-0.2%	-0.7%	-2.3%	-1.3%
FTSE 100	1.3%	0.2%	1.4%	0.7%	-0.4%	-1.3%	-1.6%	-0.2%
MSCI EM	-8.9%	-3.9%	1.3%	-0.5%	-1.1%	-3.0%	-7.4%	-8.9%
EQUITY SECTORS								
Cons Disc vs Mkt	-1.1%	-1.5%	-0.7%	-0.7%	0.0%	0.8%	1.0%	1.2%
Cons Staples vs Mkt	-4.5%	-1.9%	-1.6%	0.1%	0.9%	3.8%	4.4%	2.8%
Energy vs Mkt	6.8%	4.0%	3.3%	1.2%	-1.1%	-2.6%	-3.7%	-8.0%
Financial vs Mkt	-2.8%	-1.6%	-0.4%	-0.9%	0.8%	1.6%	1.6%	0.4%
Healthcare vs Mkt	-1.5%	2.5%	-0.2%	0.7%	1.9%	2.6%	3.1%	5.4%
Industrials vs Mkt	0.5%	0.2%	0.0%	0.2%	0.1%	-0.6%	-1.0%	-0.6%
IT vs Mkt	0.9%	0.2%	1.5%	0.1%	-0.2%	-0.4%	0.5%	1.1%
Materials vs Mkt	-0.3%	-0.9%	0.1%	-1.2%	-1.0%	-1.2%	-2.2%	-2.1%
Telecom vs Mkt	-2.5%	-0.7%	-0.7%	-0.2%	0.6%	1.6%	2.5%	2.5%
Utilities vs Mkt	-0.4%	-0.7%	0.0%	0.9%	1.2%	0.8%	1.1%	3.1%
Real Estate vs Mkt	-2.9%	-2.7%	-2.0%	-0.8%	0.6%	2.2%	2.8%	3.2%
Large vs Small Cap	-0.7%	-1.5%	0.0%	0.1%	0.5%	0.9%	1.3%	3.2%
Value vs Growth	-0.4%	-0.6%	-0.6%	-0.1%	0.1%	0.9%	1.6%	1.2%
FX								
DXY	0.6%	0.4%	0.0%	0.2%	0.0%	0.6%	1.0%	2.7%
EURUSD	-0.5%	0.7%	-0.2%	-0.4%	-0.2%	-0.8%	-1.4%	-3.5%
JPYUSD	-0.8%	-1.8%	-0.5%	0.1%	-0.2%	0.4%	-0.6%	-1.3%
AUDUSD	1.5%	0.0%	0.2%	0.0%	-0.6%	-1.1%	-1.3%	-3.0%
CHFUSD	-0.7%	-1.2%	-0.3%	-0.6%	-0.2%	-1.0%	0.5%	-3.1%
ZARUSD	-5.1%	-0.8%	1.3%	0.0%	0.2%	0.9%	-1.9%	-1.1%
BRLUSD	-3.6%	6.8%	3.3%	0.3%	0.4%	2.2%	1.3%	-1.5%
RUBUSD	4.0%	2.5%	1.6%	0.6%	0.0%	0.3%	0.5%	1.1%
KRWUSD	-1.0%	0.6%	0.0%	-0.4%	0.1%	-0.4%	0.2%	-2.2%
RATES								
UST 10yr	-2.1%	-1.0%	-0.6%	0.1%	0.4%	1.1%	1.4%	2.4%
Bunds 10Y	-1.4%	-1.3%	-0.8%	0.0%	0.2%	0.6%	1.5%	0.6%
JGB 10Y	-0.7%	-0.5%	-0.2%	0.0%	0.0%	-0.1%	0.3%	0.0%
UST vs Bunds 10y	-0.6%	0.2%	-0.2%	-0.2%	0.2%	0.8%	0.1%	0.0%
UST 2s10s	-1.0%	-1.6%	3.3%	0.0%	0.0%	-0.9%	2.8%	-2.6%
CREDIT								
US IG	0.2%	0.8%	0.0%	0.0%	0.0%	-0.5%	-0.7%	0.1%
US HY	1.5%	1.7%	0.3%	-0.2%	-0.3%	-1.1%	-1.9%	-2.3%
EU IG	-0.3%	0.5%	0.1%	0.0%	0.0%	-0.2%	-0.6%	0.3%
EU HY	1.9%	2.1%	0.7%	0.0%	-0.1%	-1.7%	-3.1%	0.2%
US MBS	-0.1%	0.2%	0.0%	-0.1%	-0.1%	-0.2%	-0.1%	-0.4%
Commodity								
WTI	32.1%	20.4%	11.7%	4.3%	-5.1%	-11.2%	-20.2%	-24.4%
Brent	28.4%	23.0%	12.1%	4.7%	-5.6%	-11.9%	-15.5%	-16.9%
Gold	0.8%	-0.5%	-0.6%	0.1%	-1.0%	-1.5%	-2.6%	-7.0%
Copper	-0.2%	0.8%	0.6%	-0.6%	0.4%	-1.8%	-8.1%	-10.8%
BCOM	9.4%	5.7%	4.8%	1.9%	-1.5%	-4.1%	-4.5%	-3.8%

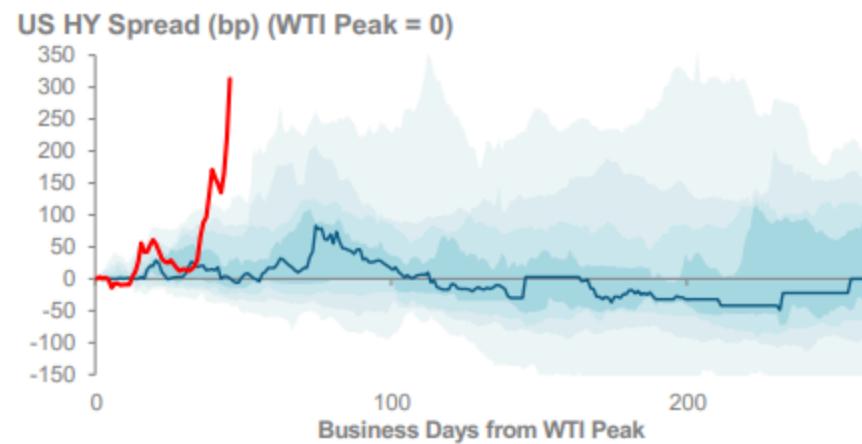
Source: We show the median of returns around peaks in WTI vs average 1 week, 1-3-/6-month returns since 1980 (or where data available). We show total returns for equities, FX and rates, excess returns for credit and price returns for commodities.

Exhibit 15: US IG performance around oil bear market



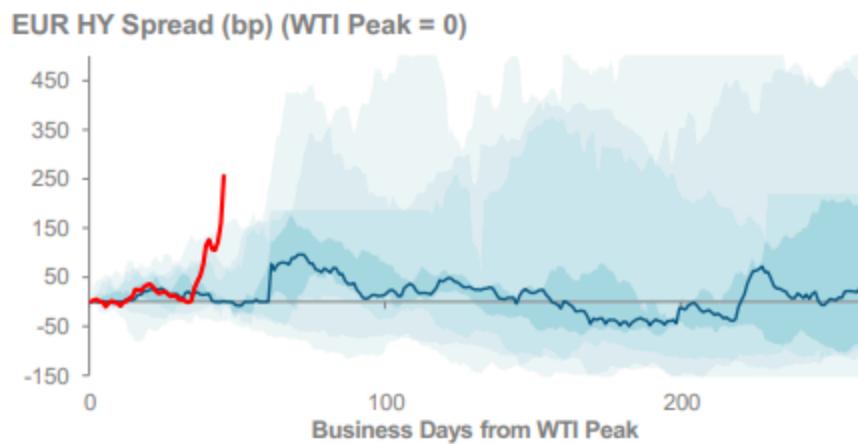
Source: Bloomberg, Morgan Stanley Research; Note: Shows summary of bear market episodes. Each band represents observation decile starting at 10% to 90%, solid line is median. Red line is current sell-off. Data since 1983, or whenever data history begins

Exhibit 16: US HY performance around oil bear market



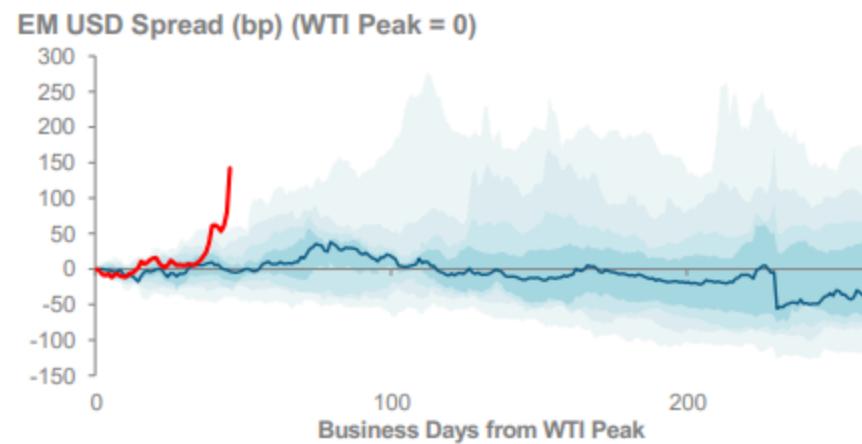
Source: Bloomberg, Morgan Stanley Research; Note: Shows summary of bear market episodes. Each band represents observation decile starting at 10% to 90%, solid line is median. Red line is current sell-off. Data since 1983, or whenever data history begins

Exhibit 17: EUR HY performance around oil bear market



Source: Bloomberg, Morgan Stanley Research; Note: Shows summary of bear market episodes. Each band represents observation decile starting at 10% to 90%, solid line is median. Red line is current sell-off. Data since 1983, or whenever data history begins

Exhibit 18: EM USD performance around oil bear market



Source: Bloomberg, Morgan Stanley Research; Note: Shows summary of bear market episodes. Each band represents observation decile starting at 10% to 90%, solid line is median. Red line is current sell-off. Data since 1983, or whenever data history begins

Cross-asset performance around oil peaks

In Exhibit 4, we summarize the cross-asset performance six months going in to and coming out of WTI peaks, going back to 1983. Key highlights:

- Global equities tend to be flat or underperform during an oil bear market. In particular, EM and TOPIX equities lag the most, while US stocks tend to fare better.
- Unsurprisingly, the Energy sector has historically seen the worst returns six months after oil peaks, while defensive sectors like Healthcare and Utilities do the best.
- Government bonds in aggregate see flat returns in oil bear markets, except USTs, which outperform. Curve performance is mixed – US 2s10s tends to flatten three months into a crude sell-off, and then steepens by the six-month mark.
- HY corporate credit sees worse-than-average returns when oil sells off, in both the US and Europe, a function of the asset class' energy sector exposure. IG corporate credit returns are also weighed down, albeit the market tends to claw back losses six months after an oil peak.
- The rest of the commodity complex tends to also underperform when oil is weaker. Gold and copper tend to also be down slightly six months after crude peaks.

Commodities Strategy

Oil caught in the cross-hairs as OPEC+ deal falls apart

- On Friday, March 6th OPEC+ negotiations broke down over Russia's unwillingness to accept further reductions to production while demand continued to crater under the strains of the COVID-19 outbreak.
- As a result, starting from April 1st OPEC+ member states are free to increase production, which could result in as much as 2.1 mbd of oil supply returning to market.
- Our baseline view assumes Saudi production of 10.2 mbd by 3Q20, with expectations for production growth to remain measured.
- This will likely drive prices to \$37/bbl in 2Q20 and \$42/bbl in 3Q on average (FY20 average of \$44/bbl), testing OPEC+ fiscal budgets and straining already challenged US Shale producers' capital frames.
- Our bearish case scenario envisions a significantly more aggressive Saudi production profile which sees output soar to 11mb/d by year-end. This entails an average Brent oil price of \$39/bbl.
- Against this backdrop of lower oil prices for longer, our equities research team have assessed the risk to oil markets from the potential shortfall in capex to meet long-term oil demand ([Oil Market Special: Bowing to the inevitable](#) by Malek et al, from Mar 9).

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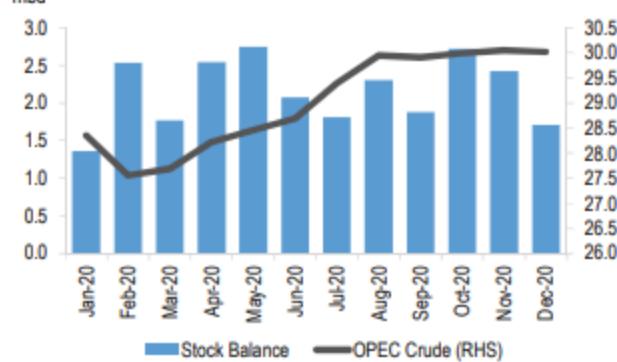
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Following the breakdown of the OPEC+ meeting last Friday, Saudi Arabia has launched an aggressive oil price war in a move that threatens to swamp global oil markets with supply at a time when demand has cratered under the strains of the spreading COVID-19 outbreak. Marking a stark change from Saudi's previous price defense strategy, with its coordinated approach within OPEC+ partnership to regulate and balance the market, the Kingdom signaled an intent over the weekend to raise production and offer its crude oil at deep discounts in April.

Moreover, the failure to reach an agreement has effectively ended the collective output curtailments by OPEC and non-OPEC members in place since January 2019, raising the probability that starting from April, member states could bring back 2.1 mbd of oil output that was previously curtailed. This simultaneous hit to both supply and demand is unprecedented. Our baseline projections now point to a surplus of 2.5 mbd in 2Q20 before reducing over 2H20. We now expect the oil market surplus to average 2.2 mbd in 2020, one of the largest annual builds on record ([Exhibit 1](#)). Our pricing model suggests that Brent oil price could average \$44/bbl during the year.

Exhibit 1: JPM baseline oil balances vs. projected OPEC crude output
mbd



Source: J.P. Morgan Commodities Research

Base case: Saudi to gradually increase production to 10.2 mbd average in 2020

Our base case scenario now assumes Saudi Arabia will gradually increase production over the next few months to retain crude export volume share, while satisfying higher refinery intake from new plants and existing facilities returning from maintenance. With guidance from Manaar Energy, we identify three steps that the Kingdom will likely pursue ([Exhibit 2](#)).

Step 1: Reversal of export cut to Asia. The Saudis will likely reverse the unilaterally announced 500 kbd export cut to Asia. The decision has been effectively already made as evident in Aramco's price cuts to Asia of between \$4-6/bbl, according to the official April OSP price list. Thus, the starting point of any production increases is 9.7 mbd.

Step 2: Mobilization of spare capacity. There are several assets at Aramco's disposal that are 'capped' and production-ready. The aggregate contribution from these assets is estimated to be in the range of 500 kbd. Assuming 2-3 months is needed to bring these assets on stream suggests that production can be raised to 10.2 within 3Q20.

Step 3: Negotiation. At a crude production level of over 10mb/d, Saudi may offer a return to talks with Russia with the objective of reaching a more collective alignment (i.e. 'win-win' market balancing in 2020 and 2021). However, if talks continue to fail, Saudi will likely mobilize its developed capacity. This could add an estimated 500kb/d, taking total production to 10.7mb/d by Q4 2020. After reaching 10.7mb/d, we expect Saudi to take a reactive strategy which will revolve around the response from market fundamentals and operational constraints in order to determine if an increase to 11mb/d by YE 2020 is feasible.

Exhibit 2: JPM Base Case - Saudi production expectations under a measured and gradual response
mbd

Decision	Period start	Production level
Reversal of export cut to Asia	Q2 2020	9.7
Mobilisation of capped assets	Q3 2020	10.2
Negotiation	Q4 2020	10.7

Source: J.P. Morgan estimates.

For the rest of OPEC we now expect producers to gradually increase output back to Jan'19 reference levels. For Iraq, Kuwait, and UAE we see 0.45 mbd of supply additions as a battle for volume share ensues. In the case of non-OPEC partners, we have assumed 0.25 mbd of oil supply to return to the market from Russia, Kazakhstan, Oman and others. Despite the sharp decline in oil prices, we expect US supply to be relatively resilient this year given capex commitments, productivity gains and 2020 producer hedge ratios in place. We project US total liquids supply will average 1.16 mbd of growth y/y during the year and expect 0.8 mbd of crude supply growth (0.7 mbd from onshore fields) and 0.35 mbd increase in NGL output during the year.

Although our pricing model implies a \$44/bbl average Brent oil price for the year, the precarious state of both the supply and demand sides of the balance, and the current spot Brent price of \$36/bbl suggest that the market is pricing in a much more significant blow to balances. Using our FV pricing model ([The minimal drivers of the fair value of oil](#)) and assuming a much larger shock to oil balances we see Brent oil price averaging \$37/bbl in 2Q20.

Bear case: Saudi production increases to 11 mbd by the end of the year

The uncertainty surrounding additional talks between Russia and Saudi Arabia and possible OPEC+ actions has led us to construct some additional risk scenarios around our forecasts for both supply and demand. In our bearish price risk scenario, we assume talks between Saudi Arabia and Russia to revive the OPEC+ deal this year, ultimately fail. This results in non-OPEC suppliers such as Russia, Oman and Kazakhstan raising output by 0.5 mbd (0.25 mbd above our baseline estimate) by 4Q20. Meanwhile, we have assumed Saudi Arabia increases production sharply to average 10.35 mbd during 2020, with supply eventually reaching 11 mbd by year-end. To make matters worse for oil balances, Libyan production has been brought forward in the event of successful peace talks with output expected to recover in May'20. This would bring almost 1 mbd of oil supplies to market, two months ahead of our baseline expectations. With respect to demand, oil consumption could underperform due to a prolonged shock from COVID-19, disrupting summer travel demand and major sporting events. In this scenario, global oil demand could contract 140 kbd y/y in 2020 (versus flat growth in our baseline). Undoubtedly, this scenario would result in lower oil prices for longer, particularly in 1H20.

Exhibit 3: Scenario 2 Summary - Saudi production expectations under our bearish risk scenario

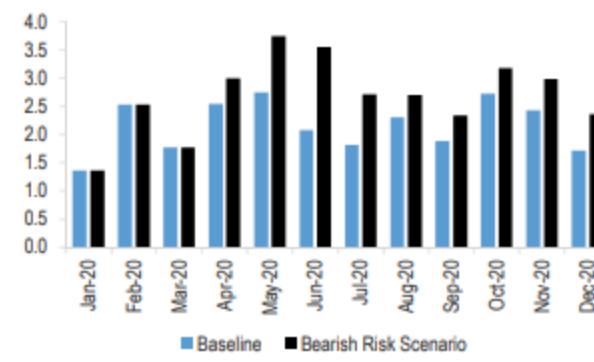
Decision	Period start	Production level
Reversal of export cut to Asia	Q2 2020	9.7
Mobilisation of capped assets	Q3 2020	10.2
Negotiation	Q4 2020	11

Source: J.P. Morgan Commodities Research

This dynamic could result in cuts to US producer capex and negatively impact drilling activity and well completions after 2Q20. We estimate US total liquids production growth could average 0.9 mbd y/y in 2020, with supply declining below Dec'19 levels by the end of year. However, oil supply growth could decline much

more aggressively and even decline on an average annual basis if drilling and completion activity were to slow dramatically in the near-term. However, we are still likely to see output growth from GoM offshore projects although there are open question marks whether supermajors will maintain their current strategy for tight oil production. Although a slowdown in US shale could offset some of the increases in supply from OPEC and other non-OPEC producers, oil balances will still balloon to a gigantic 2.7 mbd surplus on average, implying a \$39/bbl average price for the year.

Exhibit 4: JPM baseline vs bearish scenario oil balances



Source: J.P. Morgan Commodities Research

Beyond the short-term impact on the price, we are monitoring the three pain thresholds in the oil industry as they will dictate the time horizon for acutely lower oil prices. These include OPEC+ fiscal budget breakevens, US shale economics, and IOCs cash breakevens. Against this backdrop of lower oil prices for longer, our equities research team have assessed the risk to oil markets from the potential shortfall in capex to meet long-term oil demand ([Oil Market Special: Bowing to the inevitable](#) by Malek et al, from Mar 9).

3

NEGATIVE FOR DELIVERY

<https://www.bloomberg.com/news/videos/2020-03-13/goldman-s-currie-downside-oil-volatility-is-likely-to-be-very-high-video>

Oil Market Special: Bowing to the inevitable

Balance of pain thresholds between OPEC+, Shale and IOCs to dictate speed of oil recovery

OPEC+ breakdown to drive extreme oil volatility but period of depressed oil prices likely to be short lived as structural supply deficit accentuated and Saudi/Russia pain thresholds surpassed. On Friday 6th March, OPEC+ negotiations broke down over Russia's unwillingness to reduce production while COVID-19 continues to ravage global oil demand. As a result, from April, member states will be free to increase production and oil prices at current levels through 2Q2020 should test OPEC+ fiscal budgets and strain already challenged US Shale producers' capital frames. While developing commentary from within Russia suggests companies will be free to produce at will from next month, we believe the extent to which Saudi will return to a 'market share strategy' via a measured approach is likely to depend on whether the decision is driven by market logic versus strategic sentiment. We view Saudi's apparent capitulation on production quotas as a *temporary* measure designed to realign OPEC+ members' ambitions towards supporting revenues (vs market share) whilst global supply/demand fundamentals remain pressured. We assume Saudi production of 10.2mb/d by 3Q2020, on expectations for production growth to remain finite with a view to returning to negotiations and a re-based agreement before YE with upside to negotiations if there are renewed discussions at or before the 9th June OPEC meeting.

We assess how long low prices can be sustained at prevailing levels in the context of: 1) OPEC+ fiscal breakevens >\$50/bbl Brent; at below \$40/bbl (and especially whilst gas prices remain under pressure) all major OPEC+ producers would likely be operating a fiscal deficit, 2) US Shale economics ([click here](#) for our US E&P teams' update) suggest significant downside risk to volume growth at WTI<\$45/bbl despite arguably a relatively large proportion of volume growth already hedged; and 3) IOC's capital frameworks – Oil Majors' cash breakevens average c\$55/bbl in 2020-21; by mitigating lower oil prices through reduced capex budgets, IOC supply growth should peak sooner than our 2022 base case.

OPEC+ decision 'necessary evil' for oil markets to self-correct... Heightened oil volatility over the next six months should only serve to exacerbate medium term shale production growth and accelerate non-OPEC non-US field declines. Against this backdrop, we estimate upside risk to the 'missing' \$1bn in capex that is needed to meet future oil demand, underpinning a sustained oil market deficit highlighted in our recent [Supercycle](#) report as we assume demand recovers from 2021 and non-OPEC/US supply growth peaks.

...but oil prices likely to discount future OPEC+ corroboration even if market share policy reversed. Russia's unwillingness to further cut production reflects the country's aim to remove artificial price support for US Shale. Reportedly, a misreading of the Russian priorities possibly led to Saudi over playing their hand. The Kingdom's tough stance could serve as a strong bargaining chip in future negotiations, and should be viewed as a 'necessary pain' to restore some order in the market over the medium term and not least instigate a US policy response.

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Oil prices are below marginal shale economics, which will force producers to cut activity levels...

Our US team have published a report ([here](#)) sensitizing Shale output to Bearish \$30/bbl WTI in 2020-21.

As a first cut, they assume that drilling/completion activity in the Permian Basin and Eagle Ford declines by 50% over the next few months, 70% in the Williston Basin, and 70-80% in the DJ Basin, Powder River Basin and Mid-Continent....

...this points to a 1.4mb/d decline in exit rate U.S. oil output in 2020.

BALANCE OF PAIN

Manaar note that such a scenario would require Saudi drawing increasingly heavily on an already strained treasury, which is contending with a growing deficit under lower oil prices. While it is conceivable that such a production boost would be in coordination with OPEC members (particularly OAPEC), Saudi would realistically look to capture the main share of this increase.

Exhibit 2: Bear Case Summary - Saudi production expectations under all out production growth

Decision	Period start	Production level
Reversal of export cut to Asia	Q2 2020	9.7
Fast tracked initiative	Q3 2020	10.7
High cost asset investment	Q4 2020	11+

Source: J.P. Morgan estimates.

Balance of pain thresholds to dictate length of price rout

We continue to believe that analysis of the global cost curve remains central to understanding how oil prices will trend over the medium term. In its simplest form (and all else being equal), we think the marginal price of oil will be determined by regions possessing the most competitive extraction and fiscal/social cost.

Pain threshold 1 – OPEC+ fiscal breakevens >\$50/bbl suggests market share strategy has short shelf life

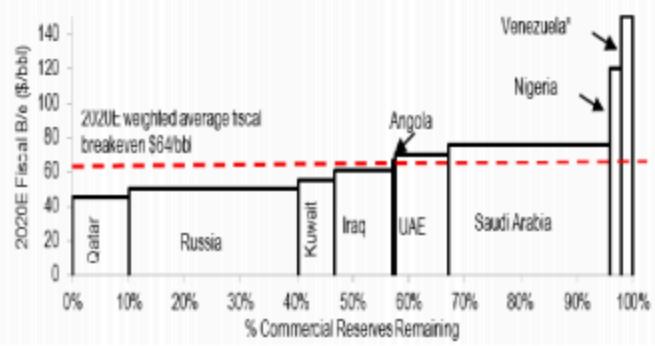
Budget breakevens of >\$45/bbl demonstrates neither Saudi or Russia can afford low oil prices for a sustained period

Since the publication of our JPM Equities 2018 Breakeven 'Championship' note, we have maintained the view that understanding of fiscal breakevens for the major producers within OPEC+ remains key to anticipating medium term oil policy movements, and goes someway to understanding the friction between Russian and Saudi oil policy agendas - As shown below, Russia's 2020E fiscal breakeven is \$25-30/bbl lower than Saudi's at ~\$45-50/bbl, implying a greater appetite to grow production. By comparison, we estimate Saudi's fiscal budget breakeven remains elevated at c\$76/bbl in 2020, and as a result continue to believe Saudi's *medium term* agenda will seek to prioritize revenue over market share. **However while Figure 1 demonstrates Russia's reduced dependence on oil vs Saudi, it also shows that below \$45/bbl oil (and especially whilst gas prices**

remain under pressure) all major OPEC+ producers would likely be operating a fiscal deficit.

Resultantly, we view Saudi's apparent capitulation on production quotas as *temporary* measure designed to realign OPEC+ members' ambitions towards supporting revenues (vs market share) whilst global supply/demand fundamentals remain pressured, with production growth returning to a discretionary lever as market tightening is accelerated on a slowdown in Shale/Non-OPEC Non-US production (see below). Within OPEC+ we believe the question as to 'who breaks first' on pursuing production growth largely depends on governments' **1)** maximum 'comfortable' deficit level/minimum credit rating acceptable on government bonds (in August/ September Fitch rated Saudi at 'A' and Russia at 'BBB'), **2)** abilities to reduce fiscal expenditure (and hence reduce a deficit), and **3)** the resilience and growth outlook for non-oil revenue sources.

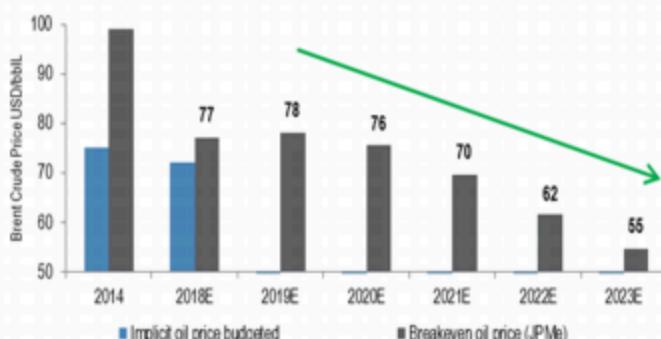
Figure 1: Updated 2020 fiscal breakevens for selected OPEC(+) members – While Russia's 2020E breakeven is \$25-30/bbl below Saudi's, both would be operating a fiscal deficit below \$45/bbl oil (especially whilst gas prices remain under pressure).



Source: J.P. Morgan estimates. IMF Data.

Focusing on Saudi, we leverage our Aramco IPO analysis to demonstrate that while the company is able to boast a best-in-class pre-dividend breakeven of <\$10/bbl, the commitment to a \$75bn base dividend in 2020 and hence a 2020-22 average post capex and dividend breakeven of \$58/bbl has important implications for the government majority shareholder (below a gross payment of \$75bn, distributions to minority shareholders are prioritized until 2024). I.e. the kingdom needs c\$60/bbl Brent in order to receive a payout proportionate to its ownership stake. **Combined with the KSA's diversification push, this means Saudi would likely be unable to sustain oil prices below \$60/bbl for an extended period of time.**

Figure 2: While Saudi is on a path to reducing its fiscal budget breakeven, oil revenues remain a key source of funds for this diversification effort, hence c\$60/bbl represents Saudi's likely medium term 'pain threshold'.



Source: MOF, NCB, Our JPM 2019-2023 fiscal estimates are scenarios based off government public figures. JPM Production estimates: 2019E: 9.8mb/d, 2020E: 9.5mb/d, 2021E 9.7mb/d, 2022E 10.2mb/d, 2023E 10.9mb/d

Pain threshold 2 - US Shale economics suggest downside risk to volume growth WTI <\$45/bbl

A tighter capital frame on shale economics means greater asymmetry to oil prices; significant downside risk to volume growth at WTI <\$45/bbl as a larger proportion of Permian growth diminishes than in previous oil routs

With productivity and technology-led efficiency gains slowing, breakeven economics will be key in assessing the second order of volume growth linked to prevailing lower oil prices. Our Shale team have taken a deep dive into the estimated remaining inventory for each major oil basin and for each underlying county, and conclude that the US has about ~19 years of inventory remaining at the current drilling pace. Ultimately, their analysis concludes that the Permian Basin, which has the most surface acreage and can handle the highest number of wells/DSU has the largest outstanding inventory.

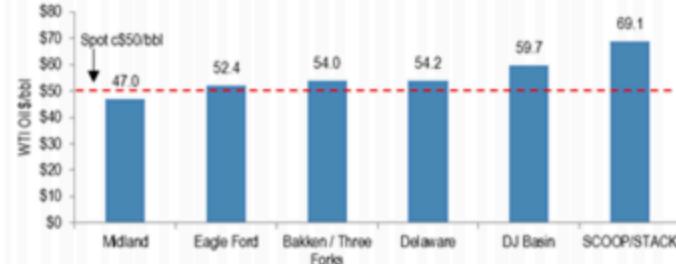
Figure 3: JPM Inventory Deep Dive – plenty of oil left but predominantly in one basin: the Permian



Source: Enverus

However, while inventory levels appear sufficient to fuel a growth runway to 2030, when comparing full-cycle breakevens against spot WTI, the majority of basins screen as uncommercial. We believe breakevens range between \$45/bbl in the Midland Basin to \$55/bbl in the Delaware, suggesting WTI <\$45/bbl should have a significant negative impact on future volume growth as returns, and hence spending, diminish. In contrast to previous periods of lower oil and when it was previously <\$30/bbl in early 2016, we expect marginal FCF to be prioritized to the shareholder over defending base levels of capex/volumes.

Figure 4: Full-Cycle Oil Break-Evens – As the bulk of US shale gravitates around c\$50/bbl breakeven (assuming 25% BTAX IRRs), spot WTI c\$40/bbl implies significant downside risk to volume growth.



Source: J.P. Morgan US E&P estimates

Pain threshold 3: IOCs cash breakevens average c\$55/bbl in 2020-21; by mitigating lower oil prices through lower capex budgets, supply growth to peak sooner than 2022 base case

Near term oil prices imply downside risk to IOC spending outlook, pressuring targeted volume growth, and expediting a supply peak sooner than 2022 base case assumption

Global IOC's continue to face competing capital requirements to increase shareholder distributions, fund new energies expansions, and grow their 'bread and butter' hydrocarbon businesses. With 2020-22 average fiscal budget breakevens at c\$55/bbl, we expect that under depressed oil prices global IOCs will likely reduce spending (particularly given diversification appears relatively unattractive while the entire energy complex appears challenged).

Opportunities after the drop

The risk-reward has improved for the commodity complex

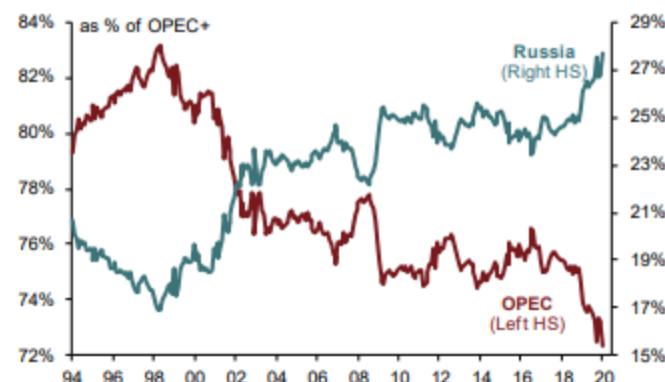
Managed money net positions have come back to normalised levels since the peak in 2018, in line with Russian and US crude oil production levels

Crude oil production as of Jan-20
OPEC: 28.3Mb/d
Russia: 10.8Mb/d
US: 13Mb/d

Oil: OPEC+ solving their lack of harmony, an entry point?

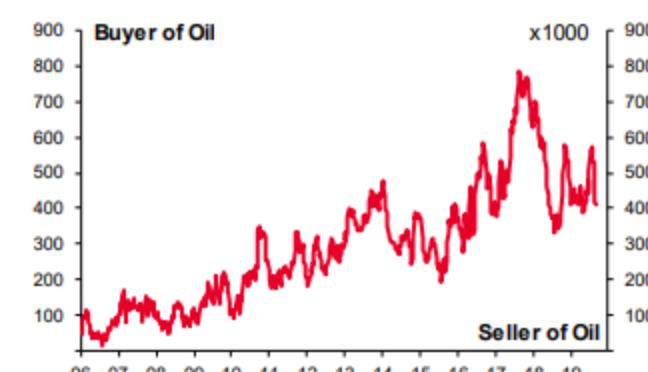
The oil price (Brent) is down by almost 20% since the start of the year, on the back of worries about global oil demand, as well as fears of oversupply. Managed money net positions have come back to normalised levels since the peak in 2018, in line with Russian and US crude oil production levels. **It is clear that OPEC countries have been the ones bearing most of the production costs, but can that last? Until OPEC+ solves this lack of harmony, the oil price could remain under pressure** – in terms of positioning, a significant amount of out-of-the-money short positions are still in place across the oil futures curve, making a near-term reversal of the current bearish sentiment unlikely.

Russia has upheld production levels, for how long?



Source: Bloomberg, SG Cross Asset Research/Global Asset Allocation

Net positions on crude oil

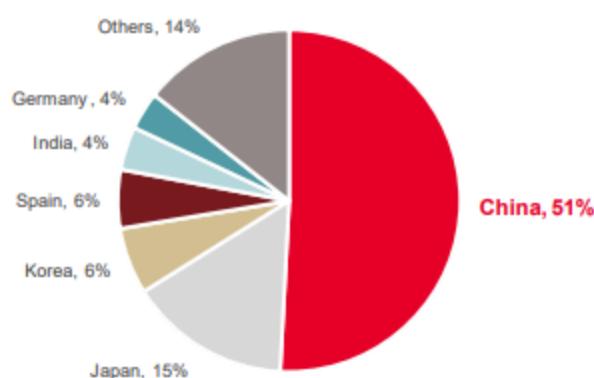


Source: Bloomberg, CFTC, SG Cross Asset Research/Global Asset Allocation

Don't give up on base metals, especially copper

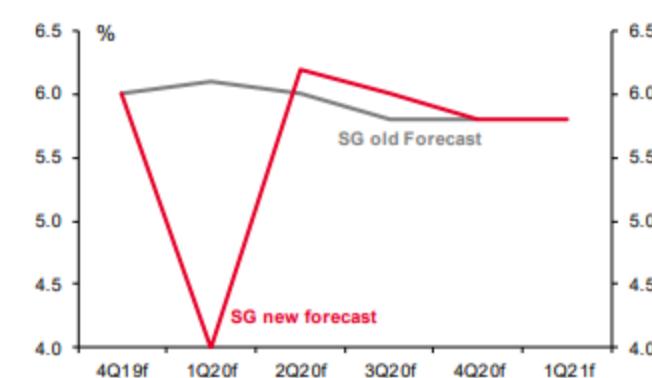
Copper is down by 8% since the start of the year, in tandem with rising fears regarding the coronavirus. **With China being the largest importer of copper globally, at 51% of total copper ores and concentrates as of 2018, the price trend is mostly in line with expectations.**

China is the largest importer of copper



SITC 4, we take into account copper ores and concentrates, as of 2018, in trade value.
Source: Comtrade, SG Cross Asset Research/Global Asset Allocation

SG China GDP forecast – a V-shape recovery



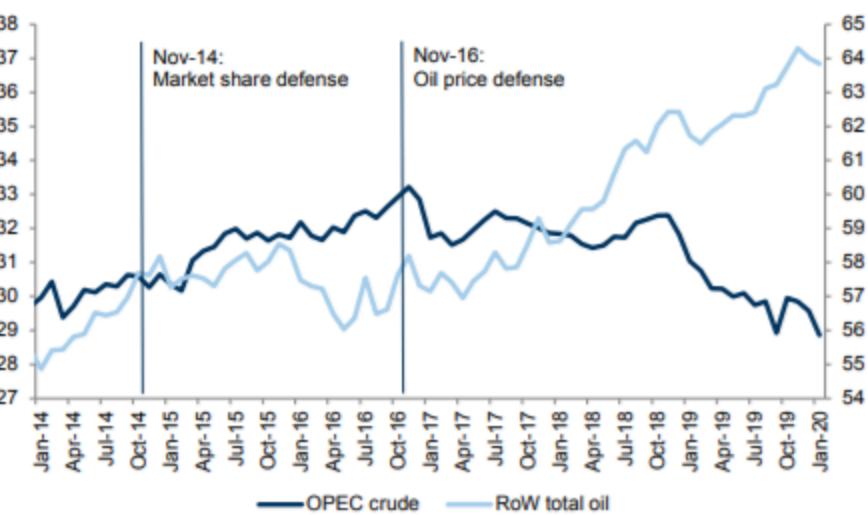
Source: SG Cross Asset Research/Economics

6 March 2020

17

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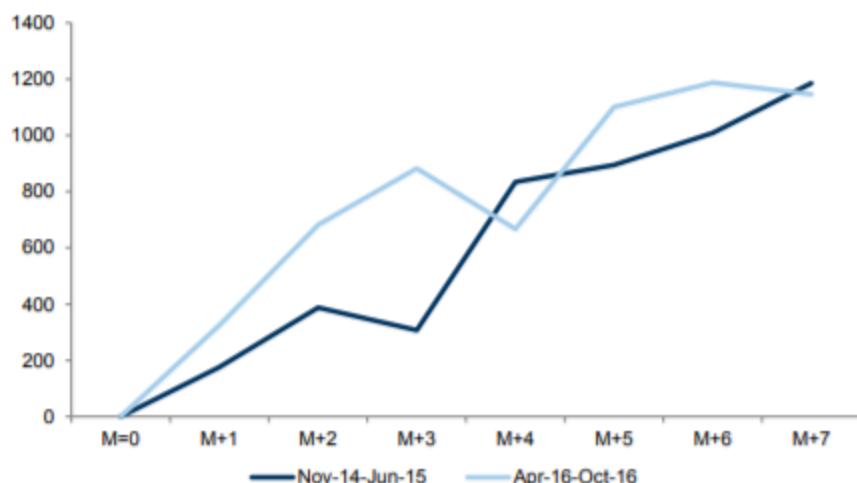
Exhibit 1: Saudi and Russia are now reversing their strategy of cutting production to support prices
OPEC crude vs. Rest of World oil production ex-OPEC NGLs (mb/d)



Source: Goldman Sachs Global Investment Research, IEA

Exhibit 3: We now expect a similar increase in core-OPEC and Russia production than experienced in both late 2014 and 2016 (but short of the 2018 surge)

Saudi Arabia, UAE, Kuwait and Russia production change (mb/d)

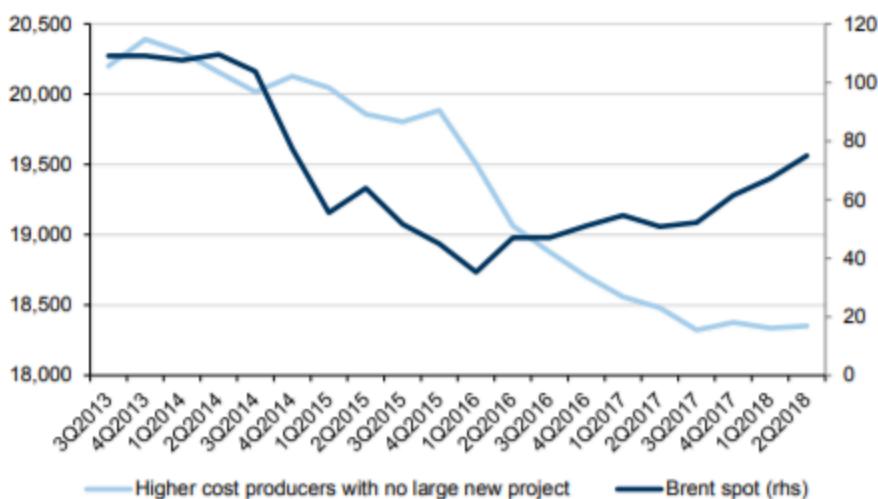


Source: IEA, Goldman Sachs Global Investment Research

Goldman Sachs

Exhibit 5: Beyond shale, we expect other high cost production to decline as well with Brent prices below \$40/bbl

Oil production (kb/d) for higher cost producer: LatAm exc. Brazil, Mexico, Europe exc. North Sea, FSU exc. Russia and Kazakhstan, Non-OPEC Asia, Middle East and Africa



Source: IEA, ICE, Goldman Sachs Global Investment Research

Exhibit 2: There is currently significant OPEC spare capacity to grow production from
GS estimates of spare capacity and production upside (kb/d)

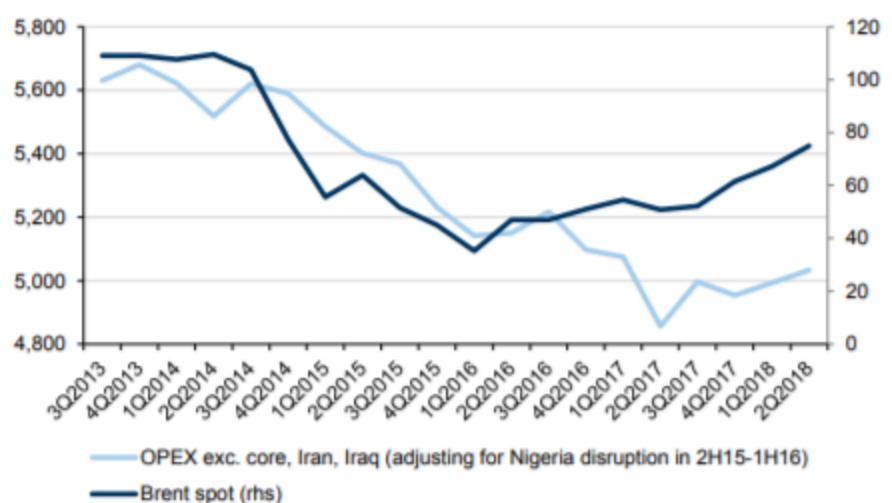
	Feb-20 crude	Capacity	Spare capacity
Saudi Arabia	9,670	11,500	1,830
Kuwait	2,660	3,000	340
United Arab Emirates	3,020	3,500	480
Russia	11,290	11,700	410
Total	26,640	29,700	3,060

	GSe yoy 2020	Upside	Net
Algeria	-22	20	-2
Congo	-18	10	-8
Ecuador*	10	20	30
Gabon	-8	10	2
Angola	-86	0	-86
Nigeria	-12	100	88
Iraq	-87	225	138
Equatorial Guinea	-6	5	-1
Total	-229	390	161

Source: Goldman Sachs Global Investment Research, IEA, Platts, OPEC, EIA, Reuters

Exhibit 4: We expect a decline in production from non-core OPEC producers

Non-core OPEC crude production (kb/d, lhs); Brent spot prices (rhs)



Source: IEA, Goldman Sachs Global Investment Research, ICE

Oil

Exhibit 5: Beyond shale, we expect other high cost production to decline as well with Brent prices below \$40/bbl

Modeled impact on cash flow, rigs and production of WTI prices

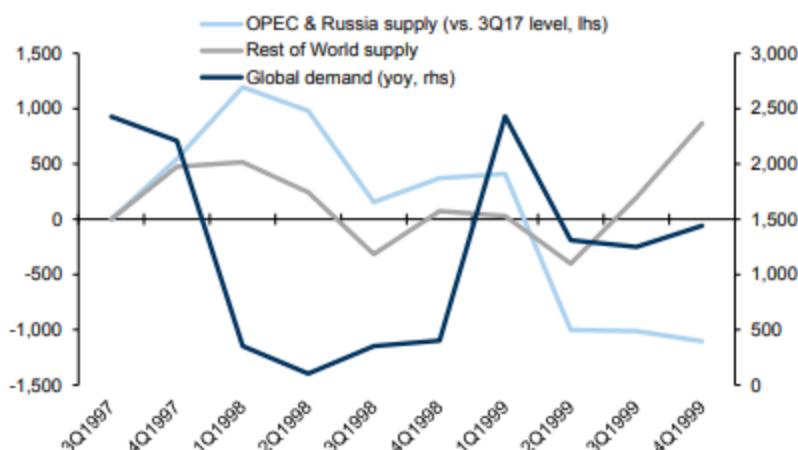
	WTI prices	
	\$55	\$45
Cashflow impact (\$ bn)		
Rig impact		
Rigs	406	337
Bakken	52	43
Eagle Ford	67	55
Total	525	435
Production		
Permian	4.83	4.56
Bakken	1.61	1.55
Eagle Ford	1.30	1.23
Total	7.73	7.33
		-0.40

All figures are annualized

Source: Goldman Sachs Global Investment Research, Company data

Exhibit 11: The oil outlook increasingly looks like the 1998-99 one, when demand collapsed due to the Asia crisis while OPEC output surged

mb/d



Source: IEA, Goldman Sachs Global Investment Research

Exhibit 13: We could see once again oil prices dipping back to cash costs

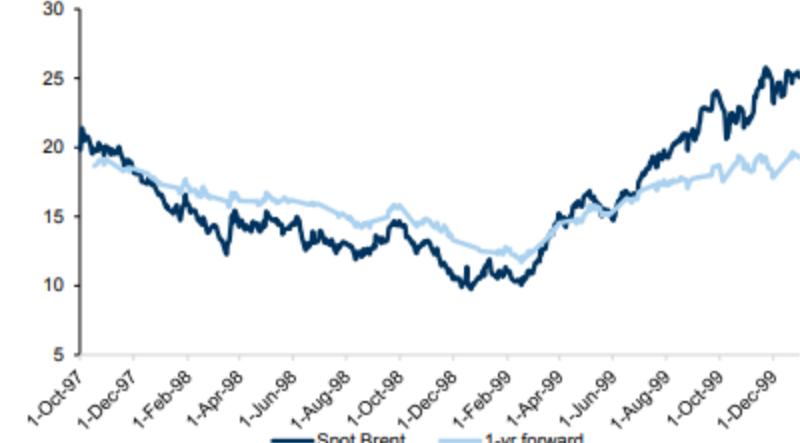
\$/bbl



Source: CME, Company data, Goldman Sachs Global Investment Research

Exhibit 12: This led to a collapse in spot prices to cash costs before setting the stage for a meaningful recovery as non-OPEC under-investment finally became binding

\$/bbl



Source: ICE

Exhibit 14: Fundamental uncertainty is almost unprecedented... To help navigate the oil market, the table below shows the impact on Brent prices from various fundamental shocks, leveraging our quantitative pricing model

Brent \$/bbl price impact from different NET supply increases/demand decreases of different duration

Brent spot move (\$/bbl)	Duration (months)			
	1	3	6	12
Volume disruption (kb/d)				
0	0	0	0	0
250	0	-1	-1	-2
500	0	-1	-2	-4
750	-1	-2	-3	-7
1000	-1	-2	-4	-9
1250	-1	-3	-6	-11
1500	-1	-3	-7	-13
1750	-1	-4	-8	-16
2000	-1	-4	-9	-18

Source: Goldman Sachs Global Investment Research

So what to do now? We favour iTraxx Main over CDX IG for policy asymmetry: We

highlight this trade idea from our Global Credit Strategy team. European IG indices have not outperformed, yet are more likely to see increased central bank support than their US counterpart, CDX IG.

Exhibit 2: We expect iTraxx Main to outperform, given more room for additional central bank support

Spreads (bp)



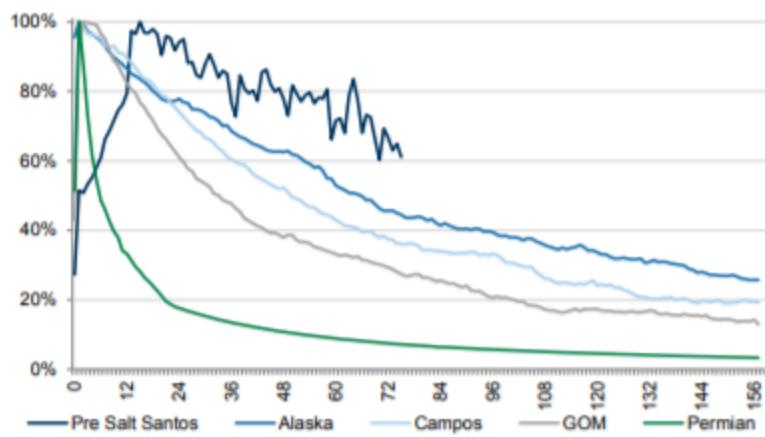
Source: Bloomberg, Morgan Stanley Research; Note: Current value is based off trader runs as of March 3, 2020 18:00 GMT

US shale oil could decline almost 3 mn blsd within a year, if all investment stopped

The US saw record-breaking growth in liquids production in 2018 at c.2.2 mn b/d. This level of growth surpassed our expectations, with almost all of the beat driven by shale where production growth (which was higher than anticipated) was geographically broad-based with all the major shale basins contributing. This was driven by a vast shale resource base, a well-equipped US services sector, a fragmented network of operators, and relatively low base decline rates. The mechanics of shale production involve drilling tens of thousands of wells at low cost, each of them with moderate peak production and a rapid decline, creating a unique dynamic. While this has enabled substantial production growth to date, **by 2021, we see shale moving into maturity, with higher decline rates from a larger production base resulting in slower incremental growth.** The geology of shale, with high initial well productivity and rapid decline rates (a 70% decline rate in year 1 is not uncommon, as shown in exhibit 15), provides different growth and decline rate characteristics vs. conventional reservoirs. Growth can be very rapid in the early years of a basin, but as the production base becomes larger, so do decline rates, especially following a couple of years of very intensive developments, when a large part of the production base is made up of high-decline wells in their first 1-2 years of life. Effectively, as shale rapidly increases its global market share, we believe higher activity would be needed to maintain flat production - the shale treadmill is accelerating.

Exhibit 15: The well characteristics of shale are very different from traditional long-cycle developments, with a very steep rate of decline...

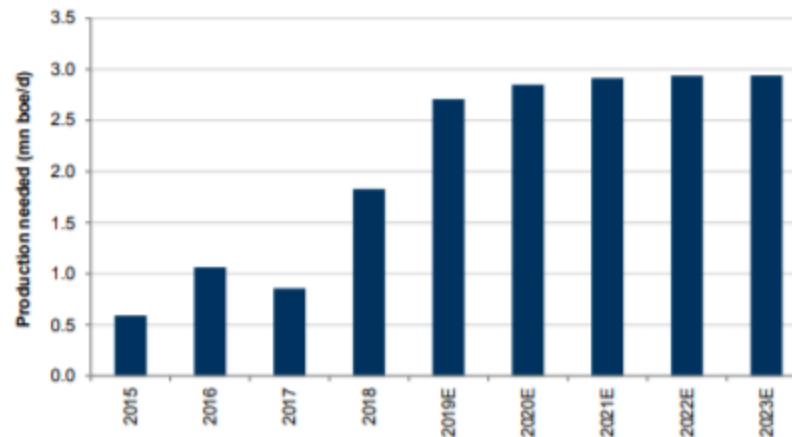
Decline rates with peak production rebased to 100%



Source: ANP, Alaska DoE, BOEM, Goldman Sachs Global Investment Research

Exhibit 16: ...and we estimate that c.3 mnblpd of new production will be needed to keep production flat from 2020 onwards

Production required to maintain flat production annually (mln bpd) in the big four US shale basins



Source: Goldman Sachs Global Investment Research

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US E&P Chartbook

Private Oil Production, Post-Bankruptcy Reactions, Capital Markets Activity, Bank Price Decks & More

OPEC+ prod'n cuts have served as a life-saving tourniquet for the SMid Cap E&P group that has been plagued by high FCF breakevens, elevated leverage, shrinking borrowing bases, and difficult capital markets. If OPEC+ wants a price war, it's the SMid Cap E&Ps and private operators that will be under the greatest threat, presenting survival of the fittest. Interestingly, our analysis shows that private E&Ps make up ~30% of L48 oil prod'n with nearly 300 rigs (~40% of the US land rig count), while public E&Ps with distressed debt make up another ~10%. In this note, we provide a Chartbook with the below figures and related commentary, which we hope is helpful in this uncertain energy market. See also: [Topic Du Jour: Defining US Shale Elasticity at \\$40 WTI "Let's see how American shale exploration feels under these conditions"](#) (3/8/20).

- Figure 1: Number of North American E&P Bankruptcies and Total Debt Since 2015
- Figure 2: Aggregate Monthly Oil Production Profile for E&Ps Pre/Post Bankruptcy (2015-2018)
- Figure 3: US Tight Oil Production by Play
- Figure 4: Breakdown of L48 Onshore Oil Production in October 2019 by Publics and Privates
- Figure 5: Breakdown of L48 Onshore Oil Production (Gross) in October 2019 by Company
- Figure 6: U.S. E&P Equity Issuance by Year
- Figure 7: U.S. E&P Debt Issuance by Year
- Figure 8: Capital Raised by Private Equity Funds Focused on North America E&Ps
- Figure 9: Fall 2019 Energy Bank Price Deck Survey – Avg. Base Case for Oil and Gas Prices
- Figure 10: US Horizontal Footage Stimulated vs. Horizontal Rig Count
- Figure 11: North America Upstream Spending (Barclays Spending Survey)
- Figure 12: Global Oil & Gas Upstream Investment: Actual vs. Spend at Constant 2018 Costs
- Figure 13: SMid Cap Coverage 2020 Oil Hedge Books
- Figures 14-23: SMid Cap E&P Coverage Debt Maturity Schedules

2020 High Yield Oil & Gas Hedges

With crude testing multiyear lows, we take a closer look at updated issuer hedge books in 2020. Oil producers like LPI, SM, MEGCN and DNR have the highest oil % hedged while AR, EQT, and SWN have the higher nat gas % hedged.

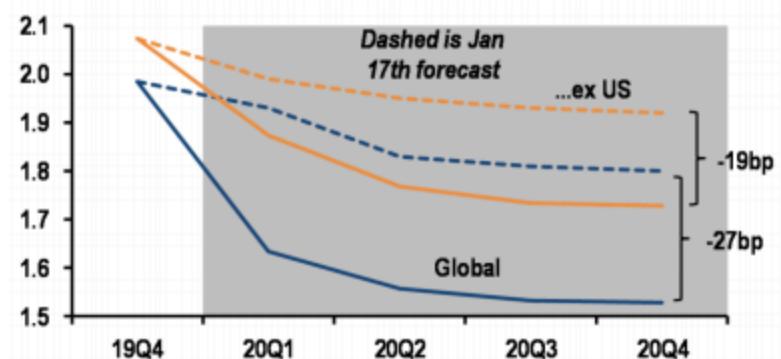
Current 2020 oil futures are \$46.25/bbl and natural gas futures are \$1.95/mmbtu (March 6,2020). With the news of a oil price war breaking out over the weekend, we see material downside risk to oil prices early in the week, or at least until the Russians come to the table and agree to additional cuts. Currently oil futures are opening down 26% to \$31/bbl. If current price levels holds, this would have an adverse impact on 2020 EBITDA estimates for producers that are not adequately hedged. Of the oil producers, LPI, SM, MEGCN and DNR are the most hedged, each with 70% or more of their oil production in 2020 covered. In natural gas, AR and EQT are hedged greater than 90% on their natural gas production followed by SWN around 78% and RRC at 62%. In aggregate based on hedging data from Bloomberg, the companies that strike us as most exposed to lower commodity prices based on lower hedges include WLL, PDCE, GPOR and CRK.

FIGURE 1. 2020 Crude Hedges (as of 4Q19)

Company	% Oil (LQ)	Percent Hedged	Weighted Average Price (\$/bbl)
AR	2%	100%	\$55.63
SWN	4%	89%	\$57.17
HPR	58%	86%	\$57.38
LPI	33%	86%	\$60.39
SM	48%	77%	\$56.87
PVAC	76%	76%	\$55.27
RRC	3%	76%	\$58.27
CHK	26%	72%	\$59.93
DNR	98%	71%	\$58.81
MEGCN	99%	69%	\$59.19
OAS	69%	67%	\$54.46
QEP	67%	67%	\$57.89
CRK	3%	65%	\$48.65
CPE	75%	62%	\$54.01
PE	61%	58%	\$58.17
WPX	62%	52%	\$56.19
MR	9%	52%	\$57.13
HILCRP (PF)	56%	44%	\$59.84

Exhibit 11: Global policy rate

Percent

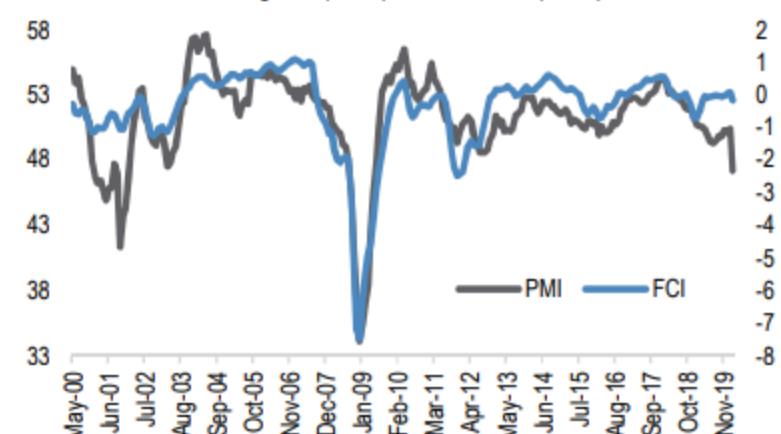


Source: J.P. Morgan

Exhibit 12: Global financial conditions vs global manufacturing PMI

PMI

LHS: Global manufacturing PMI (index); RHS: G4 FCI (index)



Source: Bloomberg

The other beneficiary of easing policy has been gold, which has perked back up above \$1,680/oz as US 10-year treasury yields have fallen below 80bps. While gold still scans relatively cheap to 10-year real yields (\$45/oz), we think the real driver in the next two weeks will be the further actions the Fed ultimately decides to take at their upcoming March meeting (17-18). The market is currently pricing an additional 50bps of cuts (56 bp precisely) in March and a total of 92bp of easing for 2020 as a whole. While in all but one of the six previous instances of inter-meeting eases since 1998 the Fed followed up with an ease of the same magnitude at the next scheduled meeting, our economists are only expecting a 25bp cut in two weeks while acknowledging the rising risks of revisiting the lower bound ([US Treasury Market Daily And you may ask yourself well](#)

[Treasury Market Daily And you may ask yourself well](#)

G10 OTHER

J.P.Morgan

European Rates Strategy

11 March 2020

Dislocations abound in European rate markets: what should be faded?

2s/5s Germany steepener, Schatz put spread, and pay 2Yx1Y SONIA

- It is a one-factor world; cross rates asset correlation has spiked as valuations have become dislocated. We identify trades to selective fade dislocations
 - In the Euro area, we fade curve flatness via 2s/5s German and res/blues EONIA curve steepeners. Long in Jun20 Schatz put spread offers convex upside vs. expensive swap spread and wide intra-EMU spreads. Keep conditional swap spread exposure in Bund
 - In the UK, we identify stretched valuations along two dimensions: 1) relative to a hard Bank Rate floor of 10bp, where we see attractive risk reward in paying 2Yx1Y SONIA, and 2) historical dislocations without a firm valuation floor –we hold 10Y SONIA swap spread narrowers

The dynamic of the global rates markets over the past few weeks suggests a strong cross correlation amidst poor liquidity. This market dynamic creates dislocations as valuations no longer become an anchor, and as investors need to adjust their portfolios on flight-to-quality and risk aversion considerations, more than just as a result of an asset allocation.

A simplified framework to assess the cross correlation is to look at a correlation matrix on weekly changes of various components of the EUR and the GBP rates markets and US Treasury. With concerns spread globally, and with the Fed cutting inter-meeting for the first time since 2008, pretty much “everything” has been strongly correlated with the evolution in 10Y US Treasury, a typical dynamic in crisis and flight to quality episodes (**Exhibit 1**).

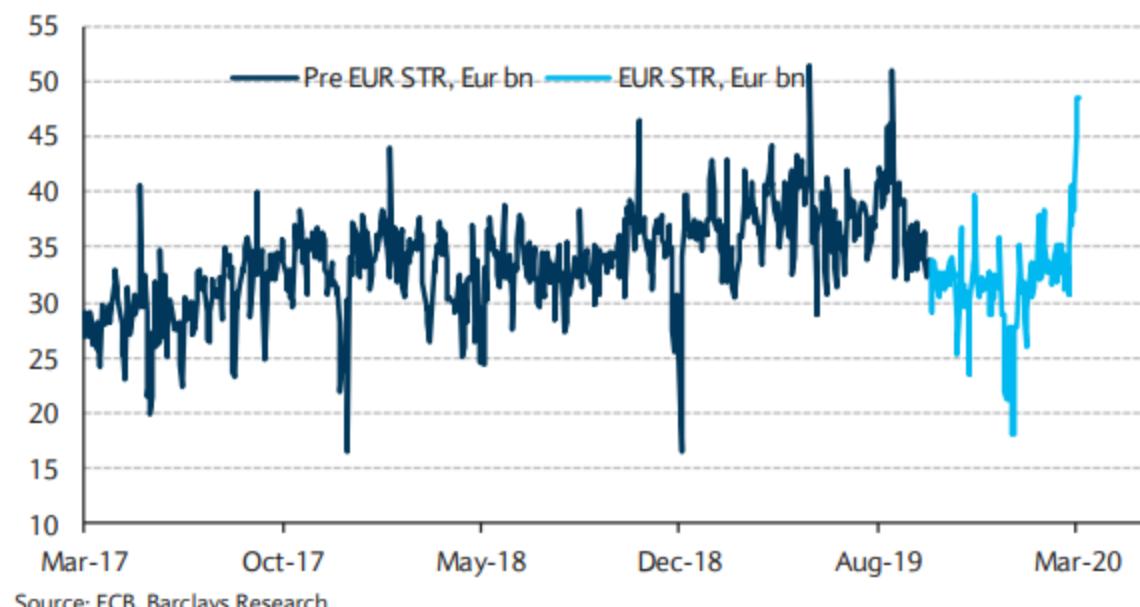
Exhibit 1: In line with a typical flight to quality dynamic pretty much "everything" in EUR and GBP rate markets showed a strong correlation with 10Y US Treasury

Current 6W correlation of 5D changes: %

No signs of stress in the euro liquidity market; evidence of some increase in cash deposits by financial institutions

In the euro liquidity market, at the moment there are some signs of building of precautionary cash balances but there is no evidence of stress. Banks' issuance activity in the French commercial paper market has declined compared to the same period of last year, probably reflecting a reduction in the demand from MMFs. We suspect that fund managers have started to adopt a precautionary approach, thereby increasing the amount of cash in anticipation of possible cash withdrawal in the coming weeks especially by corporates. It is interesting to note that over the last few weeks €STR volumes have moved on an upward trend (from about €30bn in mid- February to €48 currently, as shown in Figure 2): as the only €STR eligible transactions are overnight unsecured deposits from financial institutions (especially non-banks) held at the €STR reporting banks, we do not rule out that such move could be related to increase in cash holding for precautionary reasons. The increase in volumes has not significantly affected the fixing, which has crept down from depo rate -3.6bp to depo rate -4.3bp

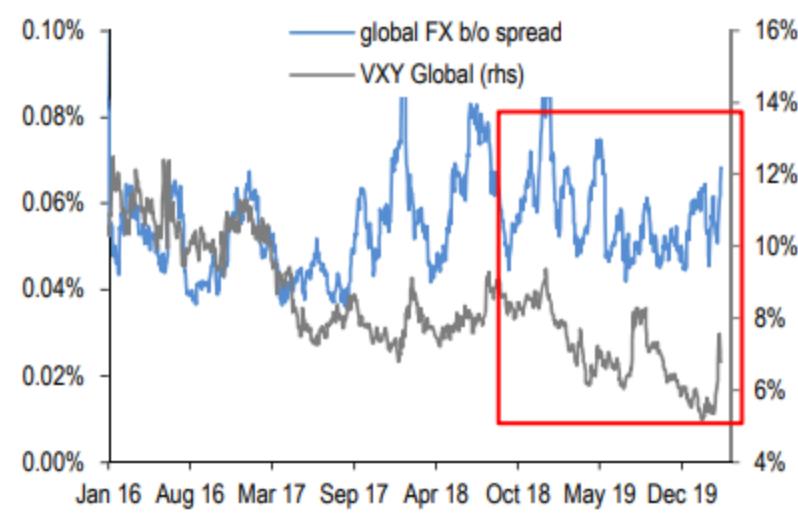
FIGURE 2
Sharp increase in €STR volumes (€bn)



Source: ECB, Barclays Research

Exhibit 5: Bid/offer spreads have started to inch up as vol increased vol

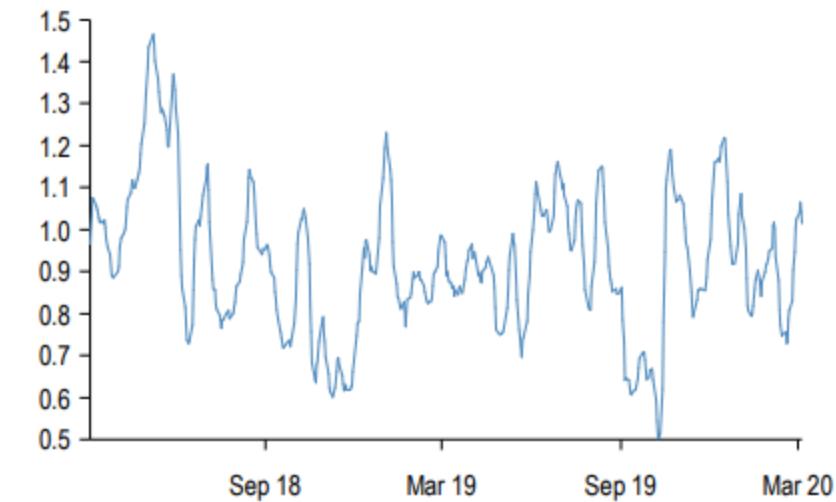
Average bid/offer spreads for select G10 and EM pairs vs. USD (%) vs. J.P. Morgan FX volatility index



Source: J.P. Morgan, Bloomberg

Exhibit 6: Dislocations in G10 FX vs. rates have inched up since mid-February

Aggregate dislocation metric (average of absolute mispricings on short-term models across pairs; 1y z-scores)



European Rates Viewpoint

EUR front-end primer: The new regime

Primer

A crash course on key issues

This primer explains the new regime for EUR front-end rates.

- Transition to the new euro risk free rate, the euro short term rate (€STR), has begun.
- The European Central Bank (ECB) recently introduced a tiered deposit rate system yet, already, we cannot rule out changes in 2020.
- Quantitative easing has restarted on an open-ended basis by the ECB.

Our **first chapter** discusses **benchmark rates reform** in the euro area. The most widely used European benchmark rates are undergoing reforms. EONIA is expected to cease to exist in January 2022. Euro contracts have begun to reference the new euro risk free rate, €STR.

Our **second chapter** examines the **two-tier system**. Negative rates on excess liquidity have been a burden on euro area banks. To relieve some of this burden, the ECB introduced a tiered deposit rate system in October 2019. This system is still in its infancy and its full consequences on the European front-end rates market are arguably not yet known. We also cannot rule out the possibility of changes to its parameters.

Our **third chapter** analyses the **euro repo market**. The secured market is the largest money market for euro area banks by daily turnover. Regulatory changes and the ECB's quantitative easing programme have contributed to volatility over the year-end turn. The ECB has restarted its asset purchase programme on an open-ended basis in 2019, but we believe the associated collateral shortage risks could be limited, so long as peripheral and credit spreads remain contained.

05 March 2020

Rates Research
Europe

Table of Contents

[Benchmark rates reform](#)
[The two-tier system](#)
[The euro repo market](#)

European Rates Research
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Benchmark rates reform

The most widely used European benchmark rates are undergoing reforms. EONIA is expected to cease to exist in January 2022. Euro contracts have begun to reference the new euro risk free rate, €STR.

The key rates

European benchmark rates reform is mostly driven by the EU Benchmarks Regulation (BMR), which came into force on 1 January 2018. BMR aims to ensure the accuracy, robustness and integrity of benchmarks and of the benchmark determination process. Rates that are not BMR compliant cannot be used in new contracts after 31 December 2019. That deadline was extended to 31 December 2021 for critical benchmarks.

Three important benchmark rates in the euro area are (Table 1):

Table 1: Summary of benchmark rates in euro area

	€STR	EONIA	EURIBOR
Maturity	Overnight		1w, 1M, 3M, 6M, 12M
Number of contributing banks	50		18
Secured	No		No
Market	Wholesale		Wholesale
Calculation method	Trimmed mean	€STR + 8.5bps	Hybrid methodology
Daily average volume (EURbn)	31		119*
Discontinuation date	N/A	3-Jan-2022	N/A

Source: ECB, EMMI. *Daily average turnover of unsecured wholesale borrowing reported by the 50 banks participating in the ECB's MMSR in the eight maintenance period of 2019.

Euro short-term rate (€STR)

€STR is the euro risk free rate. It is defined as the wholesale euro unsecured overnight borrowing rate of euro area banks and has been published by the ECB daily since 2 October 2019.

€STR is calculated using actual transaction of the 50 Money Market Statistical Reporting Dataset (MMSR) banks, 76% of which are in Germany, France, Spain, or Italy (Chart 1). The rate is a volume weighted trimmed mean rounded to the third decimal from:

- Ordering transactions from the lowest rate to the highest rate
- Aggregating the transactions occurring at each rate level
- Removing the top and bottom 25% in volume terms
- Calculating the mean of the remaining 50% of the volume-weighted distribution of rates

Data contingency arrangements

If the number of reporting banks is less than 20 or five banks account for 75% or more of total transaction volumes, a contingency computation methodology will be activated. €STR would be calculated by combining the rate from the previous TARGET2 business day with the rate that would result from applying the standard methodology to the available trades on the day in question. The rate from the previous TARGET2 business day will be adjusted if there are any changes in the ECB's key interest rates effective on the same TARGET2 business day for which the €STR is being calculated.

The euro repo market

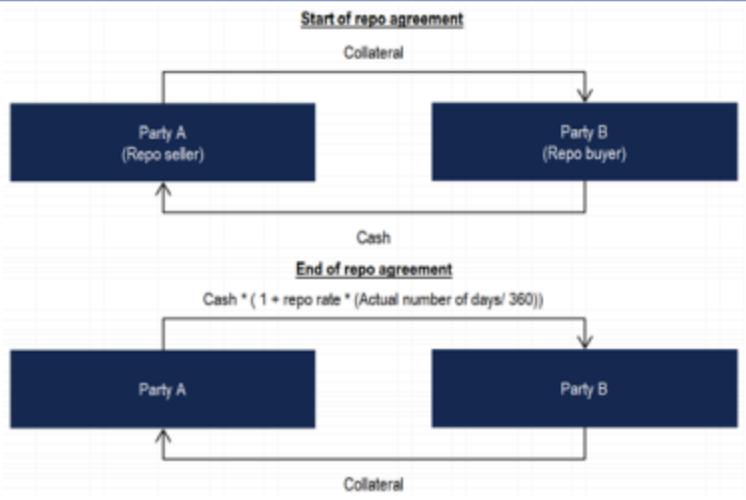
The secured market is the largest money market for euro area banks by daily turnover. Regulatory changes and the ECB's quantitative easing programme have contributed to volatility over the year-end turn. The ECB has restarted its asset purchase programme on an open-ended basis in 2019, but we believe the associated collateral shortage risks could be limited, so long as peripheral and credit spreads remain contained.

Basic repo mechanics

The repo market allows its participants to trade cash against securities. In a repo agreement, party A – the repo seller – sells securities to party B – the repo buyer – for cash at a given price, with the obligation to repurchase the securities at a pre-specified price at a pre-specified later date (Exhibit 4). In the euro area, the legal ownership of the securities is also transferred between the parties during the transactions. Party B has taken the security as collateral to lend cash to party A. When demand for collateral is high, the repo rate falls; whereas when demand for cash is high, the repo rate rises.

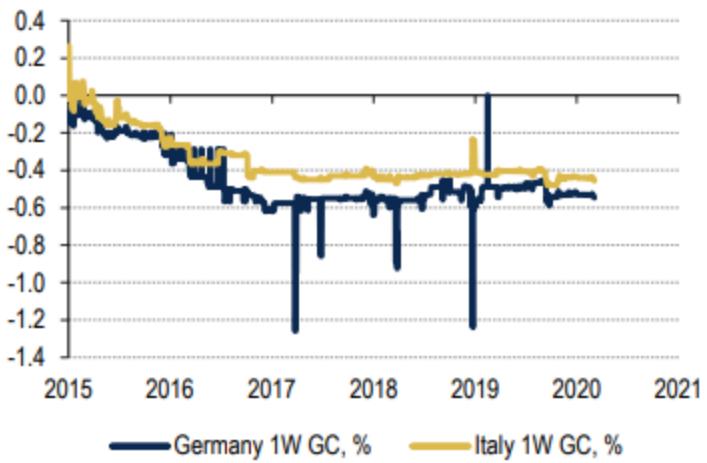
A reverse repo is the opposite of a repo, where party A would be buying securities with cash from party B, with the obligation to sell the securities back to party B at a pre-specified price at a pre-specified later date.

Exhibit 4: Basic illustration of repo transaction



Source: BofA Global Research. *Actual /365 may be used instead of Actual/360 depending on the day count convention in the corresponding money market

Chart 10: GC in core countries tend to trade below those in the periphery



Source: BofA Global Research, Bloomberg

Cash-driven repos: General collateral (GC)

GC repos allow a participant to acquire short-term funding by using securities as collateral. In GC repos, the collateral is part of a basket of securities that can be substituted for one another at little or no cost. GCs tend to include government bonds and Treasury bills. The substitutability of securities in a GC repo means the GC repo rate is driven by cash demand rather than demand for a specific security, and the choice of security is the seller of the repo subject to the buyer's consent. In the euro area, each country has their own GC basket as sovereign bonds between countries are not necessarily interchangeable. GC repo rates in core countries tend to trade below that GC repo rates in peripheral countries (Chart 10).

Under the current framework, up to 33% of a bond⁶ can be purchased in the PSPP. Provided the limit on bond purchases are unchanged, net APP purchases may be more directed to private bonds than before. In turn, this suggests risks from the open-ended APP alone on the euro repo market could be limited.

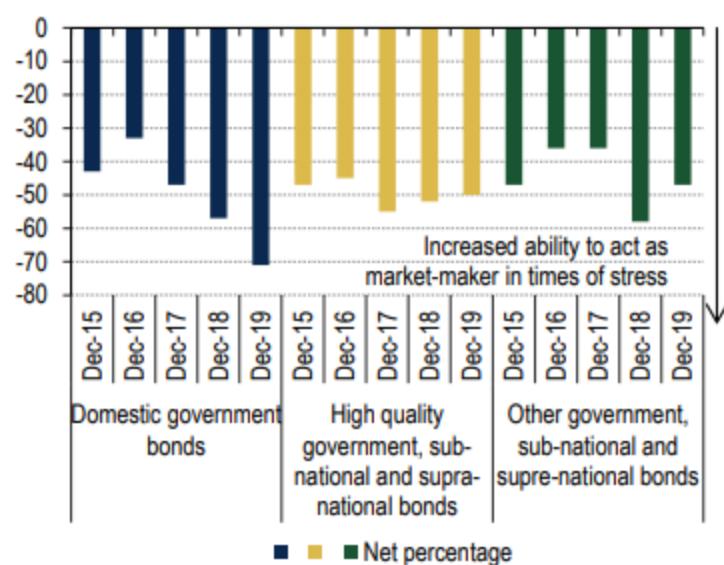
An increasing number of banks⁷ also said they are able to act as market-makers at times of stress and limit the associated volatility in the repo market in recent years, especially in the domestic government bond market (Chart 18). In 2019, reasons cited for the improvement of the market-making ability in domestic government bonds included:

- Increased willingness of banks to take on risk
- Availability of balance sheet or capital
- Competition from other banks
- Internal risk management
- Growing importance of electronic trading platforms
- Profitability of market-making activities

The general improvement in market-making ability in times of stress has been reflected in reduced bond borrowing by banks via the PSPP lending facility. Since 2018, borrowings have declined and averaged €36bn in December 2019. This signals a reduction in collateral shortage, especially over the year-end turn.

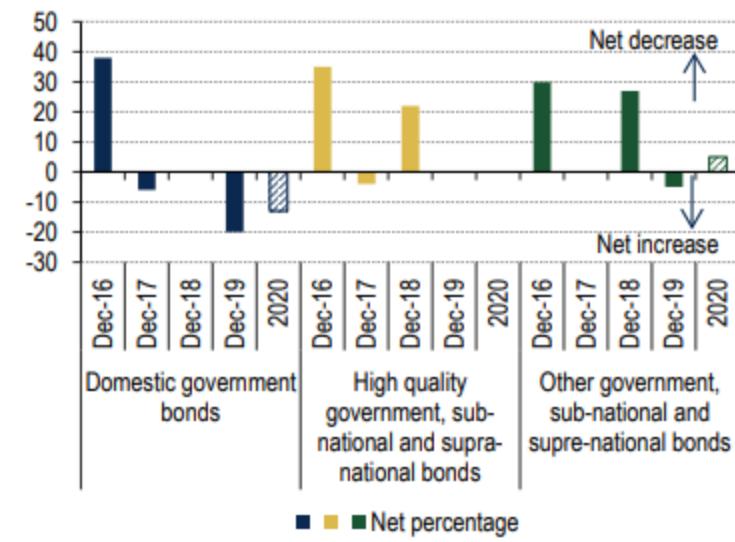
For 2020, market-making activities in the domestic government bond market are expected by banks to increase for the second consecutive year (Chart 19). But the same cannot be said for high quality government, and other government bond markets.

Chart 18: Ability to act as market-maker in times of stress



Source: ECB. The net percentage is defined as the difference between the percentage of respondents reporting "very limited" or "limited" and those reporting "moderate" and "good".

Chart 19: Expected and changes in market-making activities



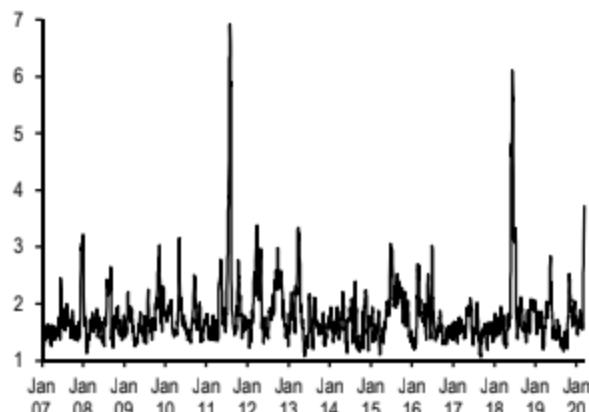
Source: ECB. The net percentage is defined as the difference between the percentage of respondents reporting "decreased considerably" or "decreased somewhat" and those reporting "increased somewhat" and "increase significantly". Shaded bars indicate expectations for 2020.

BUND & SCHATZ BLOWOUTS

Interestingly, averaging across the instrument in the table above and adjusting for the cross sectional standard deviation we find that the correlation z-score across instrument has only been higher around the time of the peripheral crisis in 2011 and in the summer of 2018 (**Exhibit 2**).

Exhibit 2: We have seen it before: in line with other episode of massive risk aversion the correlation z-score is close to the highest of the past 15Y

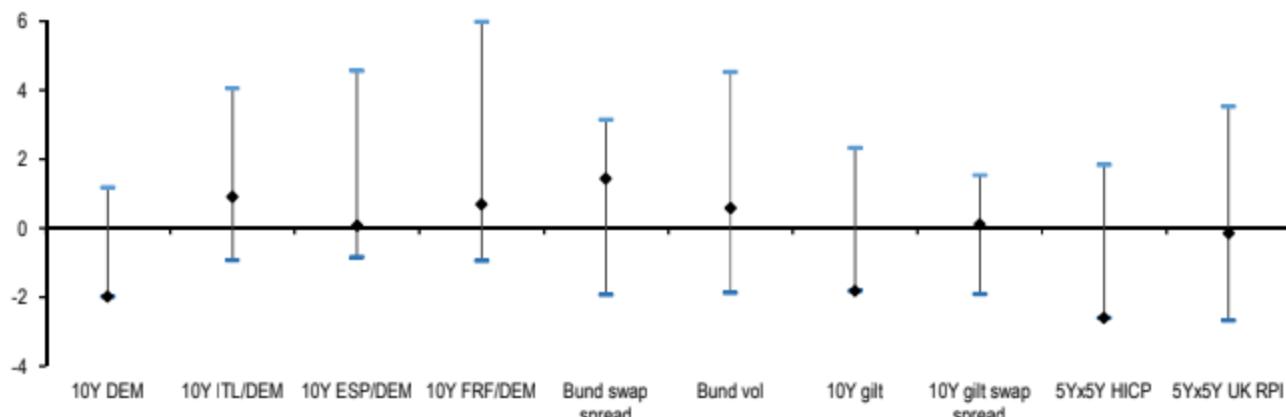
Evolution of correlation z-score (average cross market correlation/SD of cross market correlation): (Computed using 5D changes); since 1 Jan 2007; unless



With German and UK yields at their historical lows, wide intra-EMU and swap spreads within the QE period and low inflation breakeven create attractive dislocations (**Exhibit 3**). **In this note we look at dislocations in EUR and GBP rates and highlight what are the trades that investors should consider for a potential retracement once an improvement will start to be priced in.** We expect a strong response from the monetary and eventual fiscal side, but we acknowledge that, with significantly impaired liquidity the opportunities can be quite limited.

Exhibit 3: Historical low levels of yields, wide level of swap spreads and intra-EMU spreads and low inflation breakeven create attractive dislocations: fade only selectively

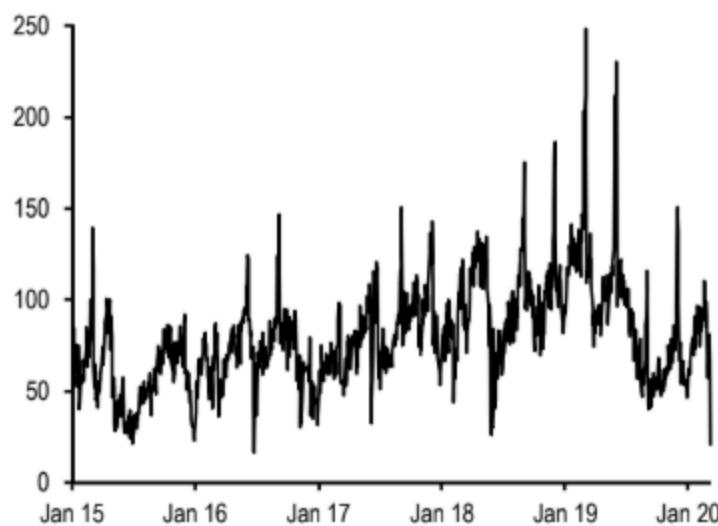
Range and current levels (each variable normalized using in-sample mean and SD) across EUR and GBP markets since January 2007;



Liquidity has anecdotally dried up in the last few trading sessions and that is also reflected in our typical measure, the market depth on the Bund futures, which is now at historically low levels (**Exhibit 4**).

Exhibit 4: Market depth in Bund is now running close to post QE lows

Daily market depth; since 1 Jan 2015; €mn equivalent



* Market depth is defined as average of top 5 bids and offers averaged from 8:00 to 3:00 CET.

In the analysis of dislocation across markets, **we have a stronger conviction in fading extreme valuations at the front end of the curve** (both EUR and GBP), as we believe the level of short-term policy rates is approaching an implicit empirical floor in the Euro area, and in the BoE assessment on floor in Bank rate being at 10bp.

In **EUR** we discuss the level of short term EONIA rate and slope of the money market curve (or 2s/5s in Germany) and highlight how steepeners are likely to offer a positive convex profile. We find current valuation in intra-EMU spreads attractive; however, we are cautious in fading the recent move with an outright long in Italy, for example, as we see risk from a contagion from the credit market, which could trigger some technical driven adjustment of positions.

In **German swap spreads** we find current valuations too wide, but going forward we see more value in holding conditional exposure (both ways), and fade the richness in swap spreads by owning either Schatz or Bund put spreads, which are expected to offer a convex protections for a rebound in risk sentiment (narrower swap spreads and intra EMU spreads). 2Yx1Y HICP swaps look cheap fundamentally, but we are wary of positioning given the increased sensitivity to oil and uncertain short-term macro outlook.

In the **UK**, we identify stretched valuations along two dimensions: 1) relative to a hard Bank Rate floor of 10bp, where we see attractive risk reward in paying 2Yx1Y SONIA, and 2) historical dislocations without a firm valuation floor – in this case we hold 10Y SONIA swap spread narrowers.

to yields. For instance, the reds/blues EONIA curve has steepened around 6bp this week as blues EONIA have overall sold off 5bp.

Exhibit 5: The EONIA market is currently pricing around 7bp of further easing by the ECB later this week with a total of 24bp of easing priced by Dec20

Current EONIA market versus our forecast of where this curve could temporarily go if the Fed cuts to 0%; %

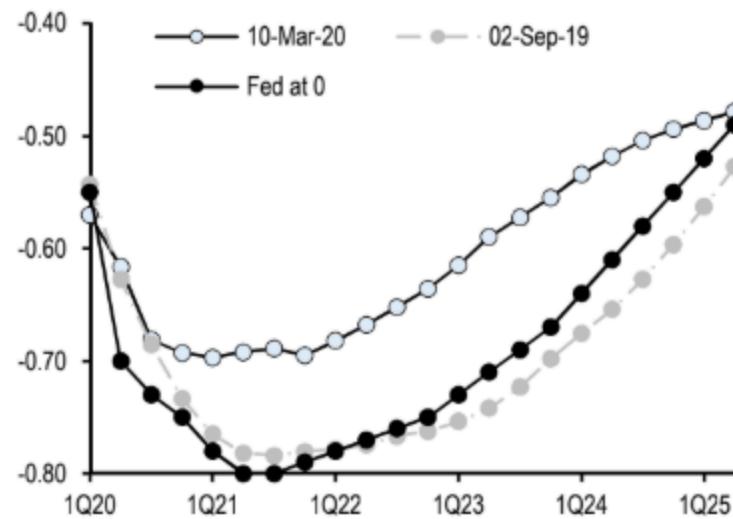


Exhibit 6: Historically, retracements in the EONIA curve has been swift post central bank actions. We favour paying the money market sector (beyond 3Q20) but hold reds/blues steppener as a positive convex play on yields

3M/1Yx3M EONIA curve; since 1 Jan 2015; bp



Interest Rates Research | Instant Insights

12 March 2020

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Japan Rates Strategy

BoJ outlook and JPY rates market implications

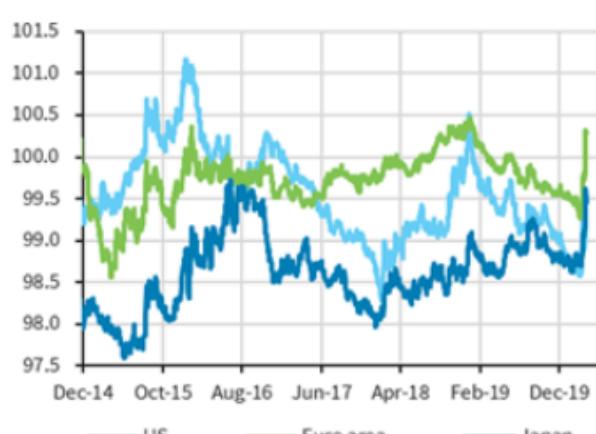
With the market environment remaining highly volatile, next week will see attention shift to monetary policy meetings in the US and Japan. We look for the BoJ to enhance its funds supply to financial institutions in step with the government's decision to support SME funding. NIRP deepening, which would contradict such a focus, is unlikely at this stage, in our view.

The 7y sector has richened on the JGB curve with yields falling in anticipation of NIRP deepening by the BoJ. We look for this richness to correct with short/medium-term yields turning up on a pullback in such policy expectations. We continue to recommend 5s7s10s butterfly shorts and the 7s10s flattener we initiated this week as relative value trades anticipating a correction of the current JGB curve distortion.

Volatility increases across asset markets, moves to reduce risk exposure strengthen

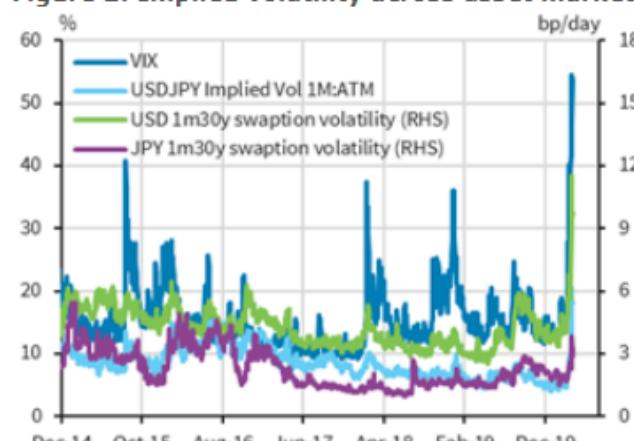
Risk-off moves have strengthened across the world's financial markets, with equities extending their decline and credit spreads widening. Now bonds have also turned down, suggesting the flight to quality is no longer universal. With the spike in volatility across asset markets, the risk exposure in securities portfolios as a whole has likely jumped too and the move to reduce such exposures may now be hitting bond markets as well (Figures 1 and 2). For Japanese investors, the approaching end of the accounting period may have added fuel to this move.

Figure 1: Financial conditions index (FCI)



Source: Bloomberg, Barclays Research

Figure 2: Implied volatility across asset markets



Source: Bloomberg, Barclays Research

Under such highly volatile conditions, next week will see the markets shift their attention to monetary policy meetings in the US and Japan. Although policy responses could vary depending in market conditions, making it difficult to rule out any of the available options, we expect the BoJ to stick to its current YCC framework (short-term rates at -0.1%, 10y JGB yields around 0%), instead limiting its easing actions to measures such as an enhancement of funds supply to financial institutions. The government has compiled a second round of emergency measures to combat the COVID-19 outbreak, incorporating a new effectively interest-free/collateral-free financing scheme to support the funding of SMEs (financing measures on the order of JPY1.6trn), and the BoJ's enhancement of funds supply to financial institutions would complement this measure.

Specific methods of funds supply

At this point, it is unclear whether any scheme to supply funds to financial institutions would involve an enhancement of an existing scheme or the establishment of a new scheme, but the options in the former case could include an extension in the lending period under the loan support program (LSP) and/or the "funds-supplying operation to support financial institutions in disaster areas." We believe these could be extended to 10 years given the precedent of the BoJ extending the lending period for pooled collateral operations under the fixed-rate method from one year to 10 years when it introduced YCC in September 2016. Another option would be to lower the lending rate from the current 0%, but we believe that would be unlikely since it could lead to an overall decline in lending rates and exacerbate the side effect on the profitability of banks.

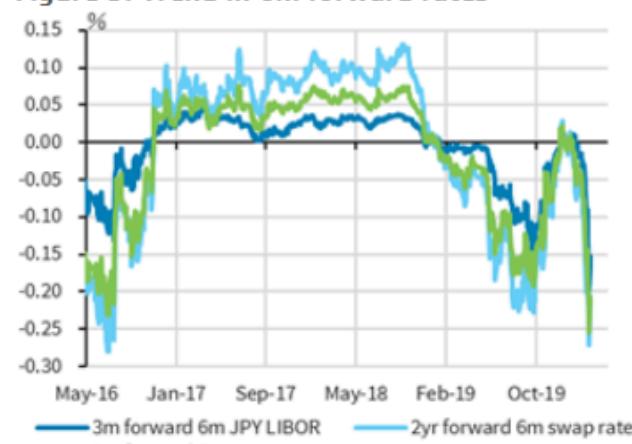
NIRP deepening could contradict measures to enhance funds supply

With the government and BoJ focused on enhancing funds supply to SMEs, we believe the hurdle to NIRP deepening remains extremely high. Indeed, NIRP deepening could suppress lending by exacerbating the side effect on the profitability of banks and thus contradict the adoption of a policy to encourage financial institutions to increase their lending.

Assuming a high hurdle to NIRP deepening, the risk-reward of outright long positions in short/medium-term bonds at current levels is low

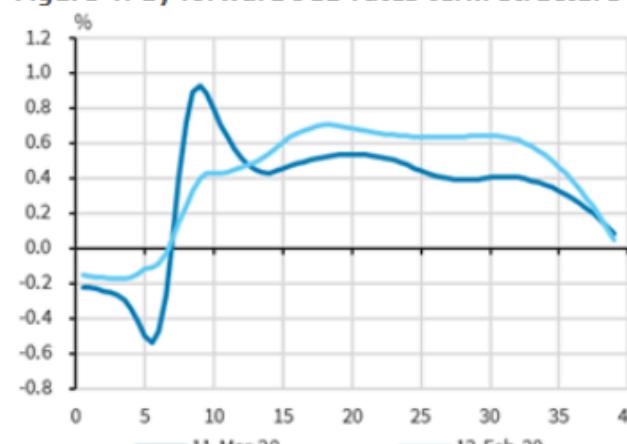
In the JPY rates market, this week has seen the decline in Libor take a breather with short/medium-term yields showing an upward bias, indicating a pullback in expectations for NIRP deepening by the BoJ. Even so, NIRP deepening continues to be priced into the market (Figure 3). Considering long-term funds supply and the high hurdle to NIRP deepening together, we believe short/medium-term yields could come under increased upward pressure on a further pullback in NIRP deepening expectations after next week's MPM. As implied by forward rates, we believe pricing in the 7y sector, which has seen the steepest decline in yields, is likely to see a further correction (Figure 4).

Figure 3: Trend in 6m forward rates



Source: Barclays Research

Figure 4: 1y forward JGB rates term structure



Source: Barclays Research

We like relative value trades that anticipate a correction in the current JGB curve distortion

The market appears likely to continue showing low liquidity and volatile price action in the near term, but we still believe the extremely concave shape of the curve out to the 7y sector is unsustainable. Although this distortion has already started to reverse, we still see scope for a substantial correction in 7s10s spreads and 5s7s10s butterfly spreads. We continue to recommend 5s7s10s butterfly shorts and the JGB 7s10s flattener we initiated this week (see [Expect curve distortion to correct, build JGB 7s10s flattener](#), 11 March 2020).

Outlook for low interest rate policy strengthens, we expect the pursuit of yields to move out to superlong JGBs

Low interest rate policies appear likely to stay for longer with our US economists and strategists now expecting the Fed to revisit the zero lower bound and possibly even introduce a yield curve control (YCC) policy and fixed-rate buying operations a la the BoJ. Assuming such a market environment, we believe the JGB curve as a whole will be prone to flatten amid the ongoing pursuit of positive yields over the coming several months. For participants investing in bonds from a medium/long-term perspective, we continue to believe upturns in superlong yields should be viewed as an opportunity to buy.

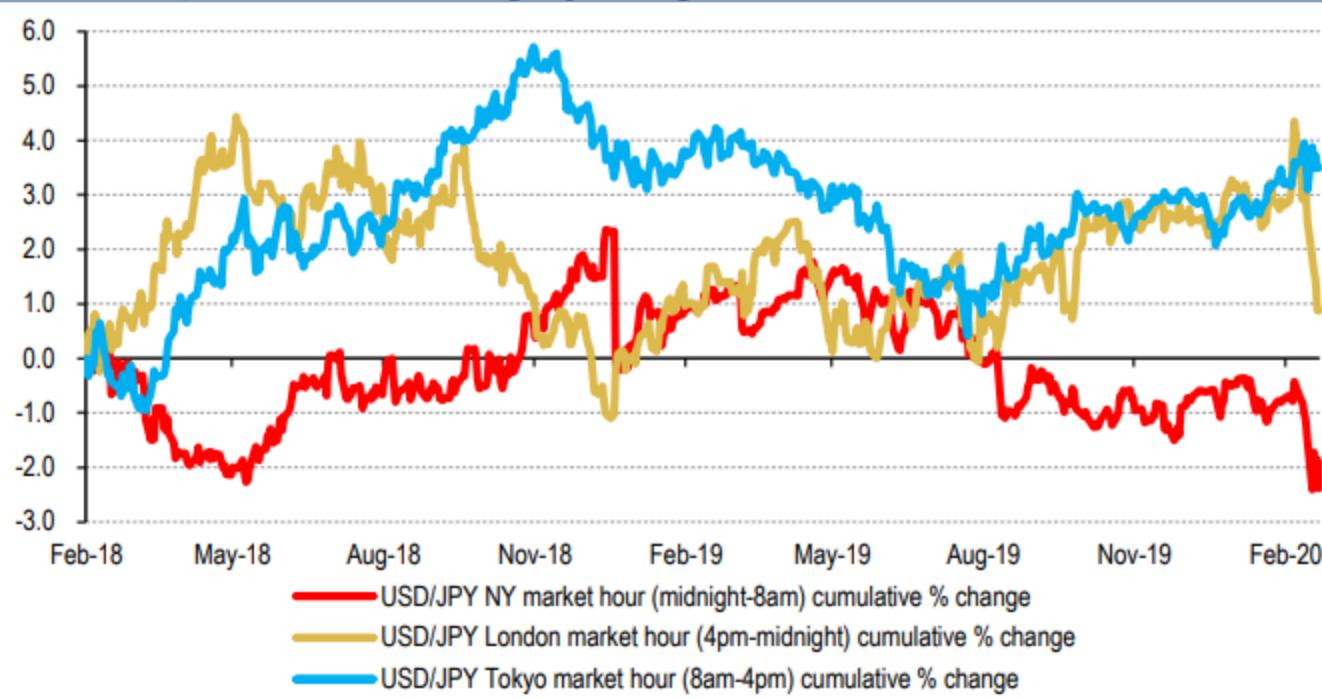
Domestic flow is key for USD/JPY

The current conditions are turning positive for the Japanese yen where COVID-19 outbreak is resulting in global central bank easing. The question is how much further JPY strength we should expect from here. There are two key determinants near-term: EUR meeting next week and flow. A dovish ECB would likely encourage the market to test the BoJ, which could spur broader JPY strength. Domestic flow is another key determinant for JPY, which matters especially for USD/JPY (Chart 1).

We think (1) completion of rebalancing activity of public pension funds, (2) lower USD carry and higher vol environment, and (3) slower outward M&A and lower oil prices mean domestic flow will be more supportive for JPY in the new fiscal year, more than offsetting weakness in exports. The risk of USD/JPY moving to 100-105 range in 1H20 rather than 2H20 we had initially expected has increased. The government would try to defend 100 while a break of 100 could trigger more hedging by investors in the private sector. We keep our year-end forecast for USD/JPY at 103 but note downside risk near-term.

The biggest risk against this view is that global fiscal easing lifts risk sentiment and FX carry for Japanese investors.

Chart 14: USD/JPY cumulative % change by trading hour

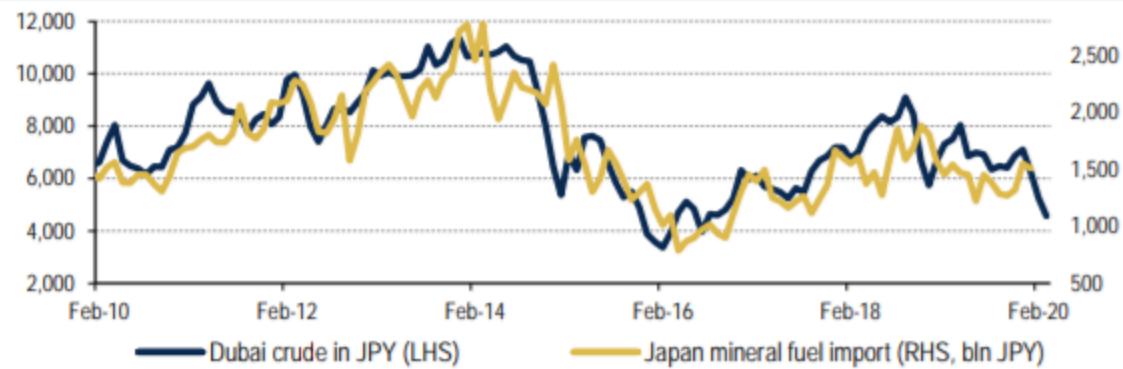


Source: BofA Global Research, Bloomberg

Japan BoP: COVID-19 likely a positive BoP shock for JPY

09 March 2020 Corrected

Chart 1: Lower oil price likely to reduce Japan's fuel imports



Source: BofA Global Research, Bloomberg, Haver

G10 FX Strategy
Global

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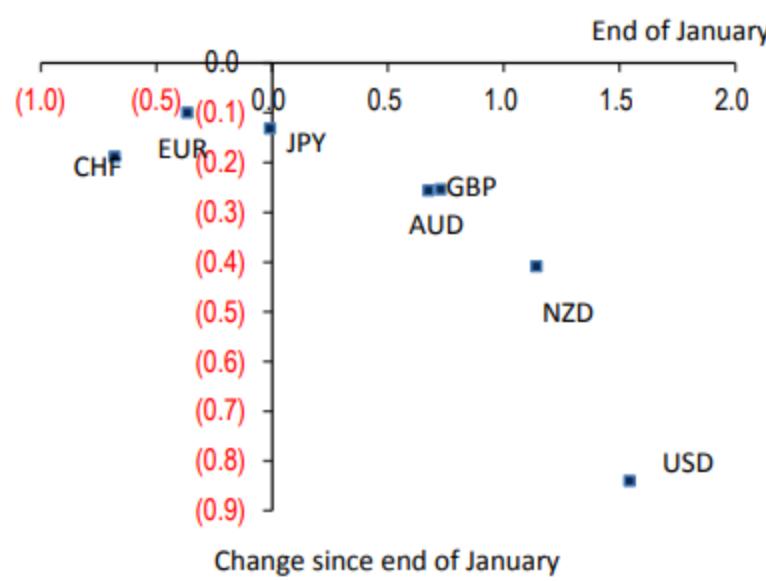
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A positive BoP shock for JPY

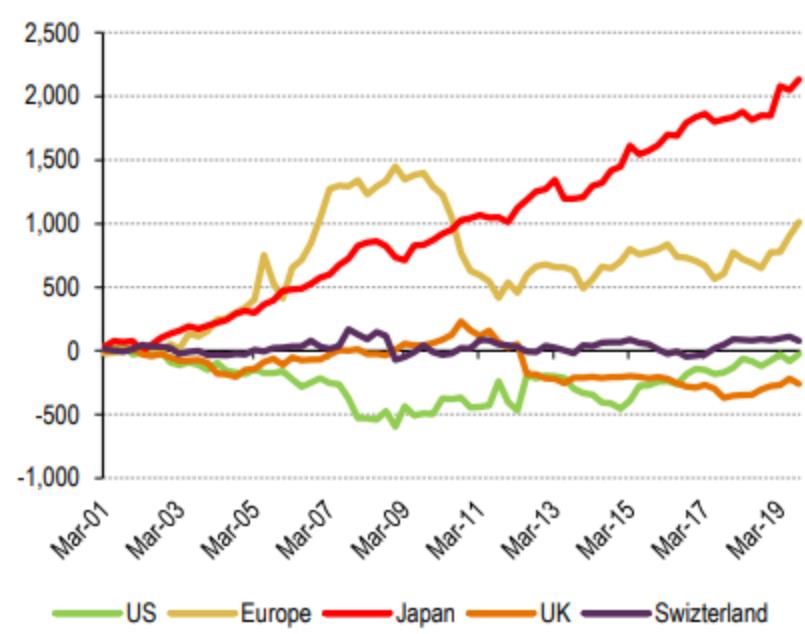
On 9 March, Japan's Ministry of Finance (MoF) released the January international balance of payments (BoP) and a preliminary portfolio investment report for February. In January, Japan's current account surplus was steady at ¥16.3tn after seasonal adjustments, and FDI deficit was ¥2.0tn, both around the 12-month average. Currently, the focus is on how COVID-19 outbreak will impact Japan's balance of payments, which will determine whether USD/JPY's uptrend during Tokyo trading hours will sustain or reverse (Chart 2). The impact could start to emerge partly in February (Chart 3), and more significantly in March. Below are key BoP components that could be impacted significantly.

- **Oil imports:** Crude oil price has fallen significantly due to both demand and supply factors. Our commodity strategy team cut the Brent crude oil price forecasts for 2020 from US\$54 to US\$45/barrel. The current spot level implies ¥5.5tn less mineral fuel imports for Japan compared with the past 12 months (Chart 1).
- **Outward FDI:** Japan's outward FDI has been active over the past three months (net ¥5.3tn deficit) but the slowdown in outward M&A announcements from December suggests a slowdown in outward FDI in the coming months. Historically, higher economic uncertainty discourages Japanese corporates from investing abroad. A 25% reduction in FDI deficit would contribute to a ¥4.4tn improvement in the BoP.
- **Exports:** Japan exported ¥76.1tn goods and ¥22.3tn services (of which ¥5.0tn travel) over the past 12 months. If we assume 15% decline in both, that would cut ¥12.2tn annual surplus, part of which would be offset by a reduction in related imports.

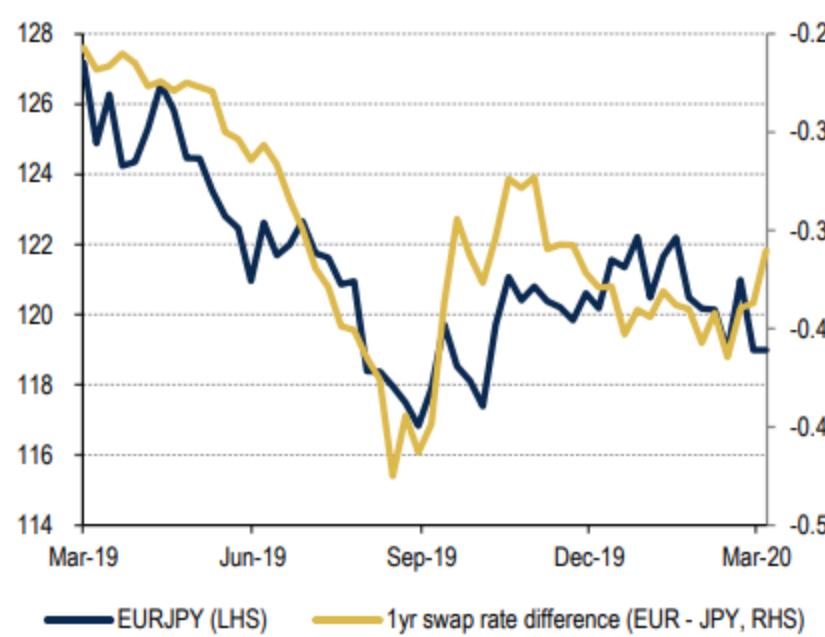
Thus, it remains uncertain whether COVID-19 will boost or cut the combined current + FDI accounts, but [expected tightening in JPY's demand/supply balance](#) in the portfolio flow will

Chart 2: 1yr swap rate level in January and change since January (%)

Source: BofA Global Research, Bloomberg

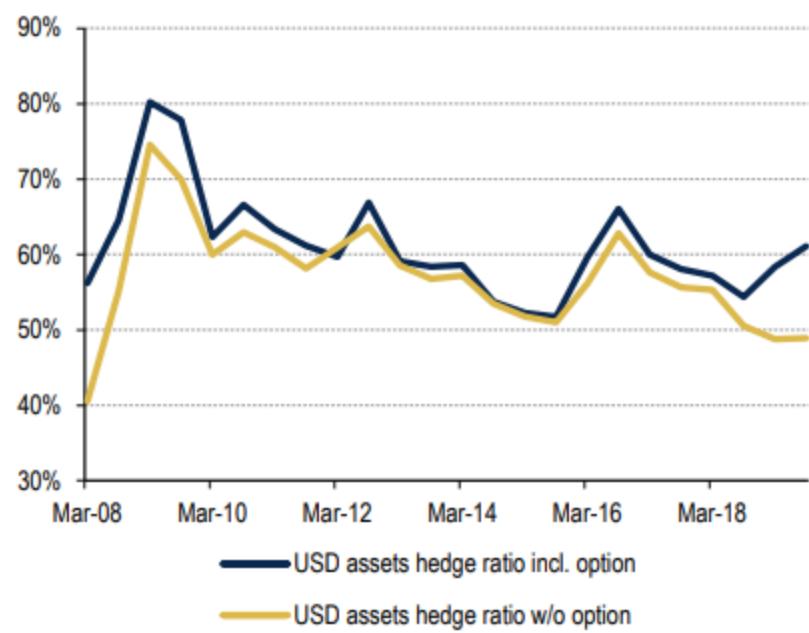
Chart 3: BIS cross border net lending cumulative flow by bank nationality (bn USD)

Source: BofA Global Research, Bank for International Settlements

Chart 4: EUR/JPY vs 1yr swap rate difference (EUR – JPY)

Source: BofA Global Research, Bloomberg

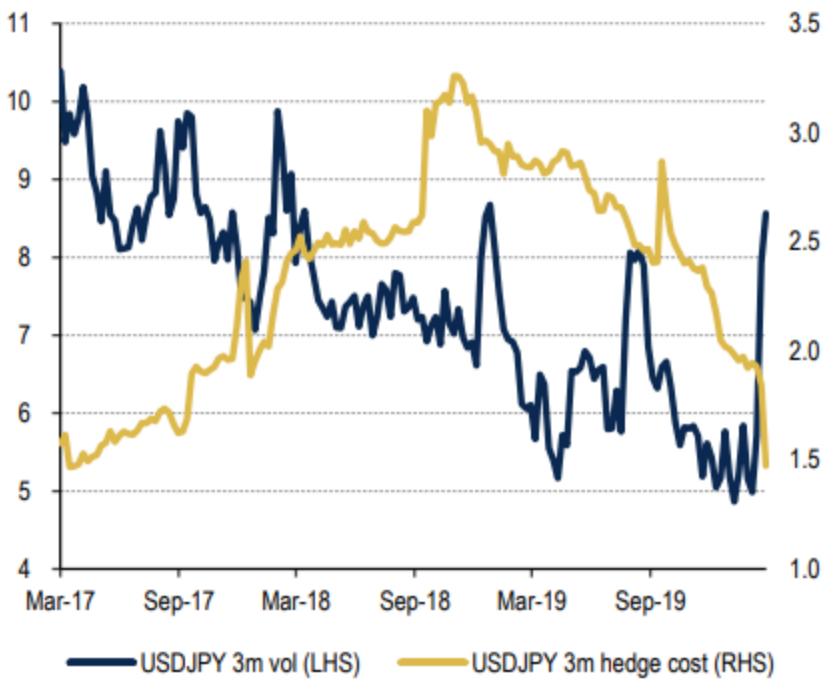
Chart 5: Aggregate hedge ratio (% of currency-hedged foreign asset issued in USD) of major Japanese life insurance companies with or without FX option



Source: BofA Global Research, 9 life insurance companies (Asahi, Daido, Daiju, Daiichi, Fukoku, Meiji Yasuda, Nissay, Sumitomo, Taiyo)

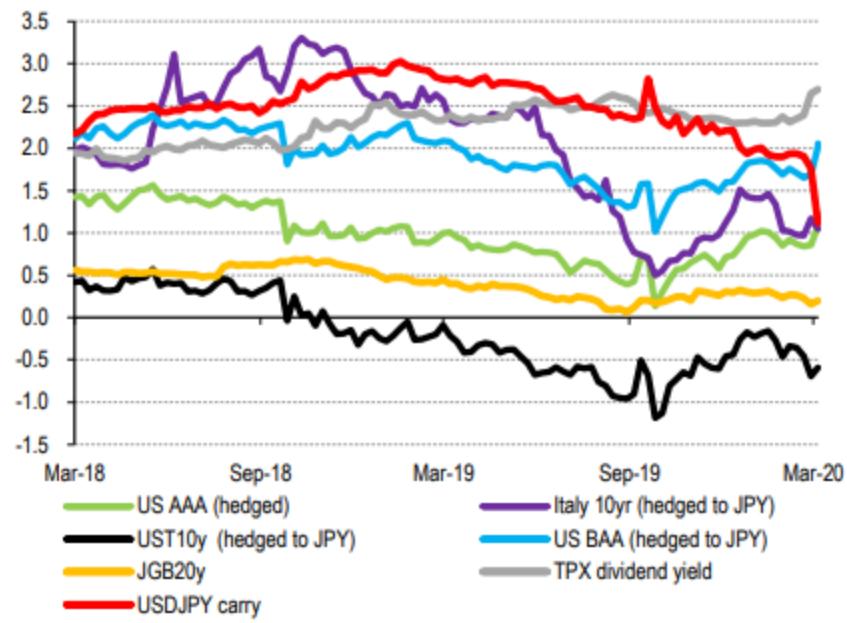
Hedge ratio without option includes FX forward and swap

Chart 6: USDJPY vol and USD/JPY hedge cost



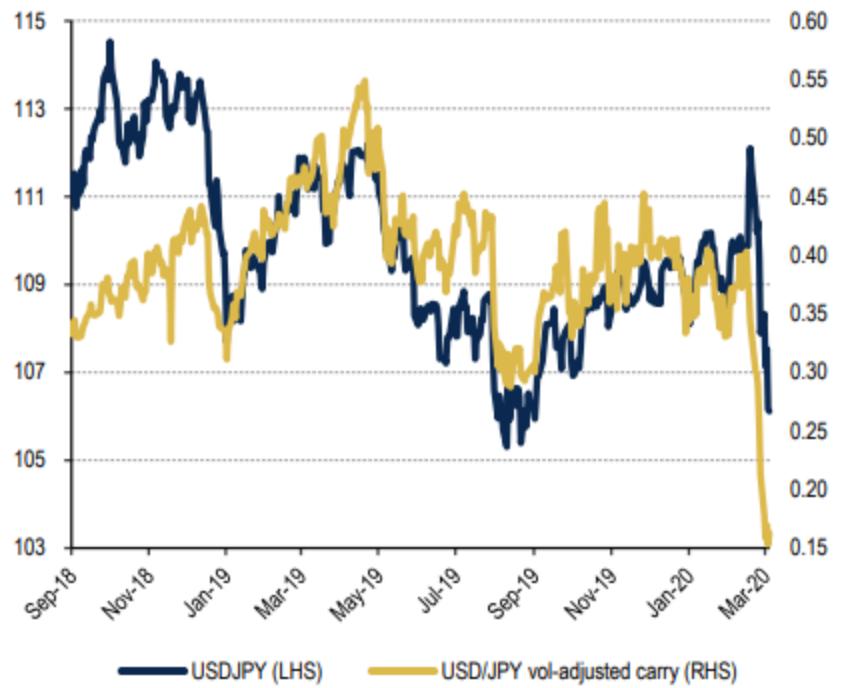
Source: BofA Global Research, Bloomberg

Chart 7: Yield level for JPY-based investors (%)



Source: BofA Global Research, Bloomberg

Chart 8: USD/JPY vs vol adjusted carry (3m spread / 3m implied vol)



Source: BofA Global Research, Bloomberg



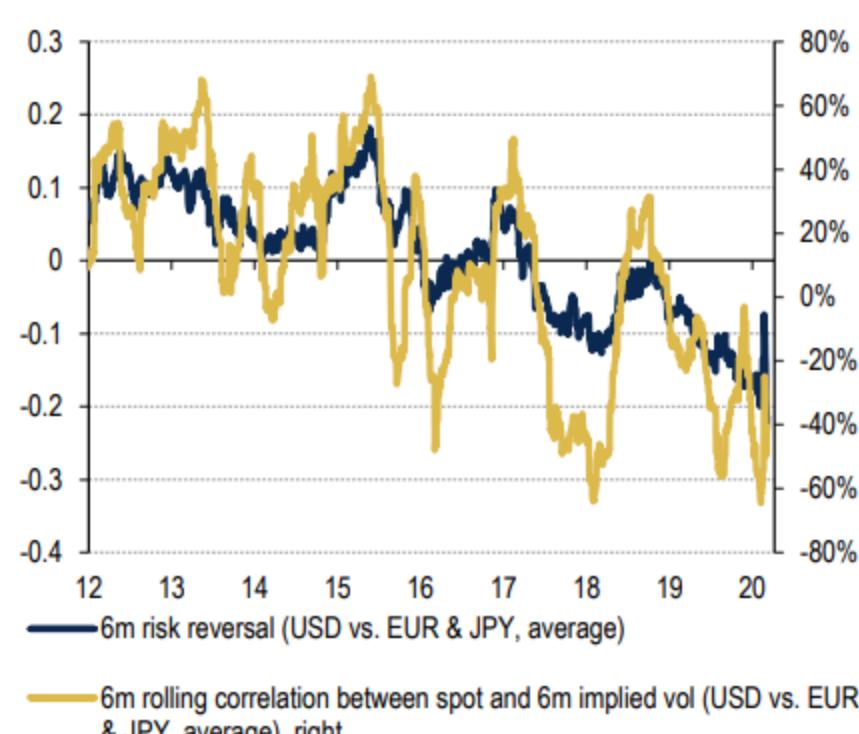
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concern around the global spread of COVID-19. Volatility-adjusted carry has consequently collapsed to its lowest level since 2017. The dollar DXY index has weakened sharply but if anything the question should be why it hasn't depreciated more. The last time this measure collapsed from similar levels was May 2007 – Feb 2008, alongside the Fed cutting rates just before the financial crisis; the DXY index weakened over 10% during this period.

The direction of FX volatility is crucial for USD

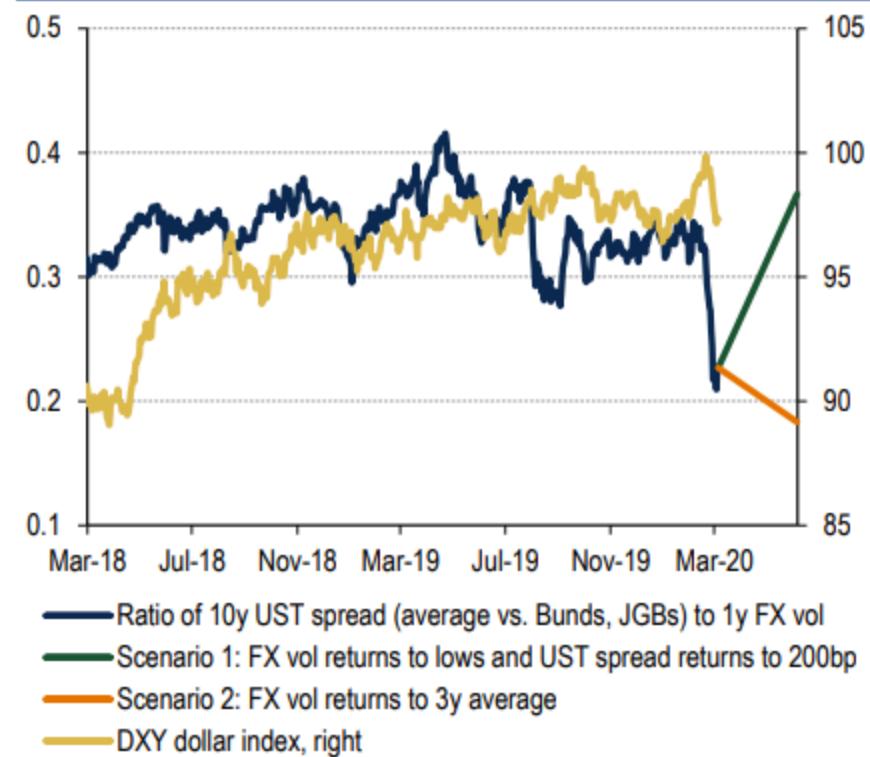
We also note that the relationship of USD with volatility is evident in both realized correlation as well as the skew level. Chart 3 shows the risk-reversal and spot-volatility correlations for the USD have both been negative since 2017 and especially widening out in 2019 to levels not seen since 2008. This implies the USD has been typically more volatile during sell-offs than rallies (vs. EUR & JPY), as would be expected of high-beta carry currencies but in contrast to popular perception of the USD as a "safe haven". Valuation may play a role too – the USD has been persistently overvalued against the majors, which would explain more volatile moves when the gravity of valuation kicked in.

Chart 3: Consistent with negative risk-reversal and spot-vol correlation for USD (vs. EUR & JPY)



Source: BofA Global Research, Bloomberg

Chart 4: Back-end vol-adjusted carry could recover but under unlikely scenarios of UST spreads at pre Fed cut levels and FX vol at lows



Source: BofA Global Research, Bloomberg



Interest Rates Research | Instant Insights

11 March 2020

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Japan Rates Strategy: Trade idea

Expect curve distortion to correct, build JGB 7s10s flatteners

Update: This updates the version published at 11-Mar-20, 04:11 GMT to correct the headers and disclaimers from Japanese to English. Contents of the report are unchanged. Apologies for any confusion.

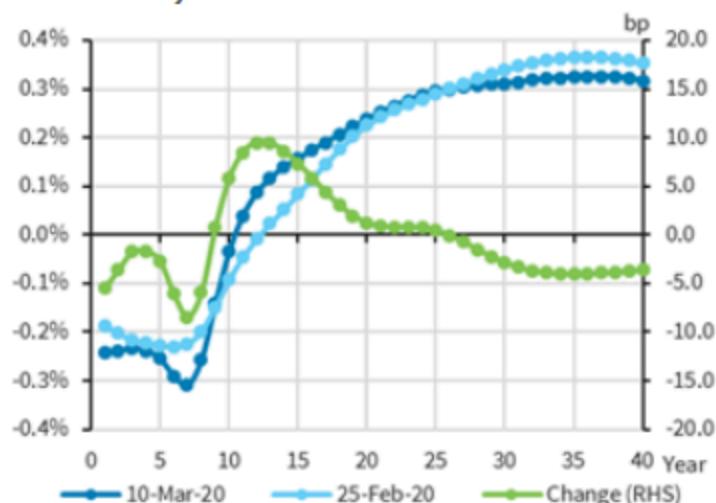
The 7s10s spread has scope to tighten by around 13-15bp in our estimate of the fair yield curve utilizing an interest rate model. Also, with the extreme change in the JGB curve shape over the past several days, the carry when building 7s10s flatteners has improved rapidly and sharply, providing a major support when doing so. Expecting the JGB curve distortion to correct, we continue to recommend 5s7s10s butterfly shorts and initiate JGB 7s10s flatteners as a new trade recommendation.

JGB curve distorts sharply with richening of 7y and cheapening of 10y sector

With the worldwide outbreak of COVID-19 raising the risk of a recession in the global economy, yields have fallen sharply in major bond markets in anticipation of further monetary easing. From last Friday, yield declines/rises have been led by the superlong sector amid the limited scope for further declines in the short/medium-term sector. Contrary to such changes in the shape of the US rates curve, the JPY rates market has seen JGB futures (7y) continue to draw the strongest buying during yield declines and only limited selling (upside in yield) when yields turn up like they did yesterday. As shown in Figure 1, this has led to a further inversion of the JGB curve out to the 7y sector, along with further steepening in the 7-10y sector, resulting in an extreme distortion with the curve turning sharply concave out to the 7y and more convex in the 10-15y sector.

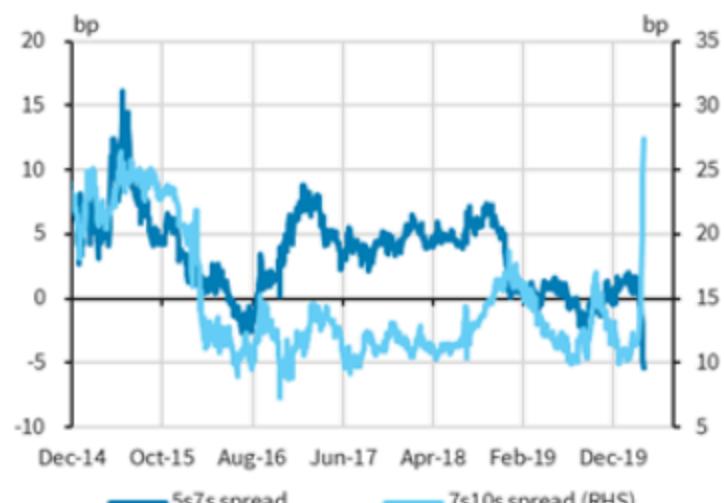
Our constant maturity base data indicates that the 5s7s spread has reached its tightest level ever, while the 7s10s spread has widened abruptly over just several days to levels unseen since September 2014 (Figure 2). Comparing movements on the curve, the 5s7s10s butterfly spread has tightened rapidly to a rarely reached level of below -30bp, while the 7s10s30s spread has widened to a record level exceeding -10bp, with the carry-rolldown term structure of the JGB curve indicating just how distorted the yield curve relationship between 7s and 10s has become (Figures 3 and 4).

Figure 1: JGB curves and changes (25 February – 10 March)



Source: Barclays Research

Figure 2: JGB 5s7s and 7s10s spreads



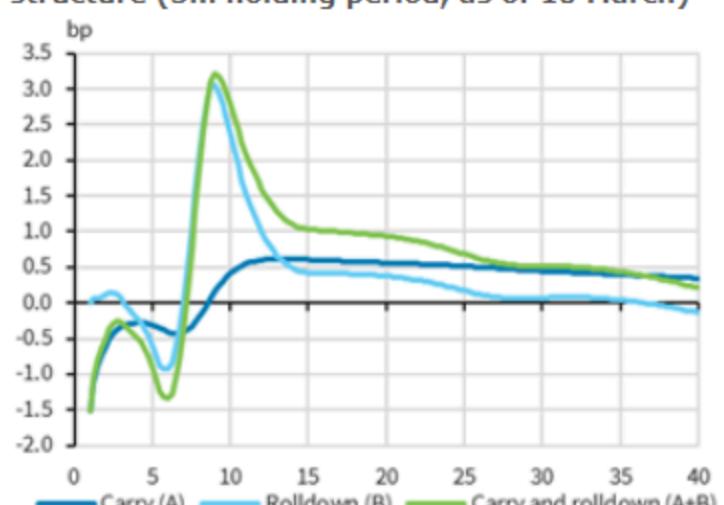
Source: Barclays Research

Figure 3: JGB butterfly spreads



Source: Barclays Research

Figure 4: JGB curve carry-rollback term structure (3m holding period, as of 10 March)

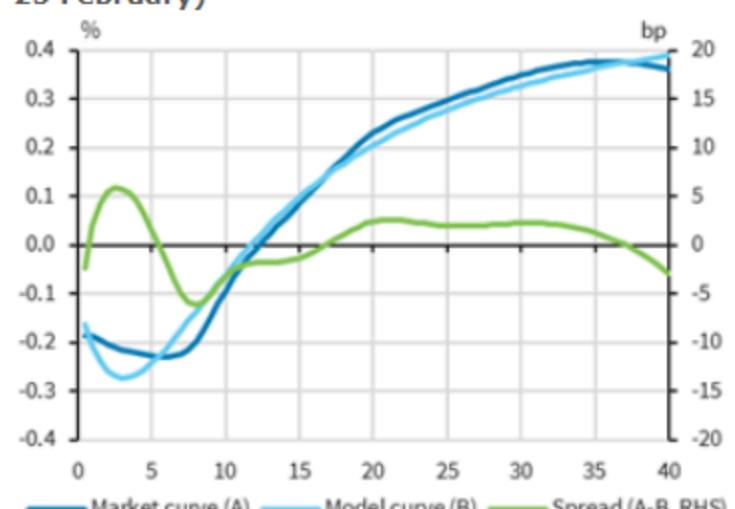


Source: Barclays Research

Fair spread estimate utilizing interest rate model indicates scope for 7s10s spread to tighten around 13-15bp

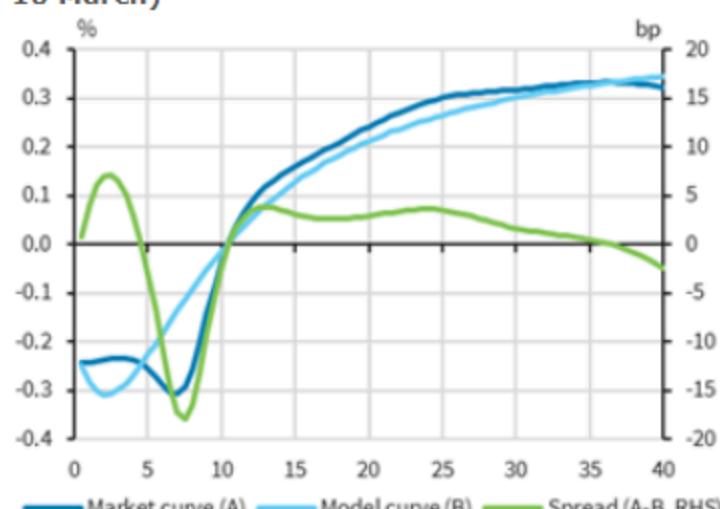
In considering the yield curve, an interest rate model provides one useful measure for analyzing the fair shape. There are various types of interest rate models. Here we use a two-factor CIR model and compare the model's curve shape with the actual curve shape to assess cheapness/richness between sectors. Figure 5 shows the curve shapes two weeks ago (25 February) and Figure 6 shows the shapes on 10 March. Comparing the two, we see that the area out to the 7y sector has become increasingly rich, while the area out to the 10y sector has corrected some of its richness. Assuming market rates converge toward model rates as prices stabilize and start to normalize, this suggests the 7s10s spread has scope to tighten around 15bp. Even under somewhat more conservative estimates with a reversion to the relationship between market and model rates on 25 February, the spread could have room to tighten around 13bp. Based not only on the above qualitative assessment comparing spreads between sectors, but also a quantitative perspective utilizing our interest rate model, we reach the same conclusion that the widened 7s10s spread has scope to tighten substantially.

Figure 5: Market curve and model curve (as of 25 February)



Source: Barclays Research

Figure 6: Market curve and model curve (as of 10 March)



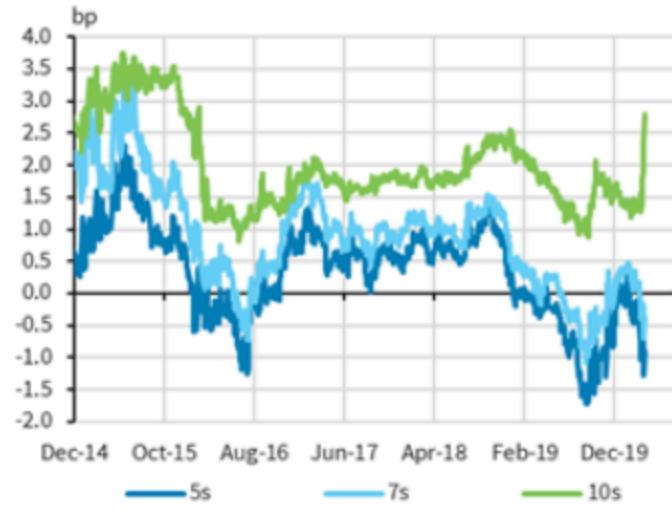
Source: Barclays Research

Sharp improvement in carry when building 7s10s flatteners and 5s7s10s butterfly shorts

With the JGB curve turning deeply concave out to the 7y sector, the carry of the 7s10s flattener has improved rapidly and substantially, reaching 3.2bp for a holding period of 3m based on our calculations (Figures 7 and 8). In other words, even if the 7s10s spread were to widen from current levels, contrary to our expectations, an investor holding a 7s10s flattener would have 3.2bp of carry over a 3m period that could be used to offset any losses due to the price movement. This represents a major support for building such a position. Expecting a correction of the JGB curve distortion in 7s and 10s, we initiate a JGB 7s10s flattener as a new trade recommendation.

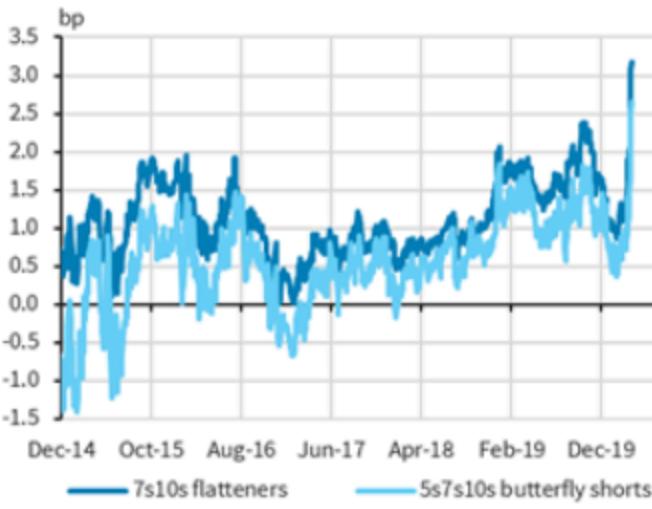
We continue to recommend JGB 5s7s10s butterfly shorts (sell 7s, buy 5s and 10s), as discussed in [Japan Rates Strategy - Our JGB yield forecasts updated: Superlong JGBs looking increasingly attractive](#), 6 March, and believe investors could build or add to these positions, as with 7s10s flatteners, in anticipation of a correction of the JGB curve distortion in 7s and 10s. Although it is difficult under the still-unstable market conditions to dismiss the possibility that JGB futures (7y sector) alone will continue to draw strong buying, we also find it hard to believe that the current yield curve distortion with a deeply concave shape out to the 7y sector is sustainable. For market participants with capacity to take risk or investors investing for the long run, the increase in positive carry to multiyear highs (around 2.7bp for a three-month holding period, in our estimates) provides a major support, as with 7s10s flatteners, when establishing long-term positions targeting a correction of the yield curve distortion.

Figure 7: Trend in carry-rollover (3m holding period)



Source: Barclays Research

Figure 8: Carry when building 7s10s flattener, 5s7s10s butterfly shorts (3m holding period)



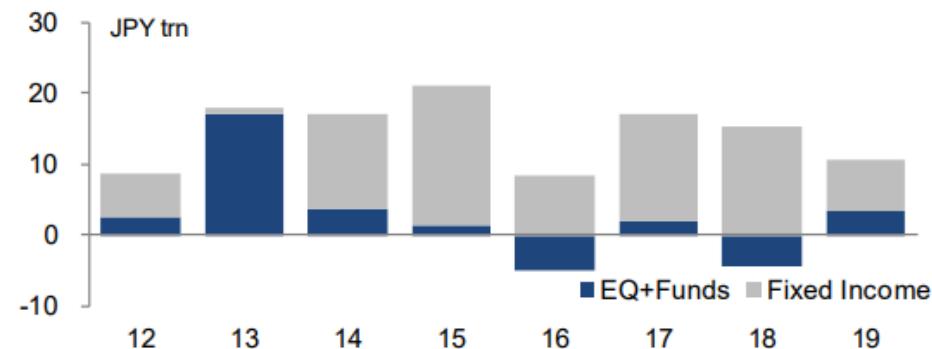
Source: Barclays Research

Inward Investment: Overall Picture

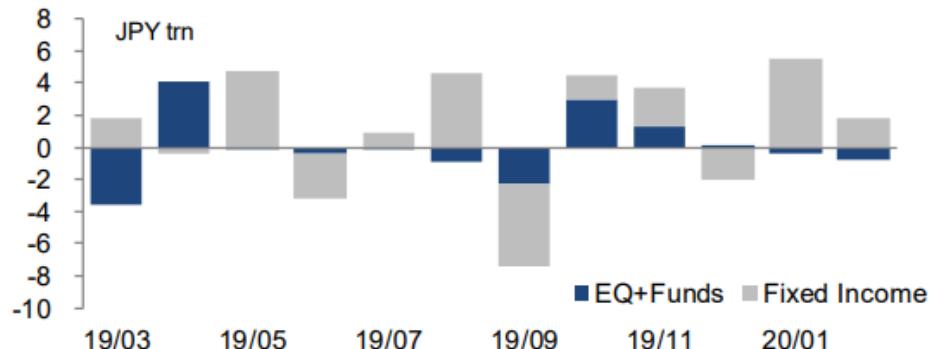
Tn JPY	Annual Data									Monthly Data											
	12	13	14	15	16	17	18	19	19/03	19/04	19/05	19/06	19/07	19/08	19/09	19/10	19/11	19/12	20/01	20/02	
Total	8.6	17.9	17.1	21.0	3.1	17.1	10.7	10.6	-1.8	3.8	4.6	-3.3	0.9	3.7	-7.5	4.5	3.7	-2.0	5.1	1.1	
Equity/Funds	2.4	17.0	3.8	1.3	-5.1	1.8	-4.6	3.2	-3.5	4.2	-0.2	-0.4	0.0	-0.9	-2.2	3.0	1.3	0.0	-0.4	-0.7	
FI Total	6.2	0.9	13.3	19.6	8.2	15.3	15.3	7.3	1.8	-0.4	4.8	-2.8	0.9	4.7	-5.2	1.6	2.4	-2.0	5.5	1.8	
Notes/Bonds	2.7	-1.4	12.3	9.9	8.8	10.9	7.2	12.2	1.5	1.2	1.8	-0.5	4.0	0.6	-0.7	1.0	0.4	-0.7	1.1	3.0	
Money Market	3.5	2.2	1.0	9.7	-0.6	4.4	8.1	-4.9	0.3	-1.5	3.0	-2.3	-3.1	4.0	-4.6	0.6	2.0	-1.3	4.4	-1.1	

(*) Only latest data is MoF, other data are BoJ's Balance of Payment

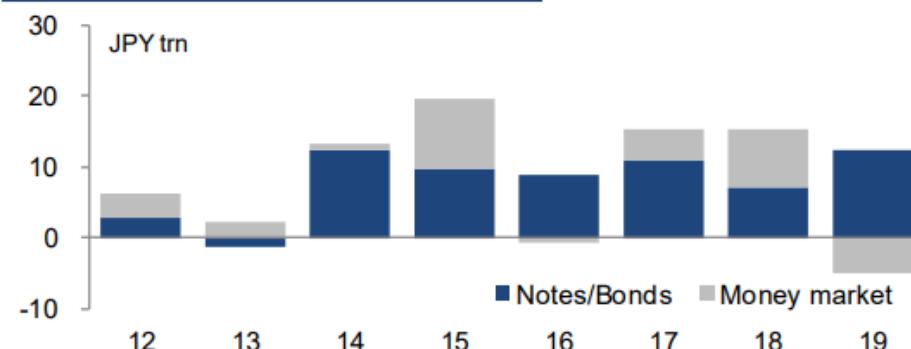
Equity/Funds + Bonds/Notes (Annual)



Equity/Funds + Bonds/Notes (Monthly)



Bonds/Notes and Money Market (Annual)



Foreign Investors' investments in Japanese equities and Japanese bonds (monthly)

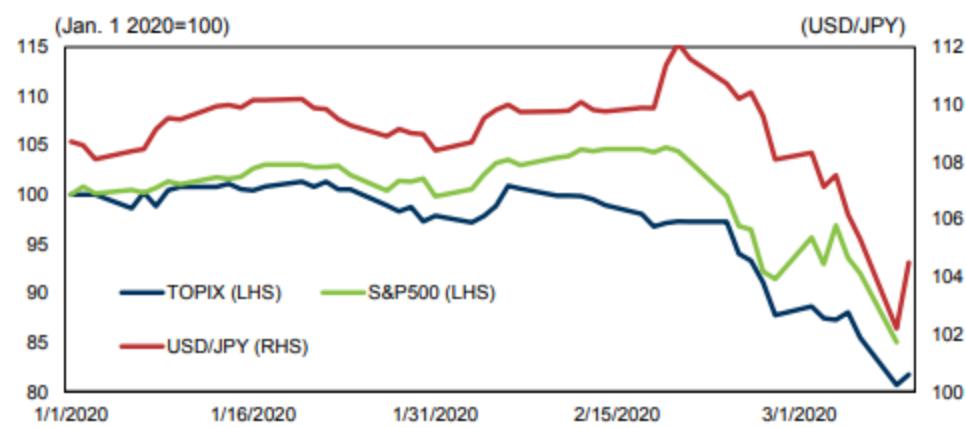
- **Equity/Funds:** Foreign investors' net sales of Japanese stocks/funds was worth ¥0.7tn
- **FI:** Foreign investors' net purchase of JPY FI was ¥1.8tn (of which Notes/Bonds are +¥3.0tn and Money Market are -¥1.1tn).

Japan Views: Revisiting Feasibility of FX Intervention by Japanese Government

The impact of the novel coronavirus (COVID-19) continues to cause volatility in financial markets. Both the S&P 500 and TOPIX have fallen sharply since mid-February, and the yen had strengthened against the USD to the ¥101 mark at one point after having weakened to ¥112 in late February (Exhibit 1). Against this backdrop, the market is again focusing on how the [Bank of Japan](#) (BOJ) might react. Despite significant uncertainty, at this juncture we still think the BOJ is likely to stop short of taking its short-term policy rate further into negative territory at the upcoming March 19 Monetary Policy Meeting (MPM). At the same time, there is growing interest among market participants in more traditional forex intervention. In this report, we revisit the feasibility of forex intervention by the Japanese government.

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Exhibit 1: US and Japanese Stock Prices and USD/JPY Rate



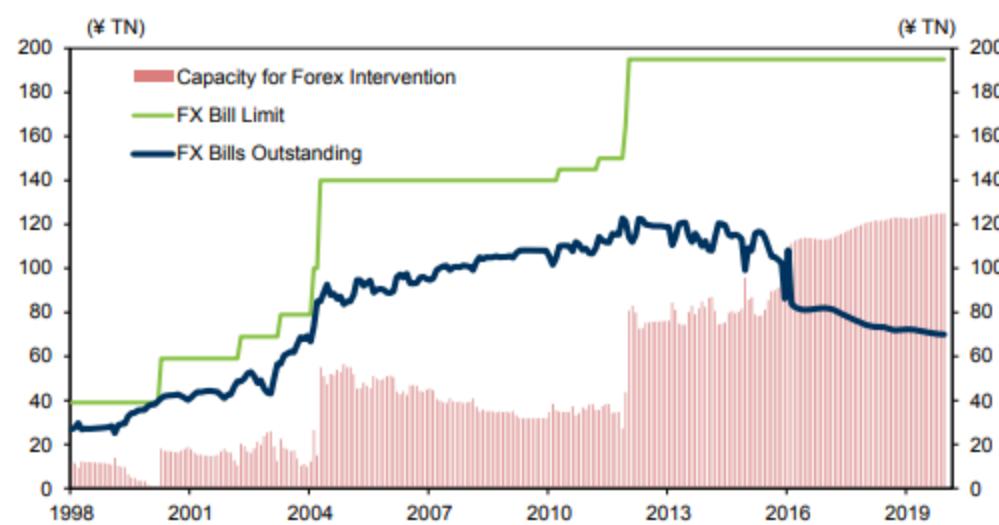
How Much Scope Does the Japanese Government Currently Have to Undertake Forex Intervention?

In Japan, the Minister of Finance has the authority to decide on forex intervention, and the BOJ intervenes on behalf of the Minister. When the BOJ engages in yen-selling and dollar-buying operations in a bid to counteract yen appreciation, yen funds to be sold on the currency market are raised by issuing forex bills, a type of short-term treasury bill.¹

There are upper limits placed on forex bill issuance, which in the FY2020 budget is set at ¥195 tn (Exhibit 2). Accordingly, the government's interim scope for conducting forex intervention amounts to the difference between this ceiling and the outstanding balance, which at this point is around ¥125 tn (as of December 2019). The last time the Japanese government undertook yen-selling and dollar-buying operations was in 2011, when the total annual amount of intervention was ¥14 tn. Based on such past examples of intervention, the government would seem to have ample scope to intervene.

According to the Bank for International Settlements (BIS), however, daily yen transactions on the forex spot market in 2019 amounted to around ¥40 tn on average.² In light of this, the impact of unilateral forex intervention in particular, may be limited to temporarily checking speculative flows.

Exhibit 2: Interim Capacity for Forex Intervention



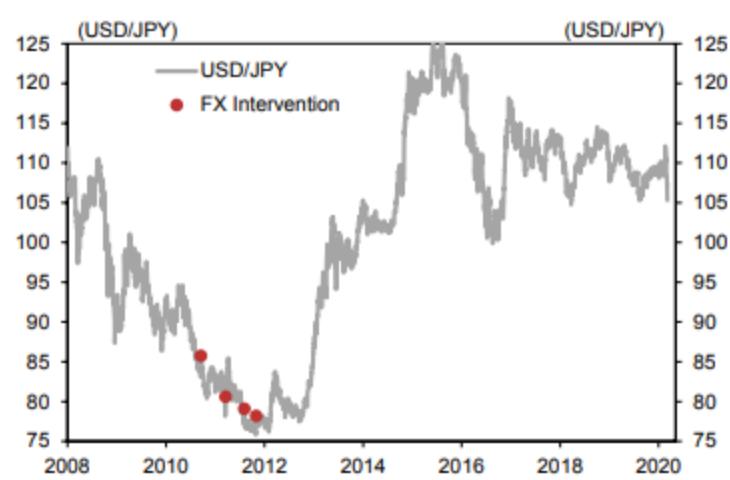
Source: Ministry of Finance, Datastream

Past Entry Points for Forex Intervention

According to the BOJ's website, "Forex intervention is intended to contain excessive fluctuations in forex rates and to stabilize them," suggesting it places more weight on volatility than the forex level. Until around 2004, there were frequent instances of forex intervention seemingly used in this role when the USD/JPY rate was in the ¥100-120 range. By contrast, in the past 10 years or so, forex intervention has only taken place at times of extreme yen appreciation in the ¥75-90 range (Exhibit 3). This suggests to us that, principles aside, intervention appears difficult to implement unless the forex rate has moved to an extreme level. This likely reflects commitments made by both the G7 and G20 to refrain from competitive devaluation. In its latest Foreign Exchange Report (in January 2020), the US Department of the Treasury still places Japan on a watch list with nine other countries and strongly urges against currency intervention.³

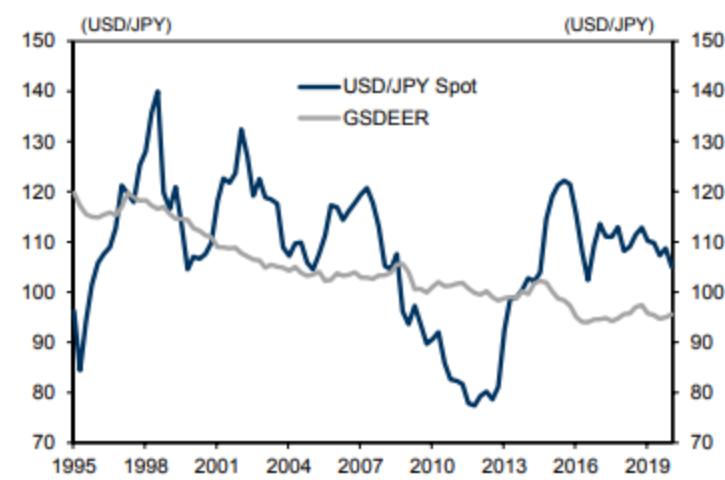
Also, while the yen appreciated recently to the ¥101/USD mark at one point, it remains undervalued relative to the GS Dynamic Equilibrium Exchange Rate (GSDEER) of around ¥95, for example (Exhibit 4). This suggests to us that while the Japanese government may point to intervention as a check on highly volatile FX movements, it likely would not be an easy task to obtain agreement from the US and other countries for intervention.

Exhibit 3: USD/JPY and Past Forex Intervention Entry Points



Source: Ministry of Finance, Datastream

Exhibit 4: USD/JPY: Spot Rate and Long-Term Equilibrium Rate (GS Estimate)



Source: Datastream, Goldman Sachs Global Investment Research

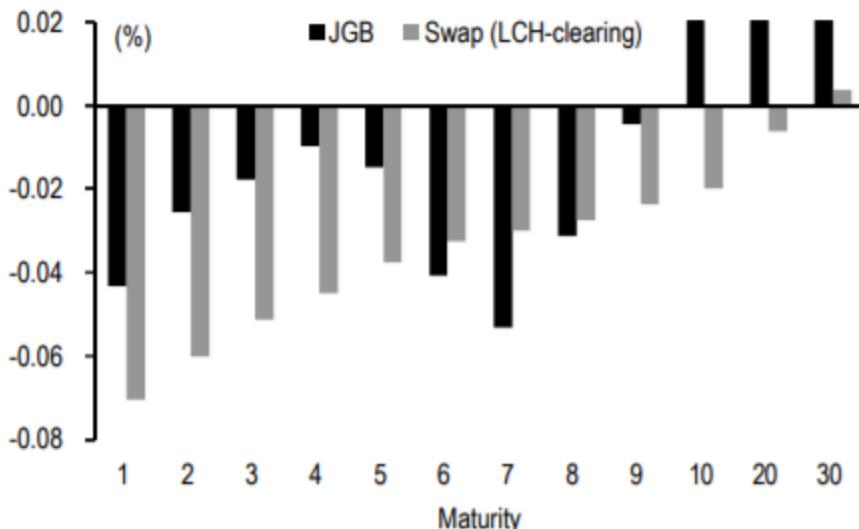
Is Forex Intervention Effective Enough?

The effectiveness of unilateral forex intervention is generally considered limited and short-lived, while the impact (including the announcement effect) tends to be greater in the case of coordinated intervention by the G7, including the US. The last instance of coordinated intervention was on March 18-19, 2011. This took place in the immediate aftermath of the yen appreciating to a high of ¥76 at one point just after the Great East Japan Earthquake on March 11. Such exceptional yen appreciation was triggered by market speculation that Japanese companies, such as life insurance companies, would repatriate their foreign currency asset holdings into Japan. While the yen retreated to around ¥85 by early April, after the intervention, the effect was short-lived; by the beginning of June the USD/JPY rate was back below ¥80.

In conclusion, taking all of these factors into consideration, we think that at this particular juncture the feasibility of the Japanese government engaging in forex intervention is low.

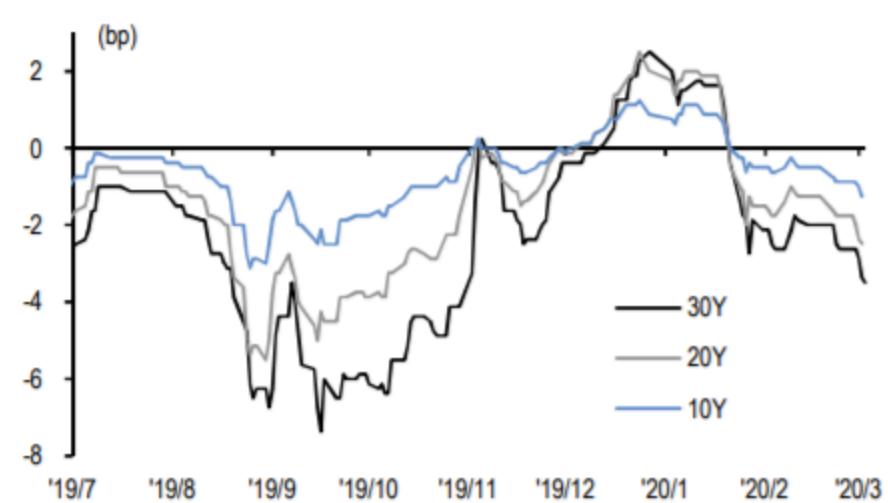
Naohiko Baba

Exhibit 1: JPY rates had an extremely volatile week again
Change in JGB yield and swap rate (LCH) from Feb 28 to March 6 (%)



Source: J.P. Morgan

Exhibit 2: LCH-JSCC clearing spreads have largely moved sideways
LCH-JSCC spread for 10Y, 20Y and 30Y JPY swap (bp)



Source: Bloomberg

Implications of the Fed cut on JPY rates market

After the surprise Fed cut on Tuesday, various markets went through meaningful adjustments. Here we summarize some of the impact the Fed cut had or should have on JPY rates market.

1. BoJ's rate cut struggles to get priced in beyond the level seen last fall

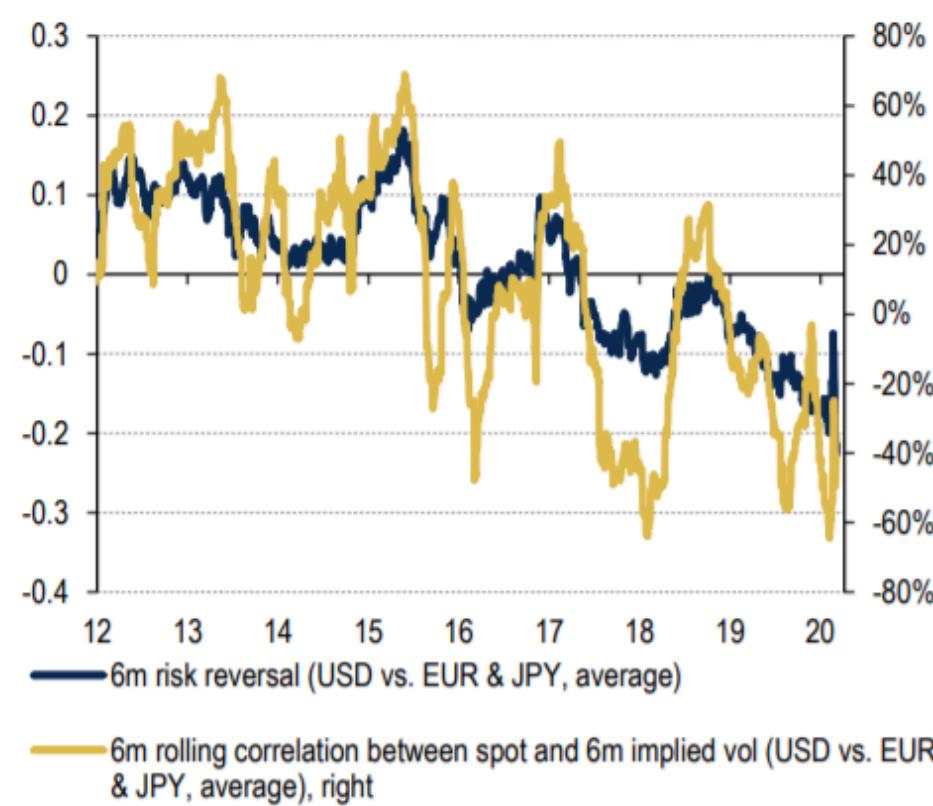
Although we don't have an accurate OIS curve in Japan, the spread between 12x18 SPS and 6M JPY Libor suggests that a rate cut is priced in to a great extent (Exhibit 3). That said, the market seems hesitant to price in beyond the level seen last fall. The most obvious reason is the level of USDJPY. Considering BoJ's reaction function, the market considers the current level to still be an acceptable level for the BoJ to hold its fire. If USDJPY dips below the psychologically important level of 105, we may see more range breaking movement on the short-end.

concern around the global spread of COVID-19. Volatility-adjusted carry has consequently collapsed to its lowest level since 2017. The dollar DXY index has weakened sharply but if anything the question should be why it hasn't depreciated more. The last time this measure collapsed from similar levels was May 2007 – Feb 2008, alongside the Fed cutting rates just before the financial crisis; the DXY index weakened over 10% during this period.

The direction of FX volatility is crucial for USD

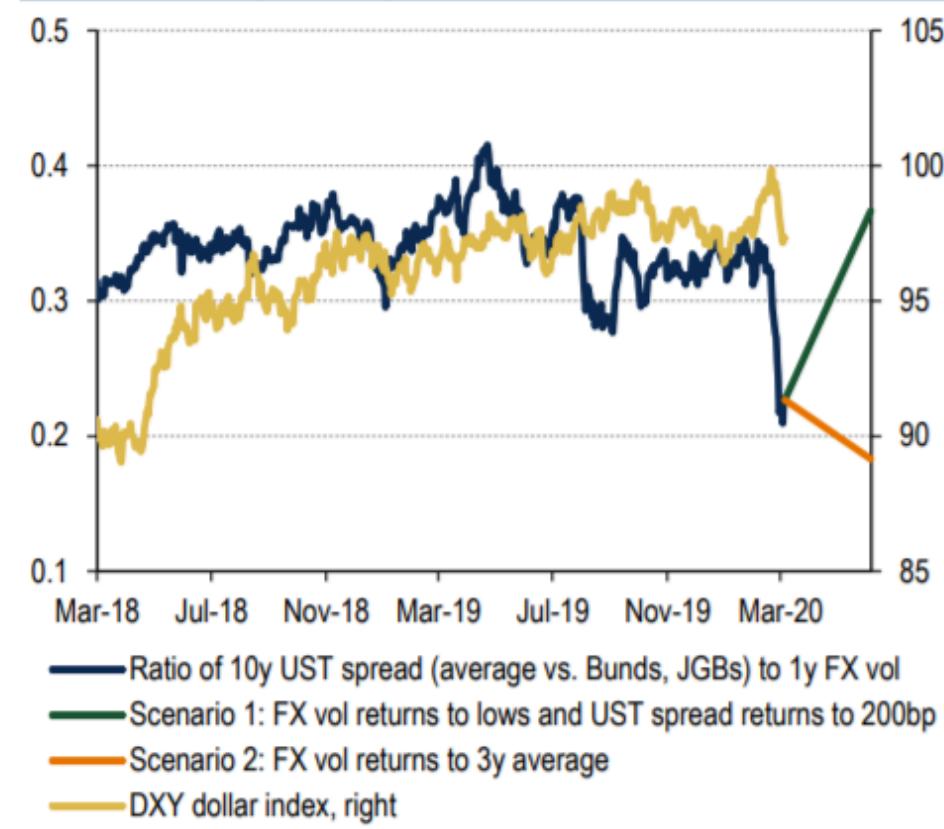
We also note that the relationship of USD with volatility is evident in both realized correlation as well as the skew level. Chart 3 shows the risk-reversal and spot-volatility correlations for the USD have both been negative since 2017 and especially widening out in 2019 to levels not seen since 2008. This implies the USD has been typically more volatile during sell-offs than rallies (vs. EUR & JPY), as would be expected of high-beta carry currencies but in contrast to popular perception of the USD as a "safe haven". Valuation may play a role too – the USD has been persistently overvalued against the majors, which would explain more volatile moves when the gravity of valuation kicked in.

Chart 3: Consistent with negative risk-reversal and spot-vol correlation for USD (vs. EUR & JPY)



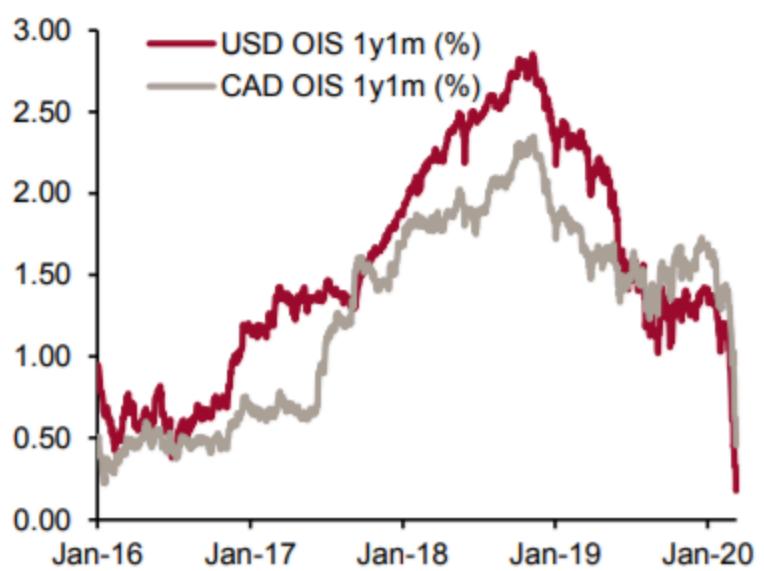
Source: BofA Global Research, Bloomberg

Chart 4: Back-end vol-adjusted carry could recover but under unlikely scenarios of UST spreads at pre Fed cut levels and FX vol at lows



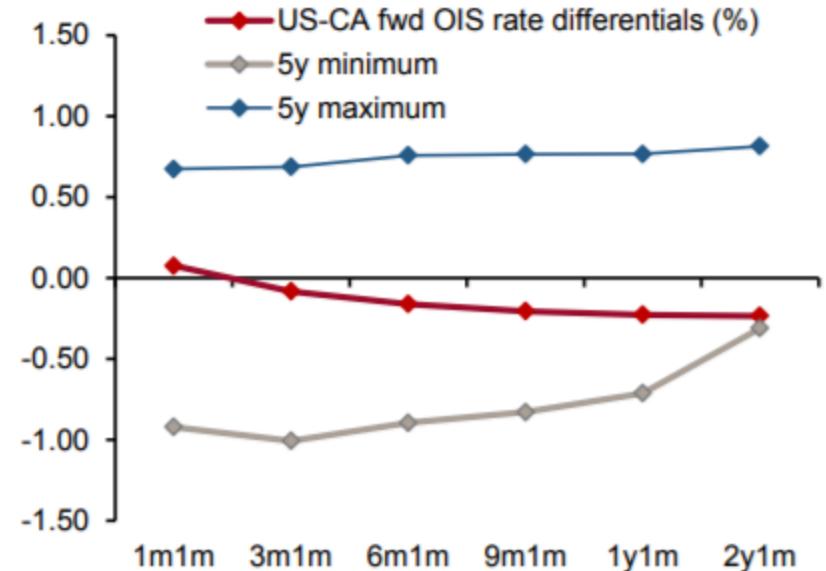
Source: BofA Global Research, Bloomberg

Figure 5: Markets moved to price in policy stimulus aggressively in Canada and in the US in 2020



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

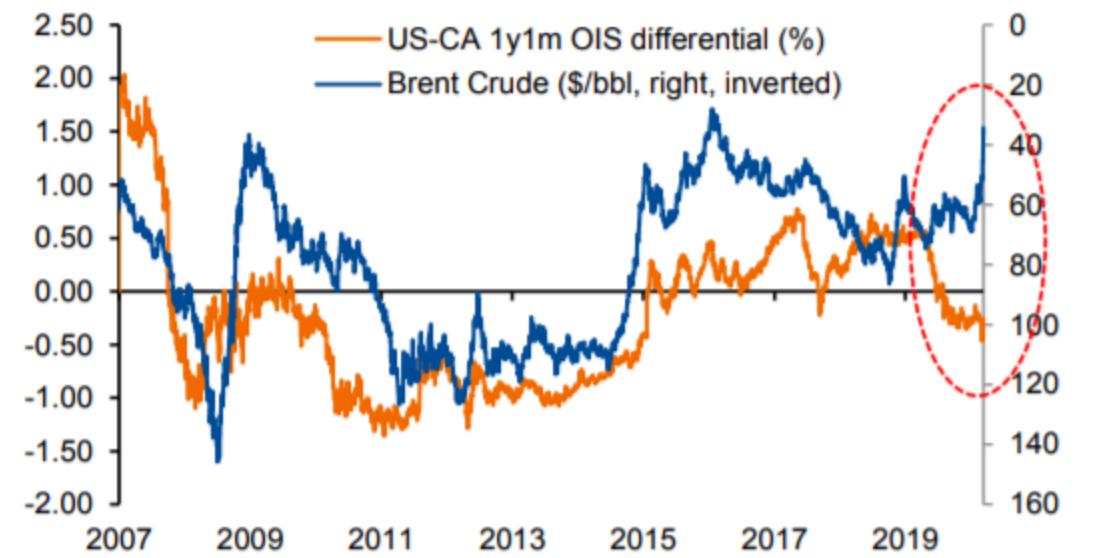
Figure 6: Markets continue to price in more rate cuts in the US than in Canada over the coming 2 years



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Policy expectations in the US have however also moved very sharply dovish (Figure 5), with the net outcome that markets now expect more easing from the US than from Canada over the coming two year period (Figure 6). This represents a rather significant divergence from the historically tight relationship between crude oil prices and US-Canada interest rate differentials (Figure 7).

Figure 7: Past oil shocks have led to more dovish BoC repricing



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

EM & FM

What caused the stress in USD funding markets and basis swaps to widen in Asia?

The sharp risk-off sentiment meant that the usual providers of USD cash in the FX market are stepping back in this environment (for example, a dollar rich asset manager or a foreign bank). Therefore, existing USD borrowers in Asia have to find an alternative source of USD funding in their domestic markets, namely FX swaps.

Mechanically, why does a scramble for USD lead to lower USD/Asia onshore FX forwards (and basis swaps)?

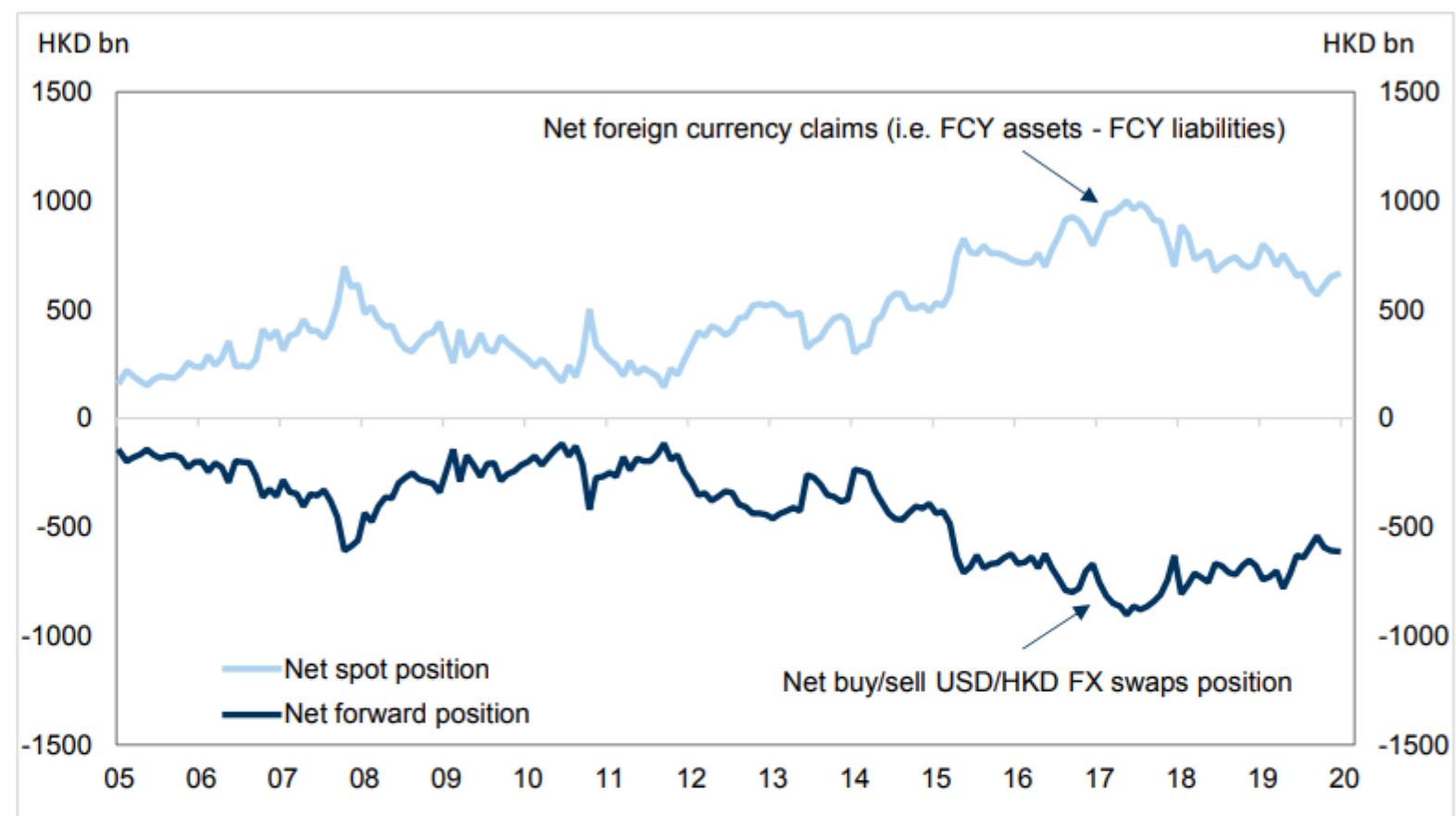
Besides the overnight tenor, there is no well-developed USD term funding market in Asia. The most common way for banks to borrow USD term (i.e. 1-week, 1-month, 3-month) is via FX swaps. This is effectively collateralized borrowing/lending (between local and foreign currency) and therefore involves a lower credit charge and utilizes less credit lines for the borrower/lender, compared to term lending in USDs. For example a local bank in Singapore, is typically long SGD cash from local deposits while a foreign bank is typically long USDs from its parent company. So when a local bank needs USDs, it would typically lend its SGD cash in exchange for USDs via FX swaps and vice versa. Conversely, when a foreign bank needs local currency, it would lend out its USDs in exchange for SGD liquidity. This practice is common across all Asian markets. The cost of synthetically borrowing SGD via swapping USDs is observed via the FX implied yield. When there is a scramble for USD cash, most participants are one-sided and look to engage in buy/sell USD FX swaps, which pushes FX forward points, implied yields and basis swaps lower.

Economic structures and how a tightening in USD liquidity impacts the respective basis swaps markets

The impact of USD tightening on the basis also depends on the structural dollar hedging demand which in turn depends on a country's banks' business models and institutional investor hedging demand. In countries like Japan, Hong Kong or Singapore, for example, where banks have large net foreign currency claims (i.e. where their FCY assets exceed their FCY liabilities), banks typically bridge these funding gaps with FX swaps. This involves funding in local money markets and then doing a buy/sell USD/LCY swap. For example, Exhibit 11 shows how Hong Kong banks use FX swaps to bridge the gap between their net FCY spot position which is the difference between their FCY assets and liabilities). When dollar liquidity tightens and their USD funding gap increases, these banks increase their demand for dollar hedges and sell more USD/LCY forward, which puts downward pressure on FX swap points pushing cross-currency basis lower.

Exhibit 11: Banks in Hong Kong, Singapore, South Korea and Taiwan generally engage in buy/sell USD/LCY FX swaps to raise USD funding.

Net foreign currency claims by Hong Kong banks



Source: Haver Analytics, Goldman Sachs Global Investment Research

Large FX hedged bond positions by domestic institutional investors (for example in Japan and Taiwan) also lead to ongoing demand for dollar hedges, which can increase in an environment where bond prices increase and USD is appreciating. On the other hand, in other emerging markets like India and Indonesia, which (1) have run current account deficits for a long time leading to large negative net international investment positions and which depend on foreign investment to close domestic funding gaps on an ongoing basis, or (2) have domestic banks that use FCY financing to fund domestic lending, a dollar funding shortage can lead to a tightening in local liquidity conditions and an increase in demand for LCY hedges which pushes FX swap points higher (and not lower).

The differential response of forward points then depends on the net structural demand for USD hedges, which tends to be positive in places which have large positive NIIPs, or banks doing a lot of international lending – e.g. Japan, Singapore, Hong Kong, Korea, Taiwan and Thailand; and negative in places that have negative NIIPs, that depend heavily on foreign financing into local assets, or where banks rely to some extent on foreign funding to augment domestic financing and fund domestic lending.

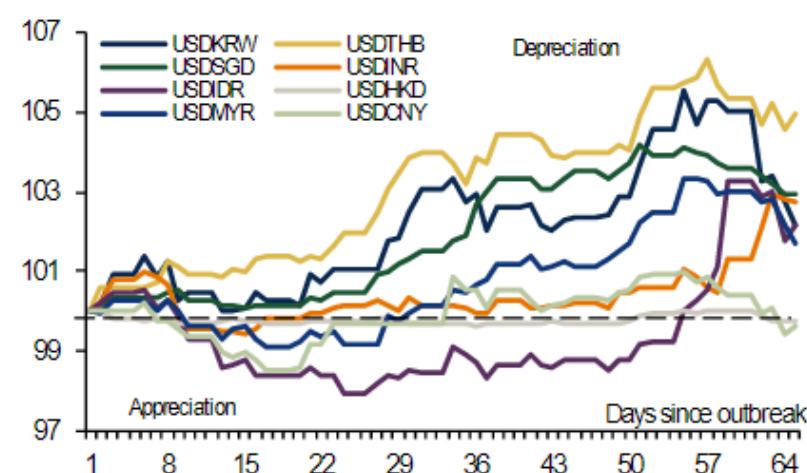
Two other factors that drove Asian basis swaps wider include foreign investors unwinding USD funded carry trades and domestic investors adjusting forward hedges on overseas assets. First, foreign investors who were long Asian assets via funding from USDs (for example, long Korean cash bonds and pay CCS swaps) unwound their positions on the global scale, which resulted in basis swaps widening. Second, domestic players who sold USD forwards to hedge their USD equities needed to cover their USD short position because of lower valuations of their assets, thereby increasing USD funding demand. Basis fell sharply in countries with large equity holdings such as Korea (USD 345bn), Taiwan (USD 580bn), Singapore (USD 580bn) and

ASIA FX & Swaps during COVID-19

Chart 7 and Chart 8 show the relative performance of Asian FX and swap markets since COVID19 broke out in China. Asian currencies are showing some semblance of stability, following an initial phase of depreciation.

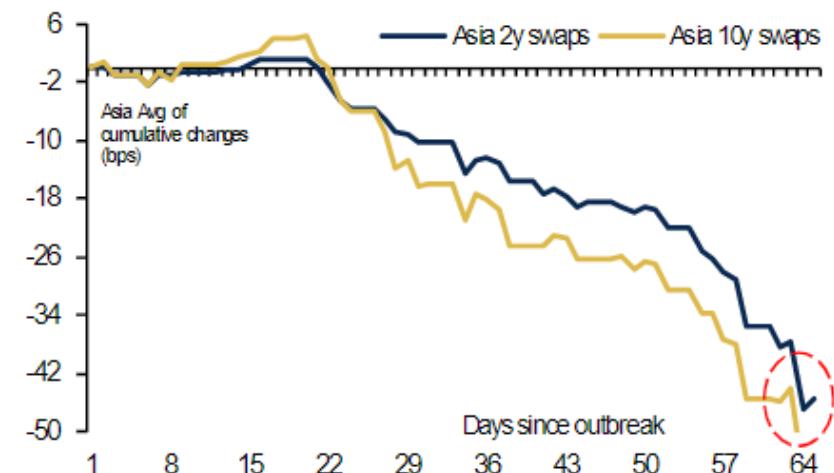
In spite of the best efforts by Asian central banks to cut policy interest rates and spur growth, swap curves in Asia have flattened on average - see Chart 8. We need to keep a close eye on the front end of the curve - 2yr. This has ticked up, but it is not clear whether this is due to renewed FX weakness seen as limiting the ability to cut rates further or some expectation of stabilization.

Chart 7: \$Asia FX showing initial signs of moderation after 2m since the COVID outbreak



Source: BofA Global Research, Bloomberg. 1st Jan, 2020 = 100

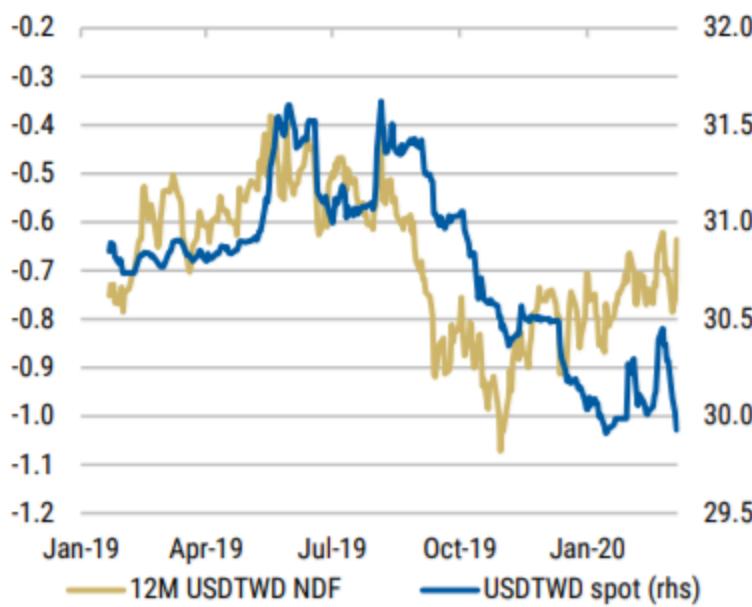
Chart 8: Asia 2y swaps witnessed a little uptick while 10y resumed decline after a momentary uptick



Source: BofA Global Research, Bloomberg. 1st Jan, 2020 = 100

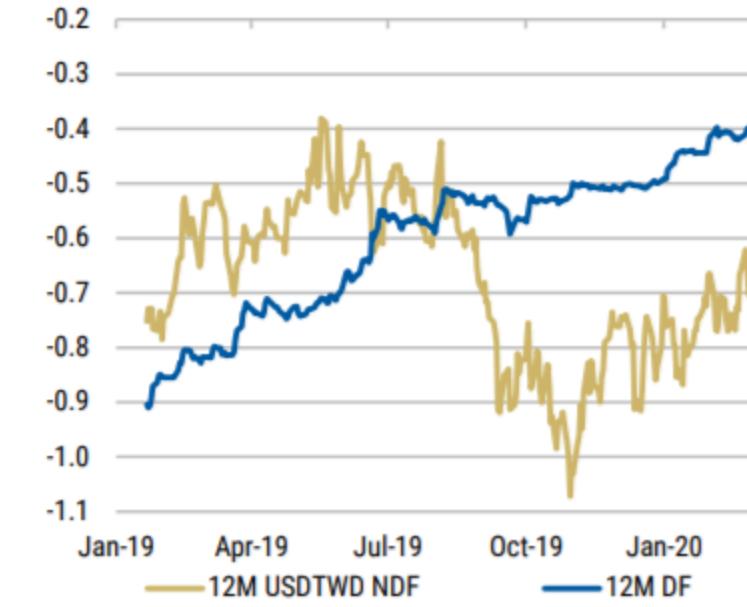
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Exhibit 17: 12m USDTWD NDF points vs spot



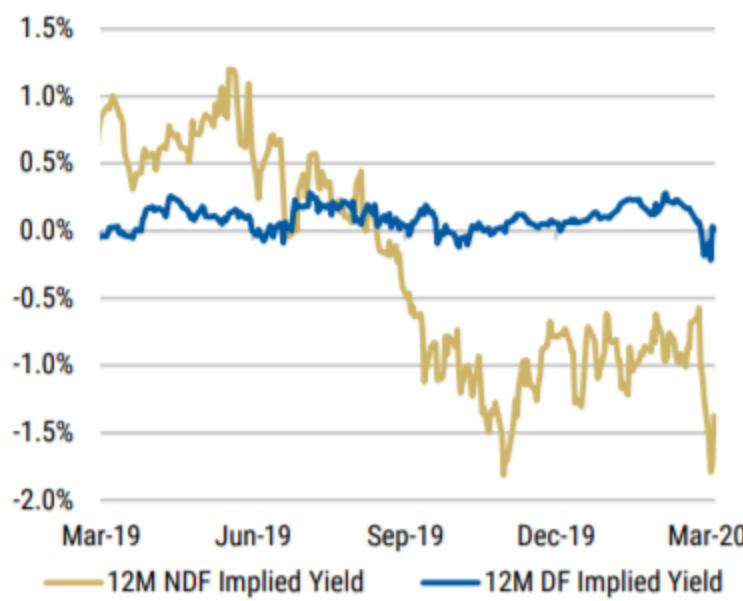
Source: Bloomberg, Morgan Stanley Research

Exhibit 18: USDTWD onshore vs offshore fwd points



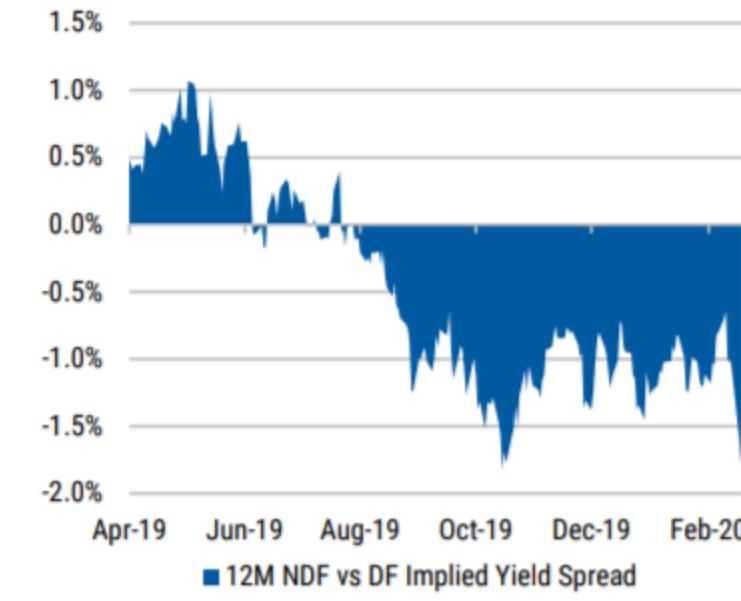
Source: Bloomberg, Morgan Stanley Research

Exhibit 19: USDTWD onshore versus offshore fwd implied yield

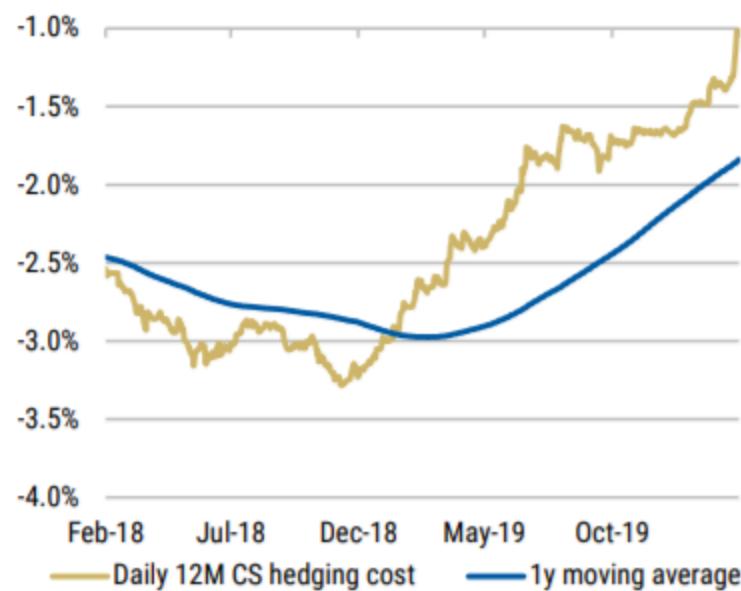
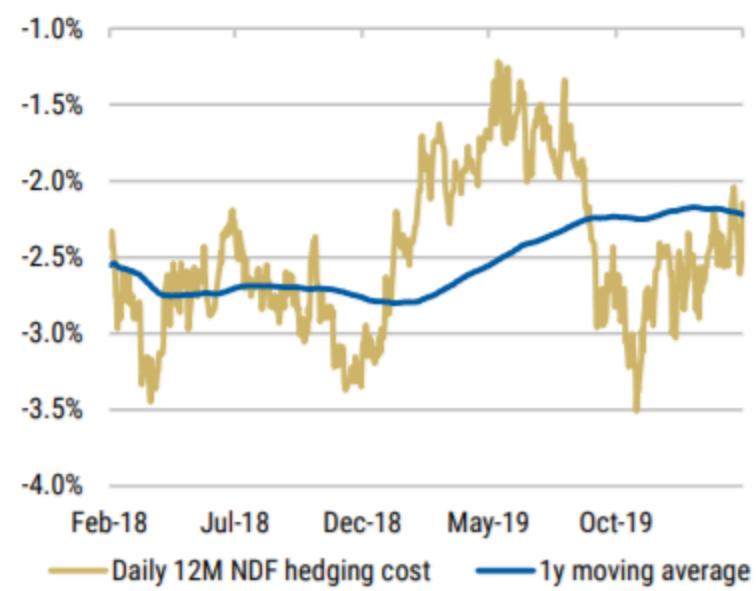
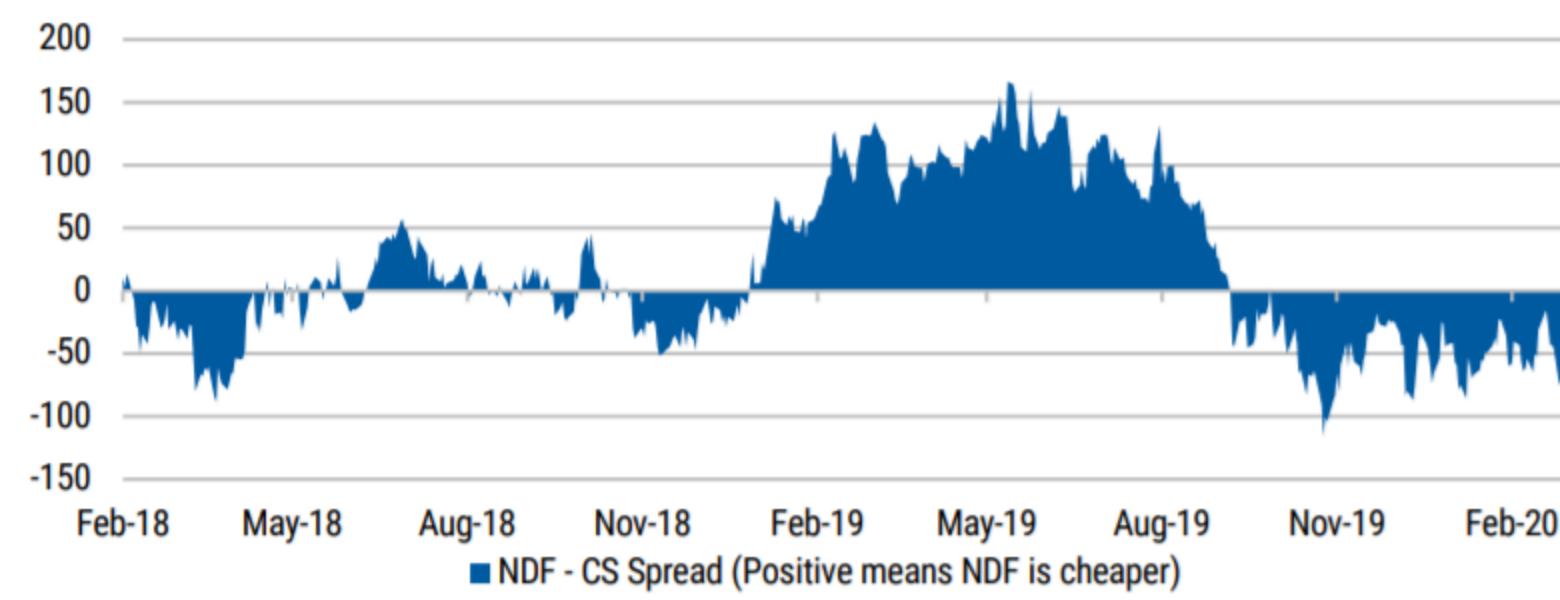


Source: Bloomberg, Morgan Stanley Research

Exhibit 20: USDTWD onshore versus offshore 6M fwd implied yield spread



Source: Bloomberg, Morgan Stanley Research

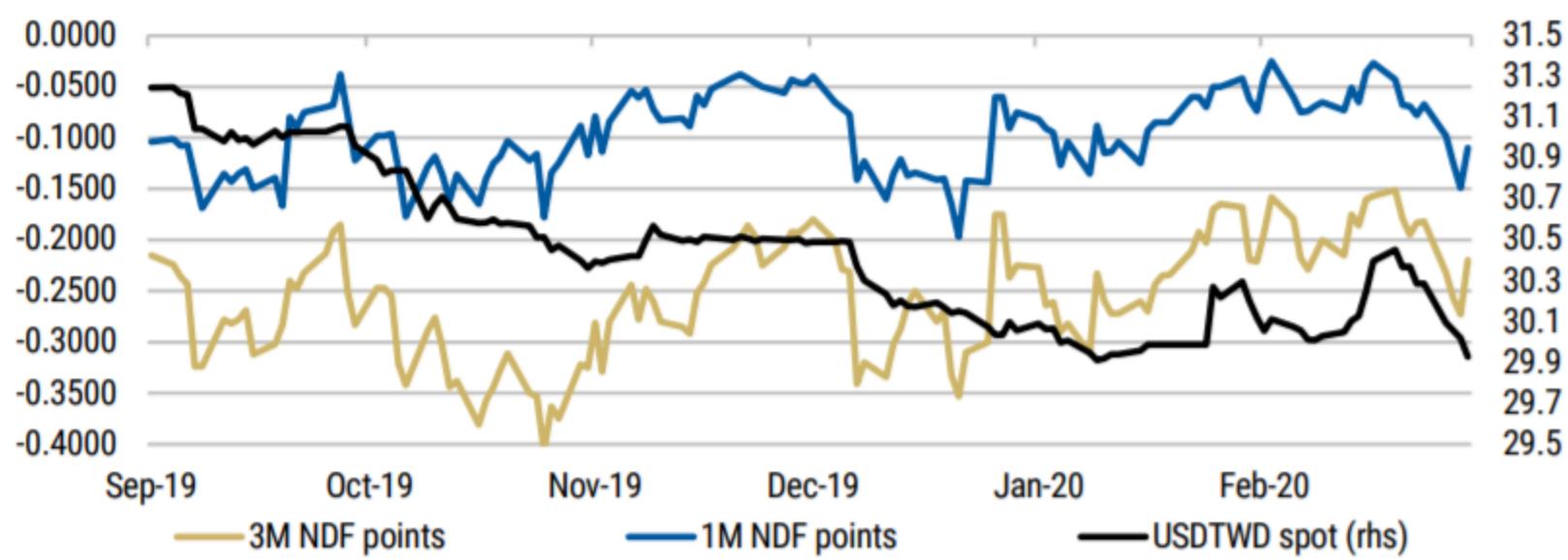
Exhibit 21: Average USDTWD hedging cost – onshore CS**Exhibit 22: Average USDTWD hedging cost – NDF****Exhibit 23: NDF - CS (positive means NDF is cheaper)**

Hedging through NDFs or CS? With the US-Taiwan rates differentials narrowing recently, onshore forward points have drifted higher. We think lifers may have added some hedging positions through onshore CSs given that the hedging costs of CS have become less expensive recently ([Exhibit 21](#)). In addition, NDF points have become deep recently, and therefore lifers are likely to wait till the points become higher and then re-engage NDF hedging instruments later.

Why would lifers still want to use NDFs, rather than switching fully to CS? One question we are often asked, is why would lifers even want to use NDFs, given that that onshore CS has become much cheaper? Why do we think lifers will re-engage in NDFs when the entry level is better? We think this, because NDFs provide more flexibility for lifers, while for CS, lifers usually hold the instruments, which are mostly 6m or 12m tenors, to maturity. In the current volatile environment, such flexibility is even more important.

As such, we think the NDF points curve will remain deep. Moreover, as we [projected in our primer](#), lifers' absolute size of FX exposed assets should keep growing this year, and hence demand for NDFs in absolute \$ terms, or say the volume in NDF markets, will not decrease, assuming TWD stays strong this year. All of this would contribute to a deep NDF points curve.

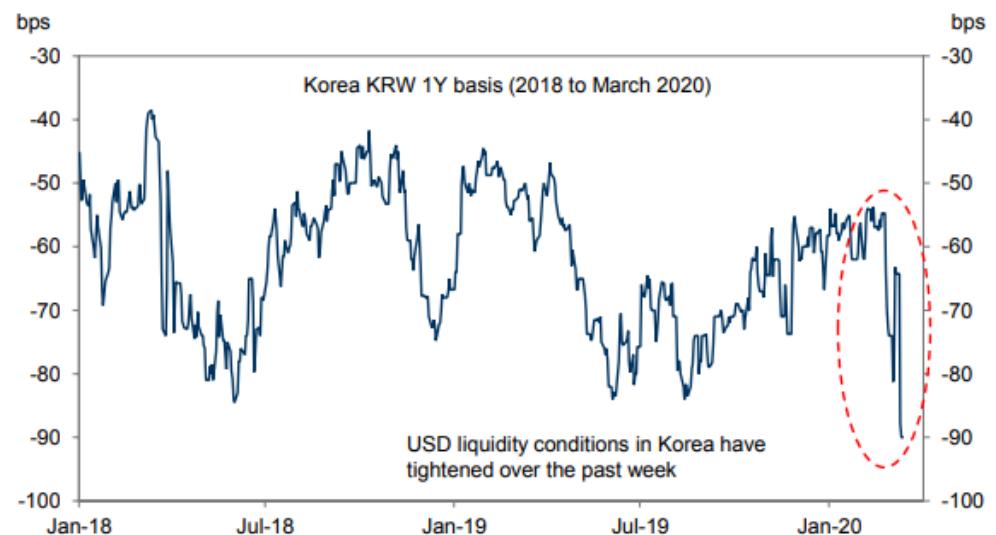
Exhibit 16: USDTWD NDF points versus spot



Source: Bloomberg, Morgan Stanley Research

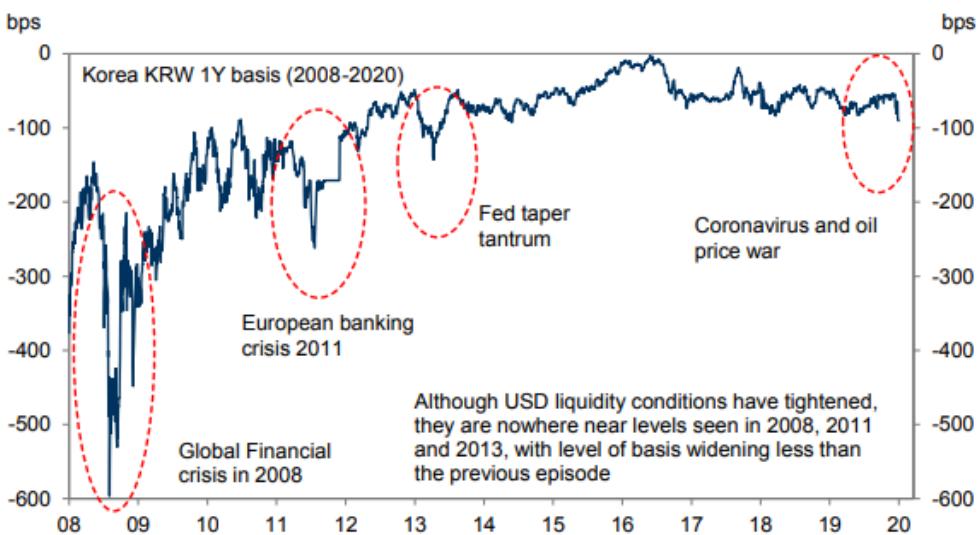
Fed taper tantrum in 2013 (when 1Y hovered around -100bp to -200bp). Notably, since 2008, South Korea has been reducing its short-term external debt, while FX reserves were rising, which meant that each subsequent period of USD liquidity squeeze was more moderate than the previous one since 2008 (Exhibit 2).

Exhibit 1: USD liquidity conditions in Korea have tightened this past week



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 2: The USD liquidity tightening we have seen in Korea so far is still moderate compared to previous episodes



Source: Bloomberg, Goldman Sachs Global Investment Research

USD liquidity conditions in Hong Kong and Taiwan have also shown signs of tightness, as reflected by widening in HKD 1Y and TWD 1Y basis swaps. We observed that the drop in HKD and TWD basis has been fairly sharp just this past week. Up until the start of this year, USD liquidity conditions in Hong Kong appeared fairly ample with HKD 1Y basis actually narrowing in the second half of 2019 (Exhibit 3). Meanwhile, USD liquidity conditions in Taiwan have also generally been ample in 2019, driven by some repatriation flows from overseas investments. However, the tightness in onshore USD liquidity conditions began to emerge this week (Exhibit 4).

Exhibit 3: HKD basis swaps have also begun to widen this week reflecting signs of USD funding stress

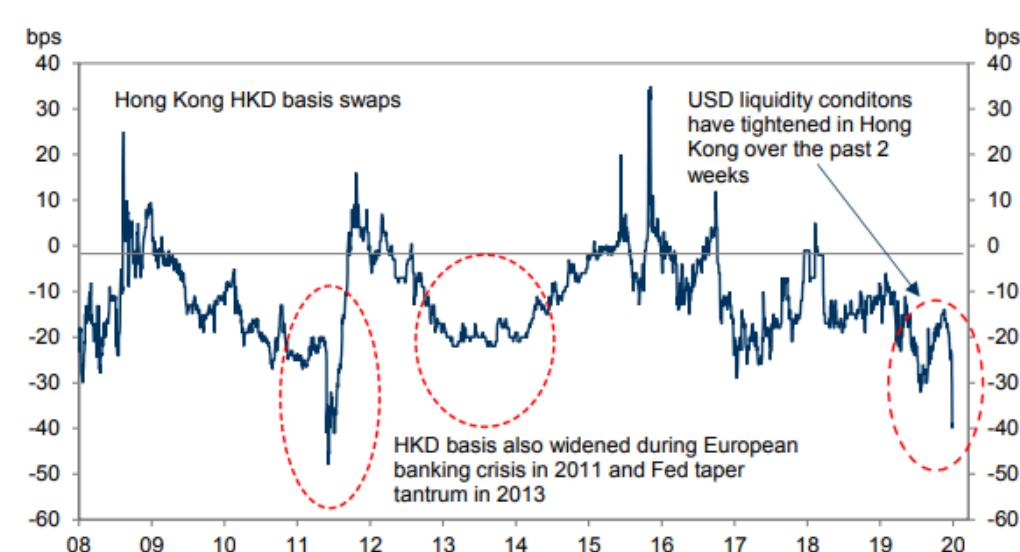
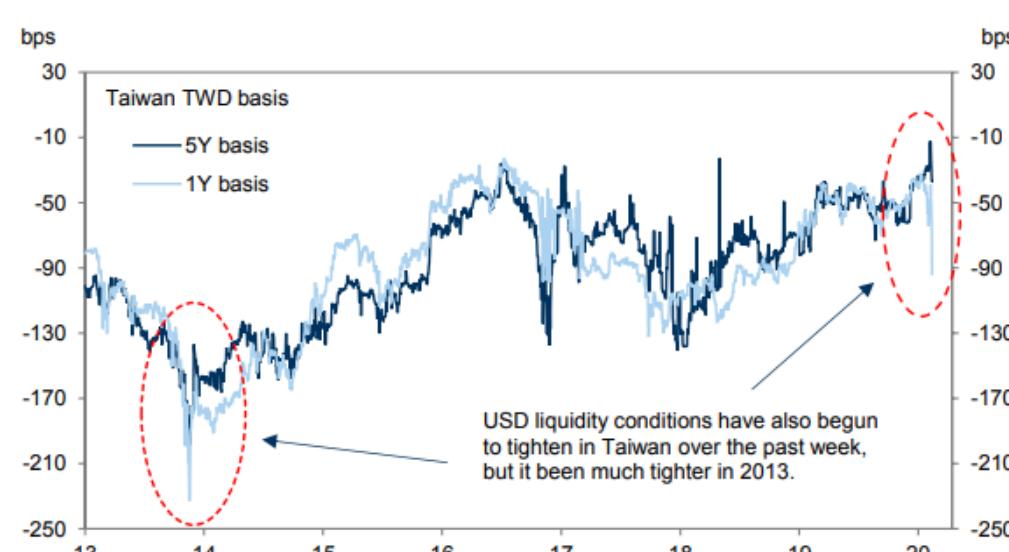


Exhibit 4: Widening in TWD basis swaps also reflects tightness in onshore USD funding markets

Synthetic TWD basis swap constructed using rate differentials and forward points



There is no liquid basis swaps market in China. Therefore, we observe the spread between the onshore 3M FX implied yield less 3M SHIBOR. If the onshore FX implied yields fall deeply below SHIBOR rates, then we think this is reflecting USD/CNY FX forward points moving lower driven by a tightening of USD liquidity conditions, as opposed to an improvement in domestic currency liquidity conditions, which is why we subtract 3M SHIBOR from the 3M implied yield. (We explain more below why a tightening in USD liquidity conditions leads to lower FX forward points.) We observe that both 3M onshore FX implied yields and 3M SHIBOR rates have been declining since the start of this year. However, the drop in implied yields has been sharper, as reflected by the deeper negative spread (grey line in Exhibit 5). This indicates that USD liquidity

Bottom line - SGD NEER 107bps below policy mid-point

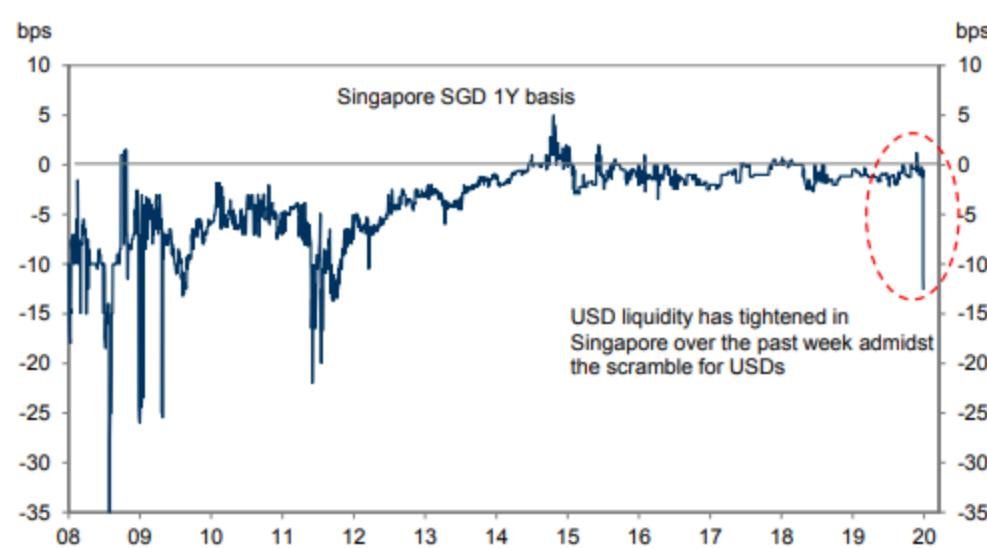
The re-estimation of the model using the updated sample period (Jan 16-Jan 20) shows our estimate of the SGD NEER trading 107bps below the mid-point of the policy band compared with the previous model estimate of 152 bps - see [Chart 36](#) front page. The upshot is that the SGD NEER has more scope to depreciate within the band.

Chart 36: Our re-estimated weights place SGD NEER closer to the midpoint



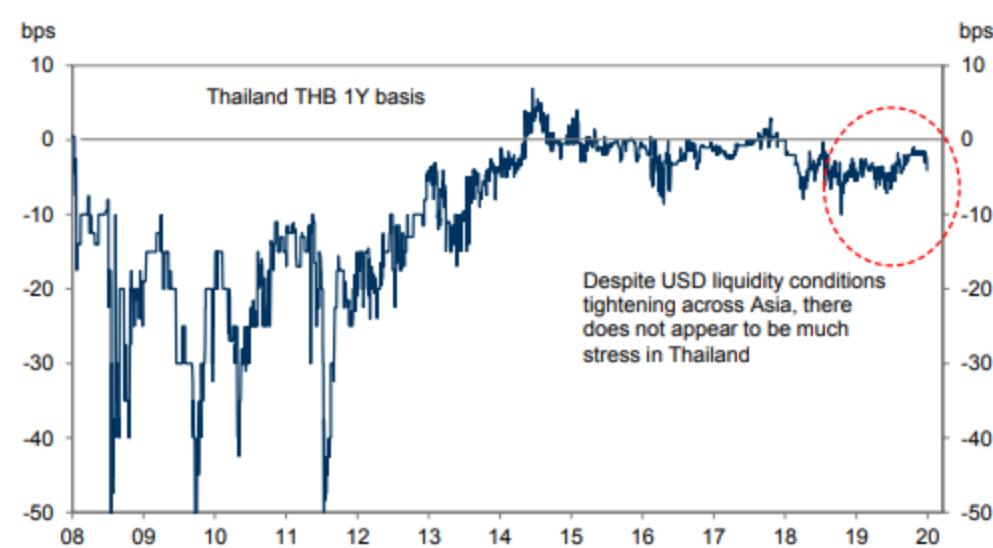
having been around -1bp to -3bp for the past five years (Exhibit 7). We think this is a reflection of onshore banks (in Singapore) looking to build USD cash positions via doing buy/sell USD/SGD FX swaps. This in turn pushed USD/SGD forward points lower, which results in lower SGD basis swaps. Meanwhile, USD liquidity conditions in Thailand appear ample with THB 1Y basis swaps fairly stable (Exhibit 8). The price actions in the SGD and THB basis swaps market are consistent with the feedback we have heard from local dealers that it is tighter in Singapore but ample in Thailand.

Exhibit 7: USD liquidity has tightened in Singapore this past week after having been stable for several years.



Source: Bloomberg, Goldman Sachs Global Investment Research

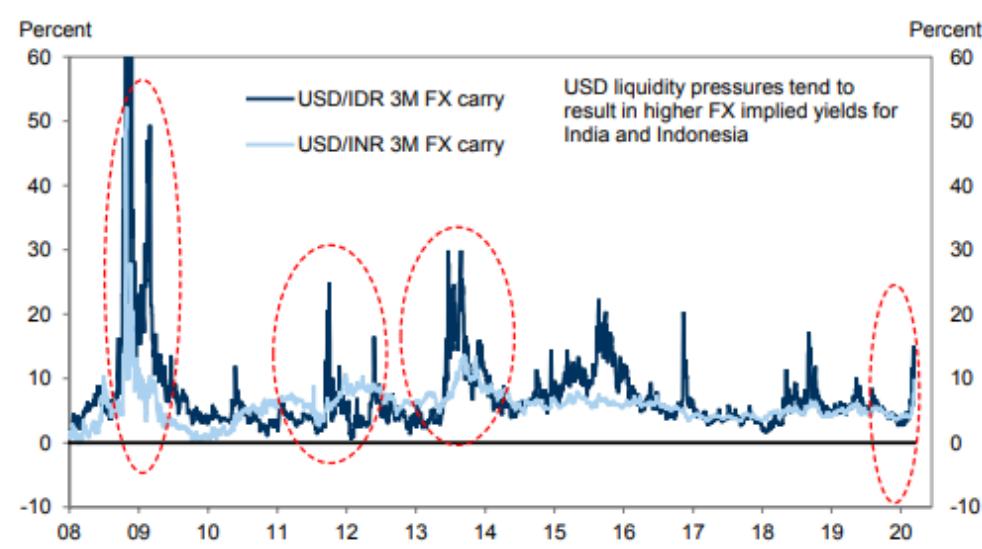
Exhibit 8: USD liquidity conditions remain sanguine in Thailand with limited signs of stress so far



Source: Bloomberg, Goldman Sachs Global Investment Research

Within high yield markets, tightness in USD funding markets generally results in a spike in onshore FX implied yields and higher spot, as opposed to a decline in implied yields (more on this below under "Economic structures and how a tightening in USD liquidity impacts the respective basis swaps markets.") So far, onshore FX implied yields have not risen significantly in Indonesia and India, as they did in 2011 and 2013 (Exhibit 9). However, spot USD/IDR has been creeping higher, as locals and foreign investors (long IDR assets) buy USD/IDR via the spot market. There have been notable outflows from the Indonesian bond (-USD3.3bn YTD) and equity (-USD 500mn) markets, which is pressuring the spot market.

Exhibit 9: FX implied yields in USD/IDR and USD/INR spiked sharply in 2011 and 2013, but have moved less in this episode.



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 10: USD funding stress is generally reflected more in FX spot market for Indonesia and India



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 12: Average country spreads of IG oil exporters in different oil price ranges

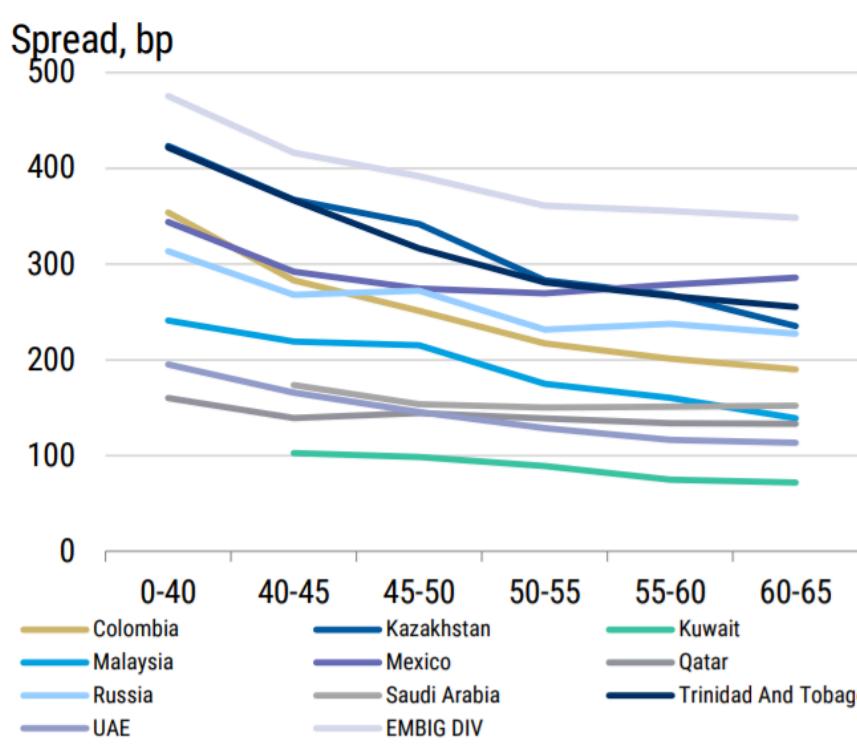
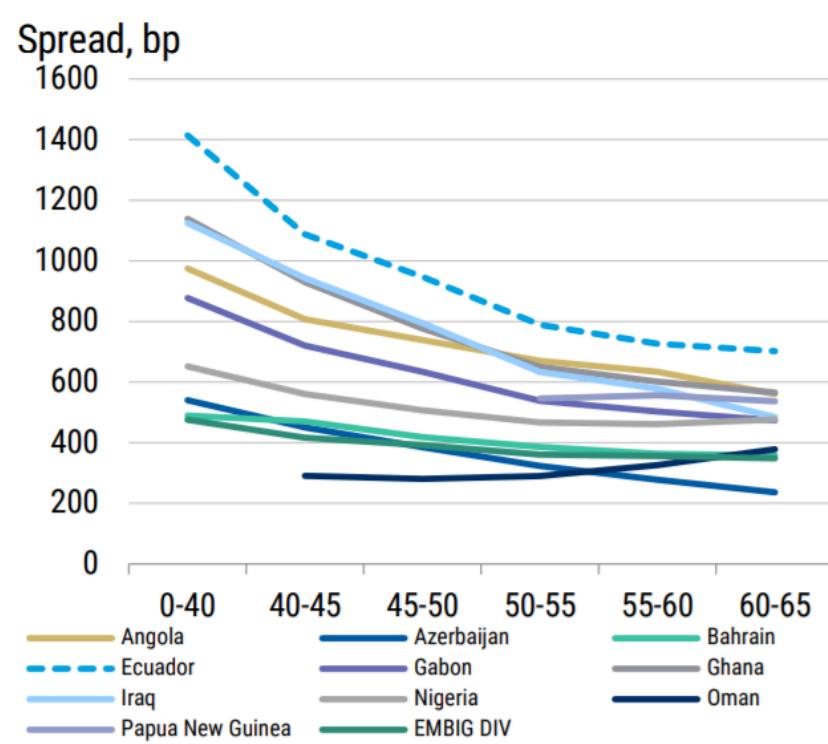
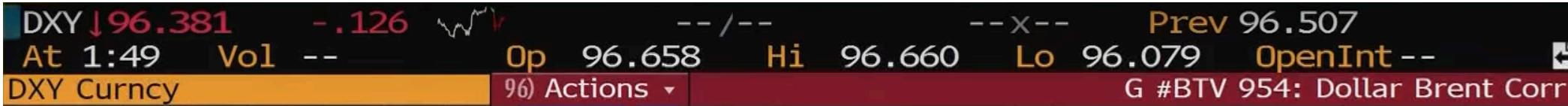


Exhibit 13: Average country spreads of HY oil exporters in different oil price ranges



Overall we see Angola, Oman and Ecuador as most vulnerable: While the initial move will likely be significantly wider spreads across all oil exporters, we expect the market to eventually differentiate across credits in line with the four factors above.



Strange Bedfellows Dollar and oil have never moved together like now





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Global Emerging Markets Research
Emerging Markets Outlook Update: Regime Change
13 March 2020

J.P.Morgan

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The timing and the pace of recovery in EM will not only depend on that of DM, but also on initial conditions and domestic policy responses. Over the past decade, the public and private sector debt burden in EM has increased to historical highs (and not just in China), as have the FX liabilities of EM corporates. While EM corporate balance sheets are not particularly vulnerable in the initial conditions, if the EM growth slowdown is prolonged the ongoing and further depreciation of currencies and the attendant tightening of financial conditions could combine to raise debt service burden significantly, worsen credit conditions, and increase bad debt that eventually ends up requiring painful balance sheet adjustments. In addition, the likely further disinflation caused by the slowdown and the dramatic fall in oil prices (see below) will also impact corporate revenue even as it cushions the blow on household income and consumption.

Figure 1: Markets tracking COVID-19 spread globally

y-axis: Confirmed COVID-19 cases by region; x-axis: Days since start

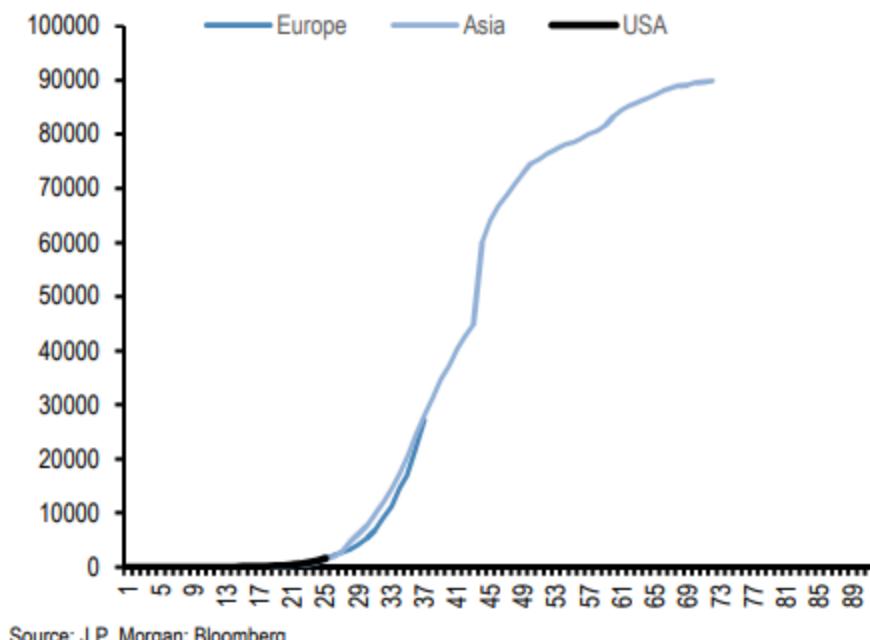


Figure 2: All markets outside safe havens have fallen hard

YTD returns

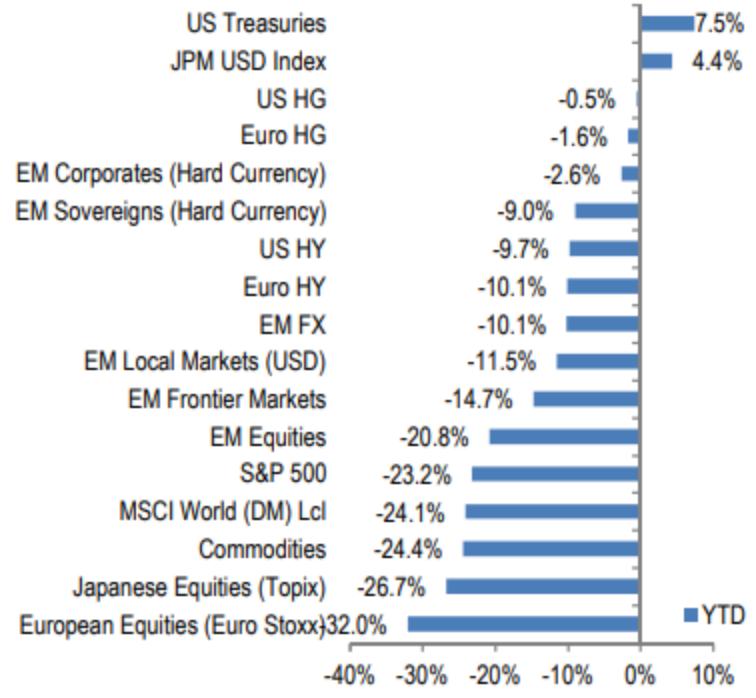
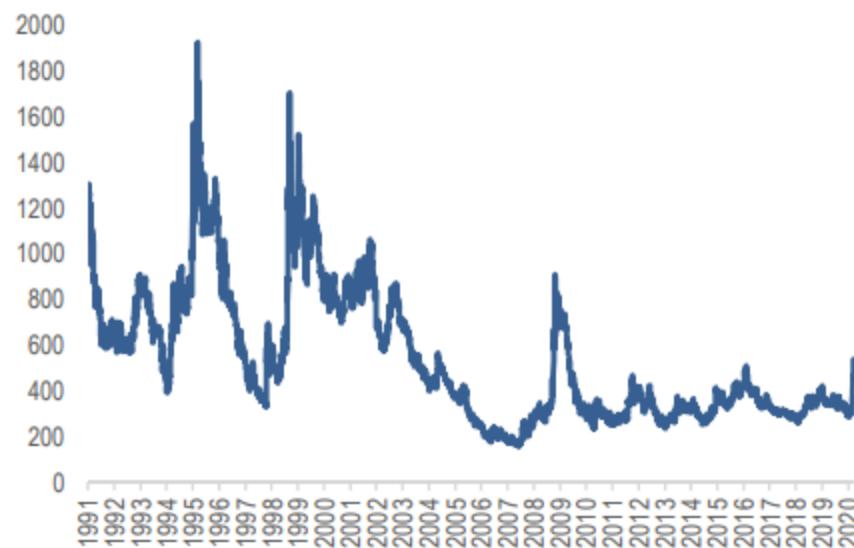
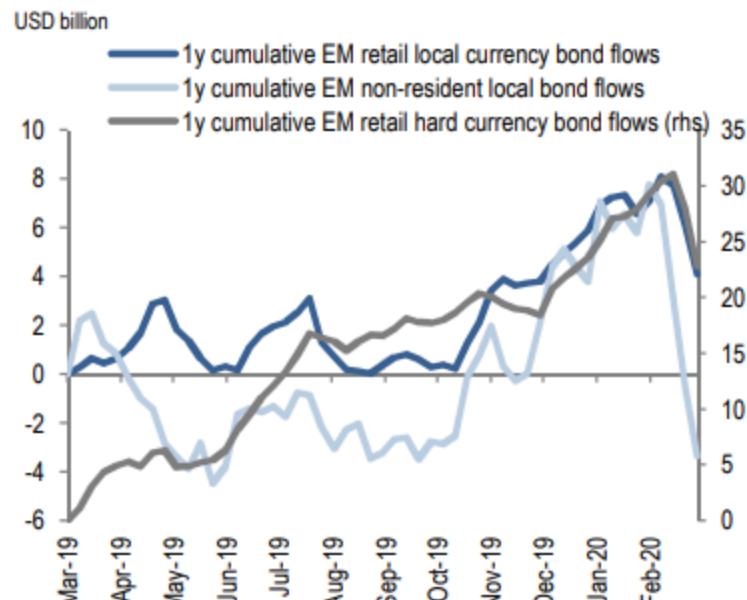


Figure 3: EM sovereign spreads now at widest since 2009
EMBI+ (to 2002) and EMBIGD (post 2002) spreads (bp)



Source: J.P. Morgan

Figure 4: There have been sharp outflows across EM hard and local currency bonds over the past two weeks



Source: J.P. Morgan, EPFR Global, Bloomberg

As end-of-cycle market dynamics change the way we think about EM risk in the near term, we cut our remaining EM duration OW to MW and expect to hold a relatively light and flat book for now. Focus has shifted this week to liquidity and the typical playbook involves more focus on repayment capacity (defaults), discontinuities in regimes such as FX arrangements, and liquidity gaps for markets. This is leading to a market environment more akin to a bear market, with outflows only recently starting (Figure 4). We now cut our remaining EM local duration OW to MW in our GBI-EM Model Portfolio, having trimmed it already in recent weeks: move the remaining small OWs in Russia, South Africa, Indonesia, and Malaysia back to MW. In these kinds of markets, taking big shorts in assets such as EM FX that have already weakened significantly is also not a great strategy, in our view, and we will need to keep positions light as sudden rallies and short squeezes will likely be the norm for some time. Our EM FX Risk Appetite Index is already telling us that the market is set up for a short-squeeze. We hold only a few long USD outright trades outside our model portfolios in long USD/TWD, USD/THB, USD/KZT and USD/NGN.

In Asia, Indonesia and Malaysia are more vulnerable in the near term, especially if foreign investors continue to unwind holdings. Bank Indonesia is allowing the IDR to adjust but bond yields have yet to adjust meaningfully as BI absorbed foreign selling of IDR70trn from the peak in January by increasing its holdings by IDR130trn YTD. Foreign investors have been sellers in Malaysia too and the BNM is likely to be less willing to fade currency weakness, given its already large outstanding forward USD sales. In addition, lower commodity prices and political uncertainty could hurt sentiment towards Malaysian assets. The INR is also likely to remain under pressure, albeit modest given relatively light foreign investor exposure and RBI willing to supply USD, after accumulating over USD50bn this fiscal, to slow any sentiment based weakening in the INR. We recommend receiving 2y CNY NDIRS with the PBoC expected to resume easing and also going long USDTB spot with the catalyst coming from foreign investors unwinding equities and bond positions.

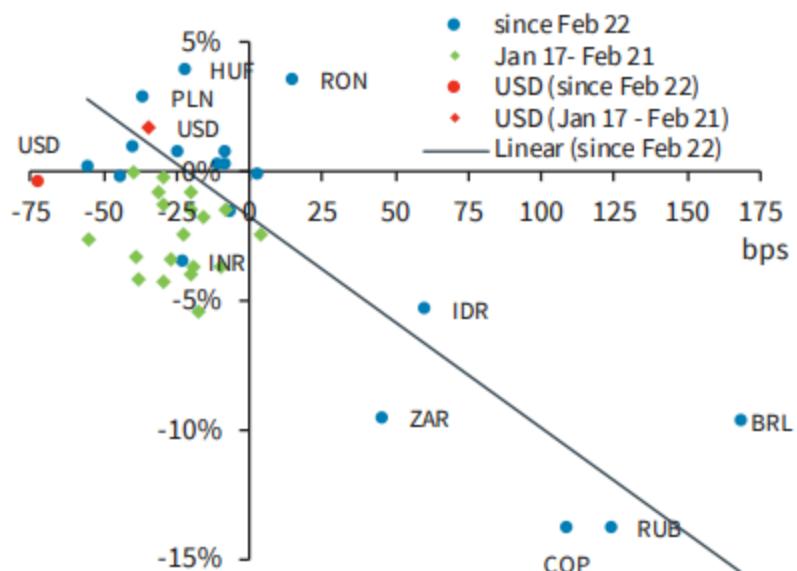
In Latin America, local rates have widened significantly on the broad EM risk-off. In Mexico, we hit the revised stop-loss of our long the 10y Mbono trade recommendation and we close it for a profit of 33bp (carry inclusive). In Brazil, Congress overruled a presidential veto on Wednesday evening, effectively increasing federal spending by some BRL20bn/year, enough to put the 2020 fiscal target and spending cap at jeopardy. Risk premium is likely to continue to build on negative fiscal developments and broad EM liquidation, and we recently closed our long Jan 22 DI future for a profit of 42bp. Now we recommend a

FIGURE 4
20d moving sum of equity and bond market flows



Note: We accumulate daily flow data for India, Indonesia, Korea, Thailand, Malaysia, Philippines, Taiwan, Vietnam, SA and Brazil for equities and India, Indonesia, Korea, Thailand, SA, Hungary and Mexico for bonds. Source: Bloomberg, Barclays Research

FIGURE 5
Change in FX and 10y bond yields



Note: Currencies included are MXN, BRL, COP, CLP, PLN, HUF, RUB, TRY, ZAR, RON, CZK, KRW, CNY, TWD, INR, IDR, MYR, PHP, SGD, THB, HKD.
Source: Bloomberg, Barclays Research

12 March 2020

6

— USD (LIBOR) 2Y Swap Rate — USD/HKD 2Y USD Depo — HKD (HIBOR) 2Y Swap Rate — USD/HKD 2Y HKD Depo

Zoom 1m 3m 6m YTD 1y All

Mar 12, 2019 – Mar 11, 2020

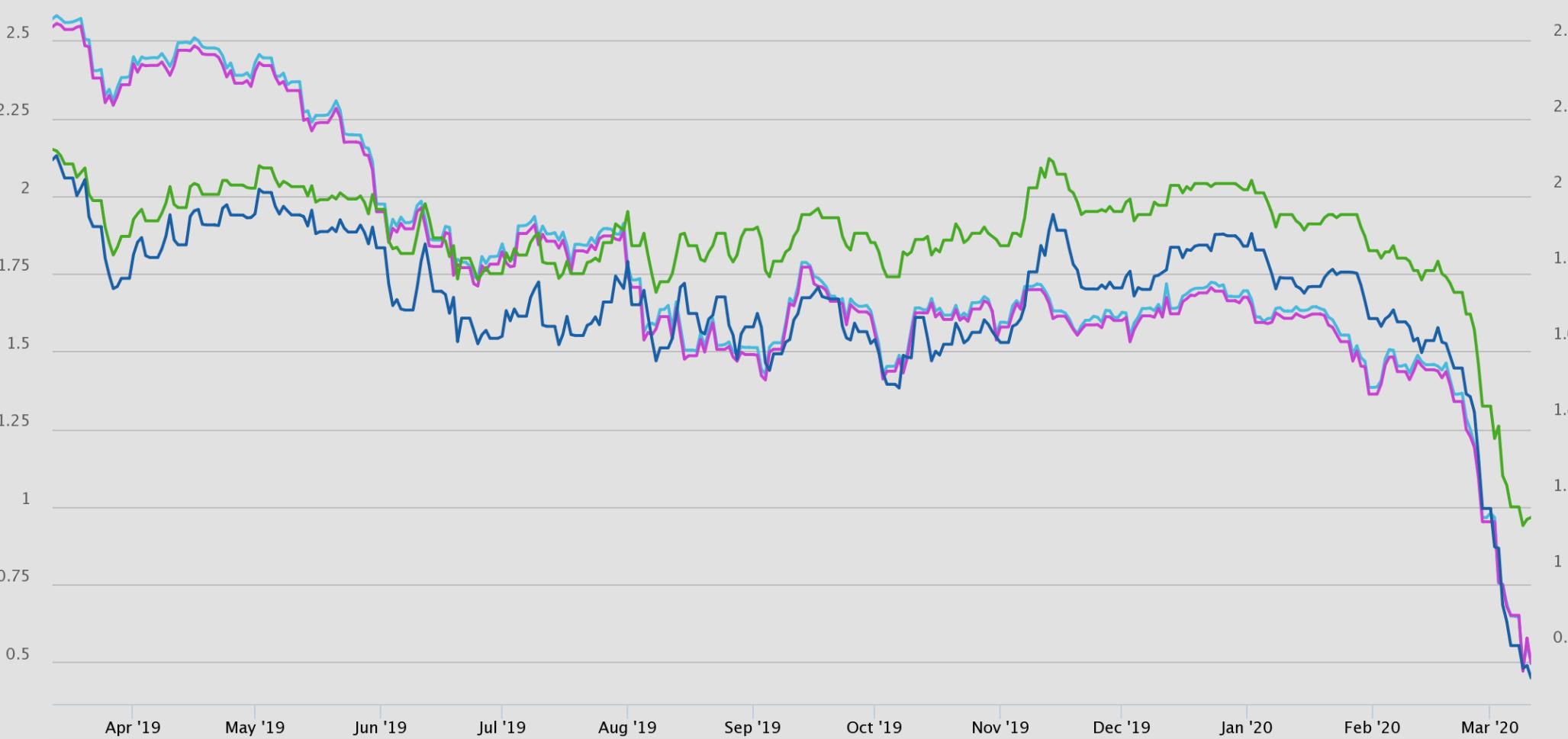


Figure 15. Most of EM rates rallied more than their beta would imply

	YTD changes (bp)	Beta	YTD implied change	Difference between implied and actual change
Fed pricing (+50bp delivered cut)	-103			
PLN2Y	-40	0.10	-10.1	29.4
CZK2Y	-60	-0.06	5.8	65.8
HUF2Y	28	0.01	-0.7	-28.2
ZAR2Y	-60	0.26	-26.6	33.1
ILS2Y	-7	0.16	-16.8	-10.3
TRY2Y	-4	-0.09	9.5	13.3
RUB2Y	-41	0.52	-53.4	-12.4
PLN10Y	-40	0.28	-28.7	11.3
CZK10Y	-54	0.19	-19.1	34.9
HUF10Y	-12	0.25	-25.2	-13.7
ZAR10Y	-26	0.25	-25.5	0.0
ILS10Y	-41	0.40	-41.1	-0.1
TRY10Y	37	0.01	-1.4	-38.4
RUB10Y	-42	0.40	-41.5	0.4

Source: Citi Research

China

Renminbi outperformance has further to go. Recent sharp rise in infections reported by several countries as well as further geographic expansion of COVID-19 raise concerns of deep hits to global growth. The rate cuts by several central banks so far may only be the beginning of a series of emergency response from policy makers around the world, in our view. Meanwhile, China's asset prices are showing signs of stabilization amidst expectations of policy support and continued decline in the rate of new infections. We see further room for RMB outperformance from here and think CFETS basket may strengthen towards 95 (from 93.1), even as USD does not weaken materially. We have overweight CNY overlay of +1% in the EM bond portfolio.

China yields curve likely to steepen. As rate of infection continued to drop in China, we believe the worst fear of economic loss has been reflected in the long end and that economic activity will continue to recover. To help the economy get back on its feet and soften the blow of hit on private economic participants, policymakers are expected to ensure comfortable liquidity conditions and overall accommodative bias to monetary policy. This shall keep the cost of renminbi financing low (7d repo fixing sub-2.40%), ample CNY liquidity (via OMOs keeping pace with pick up in loan demand and/or RRR cut) and potential for further lowering of policy rates – expect lower repo and MLF rates in March by ~10bp. In the meantime, fiscal policies will also likely to 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 \(2s5s\).](#)

seen dropping while the Figure 17. China: 2s5s could move to +35bp with reduced virus spread concerns in China and heightened economic recovery expectation



Source: Bloomberg, Citi Research

This week we took partial profits on duration and trimmed our FX exposure in LatAm (see [this note](#)). We appear to be early in the virus break out in Europe and the US. Risk assets may stay under pressure until the new infections outside of China show signs of peaking. To be more precise, there is a risk of equities making new lows, and breaking through the lows from last week may create more downside momentum. While duration in LatAm has benefitted on the back of global central bank easing and bond rally, at some point we fear FX weakness will once again take over and undermine local bonds for the high yielders. Considering the significant duration longs in our trading and bond portfolios, we opted to trim some exposure to protect profits, with the following changes in our portfolios:

1. **Take profit in [2-year IBR receiver in Colombia](#) and move duration from OW to MW in EM bond portfolio.** While growth will likely be hurt by the sharp fall in oil prices, FX weakness and persistent current account deficits may give Banrep second thoughts about cutting rates despite global easing. Banrep is the main central bank in LatAm where we fear market expectations of cuts may not be met. We move duration overweight to MW in the EM bond portfolio.
2. **Take partial profits on our Mexico duration overweight:** We halved our OW 0.2 CTD in Mexico.

In recent talks with Mexican officials, they suggested that it is not obvious that the central bank has to speed up the easing cycle, even though a renewed split vote cannot be ruled out. While the situation has clearly changed from when Banxico met last, it is not necessarily obvious for all board members if the negative impact on growth, or the negative impact on MXN is more relevant. Uncertainty remains high. Banxico is taking the Fed action into account and the Fed cut has clearly created more room, but there is no automatic link to the Fed. The focus is impact on inflation not the Fed per se. While the speed of the cycle will be discussed, it appears more likely to us that policy makers will chose to prolong the easing cycle (maybe slightly below neutral), rather than to speed it up. An emergency cut also does not seem to be on the agenda for now, as there is no sense of panic.

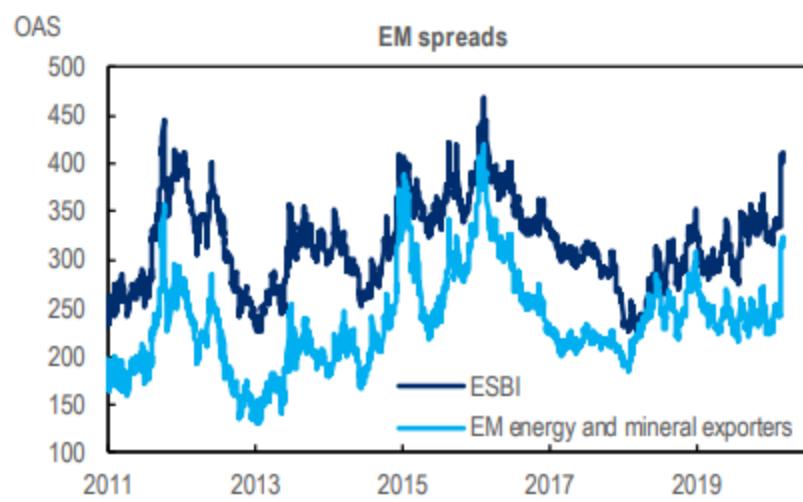
While Banxico's policy actions is more an issue for the front end, we note that MXN weakening may undermine the back end of the curve if volatility moves up too much. If the bottom of the S&P 500 should not hold, there is a risk of a sell-off in MBonos.

3. **But we keep some duration overweights.** We keep a 0.1 CTD OW in Mexico, 0.05 CTD OW in Chile and 0.1 CTD OW in Peru. We also keep our [Chile 9-month Cámara receiver](#) as a 50bp cut in the upcoming meeting is plausible.
4. **Cut FX exposure in PEN:** We FX hedge the [Peru Soberano 2026 bond](#) initiated two days ago. We also move the OW position to MW in the EM bond portfolio.

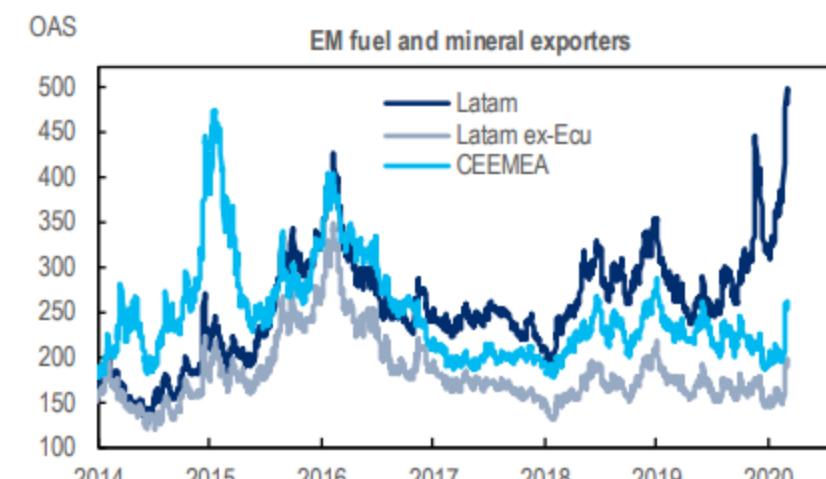
The market has punished commodity exporters. Coronavirus concerns have significantly affected commodity prices, with Brent oil falling over 20% YTD based on expectations of weaker demand. To determine whether the market is punishing commodity-dependent exporters in particular, we build an index of EM credit spreads for countries dependent upon energy and mineral exports. We rely on definitions from [UNCTAD](#), which identifies 102 countries around the world in which more than 60% of total merchandise exports are composed of commodities. To isolate the effect of oil prices on the market, we combine the 28 sovereigns with credit spread data (weighted by market value in the ESBI) that are reliant on energy and mineral exports (ignoring agricultural exporters), creating an index consisting of eight sovereigns from Latam, three from Asia, and 17 from CEEMEA.

Within Latam, Ecuador hit particularly hard. Notably, commodity-reliant spreads are lower than the broader EM index and widened roughly in line with the ESBI (Figure 31). Further disaggregation seems to suggest a divergence between CEEMEA and Latam commodity exporters (Figure 32), with Latam supposedly underperforming. However, this difference is largely superficial; digging even deeper, it's clear that most of the Latam widening was due to Ecuador¹, which makes up 21% of our Latam index, 5% of our commodity index, and less than 2% of the overall EM index). As we discussed [last week](#), domestic factors, coupled with Ecuador's extremely high beta to the ESBI, exacerbated Ecuador's underperformance in recent weeks.

Figure 31. Commodity exporters widened in line with the ESBI...



...while Ecuador drove Latam commodity widening relative to CEEMEA

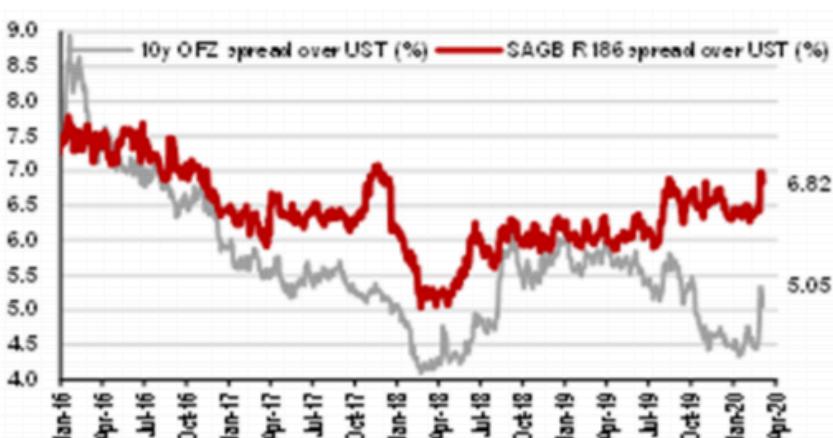


Source: Citi Research, FTSE

Source: Citi Research, FTSE

EMEA EM Local Markets: Fed gives green light to easing in high yielders; upsize HY duration OW

South Africa and Russian local bonds have ample room for spread compression versus UST yields



Source: J.P. Morgan, Bloomberg

EMEA EM Outright Trade Recommendations

Outright trades - Rates	Entry Date	Entry level	Current level	Target
Pay 06-Dec-20 – 06-Mar-21 PLN FRA	04-Mar-20	1.19%	1.19%	1.40%
Pay 06-Sep-20 – 06-Dec-20 CZK FRA	04-Mar-20	1.63%	1.63%	2.05%
Long 4y Ukraine government bond (UKRGB 11.67% Nov-23s; FX-unhedged) **	14-Feb-20	10.00%	11.50%	-
Long Pakistan 6m T-bill (16-Jul-20s; FX-unhedged)	17-Jan-20	13.1%	13.00%	-
Receive 5y RUB IRS	18-Dec-19	6.59%	6.15%	5.80%
Buy R186 on ASW (Buy R186, Pay 7y IRS)	10-Oct-19	100bp	93bp	65bp
Long 4y Egypt government bond (15.9% Jul-24s; FX-unhedged)	06-Sep-19	14.65%	14.30%	13.00%
Long 8y Serbia government bond (5.875% Feb-28s; FX-unhedged)	12-Feb-19	4.87%	2.95%	2.75%
Outright trades - FX	Entry Date	Entry Level	Current level	Target
02-Apr-20 EURZAR digital put (16.35), spot ref: 17.12	04-Mar-20	13.50%	13.50%	-
30-Apr-20 EURRUB 1x2 put spread (72.50/70), spot ref: 73.95	04-Mar-20	0.44%	0.44%	-
Long USD/KZT in 1m NDF	28-Feb-20	381.61	379.67	393.00
22-May-20 EUR/HUF call spread (340/345), spot reference: 333.66	04-Feb-20	0.45%	0.30%	-
Long 26-May-20 EUR/RON forward *	22-Nov-19	4.86	4.84	4.97
Long ILS vs. 0.5 EUR, 0.5 USD Basket	22-Nov-19	3.65	3.65	3.50

Source: J.P. Morgan, as of 05-Mar-19. *Entry and current level of Jul-19 forward entered on 10 Jul-18. ** current is mid yield

EM Asia Local Markets: Fed vs. Growth: 2019 Déjà vu?

Large declines in US real yields have been able to cushion the impact of negative global growth shocks for GBI EM Asia

High, medium and low categories refer to the top, middle and bottom tertiles of rolling 12-mo changes since 2003.

Monthly GBI EM Asia Total returns in various growth / yield scenarios

12-mo changes in Global PMI			
	Low	Medium	High
12-mo changes in US 10Y real yields	8.4%	10.9%	17.1%
Low	6.2%	3.1%	5.5%
Medium	-6.3%	0.3%	0.5%

... but this asymmetric impact of rates vis-à-vis growth does not extend to Asian FX

High, medium and low categories refer to the top, middle and bottom tertiles of rolling 12-mo changes since 2003.

Monthly USD/Asia returns in various growth / yield scenarios

12-mo changes in Global PMI			
	Low	Medium	High
12-mo changes in US 10Y real yields	-0.6%	-3.7%	-4.4%
Low	-0.6%	1.5%	-1.0%
Medium	14.1%	3.6%	0.6%
High			

EM Asia Local Markets Trade Recommendations

Long CGB 3.29 05/23/29	02-Aug-19	3.10	2.68
Long IGB 7.37 04/16/23	24-Sep-19	6.30	5.46
Buy SDBC 3.42 07/02/24 vs pay 5y CNH CCS	11-Oct-19	101	74
Long 10y INDOGB, FX-hedged with 3m NDF	23-Oct-19	7.17	6.62
23-Mar-20 70.0 strike at-expiry digital USD put/INR call option	25-Nov-19	9.7%	1.1%
2s10s THB NDIRS steepener	21-Jan-20	35	14
Receive 2y INR vs pay 2y SGD IRS	31-Jan-20	387	364
Long USD/THB 3m DF	26-Feb-20	31.93	31.67
Long CNH vs equal weight EUR, JPY, AUD, KRW	26-Feb-20		
Sell 3m EUR/CNH - #1		7.7079	7.8687
Long 3m CNH/JPY - #2		15.60	15.12
Sell 3m AUD/CNH - #3		4.6362	4.5984
Long 3m CNH/KRW - #4		172.30	170.55
Receive 1y1y HKD IRS	6-Mar-20	0.91	
Receive 5y CNY NDIRS	6-Mar-20	2.36	
Long KTB 1.375 12/10/29	6-Mar-20	1.33	

Entry Date | Entry | Current

Entry Date	Entry	Current
02-Aug-19	3.10	2.68
24-Sep-19	6.30	5.46
11-Oct-19	101	74
23-Oct-19	7.17	6.62
25-Nov-19	9.7%	1.1%
21-Jan-20	35	14
31-Jan-20	387	364
26-Feb-20	31.93	31.67
26-Feb-20		
	7.7079	7.8687
	15.60	15.12
	4.6362	4.5984
	172.30	170.55
6-Mar-20	0.91	
6-Mar-20	2.36	
6-Mar-20	1.33	

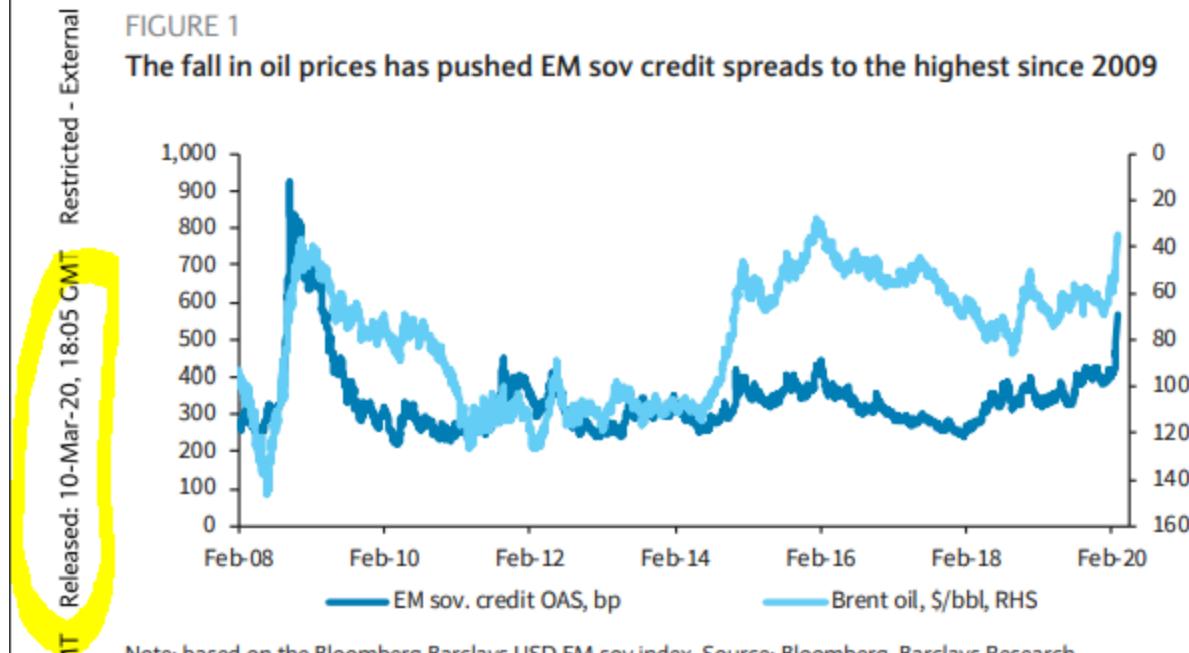
Source for all tables: J.P. Morgan

EM sovereign credit strategy

An oil-shock to the system

- The recent sharp fall in oil prices does not bode well for EM credit markets. EM credit returns have, on aggregate, had a clear correlation with oil prices historically. Moreover, compared with previous episodes of significant oil price declines, such as the 2015/16 commodity rout, the share of oil exporters in EM benchmark indices has surged.
- Oil exporters' fundamentals are generally in worse shape than in 2014, with some divergences in regional trends. Following the commodity rout in 2015, public indebtedness has increased almost uniformly. However, some countries have managed to shelter and/or re-build reserves (especially in the CIS region), while reserve coverage of external debt appears precariously low for some HY oil exporters (including Ecuador and Angola). The GCC region's credit metrics may remain under pressure, even though the region still benefits from sizeable buffers.
- With EM sovereign spreads having moved to their widest since 2009, we make some adjustments in ratings of oil-exporting EM sovereigns and recommend select switches where we think spread moves are not reflective of relative vulnerabilities:
 - We downgrade Ecuador and Colombia to UW (from MW and OW, respectively).
 - We maintain an OW rating on Russia and an UW on KSA and recommend a switch from the KSA 10y USD sector and EUR bonds into Indonesia (MW).
 - We recommend a switch from Angola (NR) long-end '49s into Ghana (MW) '51s and from Iraq (NR) '28s into Nigeria (OW) '25s.

FIGURE 1
The fall in oil prices has pushed EM sov credit spreads to the highest since 2009



Note: based on the Bloomberg Barclays USD EM Sov index. Source: Bloomberg, Barclays Research

Oil prices and EM credit: correlated concerns

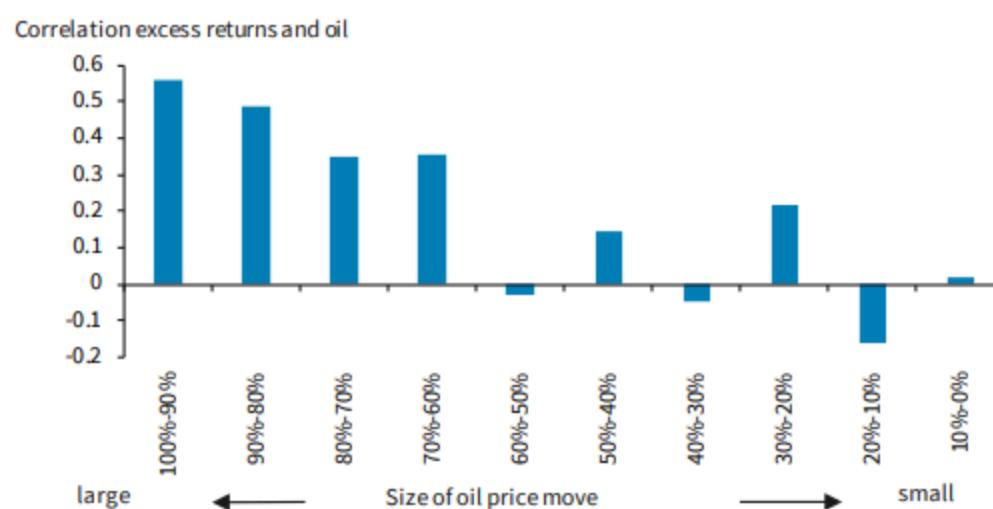
Oil prices have plunged...

*...which will likely have
adverse consequences for EM
credit returns*

Emerging Market credit investors have been faced with a confluence of developments recently that have injected an almost unprecedented level of volatility into markets: the potential economic consequences of the global COVID-19 outbreak, the impending debt restructurings in Argentina and Lebanon and, most recently, the sharp fall in oil prices. While oil prices had been under some pressure for some time, related to concerns about demand in a weaker global growth environment, the failure by OPEC+ to agree to a cut in oil production late last week and the subsequent indication by Saudi Arabia and other exporters to actually increase supply to capture market share have accelerated the move and have pushed Brent prices to levels last seen in the 2015/2016 commodity rout (Figure 1).

Judging by historical correlations, a sharp fall in oil prices is bad news for EM credit returns. Figure 2 illustrates that especially during periods of sharp oil price moves, aggregate EM sovereign credit (excess) returns are highly, and positively correlated. Of course, correlations differ by country (Figure 3), but on a 5y data history, only oil-importing Turkey and some low-beta CEE excess returns exhibit a negative correlation with oil prices. It is concerning that since the 2015/2016 commodity price rout, the share of oil exporters in standard EM credit indices, such as the Bloomberg Barclays USD EM sovereign index, has risen sharply (Figures 4 and 5). And the inclusion of the five GCC sovereigns into the widely followed EMBI (and EMBI core) indices in 2018 has likely led to increased EM investor involvement, including by ETFs, in the space in particular.

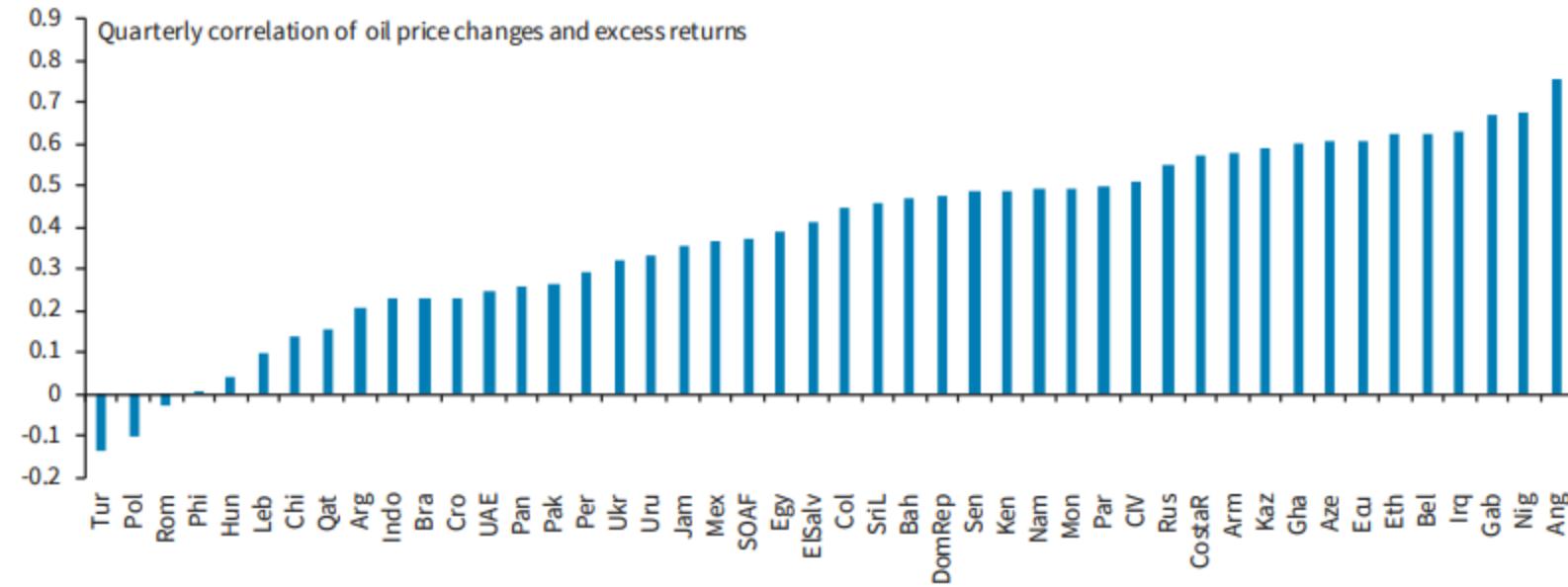
FIGURE 2
EM sovereign credit (excess) returns highly correlated to oil especially during periods of large oil price swings



Note: correlation of weekly EM sovereign credit excess returns and oil prices changes ranked on magnitude of oil price change. 100%-90% (10%-0%) denotes percentile with the weeks with the largest (smallest) oil price change recorded.
Source: Bloomberg, Barclays Research

FIGURE 3

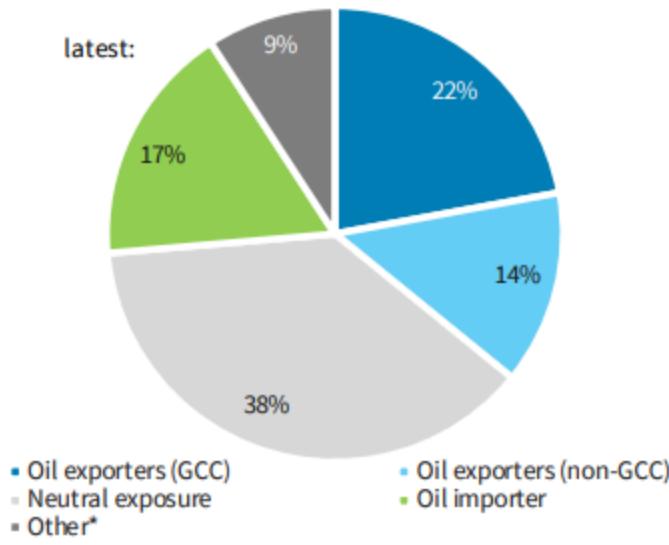
HY oil exporters exhibit the highest return correlation to oil, only Turkey and some CEE names are negatively correlated



Note: Data since 2014. Only countries with at least 5 years of history. Source: Bloomberg, Barclays Research

FIGURE 4

Oil exporters make up a sizeable part of the EM sovereign credit index...

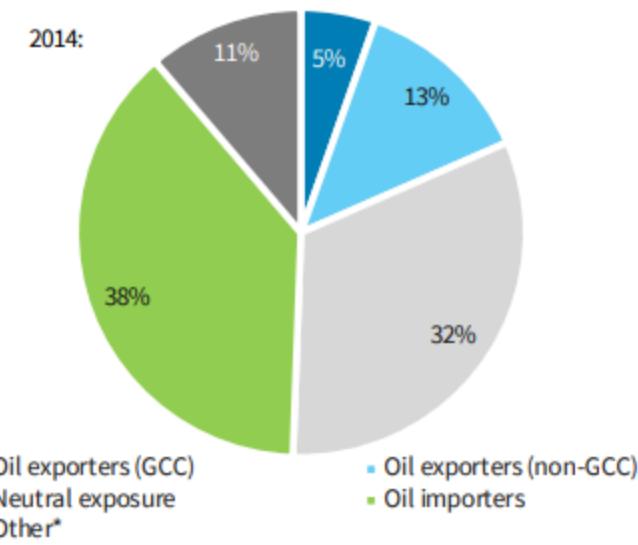


Note: based on Bloomberg Barclays USD EM sovereign index. Oil exposure defined according to a country's net exports exceeding +/- 2% of GDP. *Other means no classification possible due to lack of data.

Source: UNCTAD, IMF, Barclays Research.

FIGURE 5

...and this share has grown substantially since 2014

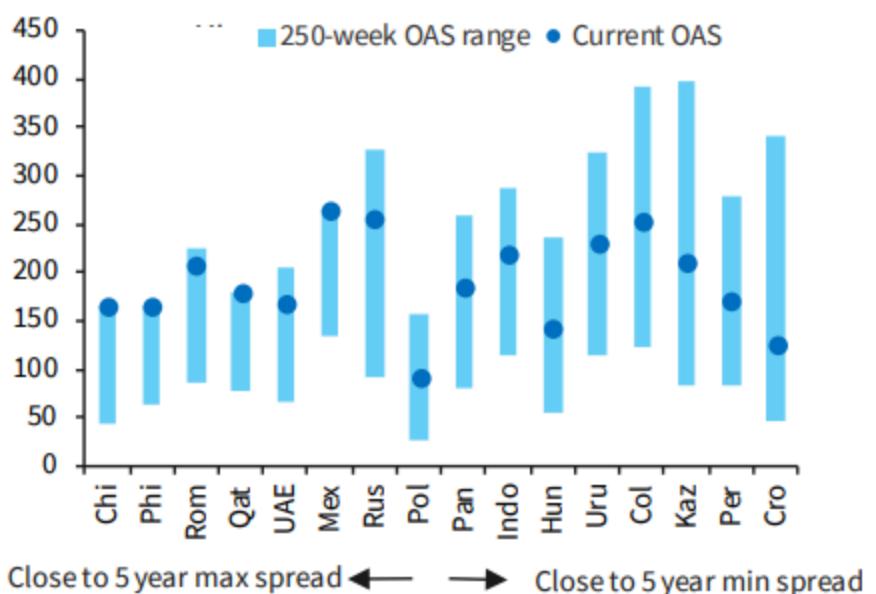


Note: based on Bloomberg Barclays USD EM sovereign index. Classification of oil exporters/importers similar to chart on the left.

Source: UNCTAD, IMF, Barclays Research.

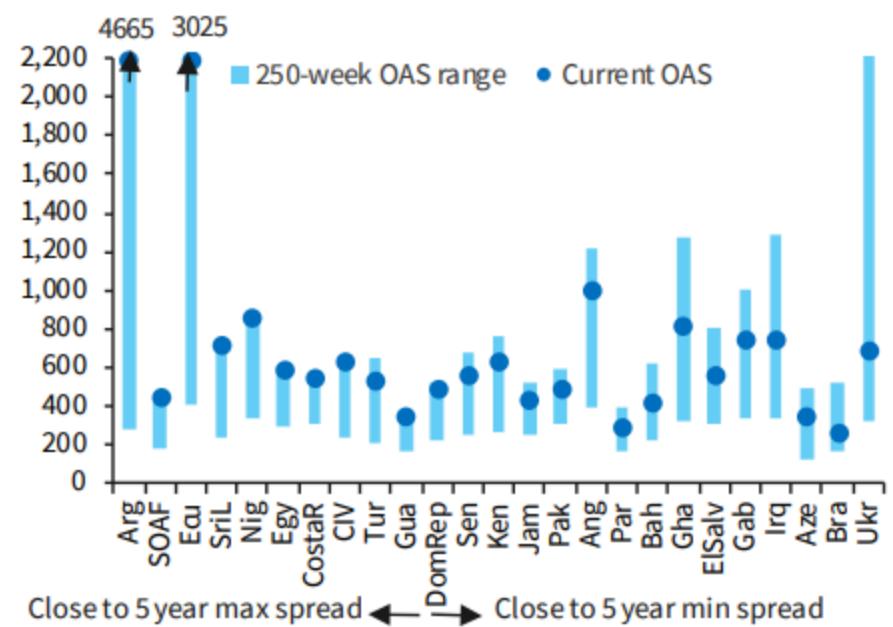
Barclays | EM sovereign credit strategy

FIGURE 14
5y trading ranges by ticker in IG sovereigns



Note: only tickers with a 5y spread history shown.
Source: Bloomberg, Barclays Research

FIGURE 15
5y trading ranges by ticker in HY sovereigns



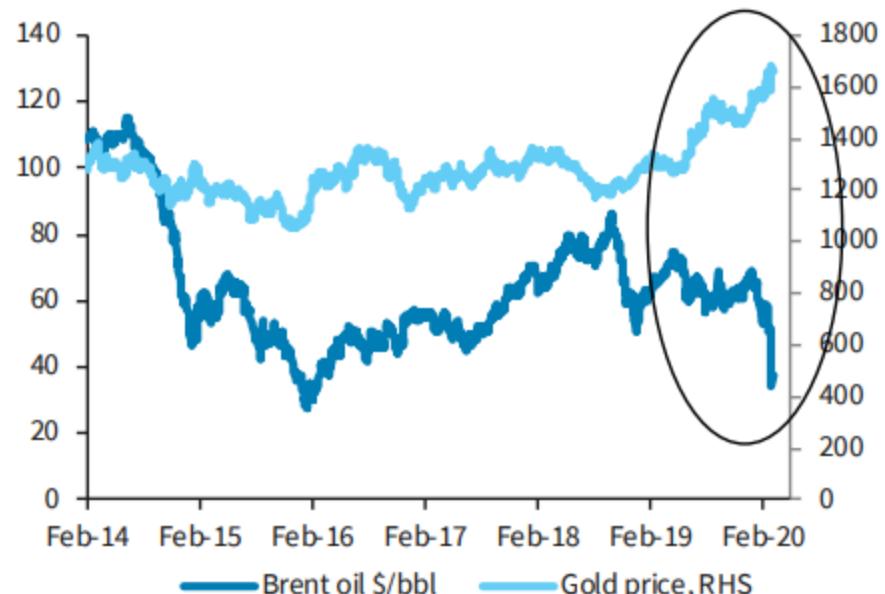
Note: only tickers with a 5y spread history shown.
Source: Bloomberg, Barclays Research

and importers) trade close to the high-end of their ranges. In some cases, we do not see any fundamental justification for this and think that if and when market volatility settles, investors will look favourably at these names. Indonesia is one example – for which we recommend a switch into its 10y USD sector and into its EUR bonds below (from KSA). We adjust some ratings of oil-exporting EM sovereigns and recommend select switches where we think spread moves are not fully reflective of fundamentals and relative vulnerabilities in the following.

Moreover, Nigeria spreads have moved to the top end of the past 5y trading range (Figure 15), accompanied by aggressive curve flattening, while Iraq spreads are still close to the middle of their multi-year range. Both countries' oil dependence is naturally high, as illustrated above, but both countries also have relatively large reserves (compared with other HY oil exporters). For Iraq, however, its relative proximity to Iran could make it more

Barclays | EM sovereign credit strategy

FIGURE 16
Gold and oil moving in different directions



Source: Bloomberg, Barclays Research

FIGURE 17
We consider Iraq's relative outperformance versus Nigeria as overdone



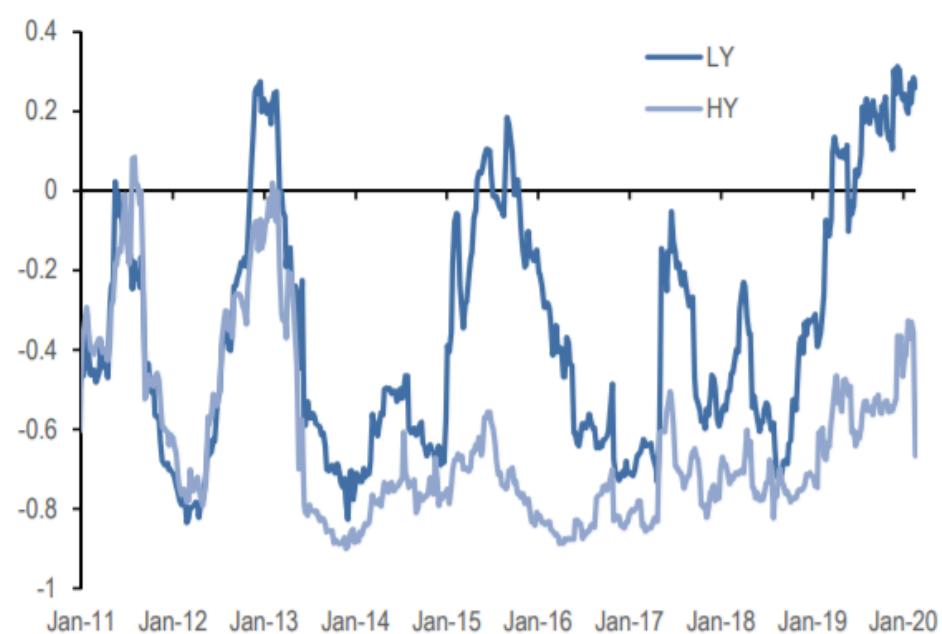
Source: Bloomberg, Barclays Research

vulnerable to risks from the COVID-19 outbreak and we hence think the balance of risks argues for a switch from Iraq '28s (amort.) into Nigeria '25s after the c.250bp relative outperformance of the former over the past few months (Figure 17).

Can EM local bonds withstand the EM FX weakness? We think they will as we do not expect high FX volatility to persist

EM rates have generally been less sensitive to FX weakness... except for last week

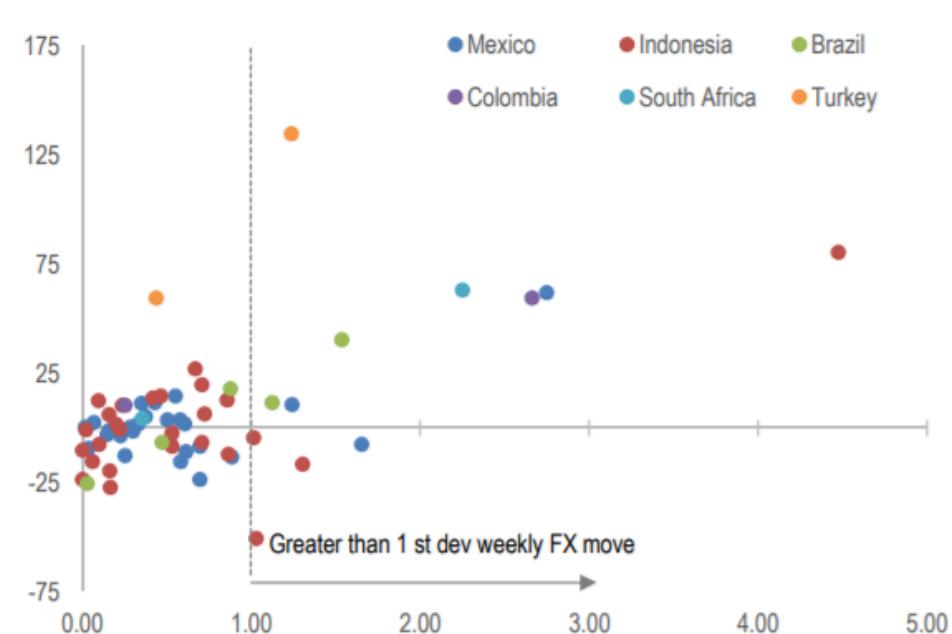
Correlation of EM rates changes to EM FX changes for GBI-EM countries split into HY (high yield) and LY (low yield) baskets.



Source: J.P. Morgan

Last week was a classic test-case of EM rates moves as FX volatility rises

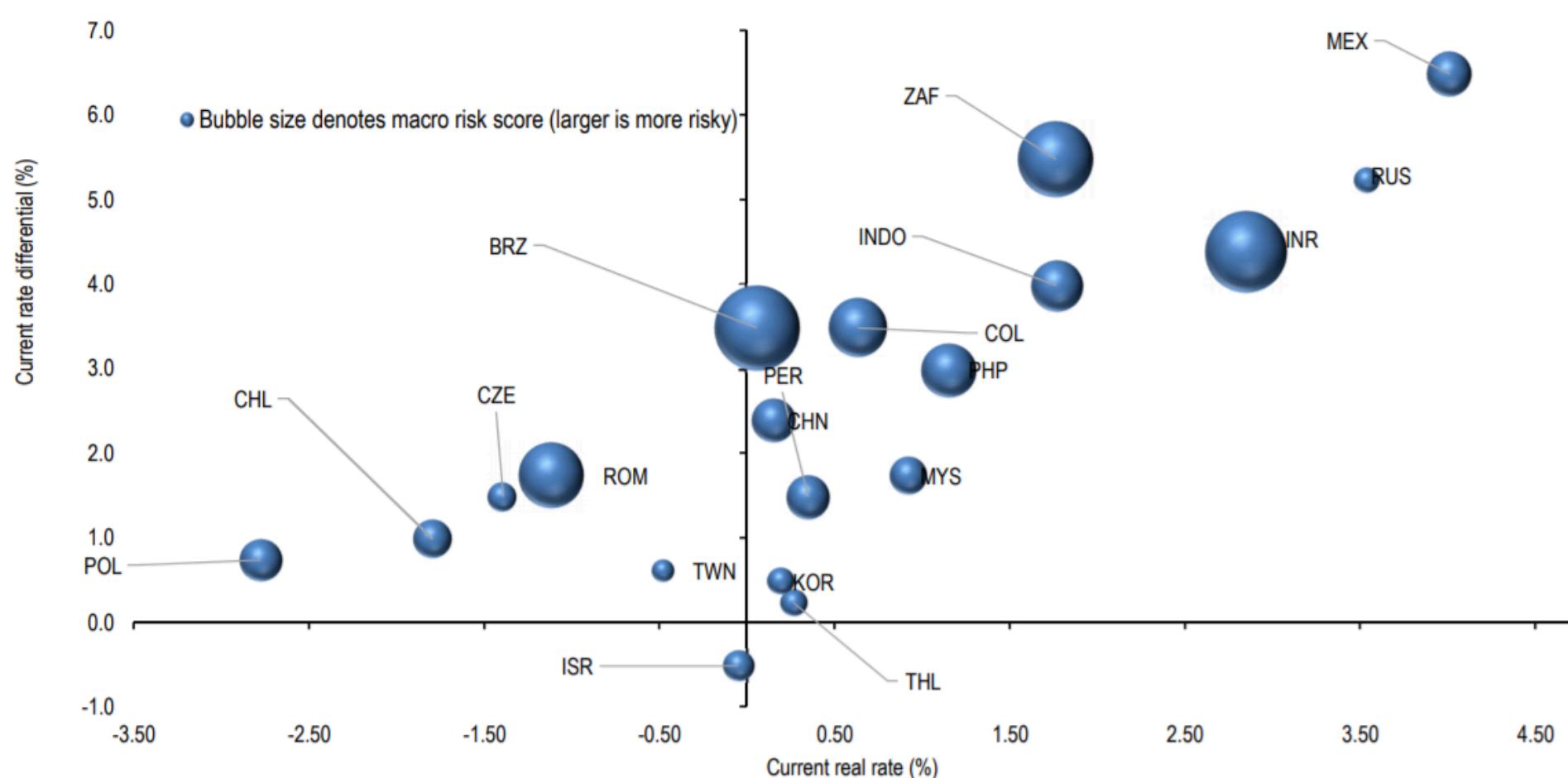
x-axis: Standard deviation of 1 week USD/EM FX changes; y-axis: Local rates move versus UST yields (bp). Data from the last 6 months.



Source: J.P. Morgan

HYs still have high real rates and rate differentials vs US

End-2020, Real policy rate and nominal rate differentials vs US



Source: J.P. Morgan

11 March 2020

RUB: A new reality

The tensions between potential unwind of foreign positioning on the one hand and supportive rouble-measures such as FX sales by the central bank on the other hand will likely leave the rouble to trade mainly as a function of oil prices for now. We see scope for USDRUB to range between 69 and 74 as long as oil prices in Brent terms do not fall below \$30/bbl or rise above \$45/bbl.

Adjusting to low oil prices

The rouble sold off aggressively on Monday (9 March) as a result of a collapse in oil prices that followed the break-down of the oil alliance between OPEC and Russia on Friday last week (6 March). USDRUB rose to multi-year high of 75.67 on Monday of the current week – a level which was last recorded in early 2016 after oil prices had fallen sharply for eight months. The rouble staged a partial recovery, together with oil prices, in trading yesterday (10 March), as it moved back to around the 72 area – still well above its January low of 60.88.

The sizable selloff in the rouble this week seems mainly to represent an adjustment to the new reality of low oil prices. A sharp decline in oil prices undermines the ability of Russia to continue to run sizable current account and fiscal surpluses without painful adjustments (such as a sharp decline in imports and/or cuts in fiscal spending). In the recent past, the twin surpluses have helped Russia attract sizable capital inflows from abroad into rouble-denominated assets. Together with elevated real rates and relatively muted risks of fresh sanctions from the US, these surpluses added to investors' belief in Russia's credit-worthiness and made the rouble a popular currency.

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Figure 13: The rouble managed to “outperform” the oil-price/RUB relationship of the past 12 months

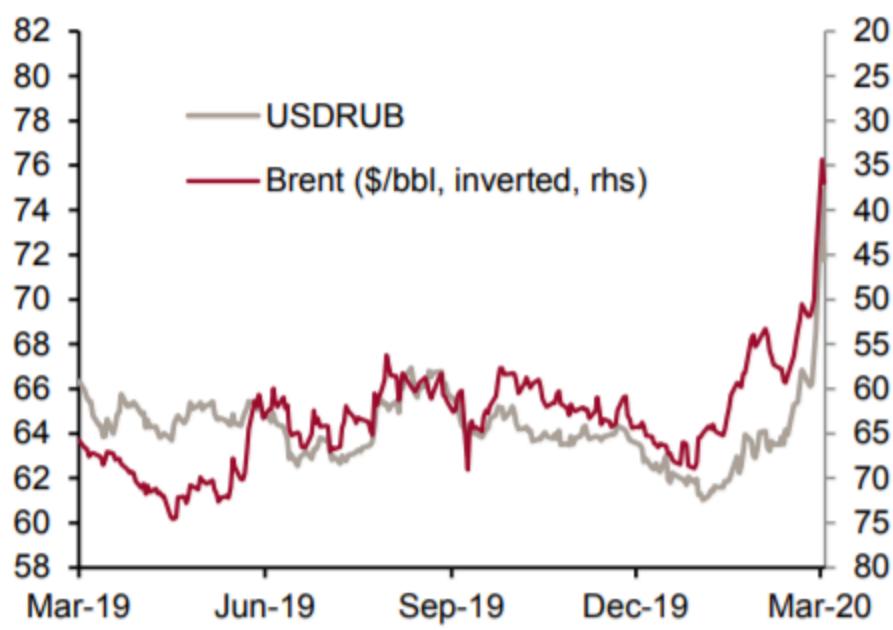
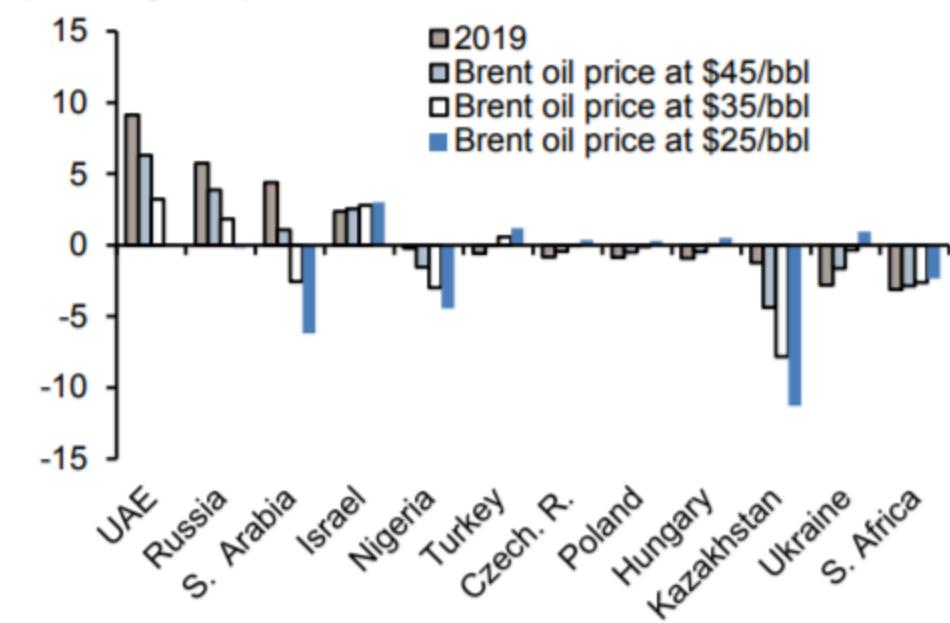


Figure 14: Russia's current account surplus is set to decline substantially

Current account scenarios (incorporating only the first-round* impact of oil price changes). In percent of 2019 GDP



FX sales by the central bank to partly offset potential outflows

We see two main contradicting factors which are going to impact the rouble in the short run.

On the one hand, FX sales by the central bank will provide some support for the rouble. In response to the selloff in the rouble on Monday (9 March) the central bank halted its regular pre-set FX purchases, and then decided to start

FX Compass

selling FX (from the National Wellbeing Fund which is part of the central bank's reserves). This is in line with the fiscal rule which allows it to sell FX when Urals prices fall below the budget cut-off oil price which currently stands at \$42.40/bbl. According to the budget rule, the central bank is set to sell FX at a pace of \$0.6bn-\$0.7bn per month at current Urals prices of around \$35/bbl. This figure will rise to around \$2.0bn-\$2.2bn should oil prices fall to \$25/bbl.

On the other hand, we expect some unwind of foreign positions in OFZs and in long rouble positions via FX forwards if oil prices fail to rebound meaningfully. A combination of expected increase in inflation (due to a sharp adjustment in the currency) and selling of Russian bonds by EM funds based abroad could (to the extent that these outflows continue) prove harmful for OFZs, in our view.

Our estimates suggest that about half of foreign holdings in OFZs are held by funds that follow an index, mostly the GBI-EM (Figure 15). We estimate that most of these holdings are not hedged to foreign currencies, so when foreign funds reduce these holdings, the rouble will be negatively affected.

11 March 2020

CREDIT SUISSE 

Following this assessment, we no longer recommend short ZARRUB. We initiated this trade last week, but the sharp decline in oil prices worked against it.

The conditional range that we set for USDRUB above also reflects the idea that we are not overly concerned about a potential for a substantial underperformance of the rouble, relative to the historical beta of the rouble to oil prices. Although the fundamental picture for Russia has changed for the worse, Russia has built sizable cushions in recent years that should help it withstand a prolonged period with low oil prices without a need for a major shock to the economy. As a reference, the central bank's FX reserves are larger than the entire Russian economy's foreign debt (Figure 16).

Markets seem to agree with this idea. That is the indication we take from the fact that Russian sovereign credit spreads have not widened materially more in percentage terms than the spread on the global sovereign EM benchmark index so far this week, and also from the outperformance of the rouble over oil yesterday.

Russia's still-high credit quality, despite the fall in oil prices, will likely prevent the rouble from building in a meaningful credit risk premium and limit the risk of disorderly outflows from the OFZ market. It also reduces the risk that investors challenge the central bank's room to sell FX according to the fiscal rule in the foreseeable future.

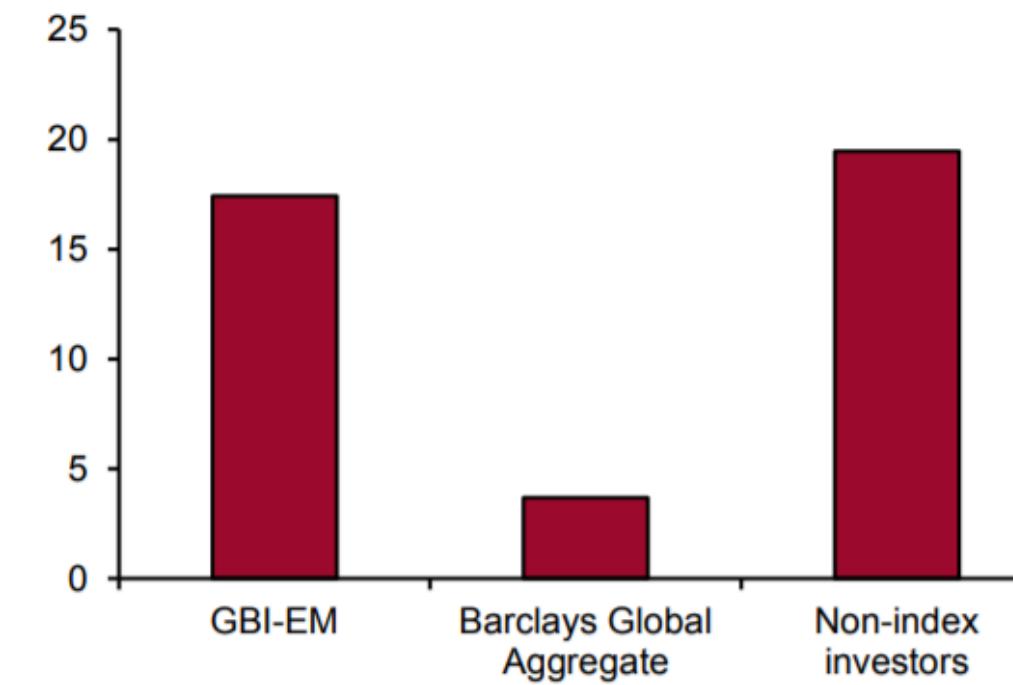
The rouble is likely to trade as a function of oil prices for now

The two contradicting factors mentioned above will likely leave the rouble primarily subject to short-term swings in oil prices and, by extension, to swings in global risk sentiment.

We generally expect USDRUB to range between 69 and 74 as long as Brent oil prices do not fall below \$30/bbl or rise above \$45/bbl. In a bearish scenario, we could imagine USDRUB rises to around 76-78 if oil prices drop to \$25/bbl. We reach these numbers based on the relationship between USDRUB and oil prices from the past 12 months and by assuming that the “outperformance” of the rouble over oil prices yesterday (10 March) remains largely in place (see Figure 13).

Figure 15: About half of foreign holdings in OFZs are benchmarked to an index

Breakdown of holdings in OFZs (assuming investors hold a market-weight exposure versus their benchmarks), \$bn



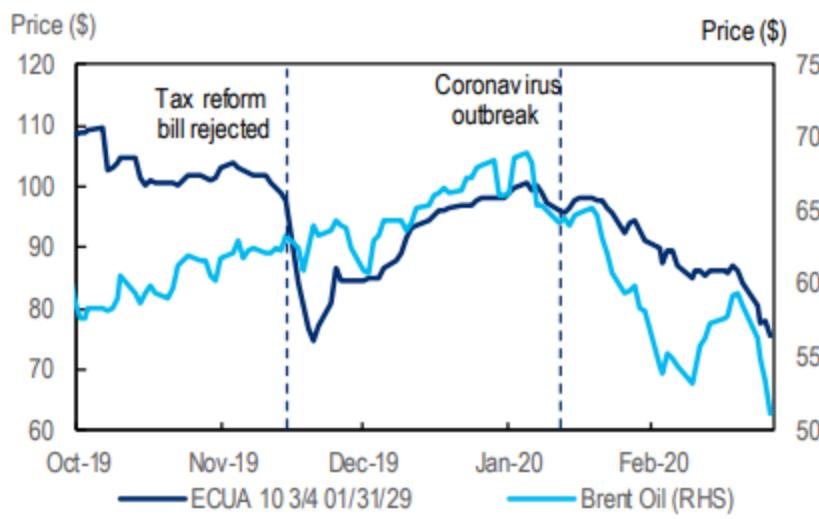
Source: Credit Suisse, central bank

Figure 16: FX reserves are impressively larger than the total stock of foreign debt



Source: Credit Suisse, central bank

Figure 36. Lower oil prices and domestic turbulence have hit Ecuador bonds



Source: Citi Research

Figure 37. The Ecuador 5s10s curve has inverted despite EM HY steepening over the past year



Source: Citi Research

We close our outright long Ecuador 2029 at \$76.25 (8:13 NYT on 2/27/20). We initiated the trade [in mid-October](#), in the early stages of the protests following President Moreno's attempt to cut fuel subsidies, to express our short-term positive view of Moreno's efforts to quell the unrest. In November, Ecuador bonds declined following a surprise rejection of President Moreno's initial tax reform bill by the National Assembly, but then recovered most losses within a few weeks. More recently, political uncertainty has reentered the scene; the opposition party CREO broke off from the governing coalition, leaving President Moreno without a majority in congress, while 2021's presidential race is beginning to take shape. Meanwhile, oil prices have fallen as the coronavirus epidemic expands. Although lower oil will not significantly affect Ecuador's IMF program (the IMF cares about the non-oil fiscal balance), bonds have still suffered. As a result, we close out of our trade with a P&L of -24pts.

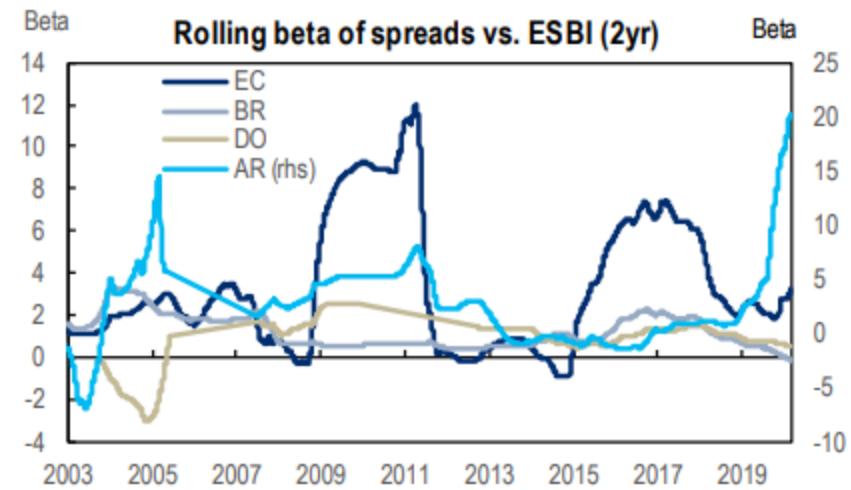
We close our long Ecuador 2029 vs short Ecuador 2024 at -48bp (8:13 NYT on 2/27/20). In October, we also initiated this notional neutral trade in anticipation of larger spread compression in the 29s. The spread has indeed flattened, but not in the risk-on compression scenario we were expecting. As we [recently discussed](#), EM curves (particularly HY) steepened in 2019, and for the first half of 2019, Ecuador followed this trend. However, as political uncertainty unfolded, the curve flattened and even inverted in recent days (Figure 37). Since we were notional neutral rather than DV01 neutral on our trade, the overall widening in Ecuadorian spreads hurt our performance. We close out at a spread of -48bp for a P&L of -\$525k (on a notional of \$10mn).

Emerging Markets Strategy Weekly
27 February 2020

Citi Research

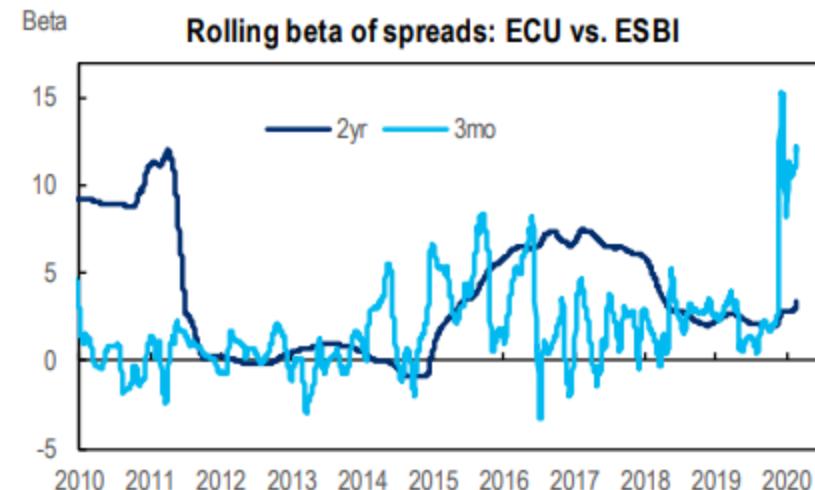
rolling beta instead of a 2-year rolling beta, we observe that the beta has spiked in recent months (Figure 39). General risk-off sentiment in EM credit has therefore exacerbated the risk-off move in Ecuador, which made our positions untenable.

Figure 38. Ecuador has a high beta with ESBI amongst Latam credits...



Source: Citi Research

...and using a 3-month rolling look-back, this beta has spiked in recent months



Source: Citi Research

Leveraging through commodity-linked assets

Oil currencies have been suffering from the strong and resilient US dollar in the uncertain environment over the past two years, and the subsequent US-dollar assets bid. In recent weeks, despite the bearish oil price action, oil currencies have outperformed oil - our basket of oil-linked currencies depreciated by 3% against the US dollar since the start of the year - highlighting their value status.

The current lack of co-movement between NOK and BRL to oil and the recent depreciation vs the US dollar provides attractive entry points

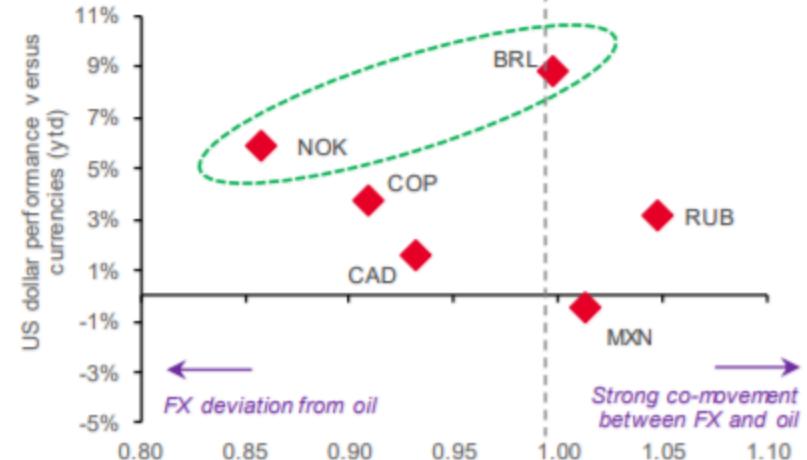
Given the relative cheapness of most oil currencies on a real effective exchange rate basis, to leverage a potential rebound of the oil price post the OPEC+ meeting in March, we believe that the Norwegian krone and Brazilian real would be the most attractive candidates. Their current lack of co-movement to oil and recent depreciation vs the US dollar provides attractive entry points. In particular, we highlighted [the compelling investment case of Brazil in our latest Multi Asset Portfolio](#).

Oil currencies outperformed oil since the start of the year



Base 100 = 01/01/00. Data as of 14/02/20. Basket of oil-linked currencies: CAD, NOK, BRL, MXN, RUB, COP. Source: Bloomberg, Datastream, SG Cross Asset Research/Global Asset Allocation

NOK and BRL are the most attractive candidates to leverage a rebound in the oil price



USD/ccy: if positive performance, it means depreciation of the currency versus US dollar. Cointegration analysis run on a rolling window of 100 days. Trace statistics for each oil-linked currency suggest the rejection of null hypothesis of no cointegration if it is above 1. Source: Bloomberg, Datastream, SG Cross Asset Research/Global Asset Allocation

US Energy high yield is also under pressure, versus the broad US high yield complex, highlighting the fragility of the US shale oil in an environment where oil price comes under pressure (cost of production of shale oil in the US ranges from \$48/b in Permian/Midland to \$54/b in other areas according to the [Dallas Fed Energy survey in March 2019](#)).

We continue to stay away from highly leveraged and illiquid assets – namely US small caps and US High Yield

From a tactical standpoint, in a context where oil price rebound, the energy part of US high yield complex should outperform. **However, from an asset allocation standpoint and on a medium-term perspective, we continue to stay away from highly leveraged and illiquid assets – namely US small caps and US High Yield.**

3 March 2020

EM Local Rates Monitor



Correlation matrix across EM local rates

2Y IRS

2Y IRS	CZK	HUF	ILS	PLN	RON (XCCY)	RUB	ZAR	TRY (XCCY)	CLP	COP	MXN	USD	EUR	NOK	SEK	CHF
CZK	1.00	0.44	0.06	0.65	0.41	-0.26	0.11	-0.02	0.07	0.62	-0.11	0.25	0.70	0.45	0.84	0.89
HUF	0.44	1.00	0.67	0.69	0.59	0.41	0.43	0.58	0.66	0.41	0.58	0.63	0.66	-0.42	0.27	0.44
ILS	0.06	0.67	1.00	0.54	0.81	0.89	0.83	0.93	0.95	0.35	0.95	0.91	0.64	-0.60	-0.13	0.24
PLN	0.65	0.69	0.54	1.00	0.59	0.19	0.37	0.42	0.48	0.50	0.37	0.54	0.73	0.01	0.48	0.67
RON (XCCY)	0.41	0.59	0.81	0.59	1.00	0.64	0.81	0.78	0.86	0.74	0.76	0.86	0.87	-0.22	0.27	0.63
RUB	-0.26	0.41	0.89	0.19	0.64	1.00	0.85	0.87	0.85	0.14	0.94	0.84	0.39	-0.74	-0.43	-0.04
ZAR	0.11	0.43	0.83	0.37	0.81	0.85	1.00	0.80	0.86	0.53	0.83	0.92	0.70	-0.42	-0.02	0.37
TRY (XCCY)	-0.02	0.58	0.93	0.42	0.78	0.87	0.80	1.00	0.92	0.39	0.92	0.83	0.55	-0.55	-0.24	0.15
CLP	0.07	0.66	0.95	0.48	0.86	0.85	0.86	0.92	1.00	0.53	0.95	0.92	0.70	-0.55	-0.05	0.29
COP	0.62	0.41	0.35	0.50	0.74	0.14	0.53	0.39	0.53	1.00	0.33	0.53	0.86	0.21	0.62	0.78
MXN	-0.11	0.58	0.95	0.37	0.76	0.94	0.83	0.92	0.95	0.33	1.00	0.87	0.54	-0.68	-0.26	0.11
USD	0.25	0.63	0.91	0.54	0.86	0.84	0.92	0.83	0.92	0.53	0.87	1.00	0.79	-0.48	0.07	0.47
EUR	0.70	0.66	0.64	0.73	0.87	0.39	0.70	0.55	0.70	0.86	0.54	0.79	1.00	-0.06	0.61	0.88
NOK	0.45	-0.42	-0.60	0.01	-0.22	-0.74	-0.42	-0.55	-0.55	0.21	-0.68	-0.48	-0.06	1.00	0.55	0.33
SEK	0.84	0.27	-0.13	0.48	0.27	-0.43	-0.02	-0.24	-0.05	0.62	-0.26	0.07	0.61	0.55	1.00	0.84
CHF	0.89	0.44	0.24	0.67	0.63	-0.04	0.37	0.15	0.29	0.78	0.11	0.47	0.88	0.33	0.84	1.00

5Y IRS

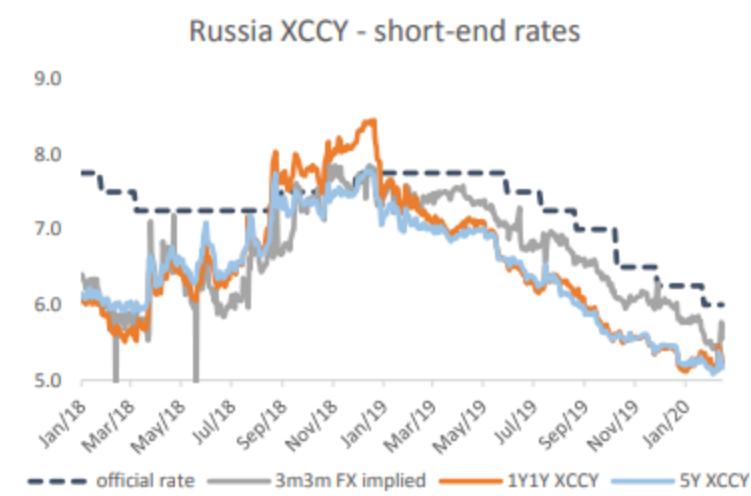
5Y IRS	CZK	HUF	ILS	PLN	RON (XCCY)	RUB	ZAR	TRY (XCCY)	CLP	COP	MXN	USD	EUR	NOK	SEK	CHF
CZK	1.00	0.63	0.31	0.72	0.60	-0.05	0.33	0.13	0.45	0.71	0.22	0.51	0.81	0.83	0.92	0.85
HUF	0.63	1.00	0.82	0.91	0.80	0.58	0.60	0.69	0.86	0.67	0.77	0.81	0.82	0.35	0.64	0.67
ILS	0.31	0.82	1.00	0.78	0.86	0.91	0.84	0.90	0.93	0.63	0.97	0.93	0.76	0.21	0.41	0.55
PLN	0.72	0.91	0.78	1.00	0.79	0.51	0.63	0.64	0.79	0.70	0.70	0.81	0.86	0.53	0.71	0.75
RON (XCCY)	0.60	0.80	0.86	0.79	1.00	0.69	0.82	0.72	0.92	0.80	0.83	0.92	0.92	0.48	0.68	0.81
RUB	-0.05	0.58	0.91	0.51	0.69	1.00	0.81	0.90	0.79	0.44	0.93	0.80	0.48	-0.08	0.07	0.27
ZAR	0.33	0.60	0.84	0.63	0.82	0.81	1.00	0.73	0.83	0.78	0.83	0.90	0.75	0.36	0.46	0.65
TRY (XCCY)	0.13	0.69	0.90	0.64	0.72	0.90	0.73	1.00	0.82	0.50	0.89	0.77	0.55	0.10	0.18	0.35
CLP	0.45	0.86	0.93	0.79	0.92	0.79	0.83	0.82	1.00	0.73	0.92	0.93	0.84	0.32	0.56	0.68
COP	0.71	0.67	0.63	0.70	0.80	0.44	0.78	0.50	0.73	1.00	0.58	0.78	0.88	0.64	0.79	0.83
MXN	0.22	0.77	0.97	0.70	0.83	0.93	0.83	0.89	0.92	0.58	1.00	0.90	0.70	0.12	0.33	0.49
USD	0.51	0.81	0.93	0.81	0.92	0.80	0.90	0.77	0.93	0.78	0.90	1.00	0.88	0.42	0.61	0.77
EUR	0.81	0.82	0.76	0.86	0.92	0.48	0.75	0.55	0.84	0.88	0.70	0.88	1.00	0.69	0.88	0.93
NOK	0.83	0.35	0.21	0.53	0.48	-0.08	0.36	0.10	0.32	0.64	0.12	0.42	0.69	1.00	0.82	0.77
SEK	0.92	0.64	0.41	0.71	0.68	0.07	0.46	0.18	0.56	0.79	0.33	0.61	0.88	0.82	1.00	0.89
CHF	0.85	0.67	0.55	0.75	0.81	0.27	0.65	0.35	0.68	0.83	0.49	0.77	0.93	0.77	0.89	1.00

Russia (XCCY)

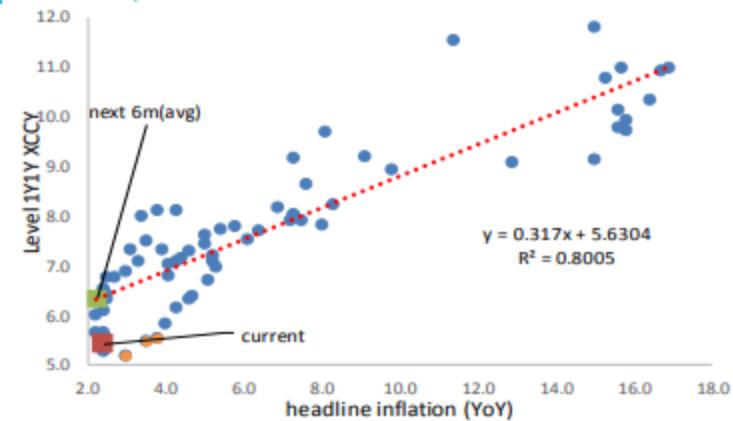
What is priced?



Short-end rates - IRS curve



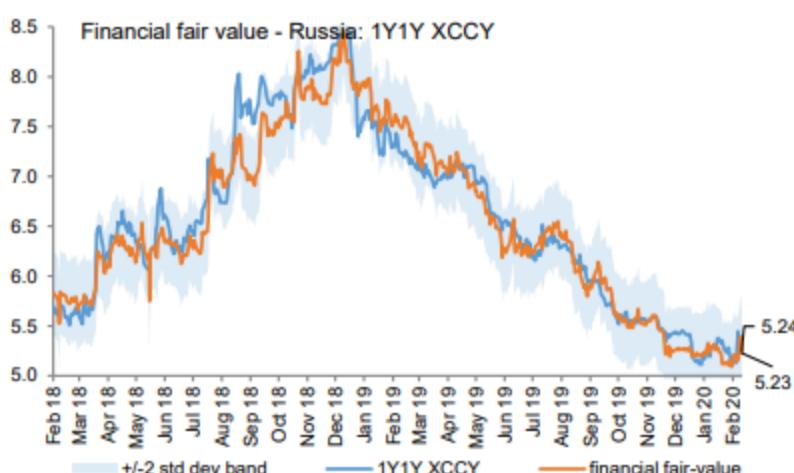
Inflation dynamics vs short-end rates...



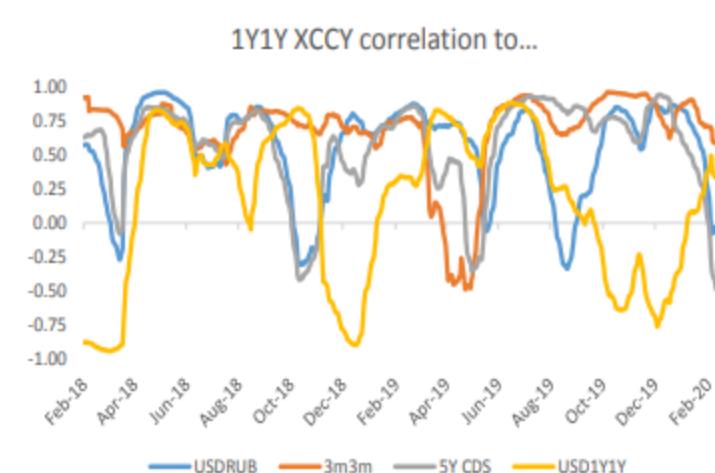
...and what is implied for the next six months..



Short-term valuation model - results

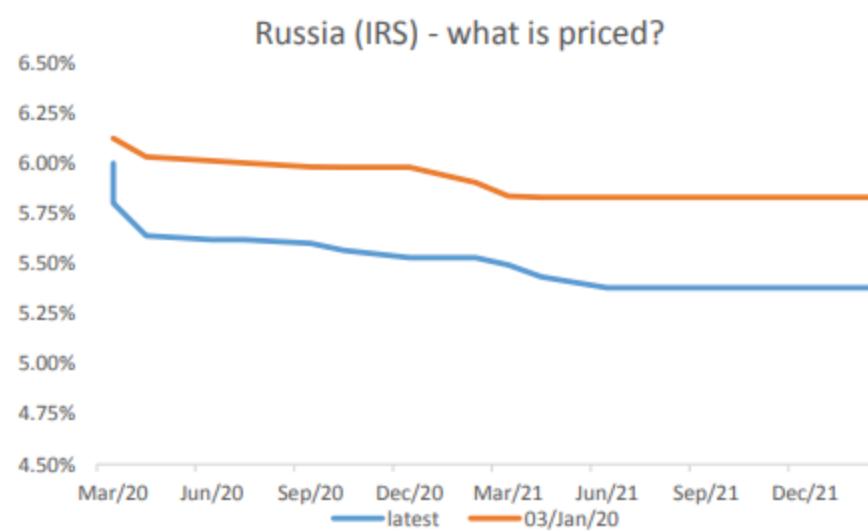


1Y1Y IRS correlation to...

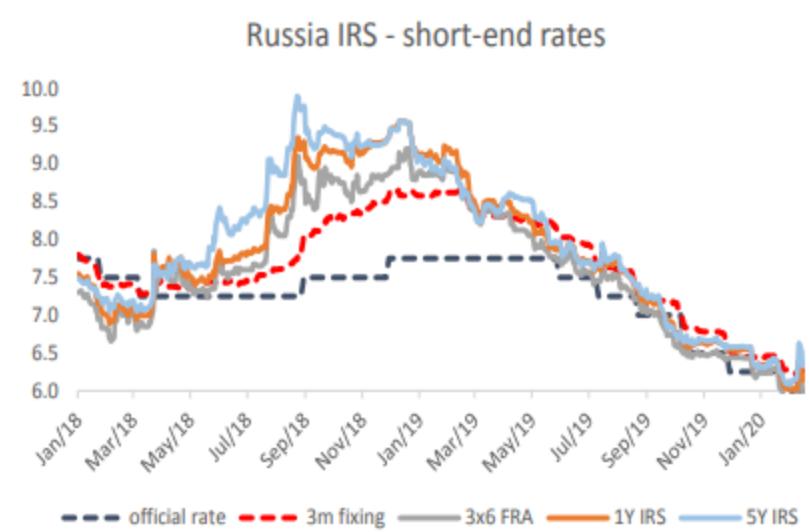


Russia (IRS)

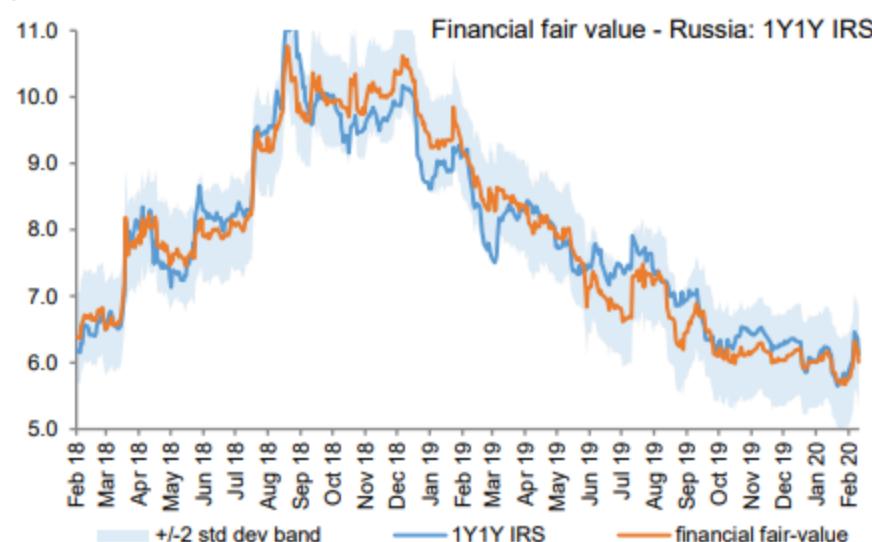
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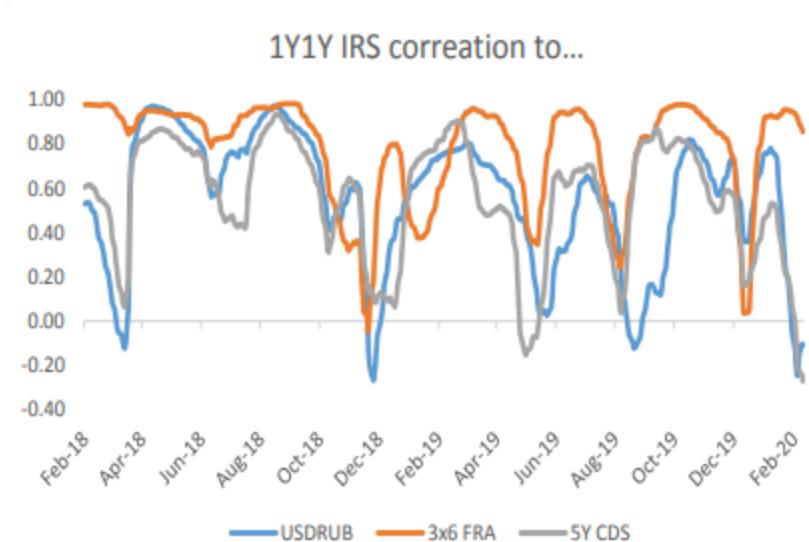
Short-end rates - IRS curve



Short-term valuation model - results

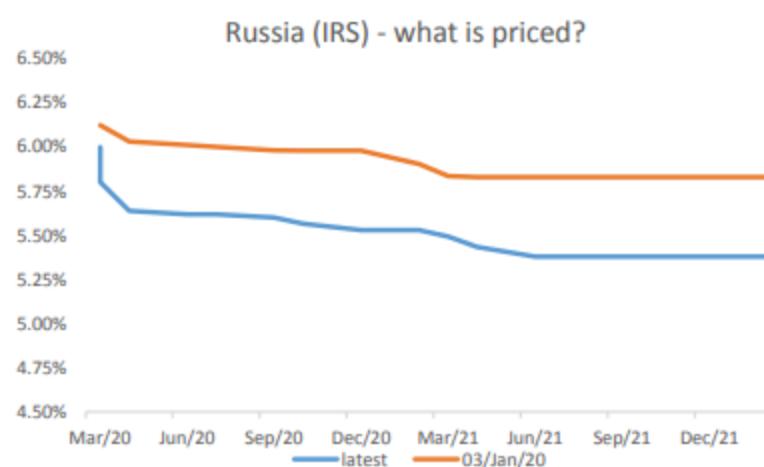


1Y1Y IRS correlation to...



South Africa

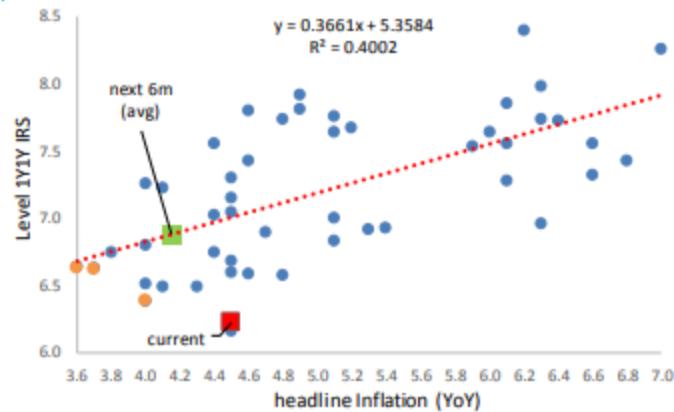
What is priced?



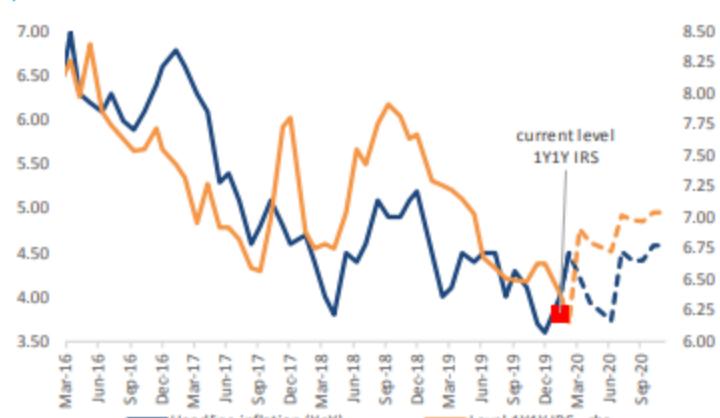
Short-end rates - IRS curve



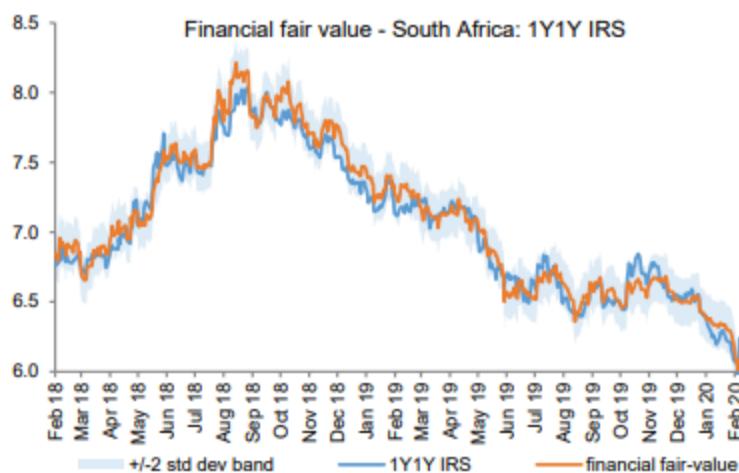
Inflation dynamics vs short-end rates...



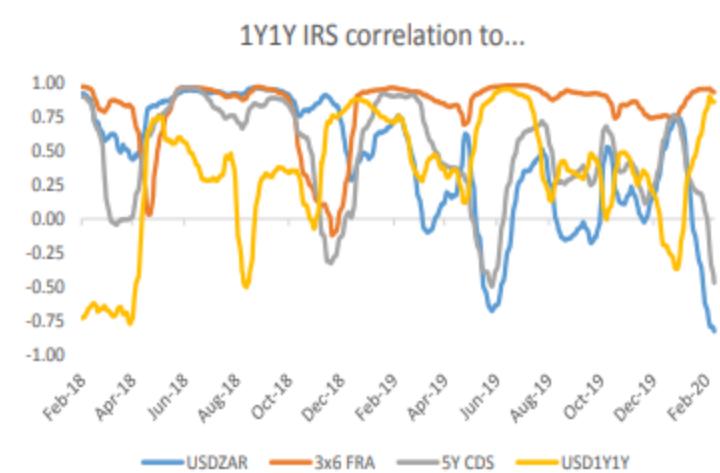
...and what is implied for the next six months..



Short-term valuation model - results

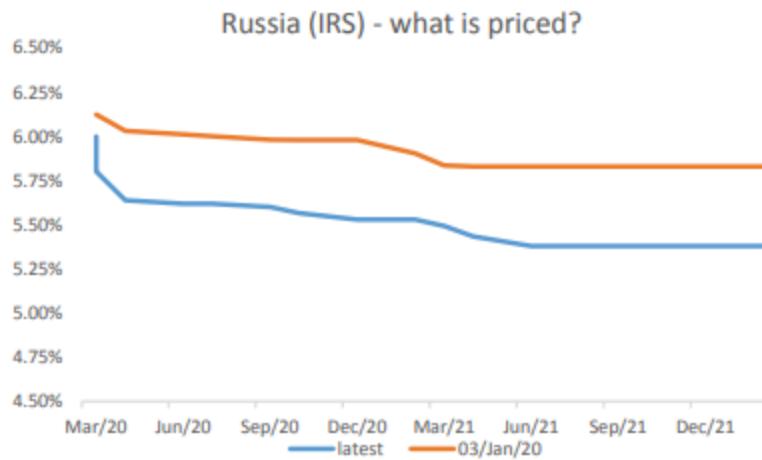


1Y1Y IRS correlation to...



Turkey

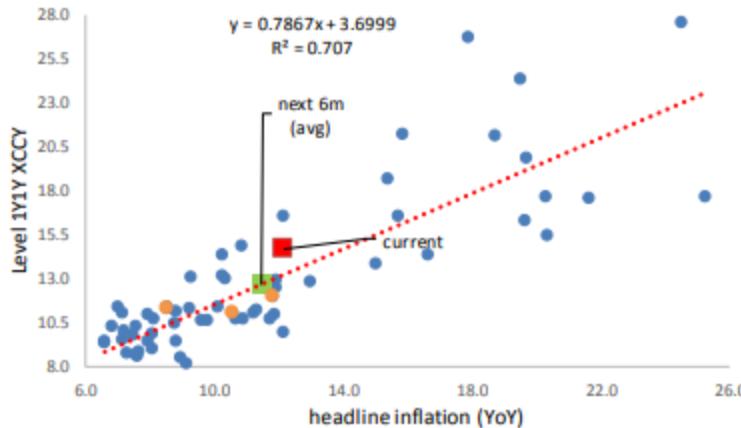
What is priced?



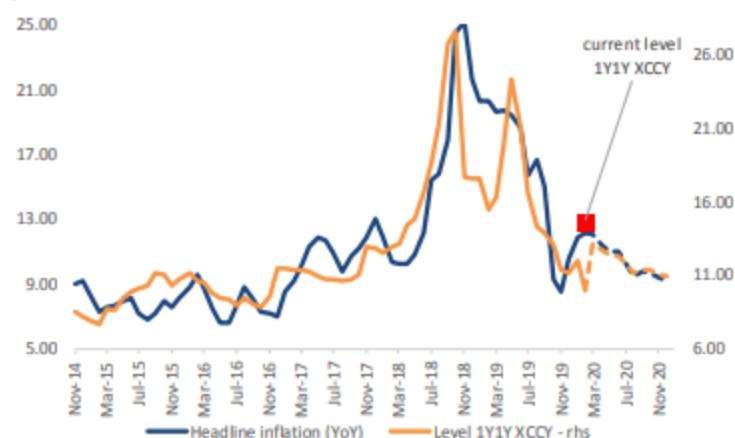
Short-end rates - IRS curve



Inflation dynamics vs short-end rates...



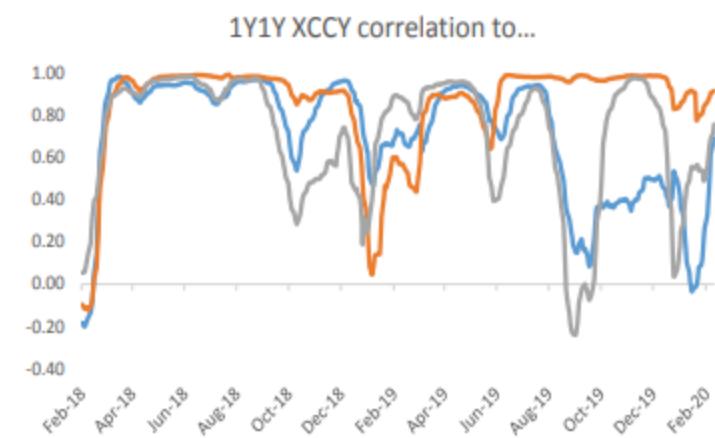
...and what is implied for the next six months..



Short-term valuation model - results

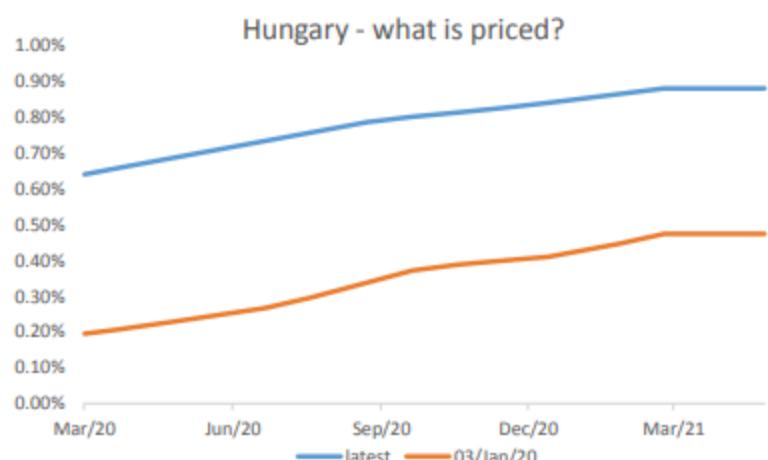


1Y1Y IRS correlation to...

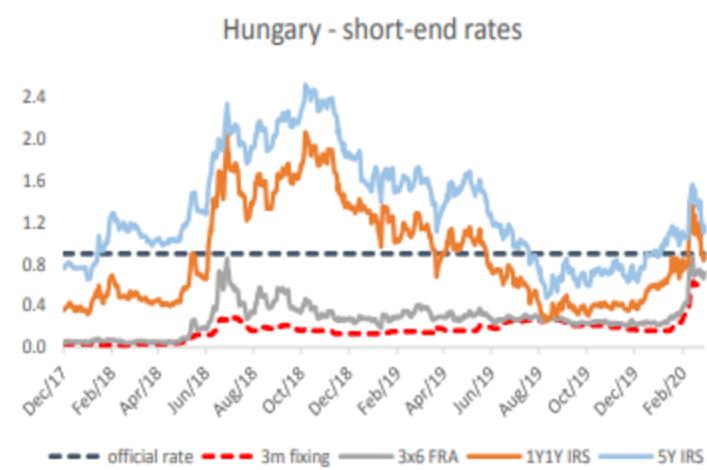


Hungary

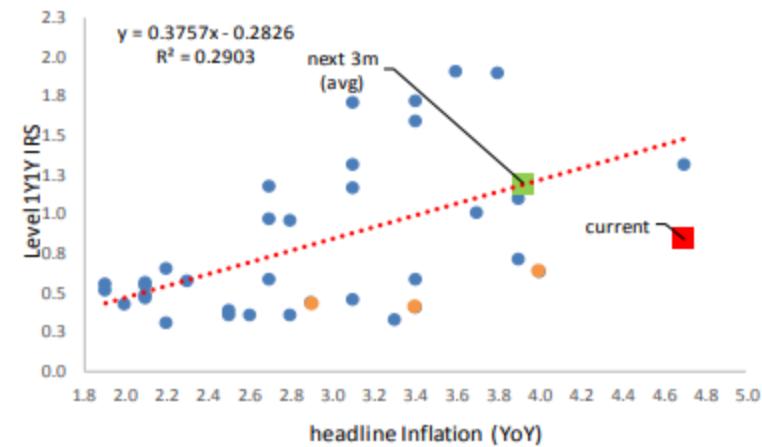
What is priced?



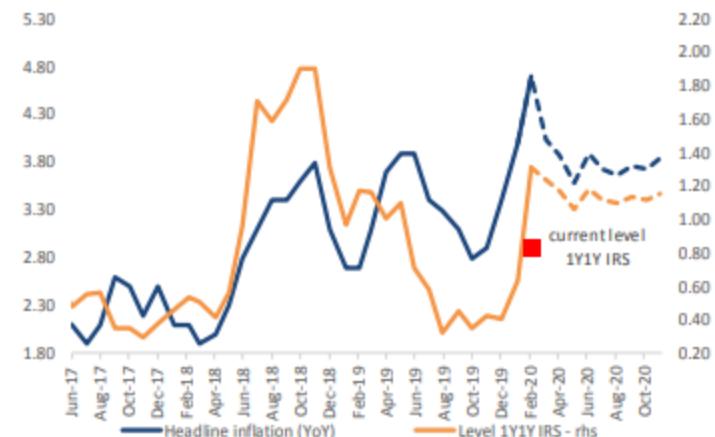
Short-end rates - IRS curve



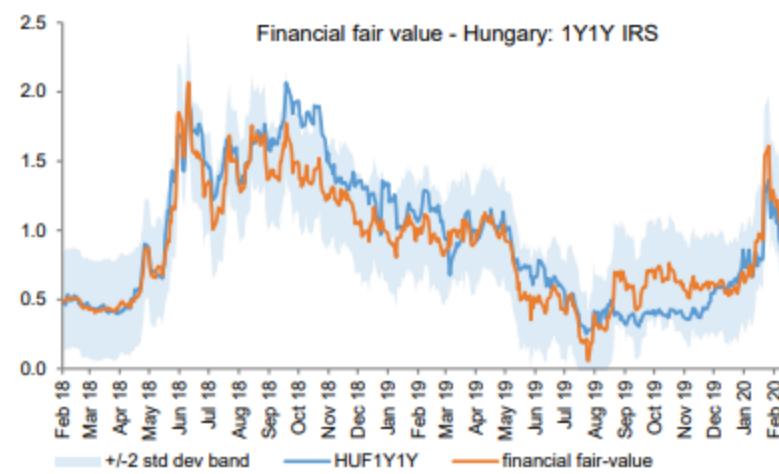
Inflation dynamics vs short-end rates...



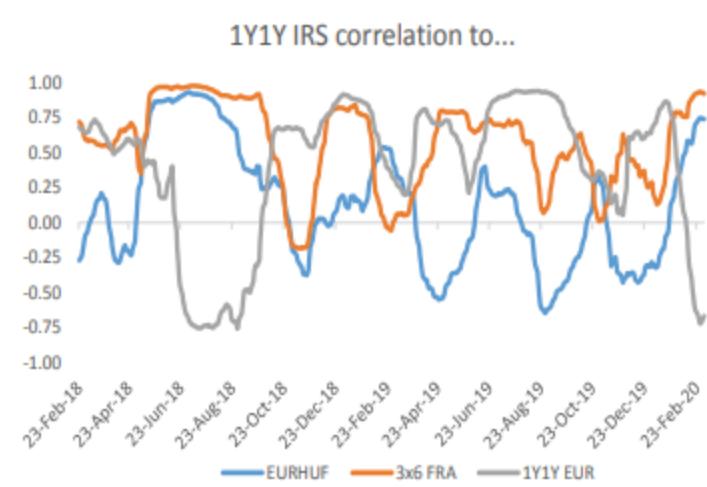
...and what is implied for the next six months..



Short-term valuation model - results



1Y1Y IRS correlation to...



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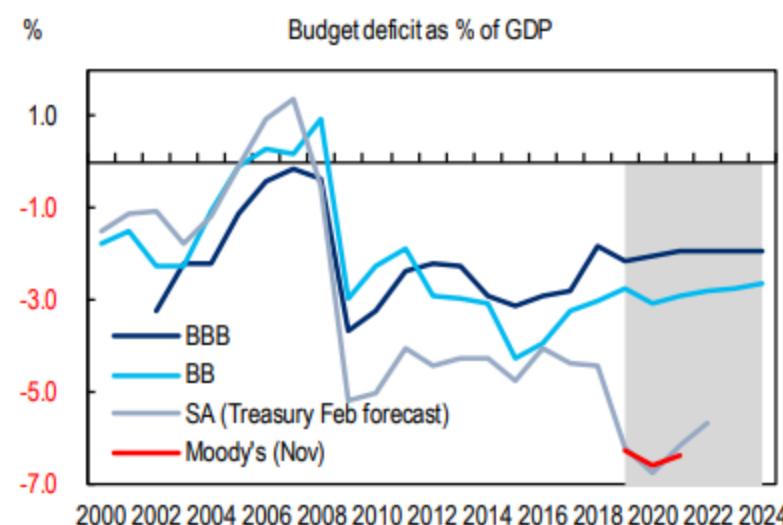
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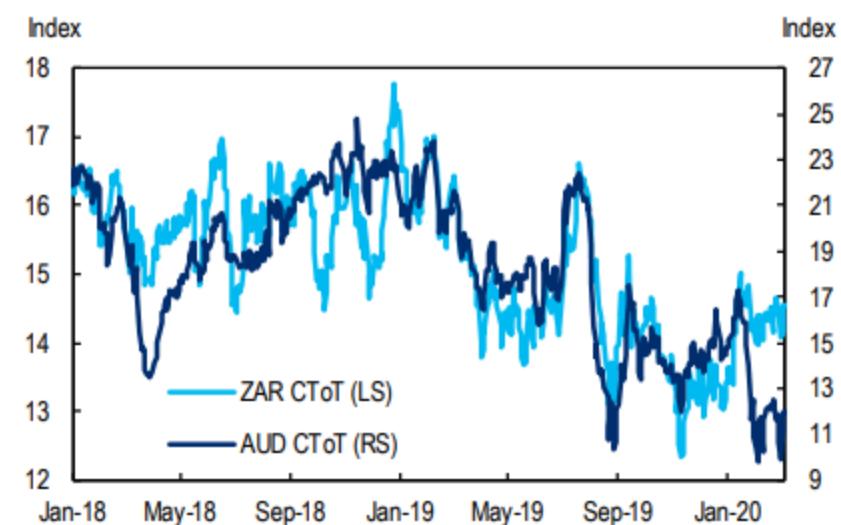
ZAR to remain under pressure. Q4 2019 GDP contracted by 1.4% QoQ saar marking the third technical recession in three years with manufacturing sector making a negative contribution. The current anemic growth will also take a hit from deteriorating global environment, which in combination to still shaky fundamentals of Eskom are likely to continue to weigh on budget deficit (Figure 18). Current inflation deceleration opens some space for easier monetary policy; however, this is unlikely to boost significantly the current level of depressed economic confidence. At the same time, commodity terms of trade of the ZAR has recently disconnected from the AUD peers divulging significant potential for depreciation (Figure 19). Therefore, we still like our [long ILS vs ZAR](#) in the current trading environment.

Figure 18. Budget deficit is likely to deteriorate further



Source: Haver, Citi Research

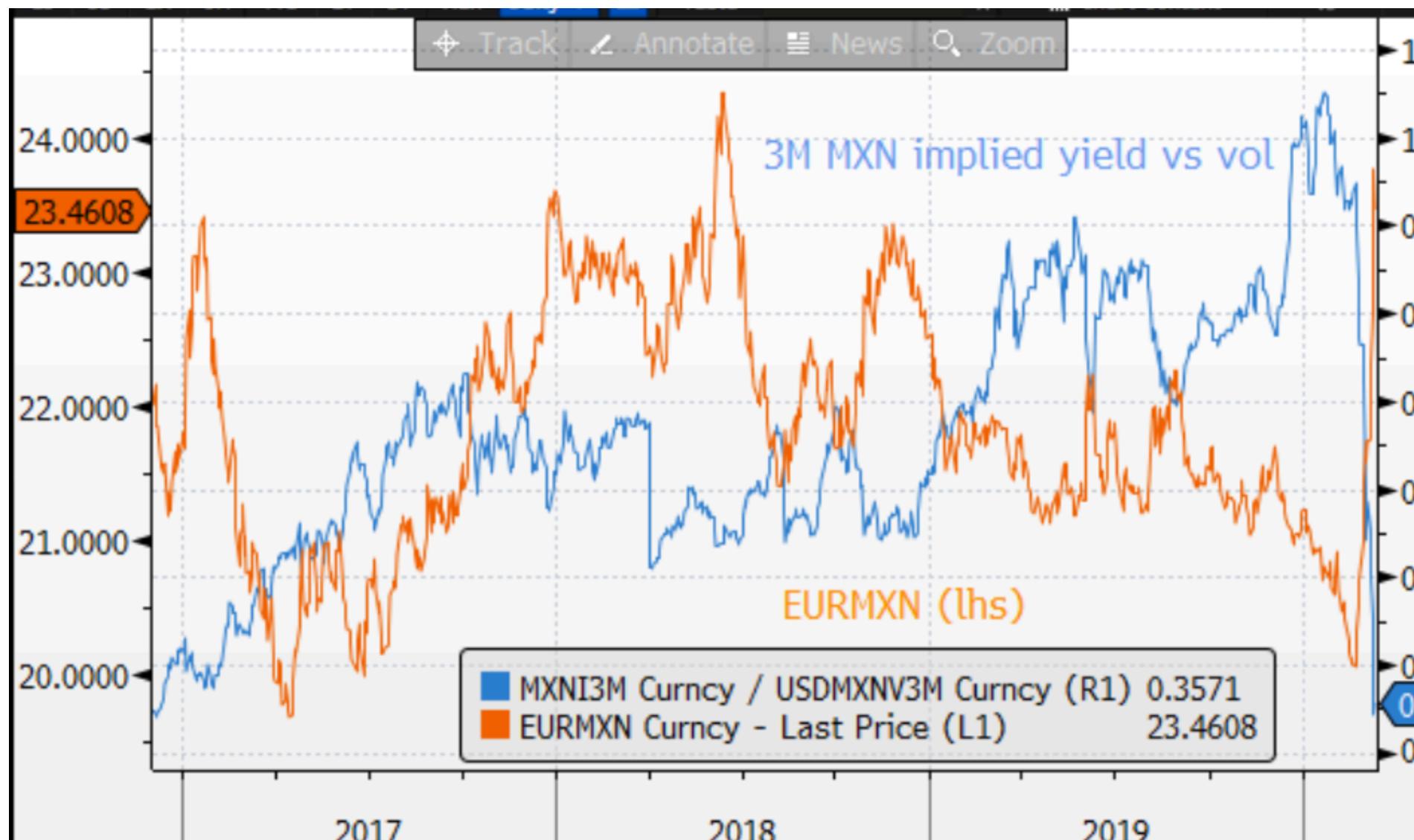
Figure 19. CToT reveals significant potential for depreciation in ZAR



Source: Bloomberg, Citi Research

Ukraine

Bonds have been struggling. Headline inflation for February might slightly accelerate from 3.2% yoy in the preceding month. The NBU and we expect CPI to stroll towards 3.5% yoy by the end of 1Q and finish the year at 4.8% yoy ([Error! Reference source not found.](#)). With policy rate at 11%, the NBU has ample room for cut and is likely deliver another 50bp reduction next week. The UAH has depreciated by 4.4% against the USD and the global environment is unlikely to be supportive for further inflows into bonds and bills leaving the currency at the mercy of local flows ([Error! Reference source not found.](#)). Recent government shake-up is revealing that vested interests are slowing the reform momentum, which might brush some of the allure of macroeconomic story. Ukrainian bonds have been struggling in the past trading sessions on very tiny liquidity. We took profit in our long UKRGB May 22s last week while still keeping our [long GDP warrants position](#) and will continue to monitor the developments in frontier markets.



MXN: Not the time to jump back in

As a currency with high carry, rising political risk, exposure to US growth and to oil prices, MXN is the de facto FX proxy for risky assets. The external risk backdrop brings us to believe that it is premature to consider re-entering USDMXN downside for now.

Alvise Marino

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MXN is the ultimate FX proxy for risky assets

The Mexican peso has been one of the most notable casualties of the broad retracement in risky assets of the past two weeks. Positioning has played a key role in this development, as the peso had been one of the prime recipients of carry-seeking inflows in the weeks leading up to the recent risk shake out. The sharp spike in USDMXN to an intraday high of 22.1369 on 9 March might be viewed by some as a reason to believe that a sufficiently large positioning clean up has taken place, and might even invite some to dip their toes back in the water. The announcement that Hacienda will increase the firepower of its FX intervention program from \$20bn to \$30bn (of which \$24.5bn are unused, see Figure 11 and Figure 12 for a recap of Mexico's ever changing intervention policy) might also drive some renewed appetite for MXN. Our view is that it is premature to re-engage in USDMXN downside in a deliberate fashion, for the following reasons:

- 1) Mexico's disappointing growth numbers were unlikely to lead to MXN weakness in a world where carry was sufficient to keep inflows supported, but are likely to become more of a concern to markets if a faster than expected deterioration in growth were to lead to a much less appealing carry outlook, in a relatively short time frame. Our economist Alonso Cervera's call for 150bp worth of rate cuts in the overnight rate to 5.5% by year end is consistent with this risk.
- 2) A compounding factor to the risk above is that a weaker growth outlook also makes it significantly harder for the AMLO administration to maintain its orthodox fiscal targets without incurring into political blowback. This is an issue that will likely bring risks of rating downgrades more into the spotlight.

3) The collapse in oil prices also brings Mexico's country balance sheet more into focus, as it makes the prospect of possible oil auctions or of energy reform much less appealing than at any point in the recent past. The caveat on this front is that markets were never quite convinced of the viability of any energy reform plan under the current administration, and that the income impact of weaker oil prices might be smaller in Mexico than for other commodity exporters (Figure 9). At the same time, we note that Mexico seems to have the weakest country balance sheet amongst commodity exporters (Figure 10), and that might become a more pressing long-term concern in a world where oil assets are under steady pressure.

More broadly, a number of relatively new and still not well understood risks have been introduced in the market's collective consciousness over the past few weeks, with no clear solution on the near-term horizon. In this context, MXN, as a high yield currency with high political risk and oil exposure, is effectively a proxy for risky assets within the FX context: given the backdrop, we think the timing for re-entering a clear pro-risk position is premature. We think that dips in USDMXN back to the September 2019 intraday highs around 20.28 will likely find buyers, and that retracements of the recent rally to above 22.00 will likely incur into speed bumps, as FX intervention expectations will likely pick up as we near those levels. Given however the uncertain risk backdrop, we would not look to fade there.

Figure 11: Mexico has a long and varied history of FX Intervention (details in Figure 12)

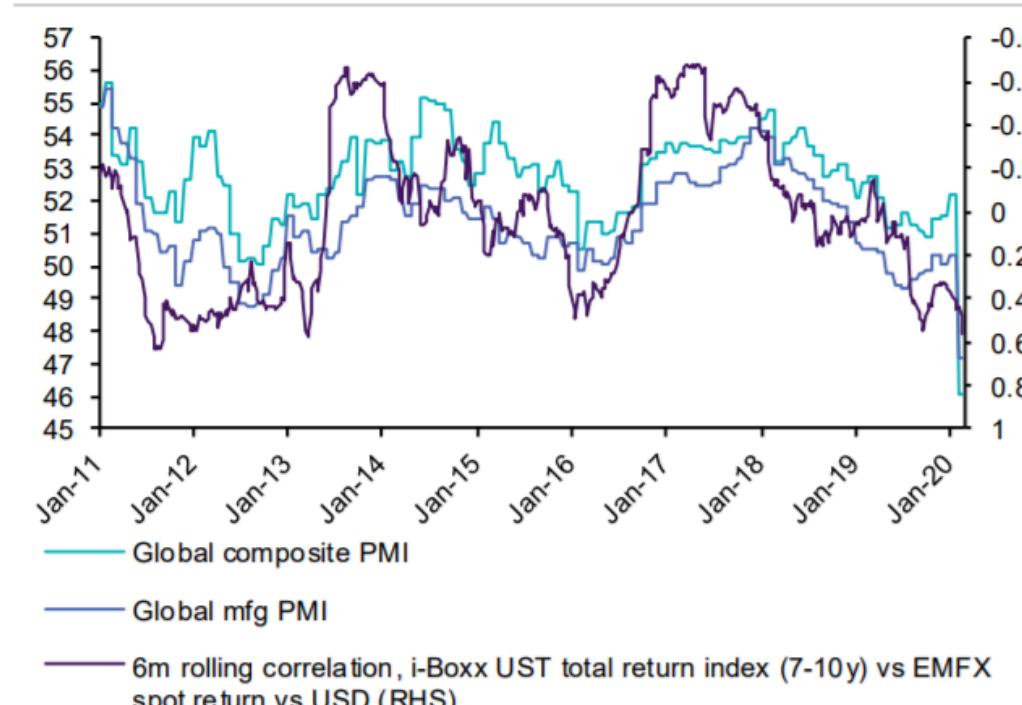


Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service, Banxico

The USD Carry trade: The fact that markets are returning to financial assets from growth assets has significant implications for carry. Unfortunately, we are in the phase of unwinds which makes the current idea generation / themes more conceptual than our usual style with a more dislocation focus with respect to views. Still, one underlying view we have is that carry will come back once daily volatility in macro markets fall, albeit the order to run is possibly from EM hard currency debt to EM local yielding bonds to finally EMFX. For now, we think that crowded positions that were predicated almost entirely on high carry/vol, such as long MXN, will remain under pressure. We have been highlighting the vulnerability of the MXN given disappointing growth for a while ([here](#)) and over the medium-term we are concerned about the policy reaction ([here](#)). We have seen the correlations between EMFX and US rates go further into negative territory and historically, with market / growth stabilization over time correlations drift towards zero. We may be close to a peak on this correlation.

Chart 7: 6m EMFX and UST rolling correlations. Lower yields & weaker EMFX go together with slow global growth.

Source: Bloomberg, Haver, NatWest Markets



Mind the crude oil: With CBs reducing tail risks somewhat on global markets, oil price is the chief risk to this framework we have described. Even though our coefficient for crude oil has been declining – given the issuance and credit dynamics it is a major risk factor which we want to visit in the weeks ahead.

How much more outflows? - At least 2bn USD more

Table 9 helps us quantify as to how much more outflows we can witness. In 2013, Indonesia bonds saw outflows that were about 7.8% of total foreign ownership. This implies that we can see about 25tr IDR worth of further outflows (about 2bn USD) from current levels of foreign ownership.

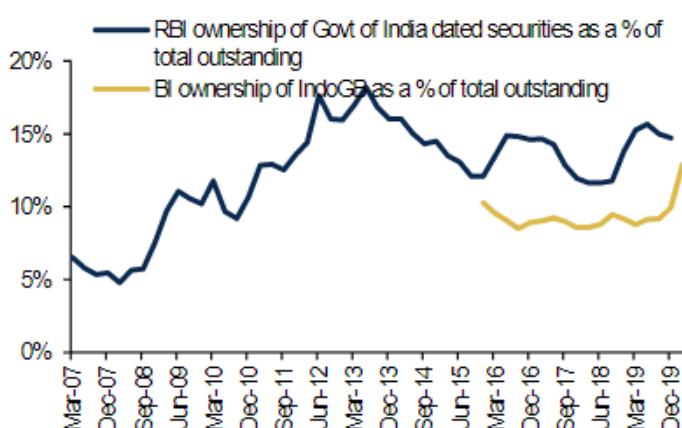
Limits to DNDF intervention

Is there a limit to BI bond buybacks?

BI currently owns about 365.8tr IDR worth of bonds on a gross basis (about 13% of outstanding). Technically, it is difficult to put a limit on how much bonds BI can buy. Taking a cue from what the Reserve Bank of India has done helps. The RBI has held about 18% of outstanding IGBs in 2013 (Chart 30). As such, we believe, the BI could buy another 5% of outstanding bonds i.e. 140tr IDR.

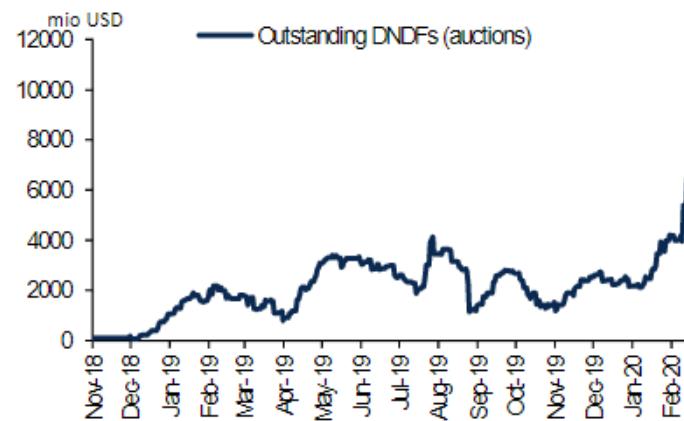
YTD, the BI has bought about 120tr IDR worth of bonds out of which about 27tr IDR has been through buybacks. Clearly, there is a tremendous amount of buying that is happening in the secondary market. In other words, looking purely at buyback pace, BI can continue their buyback operations for the next 4-5 months. However, looking at their secondary buybacks as well, space for them to buyback is fairly narrow.

Chart 30: Central bank's ownership of Govt bonds



Source: BofA Global Research, DMO, RBI

Chart 31: DNDF book has reached 10bn USD through daily auctions



Source: Bloomberg

Is there a limit to DNDF intervention?

Outstanding DNDFs through auctions has reached 10bn USD. Anecdotal evidence indicates that the BI's secondary market intervention has been close to 2bn USD. Together, outstanding DNDF book is now close to 12bn USD. Last year, when we visited Jakarta, market's understanding was that BI's capacity is 5bn USD. Our take away from various meetings was that policymakers' capacity is far higher than what the market believes which we understood as 15bn USD. While we are still a bit away from the 15bn mark, the pace with which BI has expanded their DNDF operations has been astonishing. **We have also been surprised to see that DNDF auction rates were even below the prevailing spot levels in few instances.**

This seems to have changed in the DNDF operation conducted on 9th March afternoon. 1m and 3m DNDFs were offered at 14623 and 14809 respectively while the spot was trading at 14440 levels - implying the highest spread ever seen between spot market and DNDFs (1m spread 180 points).

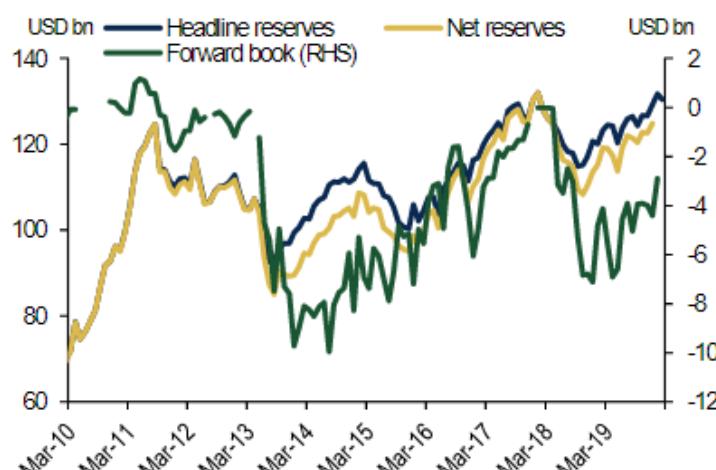
The other limit that one needs to think about is the credit capacity of offshore banks. So far, DNDF operations were successful in keeping a cap on spot USD/IDR because (1) market participants hedged their bonds through DNDFs and (2) market participants who sold bonds could still keep their IDR invested in the system and using the DNDF to hedge out the currency risk and that way the demand for "USD" was absent. However, if BI is offering 1m DNDF at an implied yield of 14%, it does not help market participants to hedge their bond holdings. In other words, at such high points, DNDFs could risk becoming redundant.

One other way to look at limits of DNDF would be to compare this operation with other countries' experience. Notable amongst them would be Brazil Central Bank. BCB in 2015 had increased the size of its FX swaps all the way to 30% of its headline reserves. Indonesia's headline reserves currently stand at around 130bn USD. This means that if BCB FX swaps were a guide, limit could be around 39bn USD for Indonesia. However, considering market apprehensions, we can't help but think that the actual upper limit for BI could be closer to 20-25bn USD. With about -3bn USD in deliverable forwards and -6bn USD in contingent liabilities and -12bn USD in DNDFs, there seems to be only 5bn USD worth of room further in DNDF operations.

Is there a limit to spot intervention?

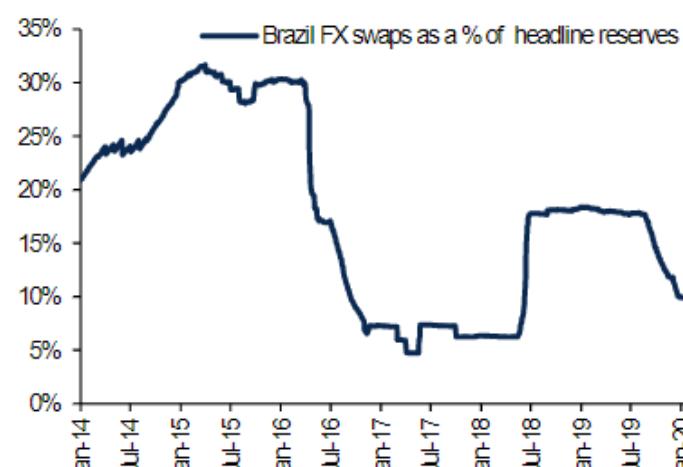
On a net basis, Indonesia's FX reserves are at 130bn USD. However, once we take into account their DNDF book and deliverable forward book, net reserves would drop to 116bn USD. In 2013, BI's net reserves dropped to 87bn USD. So, in that context, it would seem that BI has ample room to use their FX reserves. However, its also important to bear in mind that foreign ownership of bonds in 2013 was as much as 30% of net FX reserves while this time around it is 61%. In other words, room for spot FX intervention is really limited.

Chart 32: Net FX reserves are actually lower than the peak seen in 2018



Source: BofA Global Research, CEIC

Chart 33: Is the upper limit 30% for DNDFs ?



Source: Bloomberg



Global Research

5 March 2020

EM FI/FX Strategy INR: Lean against elevated risk premia

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INR screening cheap on technicals; Buy 3m USDINR put spread

After last week's three standard deviation move, INR is now one of the worst effected Asian currencies in the past month's sell-off. USDINR 25 delta risk-reversal (spread over EUR) is at 98th percentile, while the 3m offshore vs. onshore points spread is at 95th percentile of 10yr range. INR's deviation from its historical relationship with USD TWI, oil prices and NIFTY is now at 1.5 standard deviations. Last time INR deviated this much (Oct-18), it turned out to be rupee's bottom. Taking this extremity and rupee's positive March seasonality into consideration, we recommend buying 3m 74/72.50 put spread.

What drove the weakness?

We think it's the global de-risking which hurt most EM carry currencies, INR included; idiosyncratically, crowded equity longs added to the momentum, with rising domestic Covid-19 cases an extra reason. The widening of NDFs vs DFs reflects offshore positioning adjustment. What is needed to change the sentiment?

What needs to change?

Since the context of this sell-off has been a spike in global equities and rates, the volatility needs to subside convincingly first. Market indicators wise, we'll monitor VIX, global value stocks, US breakevens as a vote of confidence on ongoing efforts from policymakers. A key domestic indicator which should first reflect stability is the premium in NDFs. More fundamentally three signposts to watch: 1) number of new Coronavirus cases domestically and globally (ex China). 2) Sustained reflationary efforts which vindicate market's ask of a V-shaped recovery. 3) a follow-up easing by ECB, PBoC after Fed's 50bp cut would also be a catalyst to re-engage in the carry trades. Lastly, we think RBI will also raise intervention to smoothen the volatility.

What are the risks?

Covid-19 outbreak in India, which has started to become more apparent in the past few days, could continue to weigh on the rupee. The channel through which this could expose the currency is equity portfolio flows. We find portfolio flows positioning to be still crowded. A second near-term risk is the sustained rise of oil prices (on potential OPEC supply cuts), which despite boosting risk sentiment broadly could take away one of India's tailwinds. But, as we discuss below a healthier basic balance vis-à-vis 2016-18 is a strong support. Nonetheless, Covid-19 is an unpredictable risk.

March seasonality a near-term support, solid FDI pipeline a medium term

As discussed in [India: Underneath the green shoots](#), the transmission of weak growth to a weaker FX is not straight-forward. Muted capex, low oil prices, sticky FDI flows could keep the basic balance in a modest surplus. A growing dominance of debt over equity portfolio flows could also quell INR's growth concerns. At the same time, government's disinvestment/privatisation target for FY21 (US\$30bn, 0.9% of GDP), while aggressive, bodes well for capital flows. INR also stands to benefit in the near-term from a potential uplift of India's weight in global indices.

A blowout like 2013, 18 unlikely; Buy 3m USDINR put spread

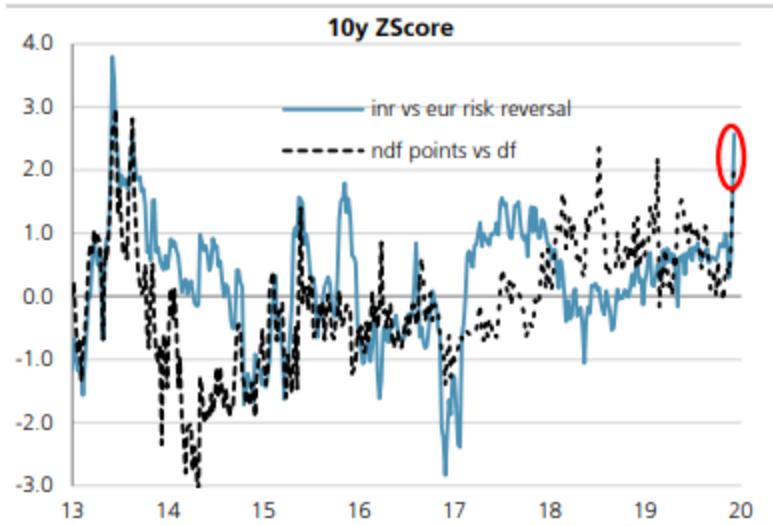
All the three spurts of 15%-plus rupee depreciation in the past decade happened when India's CA deficit was more than 3% of GDP. Today, that pressure is absent with basic balance in a modest surplus. In fact, the government estimates its FDI pipeline to have doubled, to US\$177bn (actual identified projects) versus US\$87bn in 2019. As such, our economist expects the gross FDI inflows in India to remain stable, at 1.6-1.8% of GDP, in the next 2-3 years ([India FDI: a tailwind](#)). Put simply, the basic balance is not a problem. We recommend buying a 3m 74/72.50 put spread (Bloomberg reference: 88bp). Investors could also consider selling a 25 delta risk-reversal.

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This report has been prepared by UBS AG, Singapore Branch. **ANALYST CERTIFICATION AND REQUIRED DISCLOSURES BEGIN ON PAGE 4.**

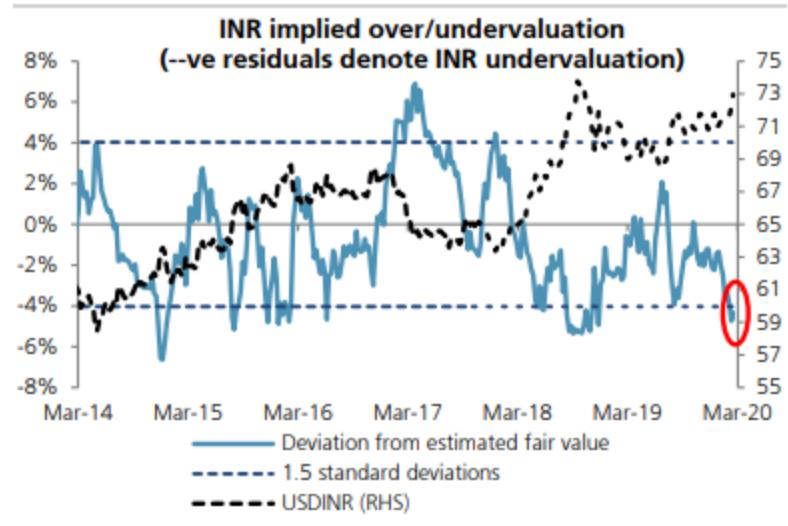
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-Figure 1: High aversion in INR derivatives



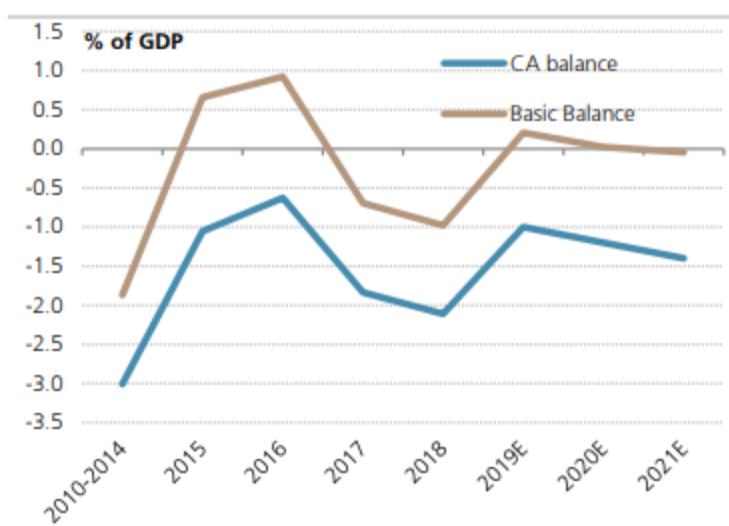
Source: Bloomberg

Figure 2: INR's relationship with USD TWI, oil and Nifty



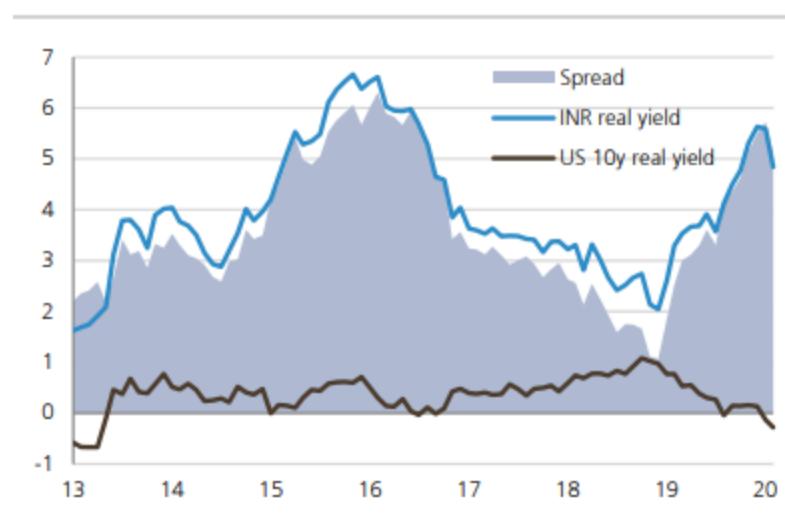
Source: Bloomberg

Figure 3: External balance to remain stable in 2020-21E



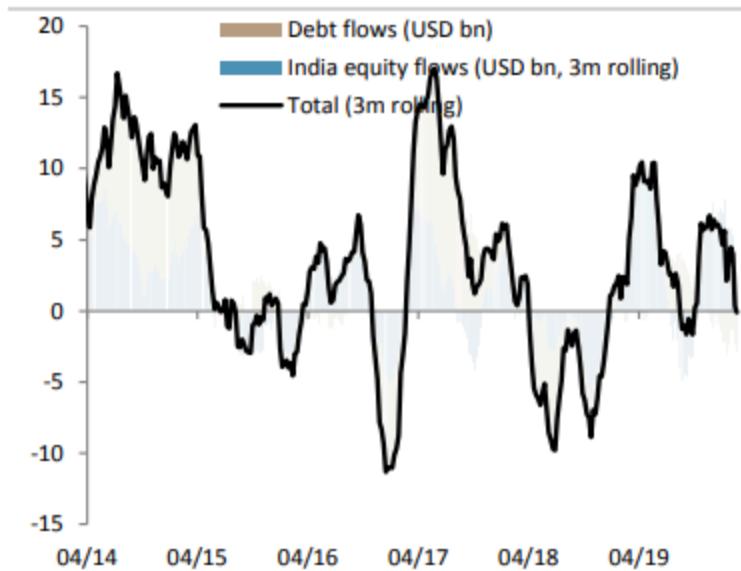
Source: UBS Estimates, Haver

Figure 4: Real rates in India are relatively high



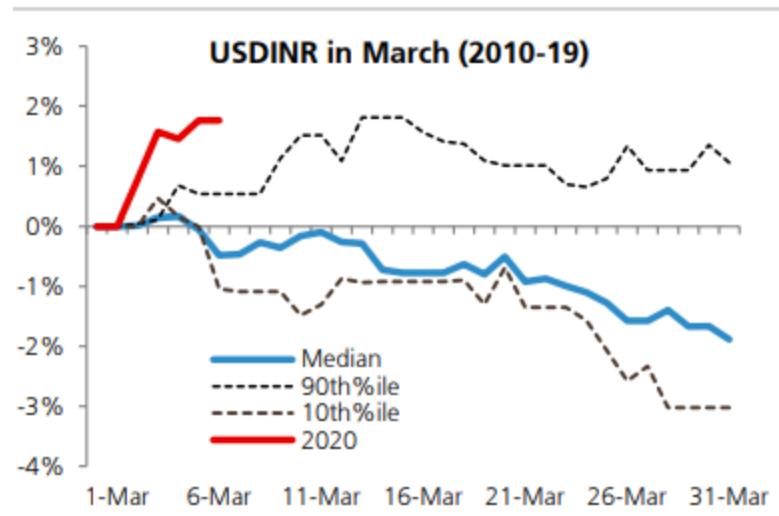
Source: UBS, Haver

Figure 5: Portfolio outflows bear monitoring



Source: Bloomberg, Haver

Figure 6: USDINR – Mind the March seasonality



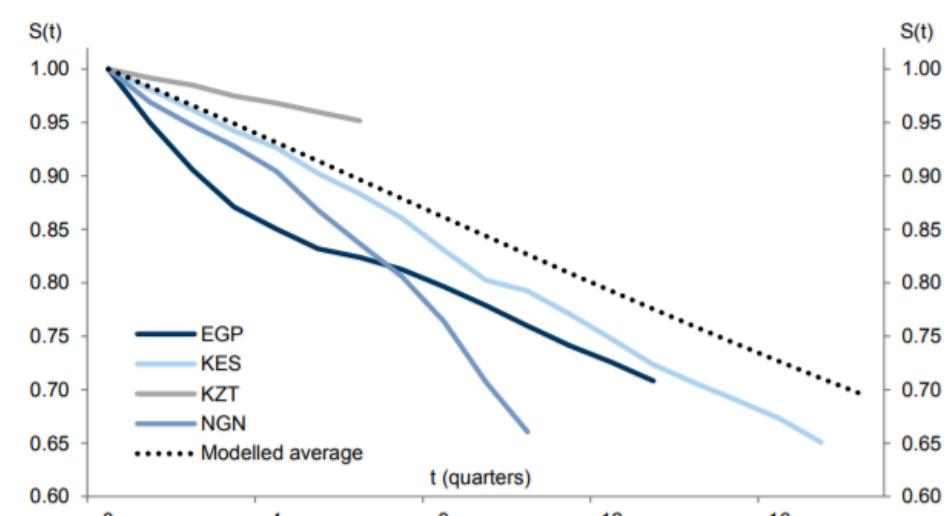
Source: Bloomberg

Goldman Sachs

The EM Trader

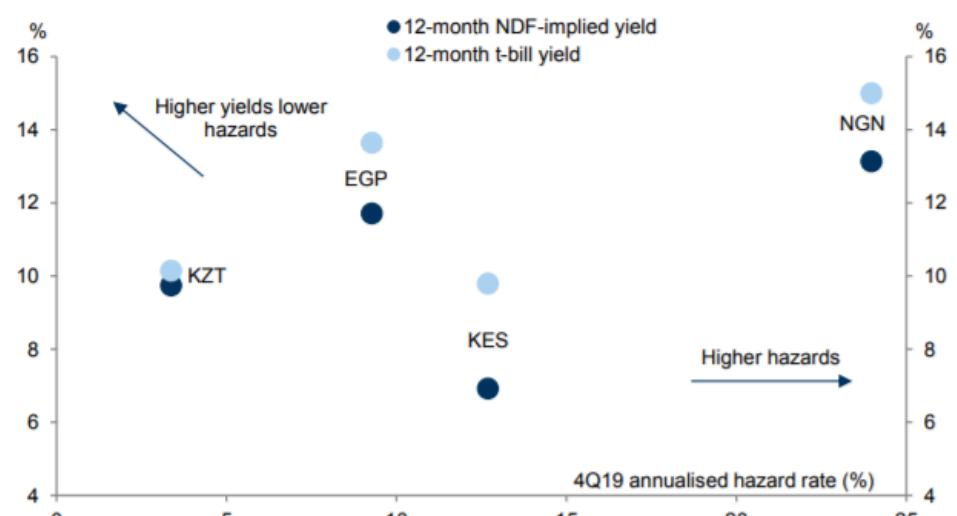
Exhibit 14: NGN's peg is getting 'older' faster than the managed regimes of Frontier peers

Model-implied estimated probability that any managed currency regime with similar fundamentals would have survived over time. Survival probabilities are estimated based on past fundamentals of each of the four currencies and a smoothed baseline hazard rate. A lower/fast-decreasing line signals that fundamentals have challenged/are challenging the sustainability of the currency management regime.



Source: Goldman Sachs Global Investment Research

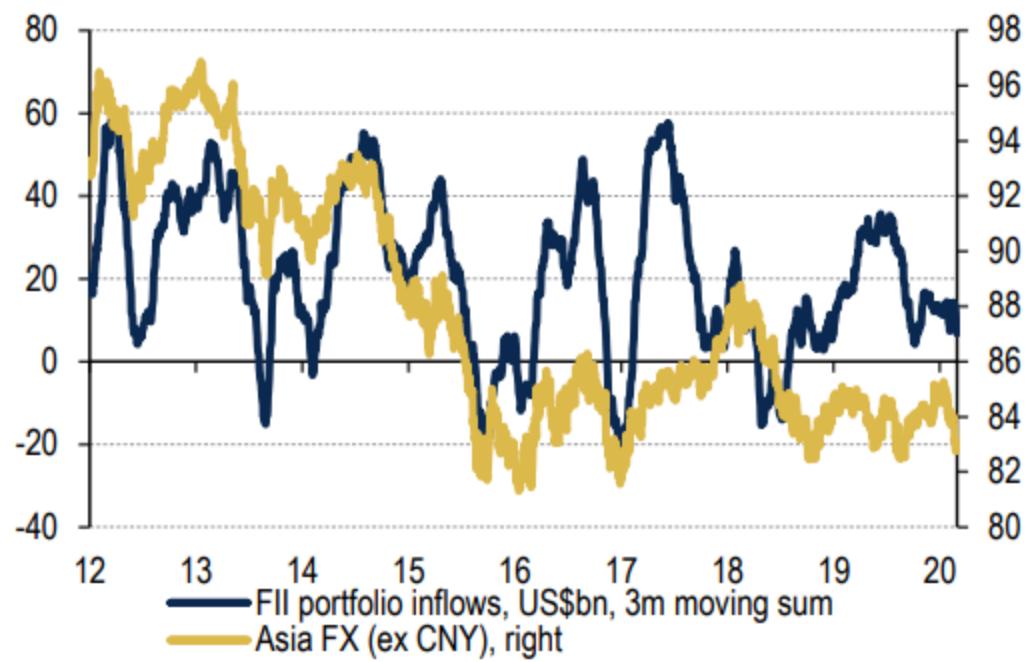
Exhibit 15: KZT and EGP still offer high carry relative to our model-implied hazards



Source: Bloomberg, Goldman Sachs Global Investment Research

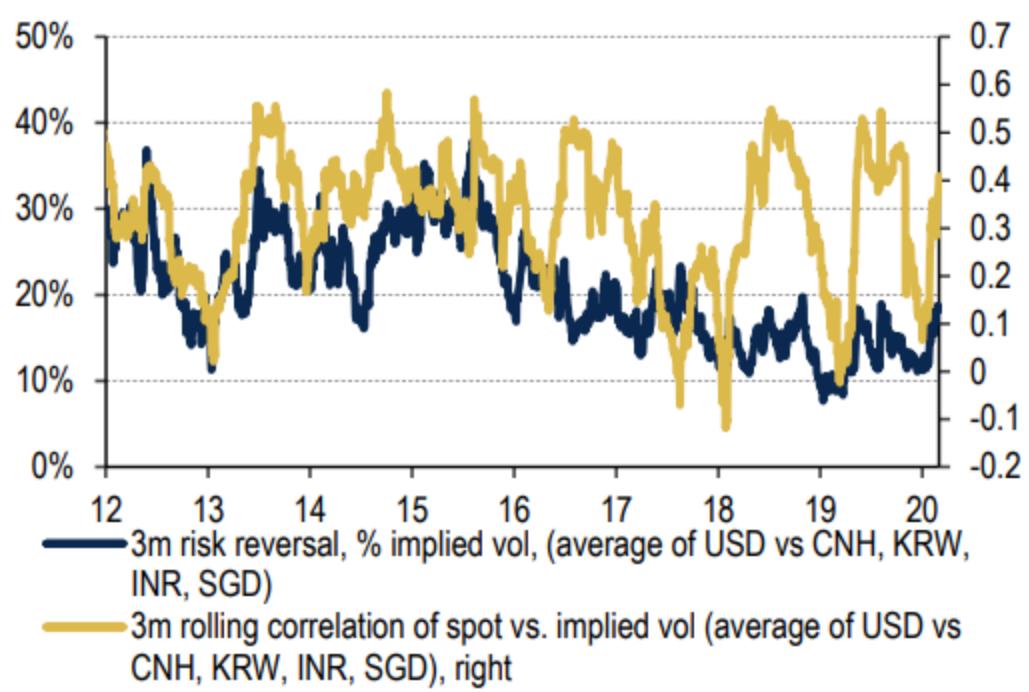
[needed adjustment](#), current USD/IDR 1m NDF level: 14,550). Given our CNY forecast revision as well as expectations of a controlled CNY depreciation, we also entered into a new short CNH trade expressed through USD call/CNH put spread (see *EM Alpha: Closing out CNH/TWD, pivot short CNH 27 February 2020*, current USD/CNH level: 6.9798). The risk to these trades is a quicker recovery in regional economic activity and portfolio inflows than we anticipate.

Chart 19: Little evidence of portfolio outflow being extreme by historical standards



Source: BofA Global Research, Bloomberg

Chart 20: Asia FX skew and spot-vol correlation have risen but also within historical highs



Source: BofA Global Research, Bloomberg



Figure 3: Monthly performance for EM Fixed Income (FX-unhedged and FX-hedged - vs USD)

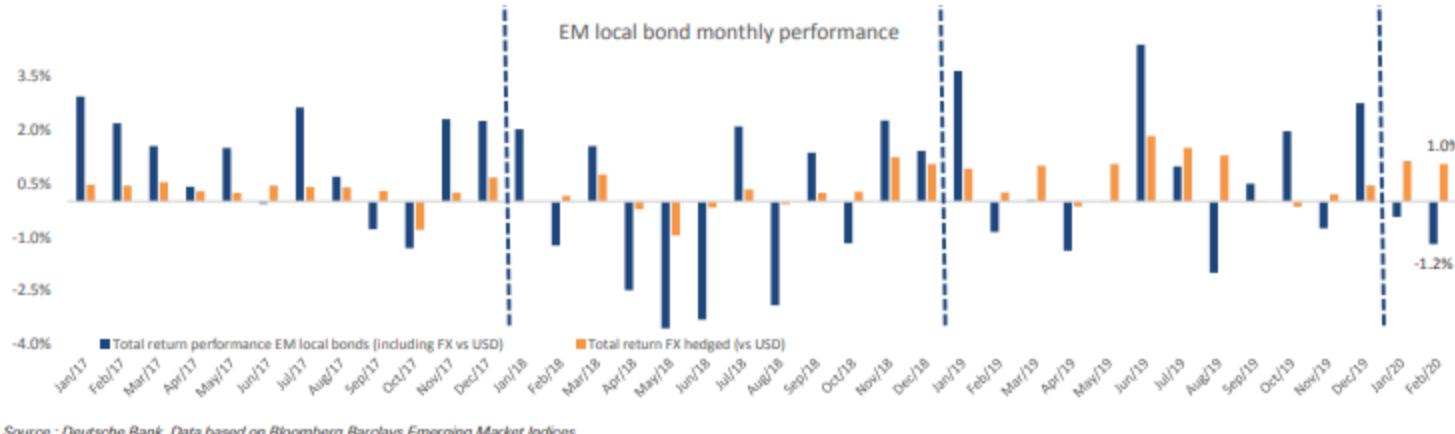
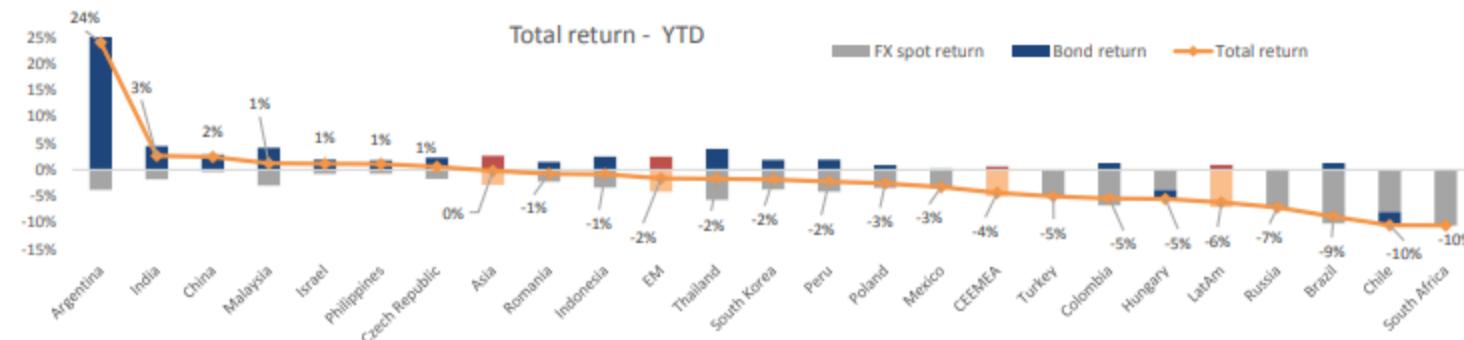


Figure 4: Quarterly performance for EM Fixed Income (FX-unhedged and FX-hedged)



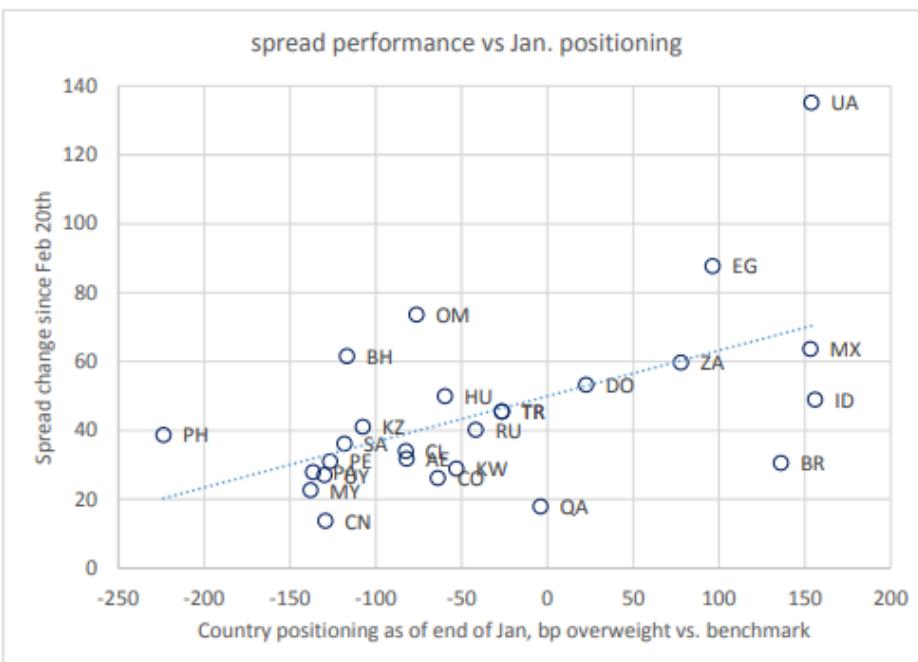
Figure 5: 2020YTD performance in local bonds (FX unhedged)





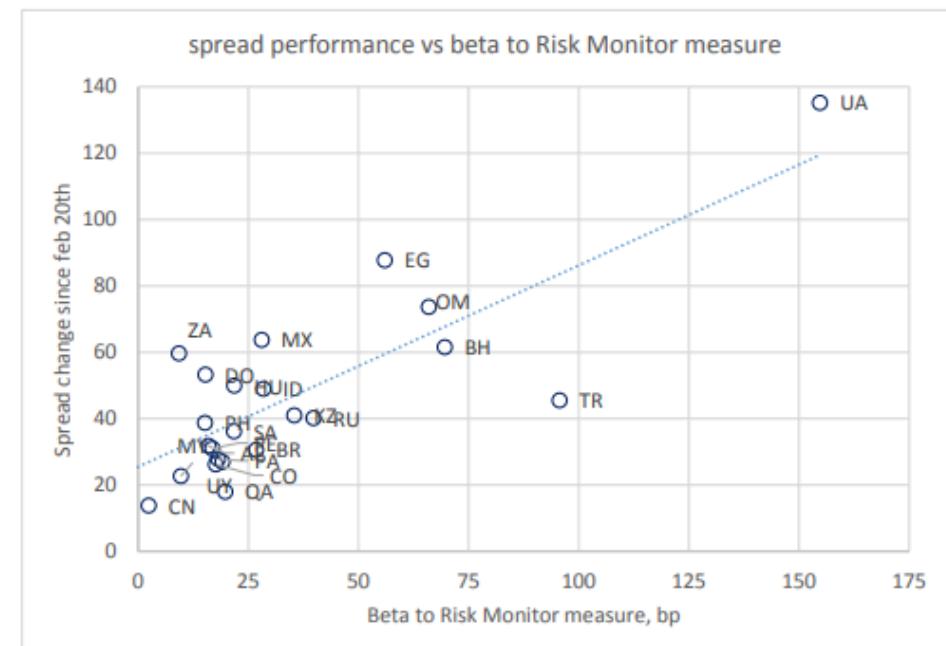
Technically, positioning has also played a significant role in recent performances. Plotting spread changes vs. our country positioning indicators based on EPFR country weight reports (as of the end of January), we can see that names with a heavier positioning have generally underperformed. See first graph below. Heightening volatilities reduce liquidity in the market, amplifying the negative impact of heavy positioning.

Figure 11: With some exceptions, heavier positioning led to deeper selloff since Feb 20th



Source : Deutsche Bank, EPFR

Figure 12: So did beta to DB's Risk Monitor measure



Source : Deutsche Bank, Bloomberg Finance LP

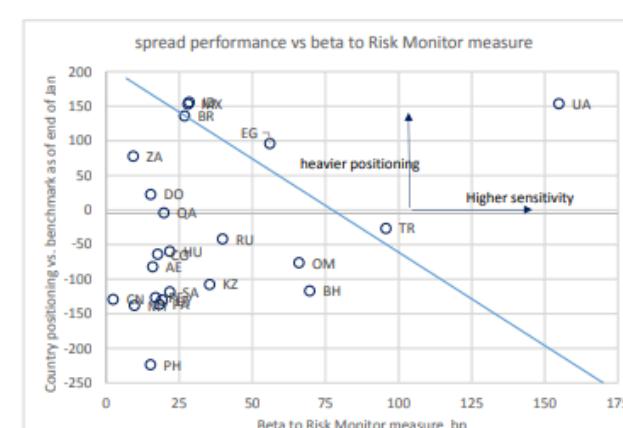
Country positioning changes - During the past two weeks, we reduced South Africa to underweight (from neutral), reduced Pemex to neutral (from overweight), and reduced Brazil to underweight (from neutral). Based on beta to external risks, positioning, and in conjunction with idiosyncratic risks, we make the following additional adjustment:

- **We reduce Ukraine to neutral from overweight.** Domestic factors - improvement in both economic fundamentals and governance - was behind our overweight recommendation initiated in our 2020 Outlook. Domestic catalyst has weakened as political noise has been delaying IMF deal. More importantly, the high external risk sensitivity and (most likely) still heavy positioning warrant caution under the current risk environment.

We grow more cautious on GCC names as the Coronavirus should give rise to higher macroeconomic imbalances in the region. The governments in the region are now less likely to sacrifice growth for fiscal restraint due to the oil (and gas) demand shock. See [our economist' analysis](#) for further details. Specifically,

- **We reduce Qatar to neutral from overweight.** Lower gas demand from Asia on virus concerns and a milder-than-expected winter lead to wider fiscal deficit than we previously forecast and further Eurobond issuances this year (we penciled in USD4bn vs. previous estimate of zero in our 2020 Outlook). Nevertheless, the more attractive valuation vs. credit quality due to (geo)political risk premium keeps us at market weight.

Figure 13: Positioning and risk beta



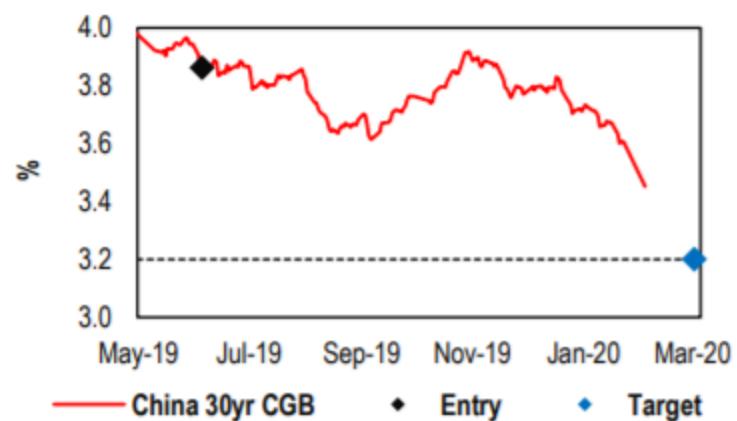
Sources: [Brentano Bank](#), [EFB](#)

Top Trades

1. Buy Mainland China 30yr CGB

Entry:	3.88%	Target:	3.20%	Stop:	3.60%
Entry date:	5-Jun-19			Current:	3.34%

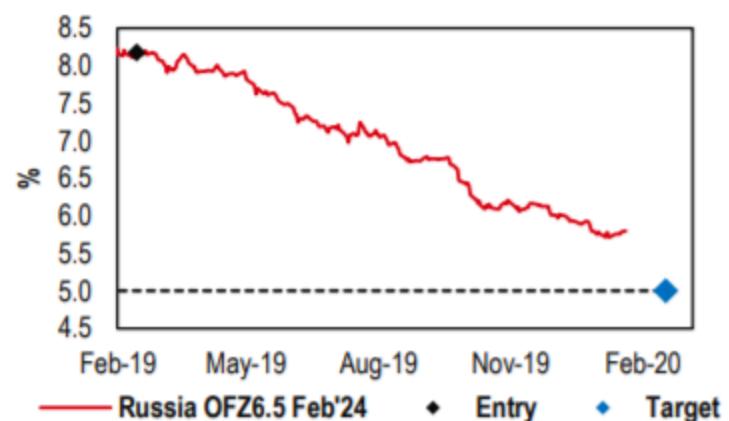
- ◆ Slower economic growth and a slower pace of financial deleveraging
- ◆ Risk: Currency weakness or higher US rates



2. Buy Russia OFZ 6.5 Feb'24

Entry:	8.18%	Target:	5.00%	Stop:	7.00%
Entry date:	28-Feb-19			Current:	5.71%

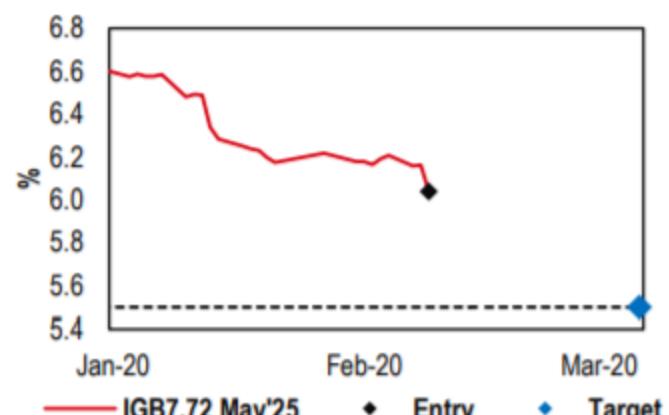
- ◆ The CBR's commitment to anchor inflation and benign growth dynamics
- ◆ Risk: Increase in geopolitical tensions



3. Buy India IGB 7.72 May'25

Entry:	6.04%	Target:	5.50%	Stop:	6.3%
Entry date:	4-Mar-20			Current:	6.04%

- ◆ To capture the sharp steepness in 3-5 year part of the curve
- ◆ Prospects of more long term repo operations
- ◆ Risk: Higher crude oil price and sharp FX weakness



Sharp recoupling in local rates and FX argues for a cautious stance in certain high yielders

EM rates have largely moved in tandem with falling US Treasury yields

Low yielding markets appear more immune to significant currency depreciation

term repo operations and operation twist. Similarly, government bonds in South Africa also appear too cheap versus swaps and we prefer to buy R186 on an asset-swap basis.

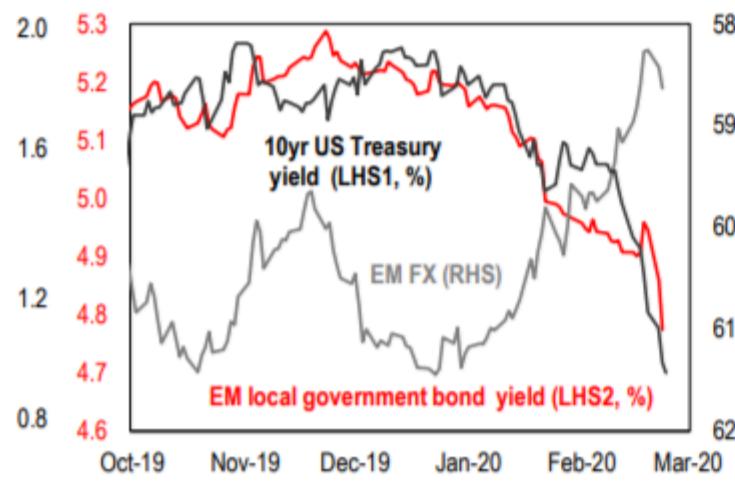
In EM high yielders, we also remain mindful that any extended weakness in EM FX and eventually capital outflows could tighten financial conditions, restrain monetary policy response and implied pricing in forwards. This also reflects our cautious view on rates in Brazil despite the fact that the forward curve is implying aggressive policy rate hikes. We believe that BRL rates could remain elevated due to concerns around fiscal risks, the lack of advancement of the reform agenda and FX weakness.

EM bonds gain despite FX pain

Following a distinct divergence between EM rates and EM FX in early 2020, there are initial signs of some recoupling of EM rates with EM FX (Figure 5). This is more so in EM high yielders where the usual high correlation between EM FX and rates have resurfaced. That said, we note that on a year-to-date basis, rates in most EMs are tracking lower in tandem with lower US Treasury yields. In aggregate, EM bonds have generated fixed income gains of 2.5% year-to-date. This still implies a net loss of 1.9% (FI+FX) from EM bonds in 2020 so far but total returns (in USD terms) in certain local markets such as Argentina (18.9%), Philippines (2.0%), China (1.9%), and Mexico (1.7%) have still been quite sizeable (Figure 6) and explains why investors need to be more selective in their positioning within the region.

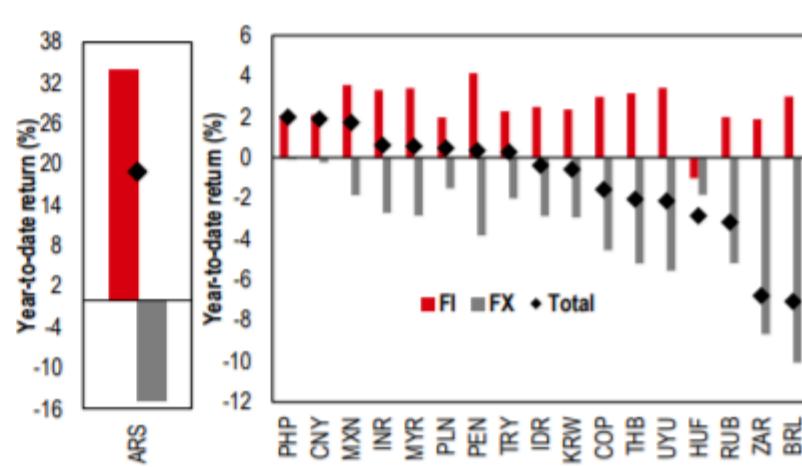
Notably EM FX and rates are more closely related in EM high yielders as FX hedging diminishes the carry and large FX depreciation could trigger capital outflows, leading to a net tightening of financial conditions. Whereas in current account surplus countries (low-yielding markets), the relationship is weaker. The domestic investor base is more developed and able to absorb any outflows while the net impact of FX depreciation could be negligible or even

Figure 5. EM rates have shrugged off FX weakness and tracked the falling US Treasury yields



Source: Bloomberg, Refinitiv DataStream, HSBC

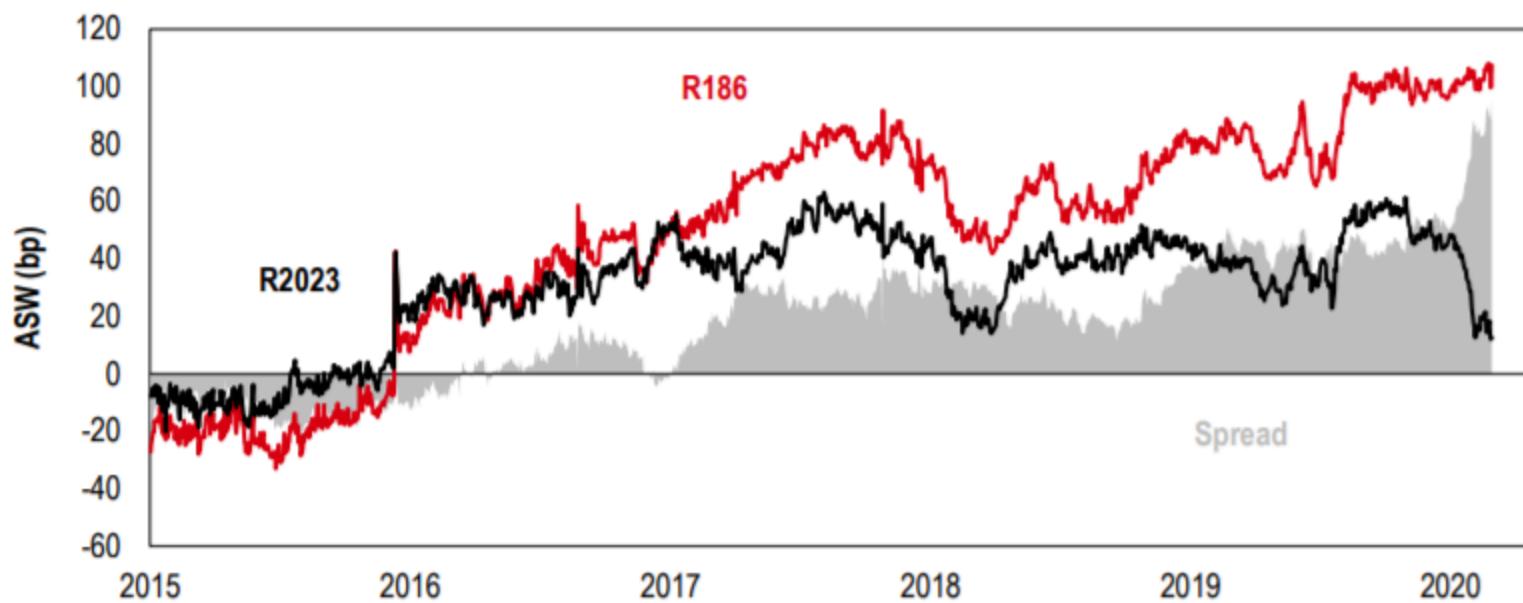
Figure 6. Fixed incomes gains have exceeded FX losses in many EMs



Source: Refinitiv DataStream, HSBC

Even with the wider deficit, gross SAGB issuance is forecast 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, trend inflation has been falling for over a year, and now is just 3.5% - near the bottom of the SARB inflation target range. Despite energy price pressures on headline inflation through this year, the core dynamics remain very supportive of looser monetary policy. The front-end of the curve appears priced for this scenario, with FRAs looking for around 2 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 bias to fade the steepness here.

Figure 21. ASW in 186s at all-time wides



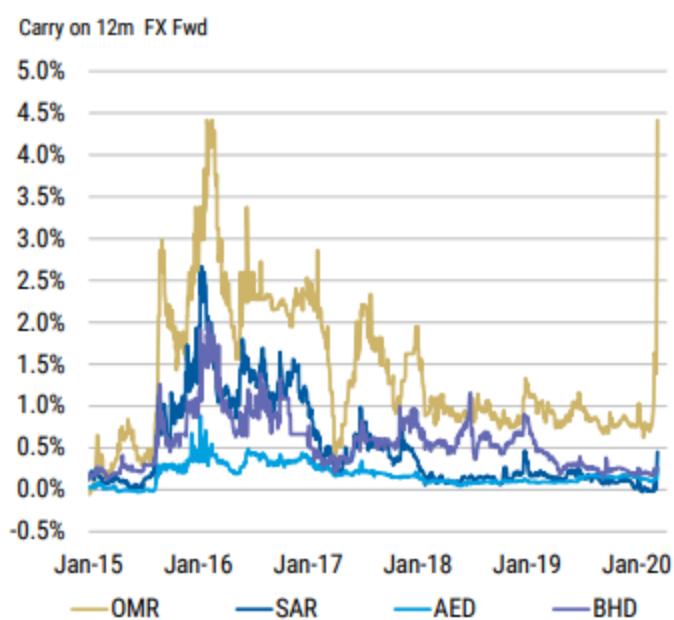
Source: HSBC, Bloomberg

SAR? NO IT WONT BREAK...



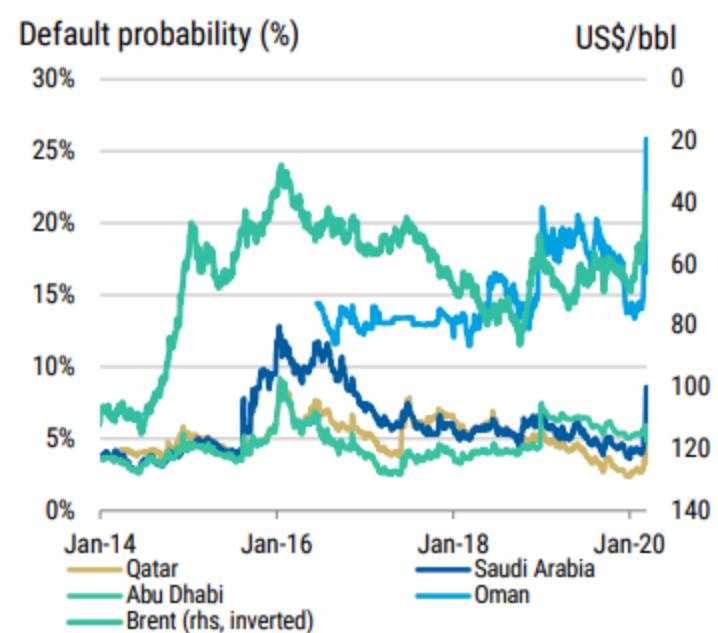
potential to move higher should oil prices remain subdued, and as the sovereigns rely on asset drawdowns which reduce their NFA positions. To be clear, we don't foresee de-peg pressure in any of the GCC sovereigns, but are just underscoring the fact that rates/FX markets have not adjusted as much as credit markets.

Exhibit 50: OMR FX forwards back to early 2016 levels...



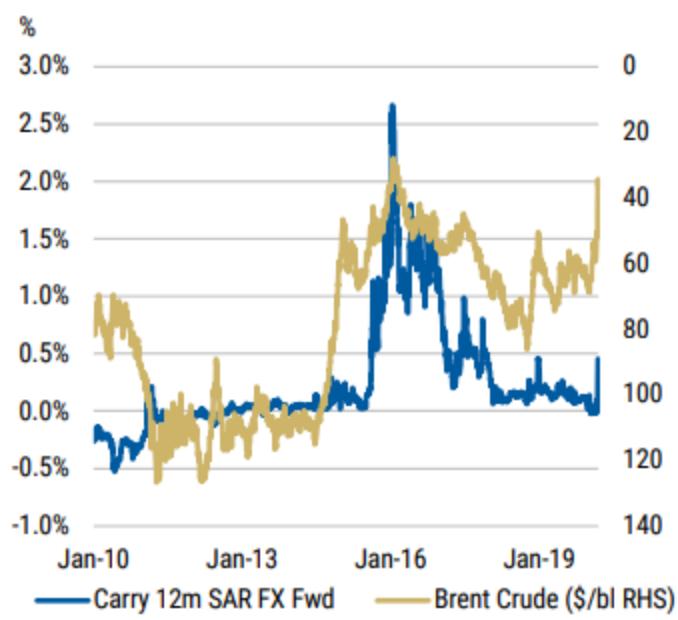
Source: Bloomberg, Morgan Stanley Research

Exhibit 51: ...but risk premia in other GCC FX and CDS remain low



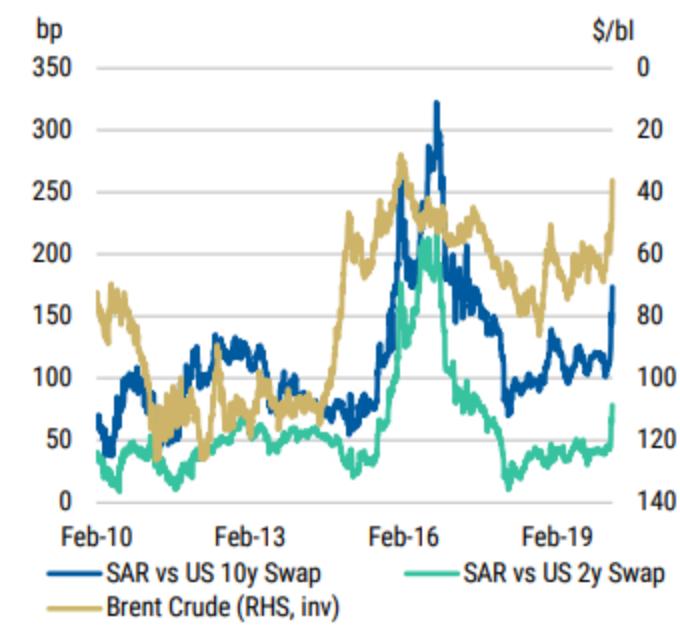
Source: Bloomberg, Markit1, Morgan Stanley Research; Note: We show the CDS implied probability of default

Exhibit 52: USDSAR FX forwards are low versus the oil price...



Source: Bloomberg, Morgan Stanley Research

Exhibit 53: ...as are SAR-US swap spreads



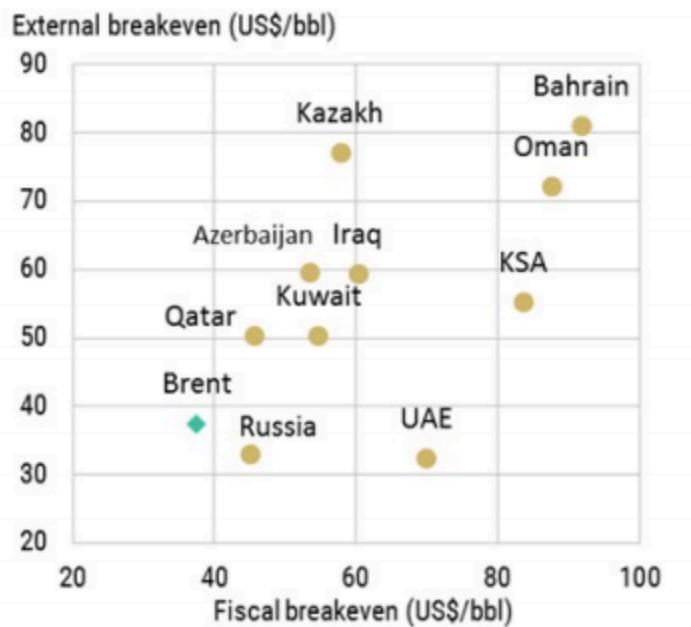
Source: Bloomberg, Morgan Stanley Research

Currencies are stable and showing little risk premia, despite much lower oil

The week has started with intense volatility, with historic moves in the price of oil. The breakdown of the OPEC negotiations has led our oil analysts to forecast further declines in the price of oil. On Friday, they lowered their Brent forecast to US\$35/bbl in 2Q with a bear case of US\$30/bbl (see [OPEC's Sisyphean Task Has Ended; Lower Prices Ahead](#)). The developments suggest even further downside pressure on prices. Lower oil prices matter for EM and especially in the Gulf region. We take a look at what fixed income and equity markets in the region are currently reflecting.

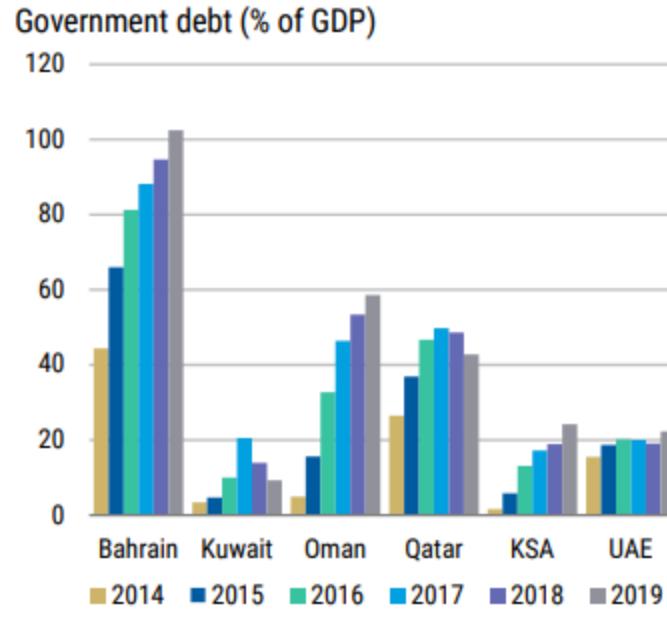
In [Global EM Strategist: Crude Awakening](#), we argued that EM oil exporters would not only face higher funding needs owing to lower oil prices, but their accumulated fiscal savings are also much lower now compared to pre-2016. Wider deficits would also imply higher external funding needs but, with oil exporters already making up 40% of EMBI, the demand for eurobond issues could be lukewarm. These challenges are most acute for the Gulf region within EM.

Exhibit 48: KSA, Oman and Bahrain have high breakeven oil prices in the GCC region...



Source: IMF, Morgan Stanley Research

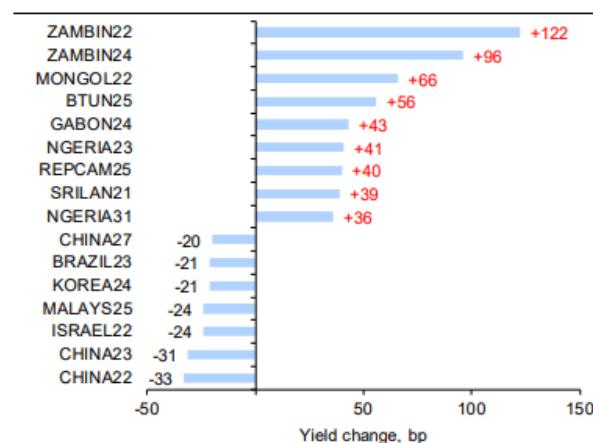
Exhibit 49: ...and saw a continuous rise in leverage whereas UAE and Kuwait are resilient



But are fixed income markets pricing these developments in the GCC region? Short answer: Not yet. Risk premia implied by FX forwards and CDS-implied default probability have adjusted for Oman but not yet for other GCC credits even though current oil prices are well below their breakeven fiscal prices.

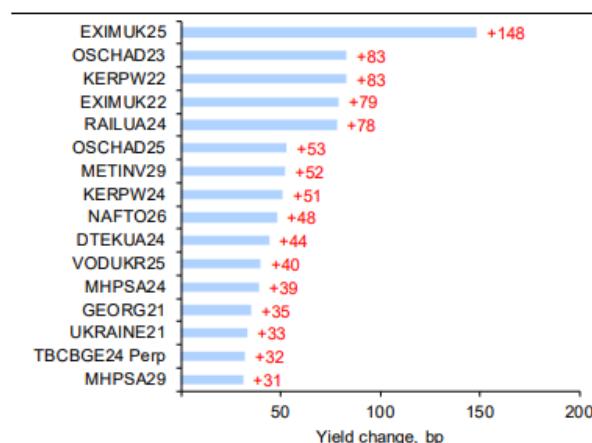
Best // worst performing bonds for the last week

Figure 1: Global benchmarks



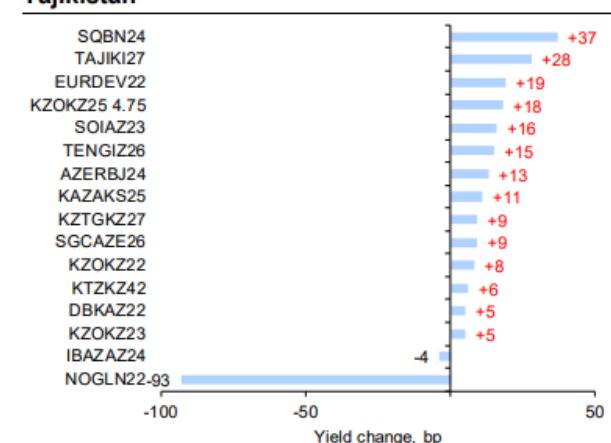
Source: Bloomberg, VTB Capital Research

Figure 2: Ukraine/ Belarus/ Armenia/ Georgia



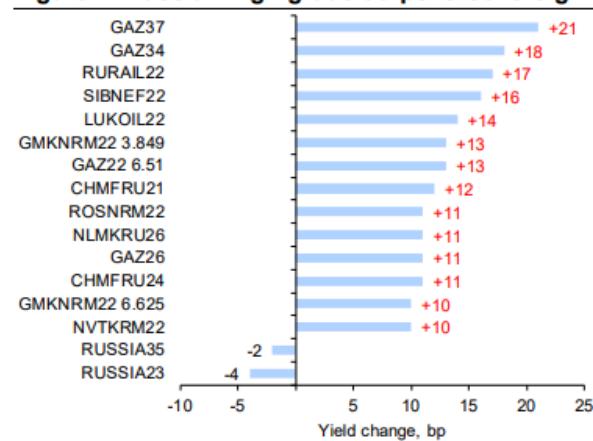
Source: Bloomberg, VTB Capital Research

Figure 3: Kazakhstan/ Azerbaijan/ Uzbekistan/ Tajikistan



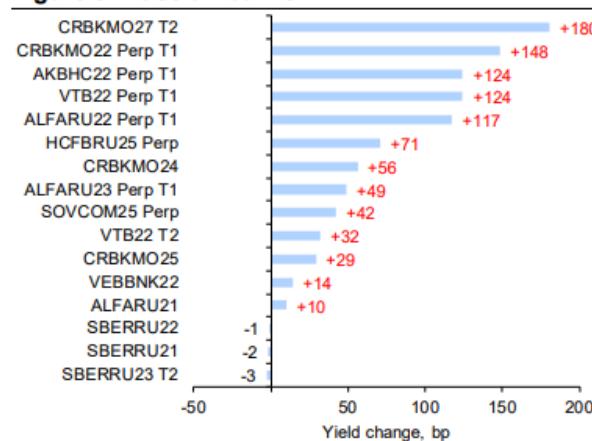
Source: Bloomberg, VTB Capital Research

Figure 4: Russian high grade corps. & sovereign



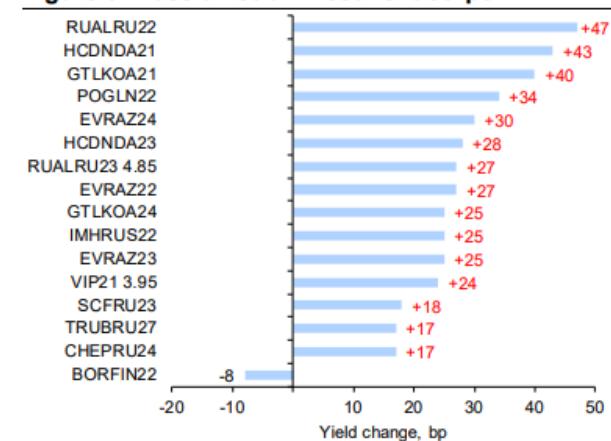
Source: Bloomberg, VTB Capital Research

Figure 5: Russian banks



Source: Bloomberg, VTB Capital Research

Figure 6: Russian sub-investment corps



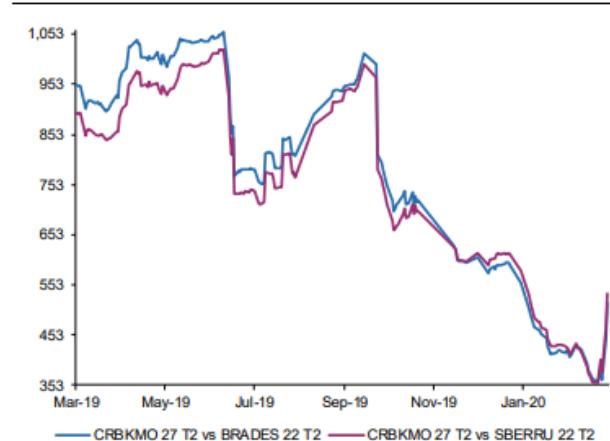
Source: Bloomberg, VTB Capital Research

4 March 2020

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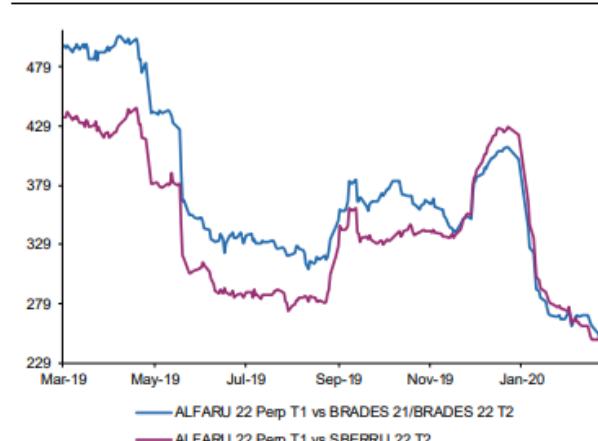
Weekly highlights

Figure 7: CRBKMO 27 T2 vs selected peers



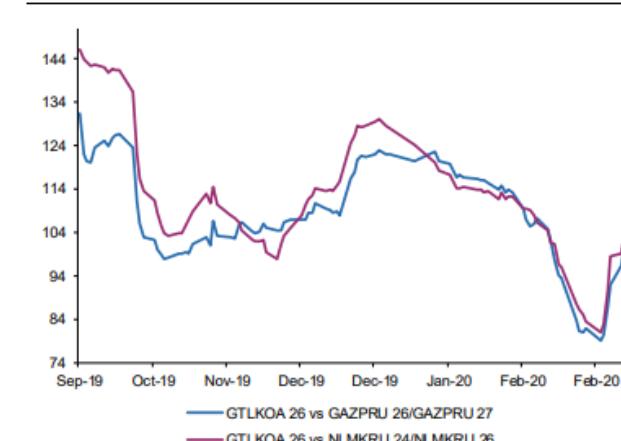
Source: Bloomberg, VTB Capital Research

Figure 8: ALFARU 22 Perp T1 vs selected peers



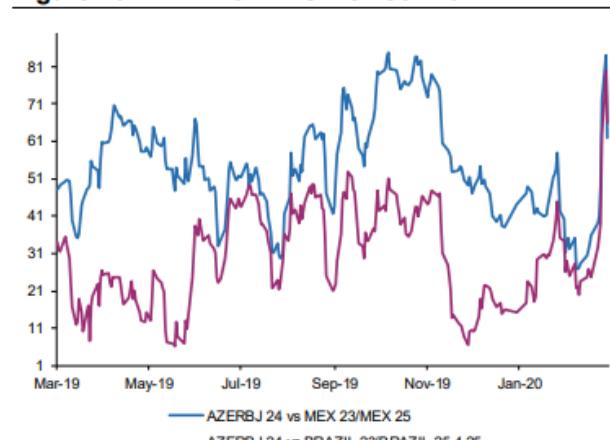
Source: Bloomberg, VTB Capital Research

Figure 9: GTLKOA 26 vs Gazprom/NLMK



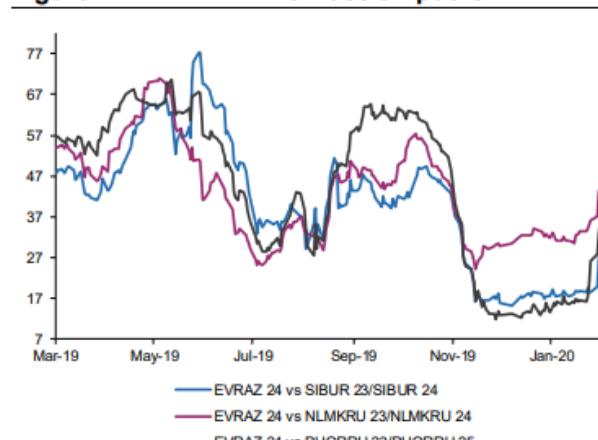
Source: Bloomberg, VTB Capital Research

Figure 10: AZERBJ 24 vs Mexico/Brazil



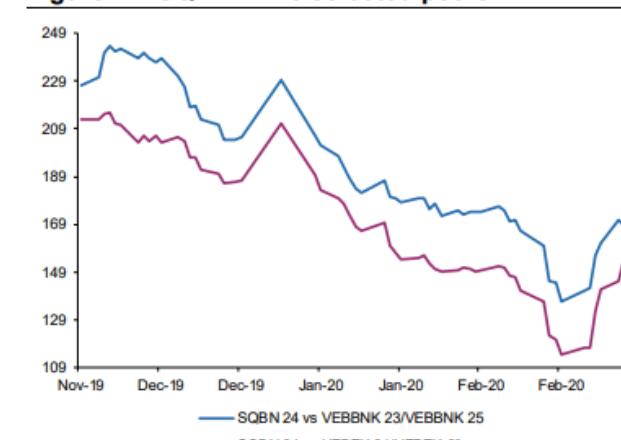
Source: Bloomberg, VTB Capital Research

Figure 11: EVRAZ 24 vs Russian peers



Source: Bloomberg, VTB Capital Research

Figure 12: SQBN 24 vs selected peers



Source: Bloomberg, VTB Capital Research

4 March 2020

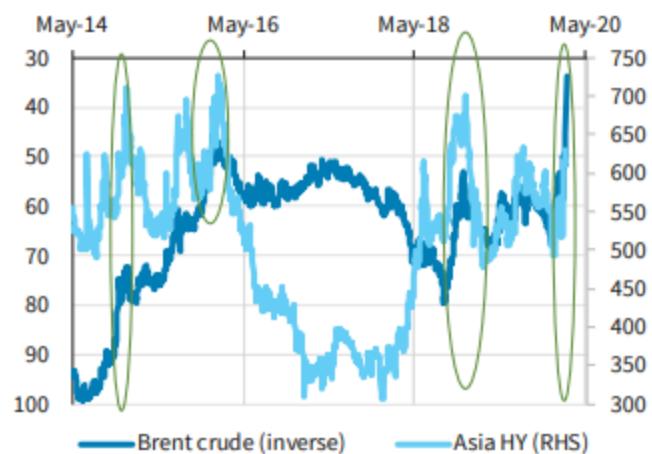
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FIGURE 1
Performance of Asia and EM credit during past oil sell-offs

	Price Chg	OAS Chg		
	Brent crude	Asia HY	Asia IG	EM Credit
24-Aug-15	-9%	92.8	28.8	43.0
18-Jan-16	-8%	25.6	8.2	22.0
23-Nov-18	-9%	9.3	3.8	7.0
31-May-19	-9%	18.7	9.1	15.0
3-Jun-19	-9%	22.6	10.2	17.0
4-Jun-19	-8%	23.9	8.0	9.0
6-Aug-19	-8%	70.4	26.3	31.0
27-Jan-20	-8%	22.9	10.1	17.0
26-Feb-20	-10%	41.4	16.3	18.0
27-Feb-20	-11%	43.8	20.8	29.0
28-Feb-20	-11%	67.5	31.0	49.0
6-Mar-20	-13%	11.4	8.2	18.0

Source: Barclays Research

FIGURE 2
Asia HY spreads strongly correlated to large moves in oil



Source: Barclays Research

In our view, a scenario similar to 2015-16 is likely to play out, with commodity- and oil-related names coming under pressure. Asia is a net importer of oil but we expect concerns about financial conditions and concerns about outflows to weaken risk appetite. There we expect risk assets correlation to converge and EM to be in the spotlight.

The outlook is turning negative for high yield: We expect weak sentiment to hurt high yield more than high grade because: 1) a weak earnings outlook could accelerate rating downgrades; 2) tight financing conditions would limit funding capabilities and could result in an increase in refinancing risks and defaults; 3) on the other hand, high grade returns are likely to be supported by the rally in US rates.

FIGURE 3
Performance of Asia high grade components

	Price Chg	OAS chg							
	Brent crude	China	HK	India	Indonesia	Korea	Malaysia	Philippines	Thailand
24-Aug-15	-9%	13.7	4.5	15.5	54.8	7.5	12.9	25.2	1.6
18-Jan-16	-8%	2.8	3.3	5.0	14.3	2.4	2.1	8.8	2.6
23-Nov-18	-9%	3.6	0.8	2.6	2.7	1.2	2.1	1.2	2.0
31-May-19	-9%	5.4	2.8	2.8	11.2	1.6	2.1	11.9	2.6
3-Jun-19	-9%	6.5	3.8	4.4	14.3	3.0	4.1	14.5	2.3
4-Jun-19	-8%	4.4	2.9	5.1	3.7	2.7	1.0	4.5	1.4
6-Aug-19	-8%	12.2	7.4	17.3	30.9	4.6	8.3	20.9	6.3
27-Jan-20	-8%	3.2	1.8	1.9	13.3	1.0	0.0	8.5	1.4
26-Feb-20	-10%	6.4	6.7	7.7	15.5	2.9	4.3	12.6	7.3
27-Feb-20	-11%	9.4	9.6	13.7	22.8	5.0	9.1	17.2	10.2
28-Feb-20	-11%	12.1	10.8	21.2	39.8	3.4	10.1	33.0	12.0
6-Mar-20	-13%	7.3	3.9	7.2	15.8	4.4	3.6	20.5	5.9

Source: Barclays Research

Asia high grade – leaking

Some HG oil producers, including CNOOC Ltd and PTTEP, are likely to be able break even with oil prices in the low-USD30/bbl levels, but credit metrics would weaken if oil prices stay depressed for a sustained period of time. Although low oil prices offer some reprieve to refiners, the volatility in prices is not helpful, and end-user demand is unlikely to recover materially in 1H20. Last, but not least, oilfield service providers may face pressure as upstream companies may cut capex, particularly exploration budgets, to conserve cash.

ONGC: We lower our rating to Market Weight from Overweight, in view of weak oil prices. Spread widening has been relatively orderly for ONGC, and for the broader Indian O&G sector in general, and we think additional oil price weakness may drive spreads even wider. We lowered our rating on Oil India to Underweight, and raised Indian Oil Corp to Market Weight in *India High Grade Oil & Gas: Staying defensive, shifting downstream*, 27 February 2020.

FIGURE 5
Spread widening accelerated in November 2015, when Brent breached USD40/bbl



Source: Barclays Live, Bloomberg

COSL: We lower our rating to Underweight from Overweight. We think risks lie to the downside, with the potential for sustained weakness in oil prices driving cuts in E&P capex programs. COSL derived 80% of revenue from its sister company CNOOC Ltd in 1H19. In the past, CNOOC has been flexible in managing its capex budget to maintain stable or positive free cash flow. In addition, with the slump in demand in China as a result of the Covid-19 outbreak, we think the Chinese oil majors' focus on keeping oil output steady could be diluted. Therefore, the spread differential between COSL and CNOOC Ltd could widen back to 50-60bp; COSL '25s are currently at all-time tights to CNOOC '25s (22bp).

EMEA EM Local Markets: Fed gives green light to easing in high yielders; upsize HY duration OW

South Africa and Russian local bonds have ample room for spread compression versus UST yields



EMEA EM Outright Trade Recommendations

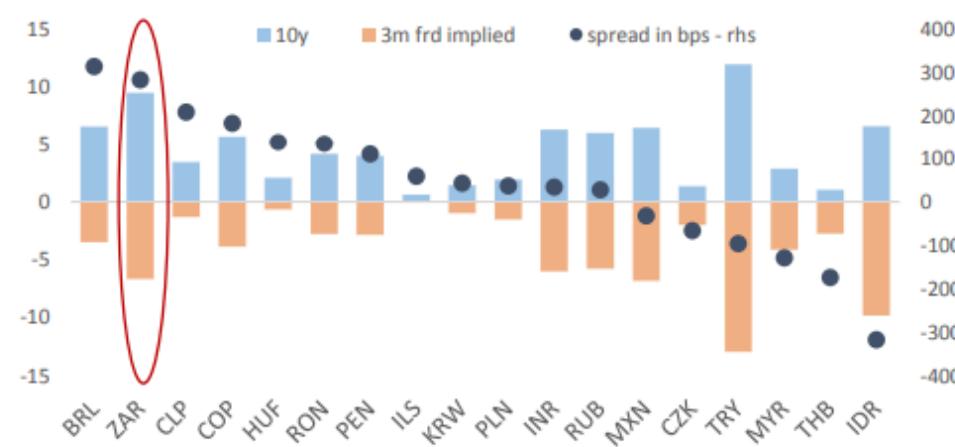
Outright trades - Rates	Entry Date	Entry level	Current level	Target
Pay 06-Dec-20 – 06-Mar-21 PLN FRA	04-Mar-20	1.19%	1.19%	1.40%
Pay 06-Sep-20 – 06-Dec-20 CZK FRA	04-Mar-20	1.63%	1.63%	2.05%
Long 4y Ukraine government bond (UKRGB 11.67% Nov-23s; FX-unhedged) **	14-Feb-20	10.00%	11.50%	-
Long Pakistan 6m T-bill (16-Jul-20s; FX-unhedged)	17-Jan-20	13.1%	13.00%	-
Receive 5y RUB IRS	18-Dec-19	6.59%	6.15%	5.80%
Buy R186 on ASW (Buy R186, Pay 7y IRS)	10-Oct-19	100bp	93bp	65bp
Long 4y Egypt government bond (15.9% Jul-24s; FX-unhedged)	06-Sep-19	14.65%	14.30%	13.00%
Long 8y Serbia government bond (5.875% Feb-28s; FX-unhedged)	12-Feb-19	4.87%	2.95%	2.75%
Outright trades - FX	Entry Date	Entry Level	Current level	Target
02-Apr-20 EURZAR digital put (16.35), spot ref: 17.12	04-Mar-20	13.50%	13.50%	-
30-Apr-20 EURRUB 1x2 put spread (72.50/70), spot ref: 73.95	04-Mar-20	0.44%	0.44%	-
Long USD/KZT in 1m NDF	28-Feb-20	381.61	379.67	393.00
22-May-20 EUR/HUF call spread (340/345), spot reference: 333.66	04-Feb-20	0.45%	0.30%	-
Long 26-May-20 EUR/RON forward *	22-Nov-19	4.86	4.84	4.97
Long ILS vs. 0.5 EUR, 0.5 USD Basket	22-Nov-19	3.65	3.65	3.50

Source: J.P. Morgan, Bloomberg

Source: J.P. Morgan, as of 05-Mar-19. *Entry and current level of Jul-19 forward entered on 10 Jul-18. ** current is mid yield

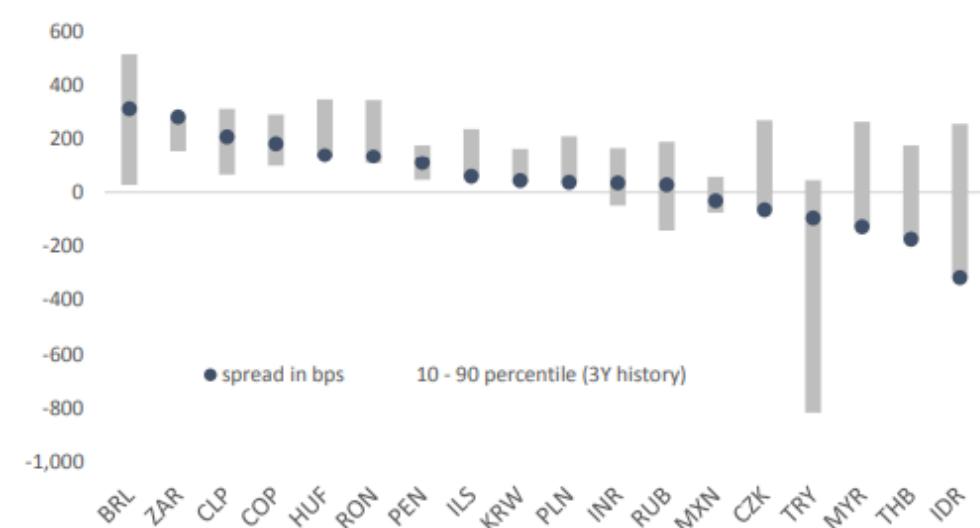
Bond yield forecasts: We run a scenario analysis for 10Y South African local bonds by shocking different input variables. Our results show a range between 8.3%-9.2% by year-end. Given DB's 10Y UST call at 1.90% by year-end, we keep our forecast for 10Y bonds at 9.0%.

Figure 20: Spread in 10Y bonds vs 3m fx-implied yield looks attractive in South Africa vs peers



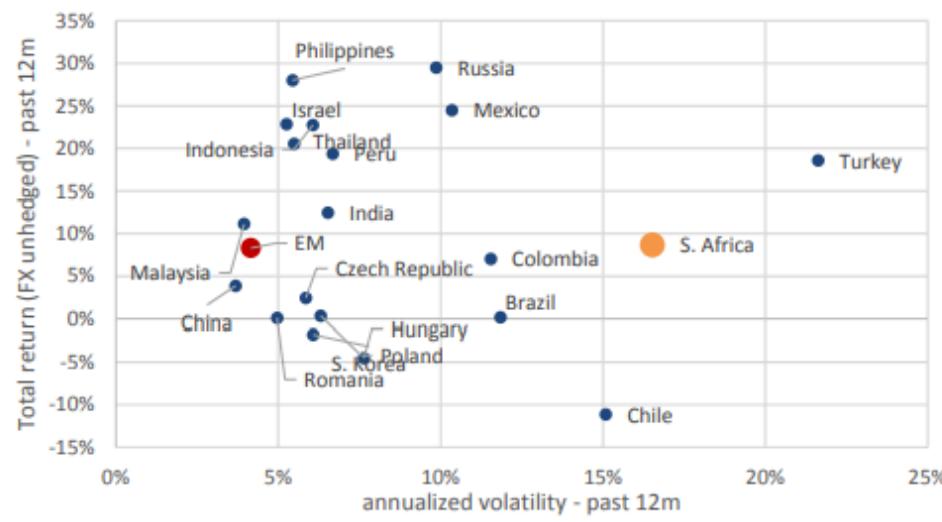
Source :Deutsche Bank, Bloomberg Finance LP

Figure 21:...and historically...



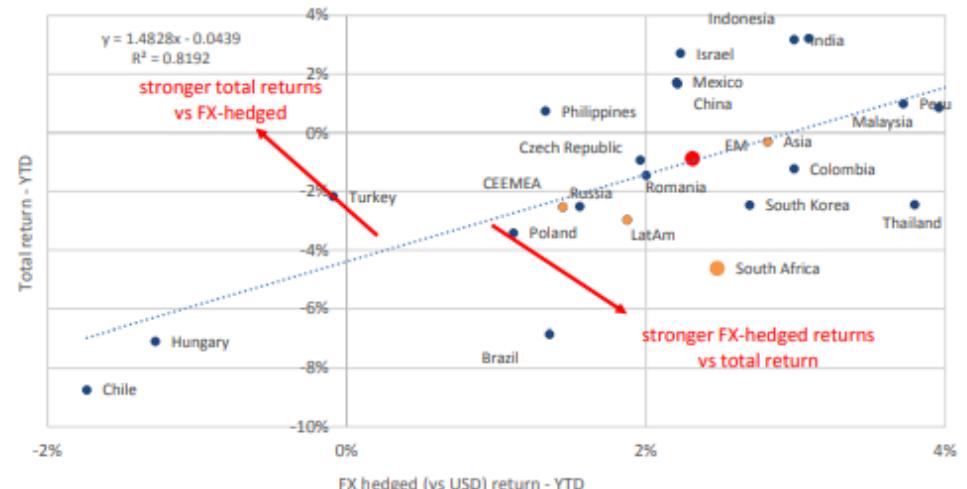
Source :Deutsche Bank, Bloomberg Finance LP

Figure 22: Vol-adjusted total return not attractive in South Africa vs peers...



Source :Deutsche Bank, Bloomberg Finance LP

Figure 23:...particularly when compared to the FX-hedged return...



Source :Deutsche Bank, Bloomberg Finance LP

Opportunities in emerging markets

Stepped up policy mix should provide some support for EM assets

Although emerging markets tend to be more vulnerable in global risk-aversion periods, the policy mix should help weather the impact on the economy.

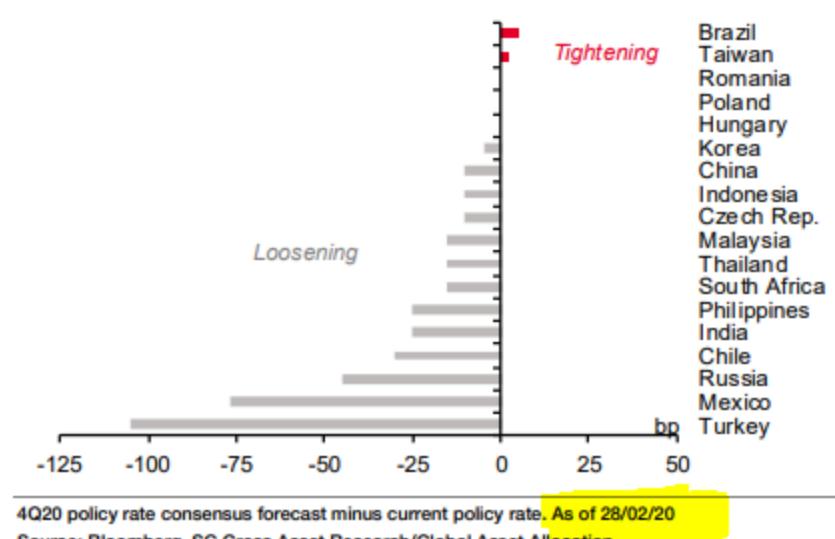
Our economists expect a pronounced growth deceleration in China, to 2.5% yoy in 1Q versus 6.1% previously, but with a V shape recovery in 2Q (6.5% yoy)

Monetary policy easing should remain the rule in 2020 while fiscal easing is expected to gather momentum

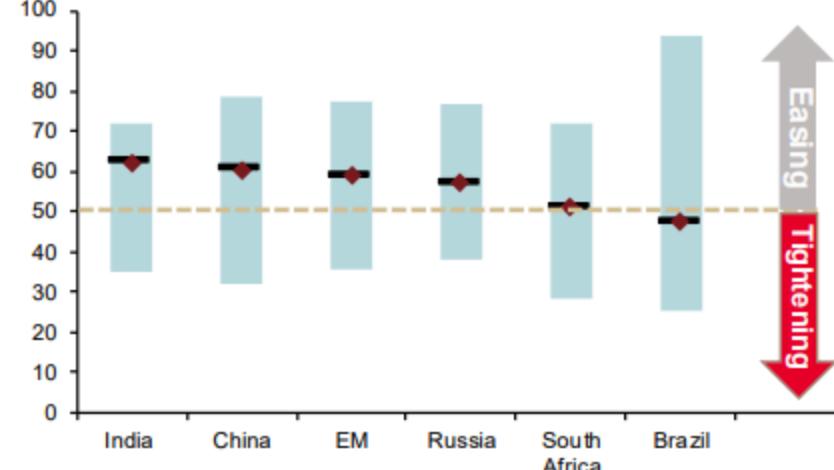
China economic policy support to provide some cushion. As official data shows that the coronavirus outbreak is gradually being brought under control in mainland China, policymakers are increasingly tilting their policy focus towards restarting the economy outside of Hubei province and helping companies survive the cash flow crunch (see detailed measures in: [China – Surviving the coronavirus strike](#)). Our economists expect a pronounced growth deceleration in China, to 2.5% yoy in 1Q vs 6.1% previously, but with a V shape recovery in 2Q. The full-year forecast for 2020 is now at 5.5% (down from 5.9%).

Widespread policy support expected in other EM. Monetary policy easing will remain the rule in 2020 according to consensus forecasts, with a few exceptions (see chart below). Meanwhile, fiscal easing is expected to gather momentum, as highlighted by our proprietary Fiscal Newsflow Indicator, notably in Asia. Beyond China, we expect South Korea to be the most aggressive in fiscal easing (see [here](#)), while Hong Kong already announced massive fiscal support, India should deliver a small fiscal thrust, and Indonesia appears close to relaxing its deficit ceiling.

More easing to come, with fewer and fewer exceptions



SG EM FINI shows fiscal support expected in EM except Brazil



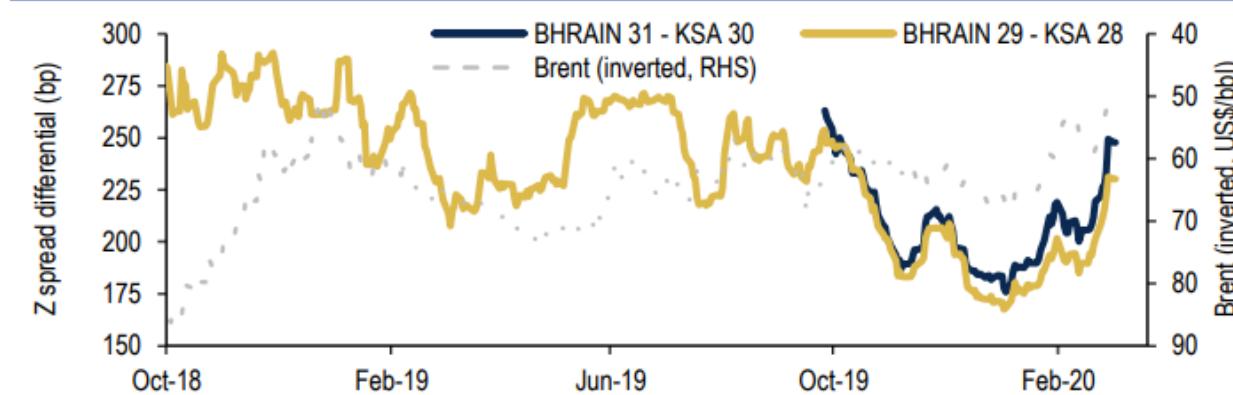
EM Alpha

Buy BHRain \$ '31s vs. KSA '30s

BHRain '31s now an attractive 248bp wide to KSA

After recent market volatility, we add an RV trade in BHRain vs. KSA. Whilst we acknowledge ongoing market risks (particularly to growth), we expect Fed easing shortly, an expected OPEC production cut, and strong near-term EM maturities/coupons to help stabilize EM markets. BHRain '31s are now 248bp wide of KSA '30s with the Z-spread differential widening 72bp since early-Jan. Whilst Bahrain continues to face credit challenges, we have seen improvements and expect Saudi/GCC explicit support to continue, making Bahrain an attractive pick-up to KSA at these levels.

The BHRain 29 vs KSA 28 spread (where we have more history) was around 260 – 290bp when oil was last this low (late 2018), so we acknowledge there could be further widening, but we highlight the improvement in Bahrain's fiscal situation. Trade: Buy \$2mn BHRain \$ '31s @105.5 vs. \$1.85mn KSA \$ '30s @117.125 for YTM differential of 243bp (after bid/offer). Target = 200bp, stop = 270bp. *Trade risks = lower oil prices, weaker investor sentiment towards HY, fiscal deterioration, regional RWA changes.*

Chart 1: BHRain has widened strongly vs. KSA = attractive entry point

Source: Bloomberg

03 March 2020

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Emerging Markets Global

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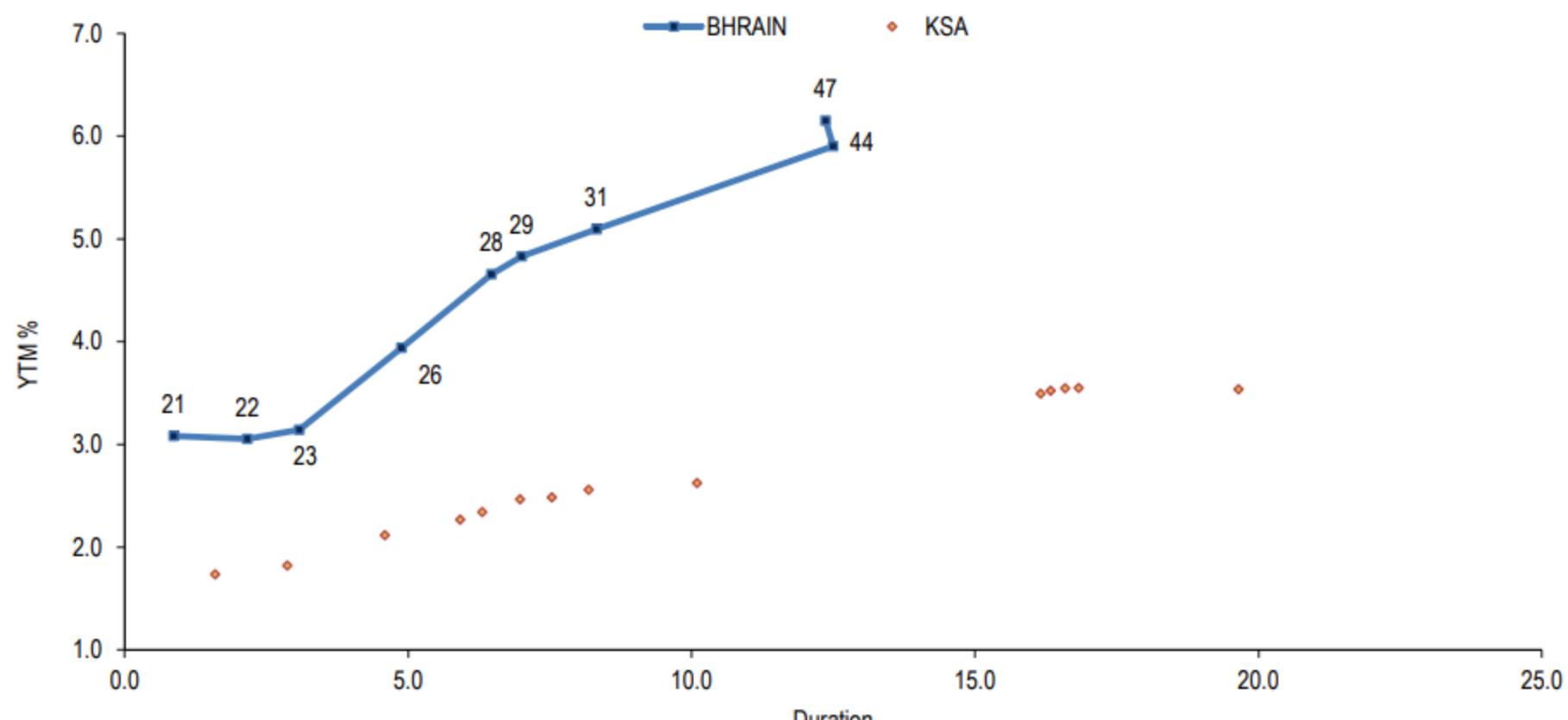
GEMs FI Strategy & Economics
BofAS

For a complete list of open and closed trades, please see the latest [GEMs weekly](#).

BofA GLOBAL RESEARCH

expected disbursement of US\$1.8bn in 2020. However, growth concerns may be dominating the discussion and government debt could thus be likely to continue increasing. The 2021 – 22 budget cycle will be critical for reform momentum.

As can be seen in Chart 2 below, the main spread pick-up over KSA is in the 2028+ maturity range with front-end bonds trading much tighter due to local demand. As a result, our trade is focused on the 2031s, so we remain MW Bahrain overall.

Chart 11: BHRain & KSA US\$ Eurobond curves

Source: Bloomberg

Open short EUR/RUB ahead of OPEC

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Oil & carry to rebound

Our oil team forecasts a 1mn bpd cut from OPEC+ this week which, together with some recovery in demand during Q2, should help a rebound in oil prices. Moreover, carry trades funded in EUR have been decimated due to the vol shock but are likely to come back on as volatility subsides and global rates are even lower. Carry is likely to be king again – unless credit risk spikes to a greater extent than apparent so far. RUB would benefit from higher crude oil and is still one of the fundamentally soundest EM currencies to get carry in. Positioning in RUB remains long but has been cut significantly during the latest sell-off. Sell EUR/RUB at 74.15, targeting the 200-day moving average at 70.97. Stop at the 2019 high at 78.00. The risk to the trade is that the global demand shock from the virus gets much worse than currently expected, and OPEC+ come to the view that they have to allow Brent to fall into the 40s to support a recovery in global growth.

EUR carry trade unwind running its course

The rally in EUR has been predominantly driven by a squeeze in carry funded positions. Though the ECB appears reluctant to cut rates, carry continues to work against EUR. We continue to believe that the market reaction CoVid has been extreme: credit and equity markets are now recovering following the Fed rate cut and FX volatility is retracing recent spike. This should encourage investors to step back into carry-funded positions and we believe that EUR/EM is biased lower over the coming month.

REALLY?

Lebanon remains eligible for the EMBIG

Clarifying rules on benchmark eligibility

- Lebanon sovereign bonds currently in the EMBI® suite of indices will continue to remain eligible provided all index eligibility criteria such as sufficient liquidity and reliable pricing are met.
- Based on index rules, bonds from issuers that fail to service the debt will remain included in the EMBI Global/Diversified, provided the said bonds continue to satisfy all other inclusion criteria such as maintaining sufficient liquidity and at least US\$500 million in face amount outstanding.
 - For precedence, we would point to guidance around Argentina in the EMBI series post-July 2014 ([link](#)) and Venezuela/PDVSA in November 2017 ([link](#)).
- **Index pricing will align with market convention:** EMTA has just recommended flat trading for all Lebanon sovereign bonds ([link](#), accessible to EMTA members). In line with the recommendation, any accrued interest will be retracted from the index return as of today (March 9th, 2020). This is a one-time adjustment that will be applied to the instruments and index at the close-of-business.
- **Lebanon's weight in the EMBI family of indices:** Lebanon has 14 sovereign bonds in the index with a total notional outstanding of \$15.3 billion included in the EMBI (Figure 1) compared to the overall index notional outstanding of \$1,089 billion. Lebanon sovereign bonds currently have a weight of 0.56% in the EMBI Global Diversified, 0.33% in the EMBI Global and 0.38% in the JESG EMBI (ESG-aligned version of the EMBI Global Diversified).
- **Removal of defaulted instruments from the index:** A defaulted instrument is removed from the EMBI suite of indices if its notional outstanding falls below US\$500 million, or if it no longer meets the necessary liquidity standards. Defaulted instruments will not be excluded from the index based on the remaining maturity criteria (i.e. removed when less than 1 year remains to maturity).
- **EMBI index suite has \$400 billion in assets benchmarked to it:** EMBI Global Diversified is the most widely benchmarked index in the family with \$330 billion benchmarked to it, followed by the EMBI Global with \$67 billion benchmarked to the index. We estimate approximately \$12 billion in assets is benchmarked to the JESG EMBI.
- **Lebanon has a current JESG score of 32.6** (as of February 28th) and falls in Band 4 within the JESG EMBI. As a result, Lebanon is an underweight in the JESG EMBI (0.38% weight) relative to the baseline EMBI Global Diversified (0.56% weight).

Figure 1: Lebanon sovereign bonds in EMBI suite of indices

as of March 6th, 2020

ISIN	Instrument	Amt. Outstanding (US\$ million)	EMBIG Diversified Weight (%)	EMBI Global Weight (%)	JESG EMBI Weight (%)	Index Price (bid)
XS0250882478	LB Republic 8 1/4% due 21	2,092	0.08	0.05	-	25.0
XS0707820659	LB Republic 6.6% due 26	1,600	0.06	0.03	0.05	23.5
XS0559237796	LB Republic 6.1% due 22	1,540	0.06	0.03	0.05	24.5
XS1196419854	LB Republic 6.65% due 30	1,400	0.05	0.03	0.04	22.5
XS1586230051	LB Republic 6.85% due 27	1,250	0.05	0.03	0.04	23.0
XS0859367194	LB Republic 6% due 23	1,100	0.04	0.02	0.03	24.0
XS0859366899	LB Republic 6 3/4% due 27	1,000	0.04	0.02	0.03	23.0
XS1586230481	LB Republic 7% due 32	1,000	0.04	0.02	0.03	22.5
XS1313675974	LB Republic 6.65% due 28	893	0.03	0.02	0.03	22.5
XS1196417569	LB Republic 6.2% due 25	800	0.03	0.02	0.02	23.5
XS1586230309	LB Republic 7 1/4% due 37	750	0.03	0.02	0.02	22.5
XS1396347566	LB Republic 6.65% due 24	700	0.03	0.02	0.02	24.0
XS1313654623	LB Republic 7.05% due 35	600	0.02	0.01	0.02	22.5
XS1313647841	LB Republic 6 1/4% due 24	538	0.02	0.01	0.02	24.0
		15,264	0.56	0.33	0.38	

Source: J.P. Morgan.

LEBAN 6 3s 03/09/20 \$ 157.906 -.628 57.316 / 58.496 8483.642 / 8091.516

As of 06 Mar

-- x -- Source CBBT

LEBAN 6 3s 03/20 Corp

90 Actions

G 548531: Lebanon bond divergence

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Chart Content

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Market Meltdown

Lebanon's Eurobond prices have sunk to record lows

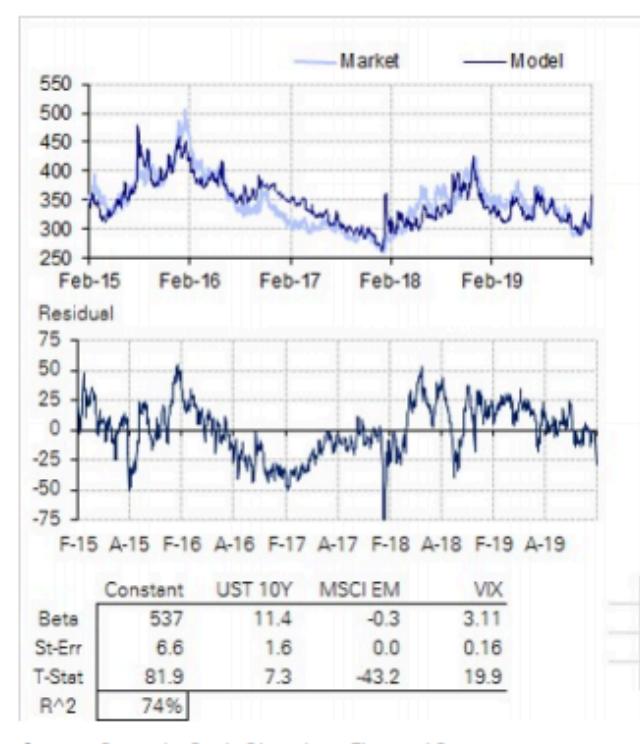


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Japan 81 3 4565 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2020 Bloomberg Finance L.P.
SN 740262 EDT GMT-4:00 H521-2831-0 08-Mar-2020 18:51:27



We further reduce HY exposure in credit. The recent selloff has been led by HY names, especially since February 20th. We expect this trend to continue as long as the virus risks dominate the headlines. Last week, we reduced South Africa to underweight from neutral. This time, we reduce Mexico (including Pemex) to neutral from overweight due to rising country risk premium on the back of poor growth fundamentals and Pemex operation results, as well as renewed currency. We also reduce Brazil to underweight (from neutral) as fiscal risks are back to the fore with lower growth expectations, slowing reform momentum, and political noise.

Figure 6: EM benchmark is already slightly rich to key external drivers



Source : Deutsche Bank, Bloomberg Finance LP

Figure 7: Recent selloff has been led by HY...

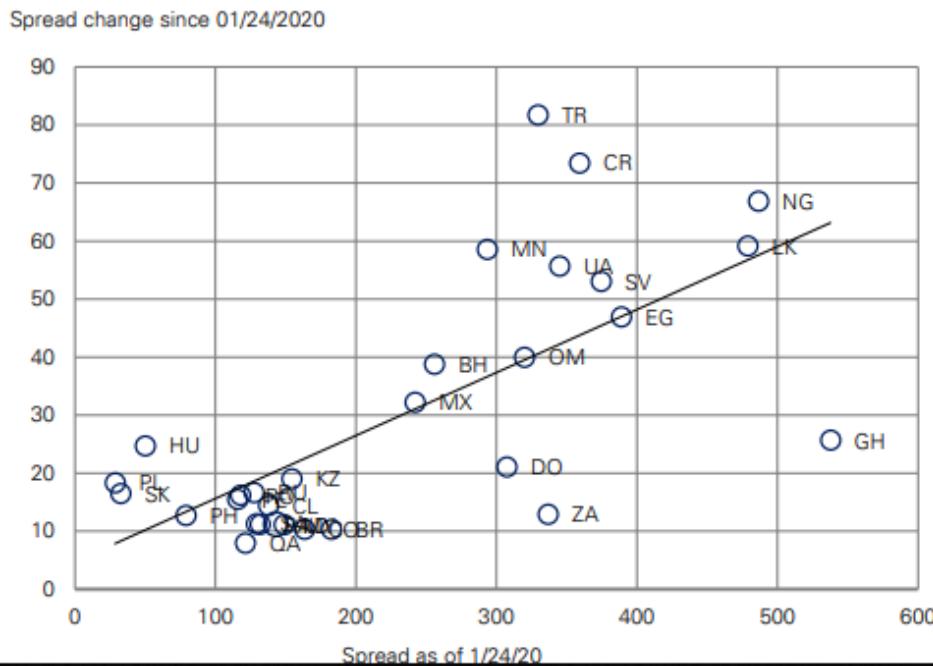
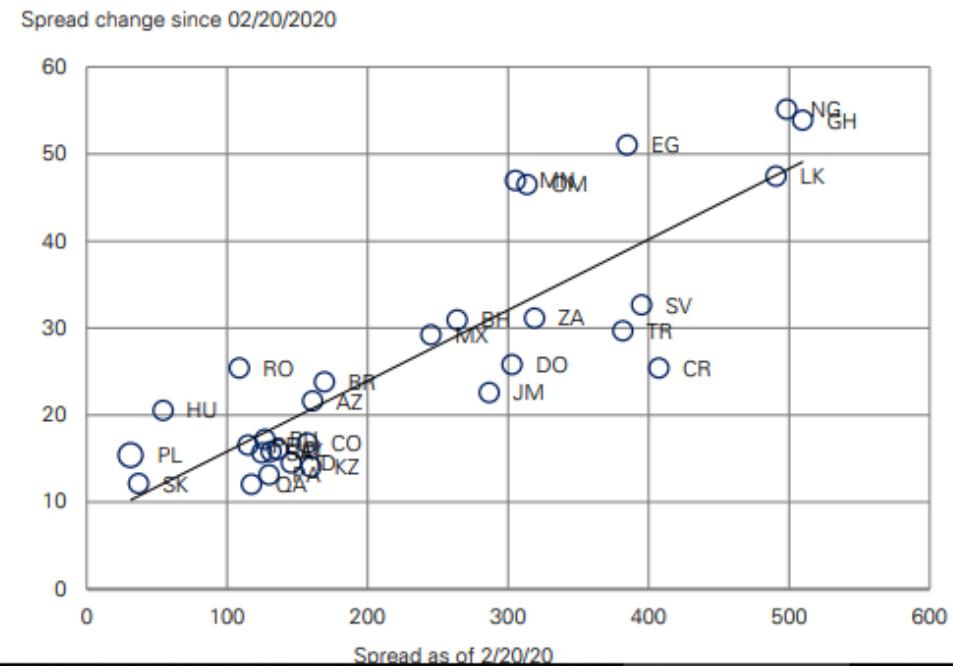


Figure 8: ... especially since February 20th.



ARS NDF

- **Argentina:** C operates in Argentina through its ICG businesses. As of December 31, 2019, Citi's net investment in its Argentine operations was \$730mn. C uses the U.S. dollar as the functional currency for its operations in Argentina because the Argentine economy is considered highly inflationary under U.S. GAAP. **During 2019, the Argentine peso depreciated 59% against the U.S. dollar, and the U.S. rating agencies downgraded Argentina's sovereign debt rating given renewed concerns of a debt default. In addition, the government of Argentina re-profiled certain short-term debt obligations, and also implemented new capital and currency controls during 3Q19.** Prior to the implementation of these new capital controls, C had already remitted all available earnings from its Argentine operations that could be remitted during the 2019 calendar year; the new controls may restrict C's ability to access U.S. dollars in Argentina and remit earnings from its Argentine operations in the future. C economically hedges the foreign currency risk in its net Argentine peso-denominated assets to the extent possible and prudent using non-deliverable forward (NDF) derivative instruments that are executed outside of Argentina. As of December 31, 2019, the international NDF market had very limited liquidity, resulting in C being unable to economically hedge a significant portion of its Argentine peso exposure. To the extent that C is unable to execute additional NDF contracts in the future, devaluations on Citi's net Argentine peso-denominated assets would be recorded in earnings, without any benefit from a change in the fair value of derivative positions used to economically hedge the exposure. In addition, C continually evaluates its economic exposure to its Argentine counterparties and reserves for changes in credit risk and sovereign risk associated with its Argentine assets. **C believes it has established appropriate loan loss reserves on its Argentine loans, and appropriate fair value adjustments on Argentine assets and liabilities measured at fair value, for such risks under U.S. GAAP as of December 31, 2019. However, given the recent events in Argentina, U.S. regulatory agencies may require C to record additional reserves in the future, increasing ICG's cost of credit, based on the perceived country risk associated with its Argentine exposures.**

TWD NDF FORMOSA

Corona exposes ETF fault lines

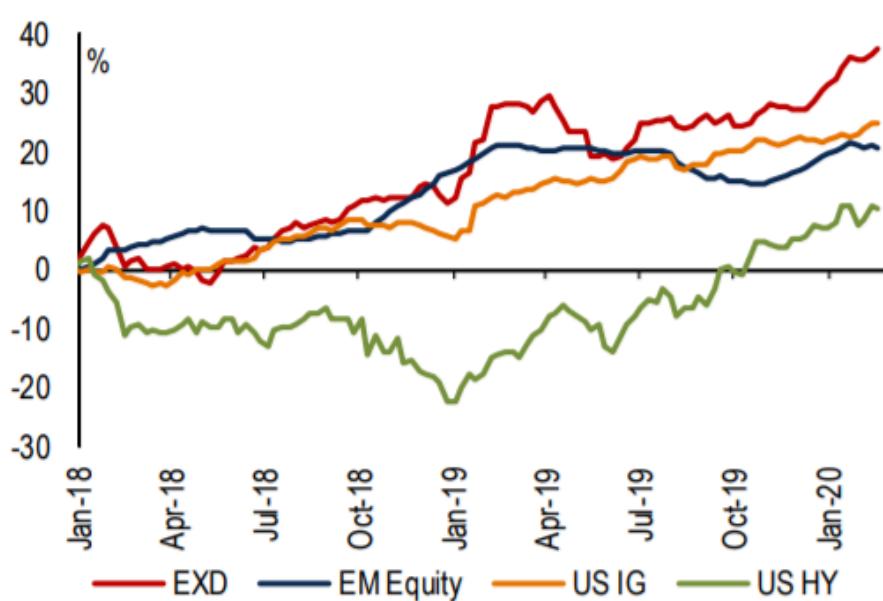
Some of the severe risk-off days in the past few weeks constituted another reminder of the risks of ETF outflows in illiquid markets, especially in the EM high yield debt space. Fortunately, markets stabilized reasonably quickly this time on the back of a swift Fed response and still quite benign credit risk in the global financial system. However, markets would clearly be ill positioned to handle a longer lasting trend of ETF outflows.

EM ETFs getting ever more crowded

ETF inflows into EM debt and equities have been significant in the past couple of years even when compared with mainstream asset classes in developed markets. In percent terms they have been strongest in external sovereign debt (EXD) at +40% since January 2018. This has been substantially more than for US IG and HY, for example (Chart 1).

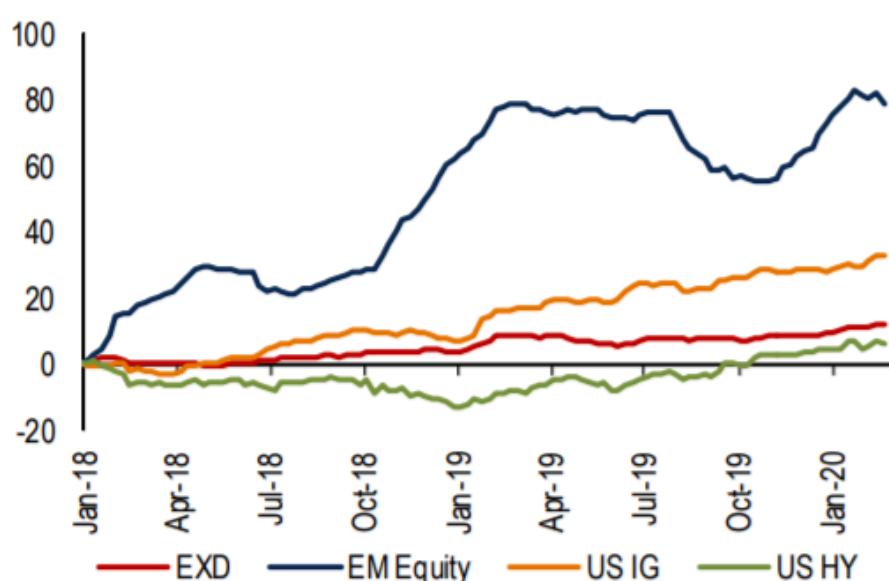
In absolute size, EM equities have received the biggest inflow over the past two years, at +\$80bn (Chart 2). This dwarfs the inflows into EM debt but also into US credit products, even though the USD was strong, and EM highly volatile in this period.

Chart 1: EXD ETFs received 40% in cumulative inflow since Jan'2018...



Note: shows aggregate EPFR data, it names no specific ETF. Source: BofA Global Research, EPFR

Chart 2: ...and \$ amount of inflows was even bigger in equities at \$80bn



Note: shows aggregate EPFR data, it names no specific ETF. Source: BofA Global Research, EPFR

Small illiquid EXD names most vulnerable

EXD investors alert to possible ETF outflows, but size still limited

Potential ETF outflows have long-been a concern for EM credit investors. This reflects the possibility of large volumes of selling in a short time frame which could be particularly concerning for illiquid names.

However, it is important to keep this in perspective. Despite strong inflows in recent years, ETFs only make up around US\$38bn of EM sovereign credit assets, only around 3% of the market cap of the EMBI. Thus even a substantial outflow would only impact a small % of total bonds.

ETF exposures particularly driven by nuances of EMBI Global Core benchmark

Nonetheless, some credits are more exposed than others – this particularly reflects the methodology of the main benchmark for many of the largest ETFs, the EMBI Global Core. In this benchmark, bonds have to have at least US\$1bn outstanding and 2 years to maturity – this is slightly different to the more popular EMBI Global Diversified used by many active investors.

This can help explain why some countries have lower ETF exposure. Notable sovereign examples include Belarus, Mongolia, El Salvador, Paraguay, Gabon, Malaysia, and Bolivia for example. These are all tickers with several bonds eligible for the EMBI Global Diversified (since US\$500mn+), but not all bonds are eligible for the Core (since not US\$1bn). Similarly, there can be bonds with maturities between 1 and 2 years which are not eligible for these ETFs. As a result, these tickers often have lower ETF ownership.

Weighting methodology means smaller credits have higher ETF ownership

The country weighting methodology of this Global Core benchmark is the same as the Diversified which limits the weight of countries with larger debt stocks. As a result, countries with large debt stocks (e.g. Mexico, Turkey, Saudi Arabia) have a lower benchmark weight relative to their US\$ bond market capitalization.

Smaller debt stock countries have a higher weight relative to their US\$ bond market capitalization as a result. Therefore, ETFs tend to own a higher % of these bonds. Related to this, bonds with smaller debt stocks also tend to be more illiquid, so ETF selling can have an amplified impact.

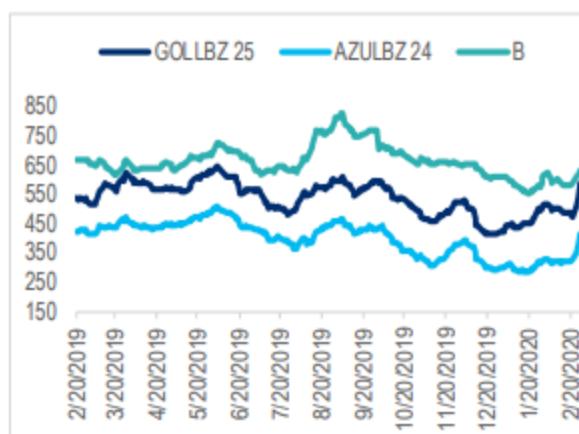


Figure 32. Spread changes of EM airlines and auto relative to ratings index

Bond	FTSE Index	
	Spread ▲(YTD)	Spread ▲(YTD)
B		
GOLLBZ 25	170	24
AZULBZ 24	114	24
BB		
JSLGBZ 24	17	28
METLSA 23	35	28
TNEMAK 25	54	28

Source: Citi Research

Figure 33. Airlines have sold-off sharply



Source: Citi Research

Figure 34. TNEMAK sold-off along with other auto names but we think Mexico should be relatively insulated



Source: Citi Research

The implications of coronavirus fears on hard currency Sub-Saharan Africa (SSA) market to be driven mainly by pressures on commodities. The spread of the coronavirus has been contained in SSA for now but it is worth thinking through which channels are SSA countries exposed. As in other regions, the potential spread of the virus would likely have a negative impact on economic growth (through depressed consumption, investment and exports), government revenues and external balances.

However, in our view, rather than the direct impact of a potential spread of the virus to the region, we believe what SSA prices are mostly exposed through downside pressure on commodity prices. This is because SSA has a high exposure to commodity prices (not just oil) and strong trade links with China (Figure 35). Also, growth in SSA oil importers (except South Africa) has been much more robust than for oil exporters in recent years, so any outbreak in the region would likely complicate further the latter's economic recovery and fiscal consolidation efforts. With oil and copper prices down -20% and -9% since the outbreak and the overall risk environment, SSA spreads have widened c. 50-120bp this week. Given the strong negative beta of SSA spreads to oil prices, we [went short Ghana 35s vs. UST10y](#) (currently at 666bp @ 14:47 GMT) recently as we think spreads will adjust higher.

Figure 27. EM Sovereign and Corporate 1-yr Z-score

	Current OAS	Z-Scores
EM Corporate	271	-0.45
EM Corporate: IG	155	-0.09
EM Corporate: HY	501	-0.52
EM Sovereign	371	2.26
EM Sovereign IG	135	-0.07
EM Sovereign HY	687	2.14

Source: Citi Research

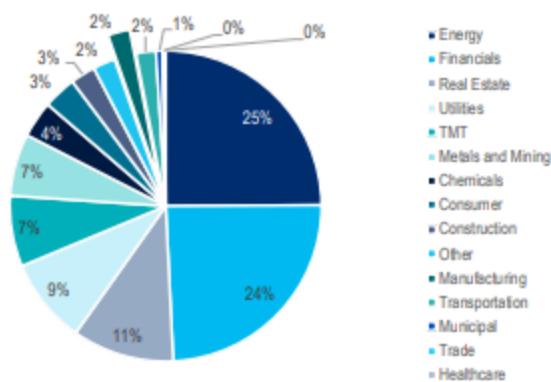
We have further reduced exposure in commodity sensitive credits. Concerns regarding fundamentals have mainly focused on how a slowdown in global growth, and China in particular, may impact EM credit. Obviously, Chinese corporates have received much scrutiny, especially real estate and gaming. More globally, anything related to travel or tourism has been impacted. Our report [Coronavirus a headwind for at-risk corporates](#) examined how EM companies with declining fundamentals were at risk of receiving “one last push toward HY” from the poor macro environment for commodities like oil, chemicals and pulp/paper. As a result, we exited our outperforming pulp/paper positions in SUZANO, KLAB and CELARA. We await better entry points in oil and chemicals. Given our cautious view of the market we choose to express the view via selling CDX EM. Risk to this trade is stabilization in global markets.

Emerging Markets Strategy Weekly
27 February 2020

Citi Research

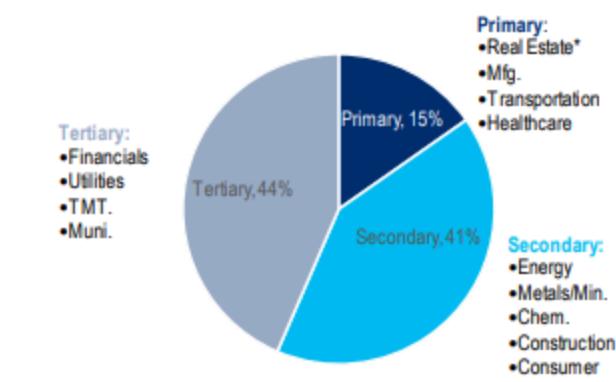
Virus outbreak grows, raising concerns over containment. The increasing cases in South Korea, Italy and Iran have raised serious concerns over containing the virus outbreak. The spike in cases elsewhere offset the seemingly positive news of stabilization in China. US equities have erased the gains from 2020 this week as markets brace for further new cases. The global spread of COVID-19 argues for a re-examination of the direct exposure EM credits have under the assumption that more individual countries may be impacted than just China, and what portion of the market is at risk. In this note, we examine these risks from an index perspective for corporates.

Figure 28. The primary exposure risk is low but secondary impact is significant



Source: Citi Research

Figure 29. Coronavirus exposure by sector in EM corporates



Source: Citi Research, Real Estate is classified as Primary due to heavy China exposure

Figure 35. Heatmap: SSA exposed to commodity prices

	Travel & Tourism total contribution to GDP	International visitor impact (spending % exports)	Commodity revenue (%GDP)	Primary commodities, precious stones and non-monetary gold exports (% total exports)	Primary commodities, ties, exclud. fuels exports (% total exports)	Exports to China (%)
Angola	4%	2%	30%	100%	3%	60%
Cameroon	8%	9%	5%	93%	48%	19%
Cote d'Ivoire	10%	4%	--	84%	62%	2%
Gabon	3%	1%	17%	89%	31%	34%
Ghana	6%	4%	2%	96%	31%	12%
Kenya	9%	15%	--	71%	65%	2%
Namibia	11%	9%	--	78%	56%	12%
Nigeria	5%	3%	8%	97%	4%	5%
Senegal	10%	10%	--	73%	42%	4%
South Africa	9%	9%	--	57%	38%	9%
Zambia	7%	8%	2%	86%	82%	14%

Source:

World Travel & Tourism Council

IMF WCED (2012 or 2013)

UNCTAD

UNCTAD

IMFDOT

Note: "--" indicates no data availability.

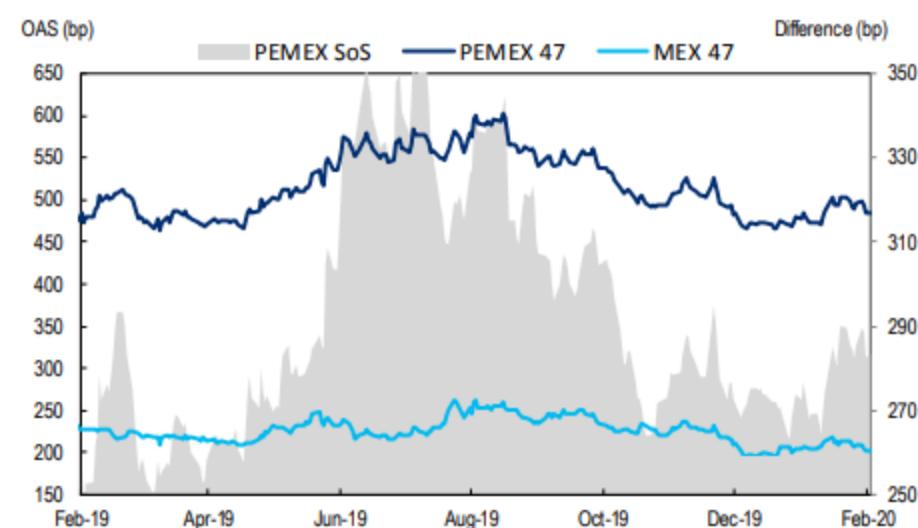
Source: World Travel & Tourism Council, IMF WCED, WB, UNCTAD, IMFDOT, Citi Research

Developments in LatAm warrant caution

Stopped out of our Ecuador positions. We are reducing exposure to Ecuador across the board. Global headwinds have dominated domestic politics in recent months, and Ecuador has been a notable underperformer since the outbreak of the coronavirus epidemic in mid-January. Lower expectations of Chinese demand for oil has dampened the outlook for Ecuador, which is heavily dependent on oil exports (Figure 36), while domestic political uncertainty escalates. As the coronavirus epidemic continues to spread outside China, challenges for Ecuador are unlikely to abate in the near-term. Compounding uncertainty are multiple headlines from Bloomberg today: during a presentation in Quito, Finance Minister Richard Martinez said that Ecuador needs a market-friendly debt reprofiling. The market immediately reacted poorly, misunderstanding Martinez's comments; the Finance Ministry has since issued a clarification stating that the Ministry "is not considering swaps or reprofiling of international bonds". Until now, we have stayed engaged with the credit on the view that domestic reforms would keep Moreno's goals on track and allow Ecuador to make progress meeting the conditions of its IMF program, but we have now stopped out of our trades and therefore close the positions to avoid further losses.

89%) and 4Q18 (-90%), yet after adjusting for a non-cash impairment of MXN 84.6bn, adjusted EBITDA was down 5% QoQ and down 17% YoY. For the year, reflecting the adjustment, EBITDA was USD22bn, a decline of 18%. Net debt rose USD2.2bn from 3Q19. Net Leverage/adjusted EBITDA was 5.7x for the year, compared to 3.8x in 2018. Cash on hand was USD4.3bn compared to USD3.5bn for 3Q19. Production for 4Q average 1.69 mboe/d, compared to guidance of 1.72mboe/d for January 2020. Management claims 100% reserve replenishment rate, and projects 1P reserves of 7.1bn compared to 7.0bn for 2018. This is unaudited and will await official confirmation in April. We note that Pemex has not had a 100% replenishment ratio in years. On balance, we see little in the results to justify a rise in Pemex' standalone Moody's rating of Caa1 to B3, which would be necessary for Pemex to avoid a downgrade to Ba1 bond rating if Mexico is downgraded from A3 to Baa1, as we expect Moody's will do mid-2020. We also do not see a further downgrade in the standalone rating. We continue to fade Pemex risk, and see 50-100bps of spread widening on a downgrade, which could be worse if it were to happen in market conditions such as now.

Figure 40. Pemex Spread over Sovereign



Source: Citi Research

Citi's take is that the budget does just enough regarding the fiscal deficit (-5.9% 22/23) and gross debt ratio (71.6% 22/23), both unchanged, on economic assumptions that are more optimistic than our forecast. Having said that, planned spending is being reduced and there seems to be a sense of realism regarding public sector wage negotiations (ZAR160bn reduction). The net effect is that it shows just enough political will that it may make the ratings agencies pause regarding a downgrade in their forthcoming reviews, pushing a potential sovereign downgrade to H2 2020. This matters for corporates like Sasol that has its rating linked to the sovereign, at least until the LCCP project generates sufficient EBITDA (not before 2021-22) to make the overall South Africa mix fall below 75%. Sasol also is fighting the petrochemical headwinds currently in the marketplace, exacerbated by COVID-19. Despite trading wide to EM BB credits, we await a better entry point to get involved in Sasol. For Eskom, a sovereign downgrade would have little immediate impact on non-guaranteed bonds, in our view, other than sentiment.

In his public statements, Minister Mboweni continued to express support for IPPs as well as Eskom's long term sustainability. As usual, specifics regarding direct financial assistance, especially the refinancing of the 2021 bond, were light (ZAR60bn was pledged to Eskom). Our view on Eskom is that a solution regarding the 2021s will eventually be offered that involves either a direct government guarantee on new debt or investment from PIC, likely a mix of both. At a SoS of 300bs, we maintain our position in Eskom 25s.

Figure 41. Eskom Spread over Sovereign

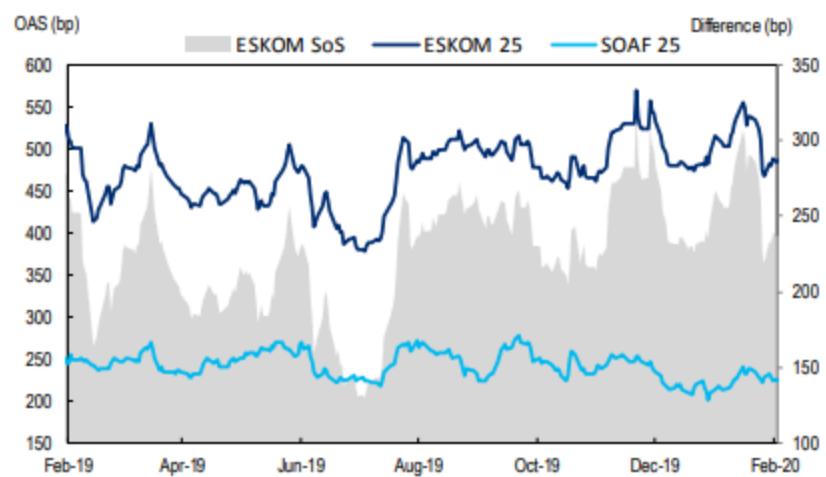
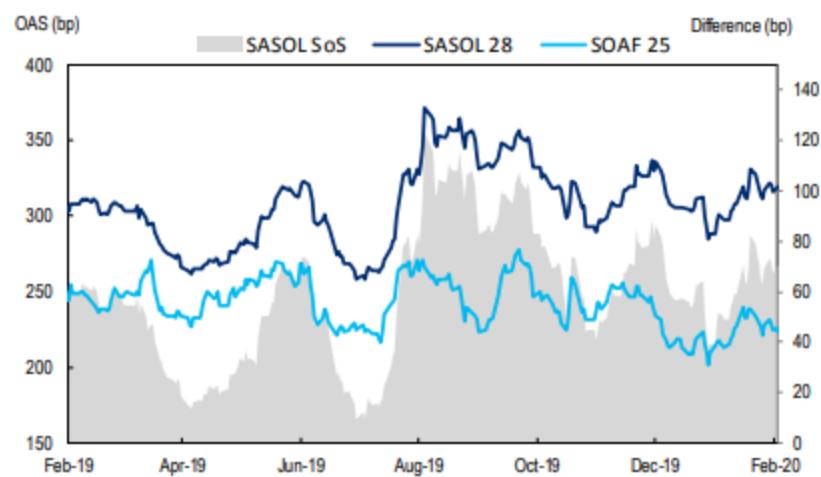


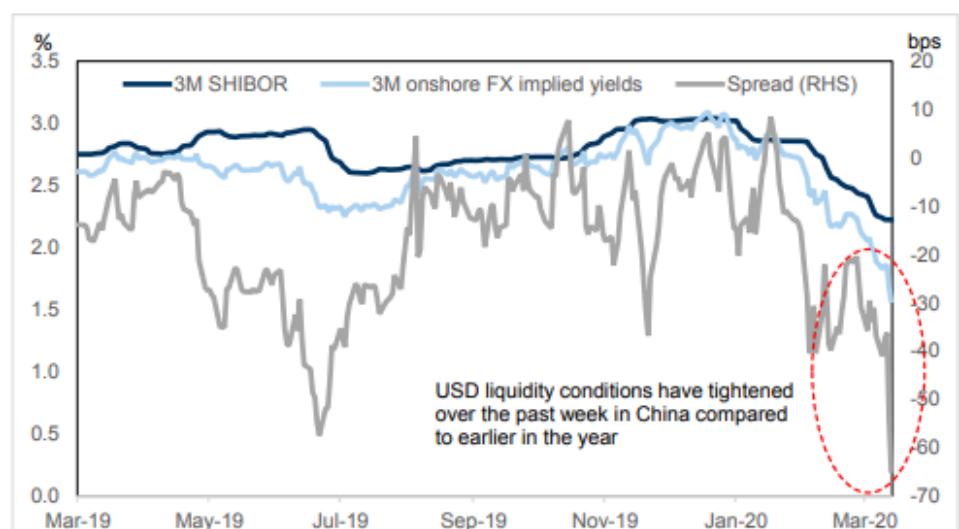
Figure 42. Sasol Spread over Sovereign



CHINA

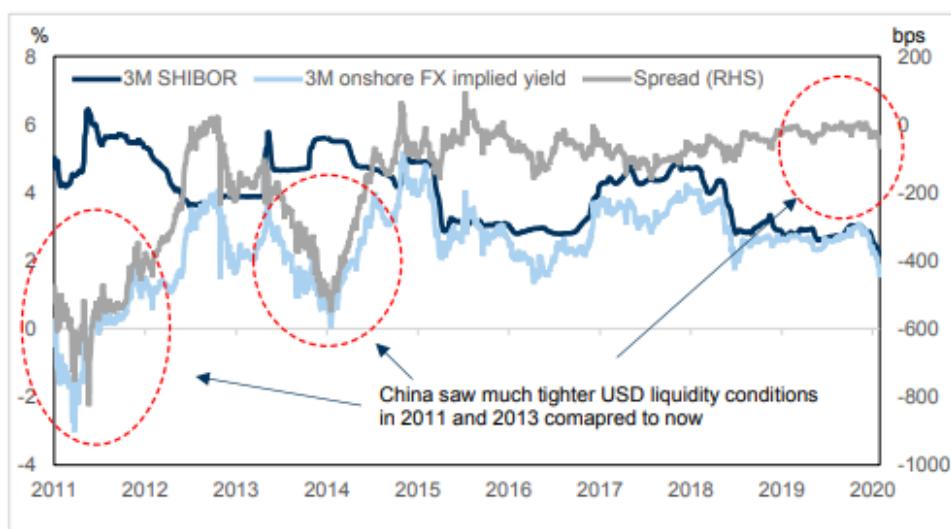
There is no liquid basis swaps market in China. Therefore, we observe the spread between the onshore 3M FX implied yield less 3M SHIBOR. If the onshore FX implied yields fall deeply below SHIBOR rates, then we think this is reflecting USD/CNY FX forward points moving lower driven by a tightening of USD liquidity conditions, as opposed to an improvement in domestic currency liquidity conditions, which is why we subtract 3M SHIBOR from the 3M implied yield. (We explain more below why a tightening in USD liquidity conditions leads to lower FX forward points.) We observe that both 3M onshore FX implied yields and 3M SHIBOR rates have been declining since the start of this year. However, the drop in implied yields has been sharper, as reflected by the deeper negative spread (grey line in Exhibit 5). This indicates that USD liquidity onshore China is becoming tighter as onshore banks engage more in buy/sell USD/CNY FX swaps to build USD cash positions. That said, compared to 2011 and 2013, the spread was much more inverted, which means that USD funding conditions were significantly tighter then compared to now (Exhibit 6).

Exhibit 5: USD liquidity conditions onshore China is getting tighter compared to earlier in the year



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 6: However, in a historical context, USD liquidity conditions are nowhere near as tight compared to 2011 and 2013

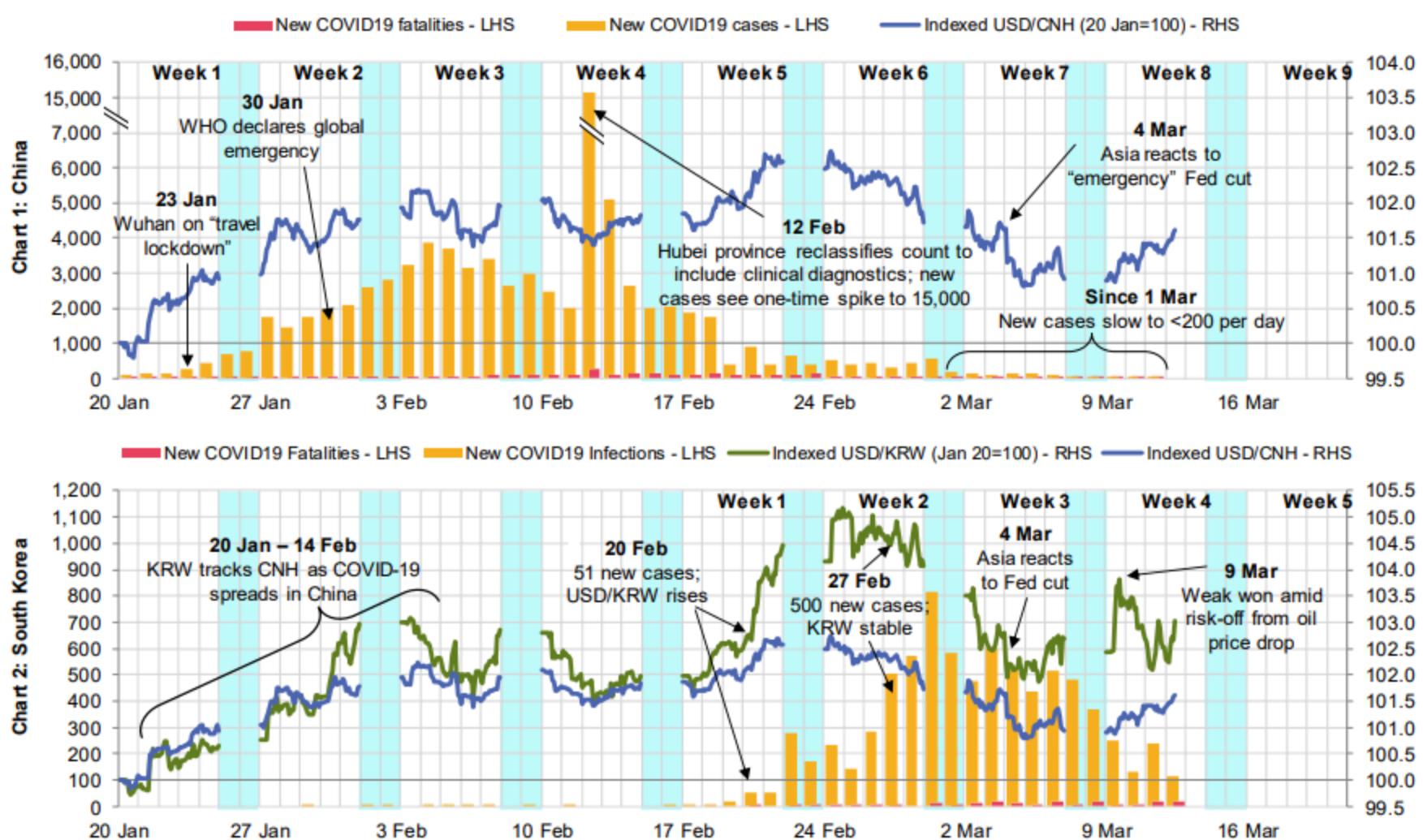


Source: Bloomberg, Goldman Sachs Global Investment Research

Within Southeast Asian markets, Singapore has seen the sharpest tightening in USD liquidity conditions amongst peers. SGD 1Y basis swaps fell to -12bp this week after

Charts 1-2: New Daily Cases of COVID-19 in China (top panel) and South Korea (bottom panel) and FX moves

Source: China National Health Commission, Korea Center for Disease Control, Bloomberg, NWM Strategy



Falling Korean cases vs rising US cases do not make us eager to sell USD/KRW. Although we think that USD/CNH will fall gradually to 6.85, that view is based on diverging central bank momentum, not diverging infections. Fed reaction is linked to the virus' spread, but a potential US recession would also negatively impact demand for Asian exports, thus adversely affecting small export-driven economies like Korea.

Lower COVID-19 case counts are already priced into KRW. Chart 2 shows the market reacts swiftly to case counts. USD/KRW rose most on 20 Feb when cases rose by 51 (considered a large increase at the time). Last week USD/KRW performance converged back towards USD/CNH as new cases began to stabilise at fewer than 500 daily. Worryingly, the market appears to be overlooking Wednesday's surge of new cases in Seoul, South Korea's national capital of 9.8 million people. Chart 3 shows that overall Wednesday's count remained low at 242. Within those 242 cases however was a jump in Seoul cases.

Exhibit 5: No safe haven to hide

YTD returns of GBI-EM country sub-indices in % (FX+bonds returns in USD)

10

5

0

-5

-10

-15

-20

-25

-30

2-Jan 9-Jan 16-Jan 23-Jan 30-Jan 6-Feb 13-Feb 20-Feb 27-Feb 5-Mar 12-Mar

China (2.8)

Malaysia (-1.4)

Romania (-2.1)

Czech Republic (-2.7)

Thailand (-3.2)

Poland (-3.4)

Turkey (-4.1)

Indonesia (-4.6)

Hungary (-7.3)

Peru (-10.2)

Chile (-11.3)

Mexico (-17.7)

South Africa (-18.5)

Brazil (-20.3)

Russia (-21.9)

Colombia (-25.9)

Source: Bloomberg, J.P. Morgan

Receive 2y CNY IRS

We recommend receiving 2y CNY NDIRS at 2.25% and target a move to 1.9% with a stop at 2.4%. We expect the PBoC to resume easing, starting with RRR and LPR cuts next week, and the 7d reverse repo and MLF rates by 25-30bp over the medium term. A much weaker macro backdrop and lower global rates also support relatively easy liquidity conditions. In contrast, market pricing appears neutral, with the IRS curve pricing front end rates to stay around 2.2%.

Ashish Agrawal

Long USDTHB spot

We expect the THB to resume weakening and recommend going long USDTHB spot (ref: 31.57) targeting a move to 32.10 with stop loss at 31.30. The catalyst is coming from foreign investors unwinding in equities and bonds. A weak macro backdrop means that the BoT is likely to prefer a weak THB and unlikely to lean against THB weakness. Thailand's high dependence on travel and tourism make it one of the most vulnerable economies in Asia as COVID-19 disrupts global travel. We expect the BoT to ease in May, growth is forecast to slip to 0.7% this year with CPI at -0.2%. The modest improvement in the current account surplus from lower oil prices is not sufficient to offset overall headwinds.

Ashish Agrawal

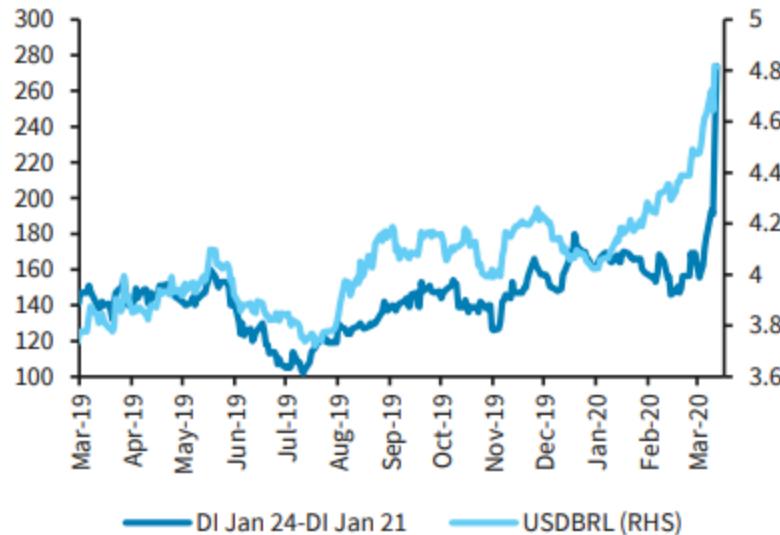
Long the DI Jan 21 future vs. short the DI Jan 24 (steepener)

Congress effectively increased federal spending by some BRL20bn/year this week, enough to put the 2020 fiscal target and spending cap at jeopardy. Risk premium is likely to continue to build on negative fiscal developments and broad EM liquidation, as the fiscal cap is one of the anchors of Brazil's fiscal spending framework. We adjust the target and stop-loss of our DI steepener recommendation (new target: 320bp, new stop-loss: 245bp, ref: 272bp), to lock in profit after the outsized moves in recent days (previous target: 230bp, entry: 195bp).

Juan Prada

FIGURE 1

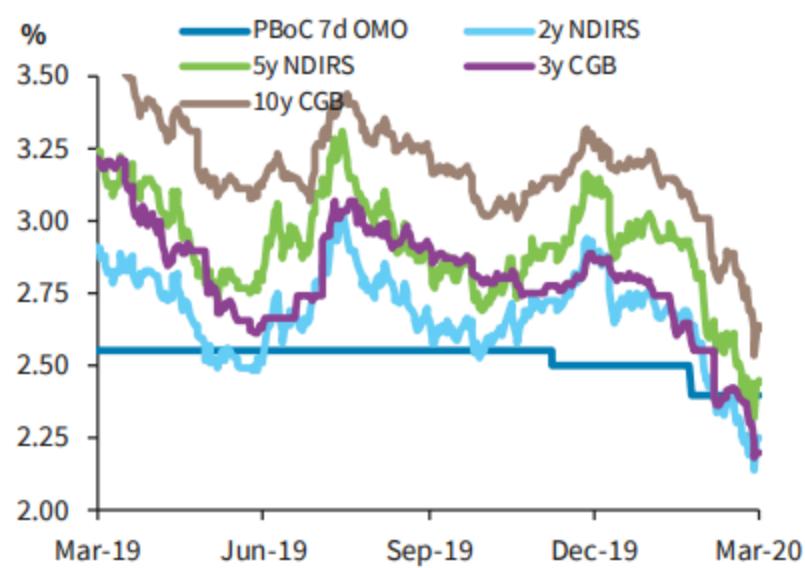
Risk premium built in the DI curve following a broad EM sell-off and deterioration on the fiscal outlook



Source: Bloomberg, Barclays Research

FIGURE 2

Front-end rates likely to fall further



Source: Bloomberg, Barclays Research

12 March 2020

2

Asia sovereigns – hurt by the turn in sentiment

Most Asian sovereigns are oil importers therefore the effect of lower oil prices is felt mostly through EM risk sentiment channel – financing conditions and risk of fund outflows.

- Malaysia (MW) faces direct effects from lower oil prices. We expect the credit curves to steepen for the Malaysia complex.
- Indonesia (MW) credit is likely to trade weak on concerns about EM outflows. However, we believe the country has limited borrowing needs for the rest of the year.
- Frontier sovereigns are likely to face the brunt of the weak price action in EM. We see most downside pressure on Sri Lanka (UW) and Mongolia (UW) – both are vulnerable to weak sentiment in the EM markets and ongoing pressures from the Covid-19 outbreak, (tourism in Sri Lanka and coal exports in Mongolia – see *Emerging Asia Sovereign Credit: Sri Lanka and Mongolia - coronavirus impact*, 12 February, 2020). Pakistan (MW) is an oil importer and is unlikely to have borrowing needs in 1H20.

FIGURE 10

Sensitivity analysis of a USD10/bbl increase in Brent crude prices

	Growth (pp)	CPI (pp)	Current account (USD bn)	Current account (% of GDP)
China	▼-0.1	0.1	▼-30.0	▼-0.2
India	▼-0.1	0.5	▼-9.0	▼-0.3
Indonesia	▼-0.1	0.1	▼-2.3	▼-0.2
Korea	▼-0.1	0.2	▼-11.7	▼-0.7
Malaysia	▲+0.1	1.0	▲+0.7	▲+0.2
Philippines	▼-0.2	0.4	▼-1.4	▼-0.4
Thailand	▼-0.2	0.3	▼-4.8	▼-0.9

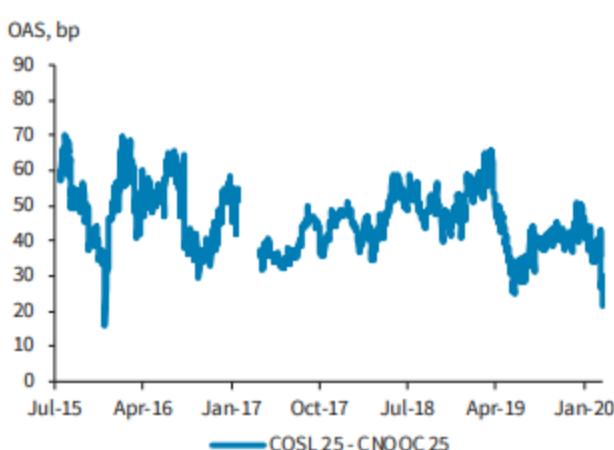
Source: Barclays Research estimates. See *Emerging Asia: Testing the gauges: oil and gold*, 8 January 2020.

FIGURE 6
CNOOC and COSL bonds sold off in tandem in 2015-16, but the differential between the two returned to the wides



Source: Barclays Live

FIGURE 7
COSL 25s at historical tights versus CNOOC 25s, and vulnerable to a selloff



Source: Barclays Live

CNOOC: We lower our rating to Underweight from Market Weight, as lower oil prices are likely to weigh on earnings and credit metrics. Despite a strong financial profile and low all-in costs helping the company withstand oil prices as low as USD30-35/bbl, earnings are likely to fall substantially – at least for the coming quarter – if oil prices stay low, and we think sentiment will be more negative toward upstream companies in the meantime. As such, our Underweight rating on the credit reflects our relatively negative view of the upstream segment compared with downstream companies, such as Sinopec, or integrated companies, such as CNPC.

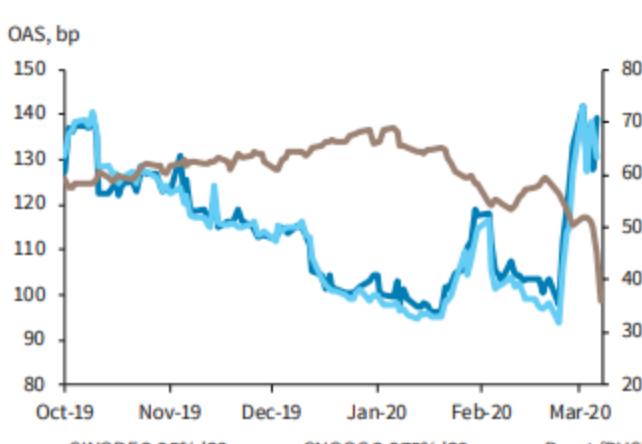
CNPC and Sinopec Group/Sinopec Corp: We raise our ratings on these credits to Market Weight. We expect CNPC's integrated business profile, which spans the O&G value chain, and its robust financial profile, to help it withstand the weak oil price environment. Despite the volatility, lower oil prices should benefit Sinopec Group/Sinopec Corp, which could help offset the badly hit refining and marketing revenues amid the slump in demand and lower NDRC-regulated prices.

FIGURE 8
Among Chinese O&G SOEs, CNOOC widened more than SINOPEC in 2015-16



Source: Barclays Live, Bloomberg

FIGURE 9
CNOOC 29s and SINOPEC 29s now still trading in lockstep despite oil plunge

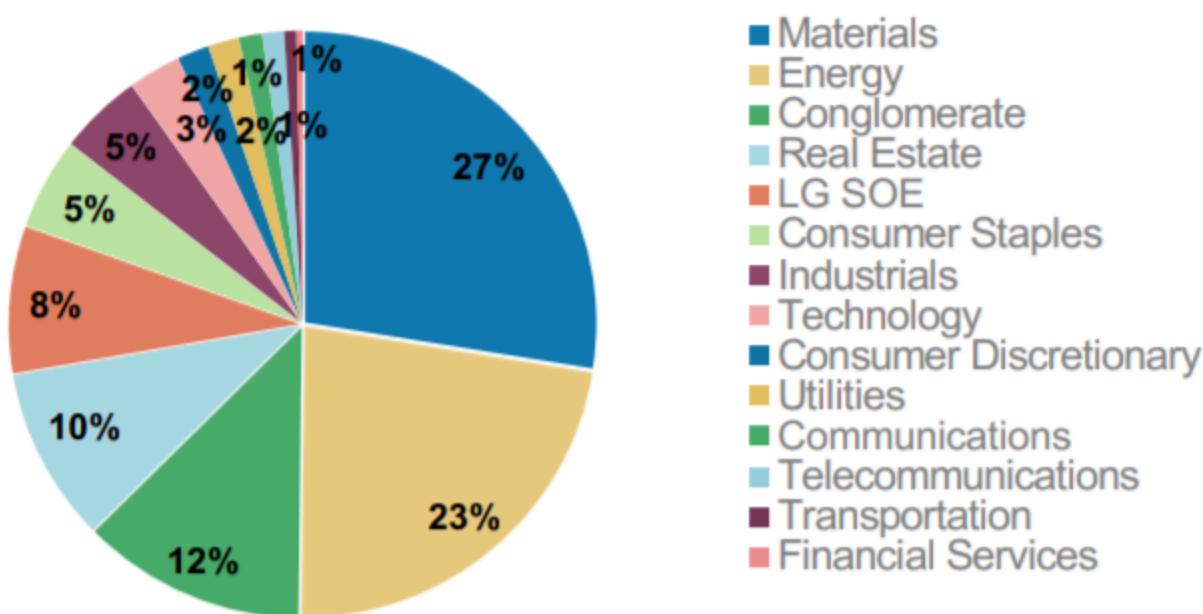


Bond spreads as of 6 March. Brent prices as of 9 March morning.

Source: Barclays Live, Bloomberg

Following the OPEC+ meeting last week ending without agreement, our commodities strategy team is now expecting ICE Brent to be as low as US\$35/bbl in 2Q20 from its previous forecast of US\$57.5 (see [OPEC's Sisyphean Task Has Ended; Lower Prices Ahead](#), March 6, 2020). In addition, it expects the oil market to remain oversupplied until year-end and the oil price to increase slightly to US\$45. With this low oil price forecast, it is clear that the energy sector faces increased default pressure. At the same time, our global economics team is now expecting global GDP growth to decelerate to 2.3%Y in 1H20 – the weakest since the global financial crisis – before recovering from 3Q20 and averaging 3.1%Y in 2H20 (see [Covid-19: Sizeable Shock, Meaningful Policy Response](#), March 8, 2020). This would also reduce the demand outlook for the materials sector. If we look at the historical defaults for the offshore Asia credit market, the largest two sectors that have defaulted since 2009 are materials (27%) and energy (23%). Hence, the impact on Asia credit could be material.

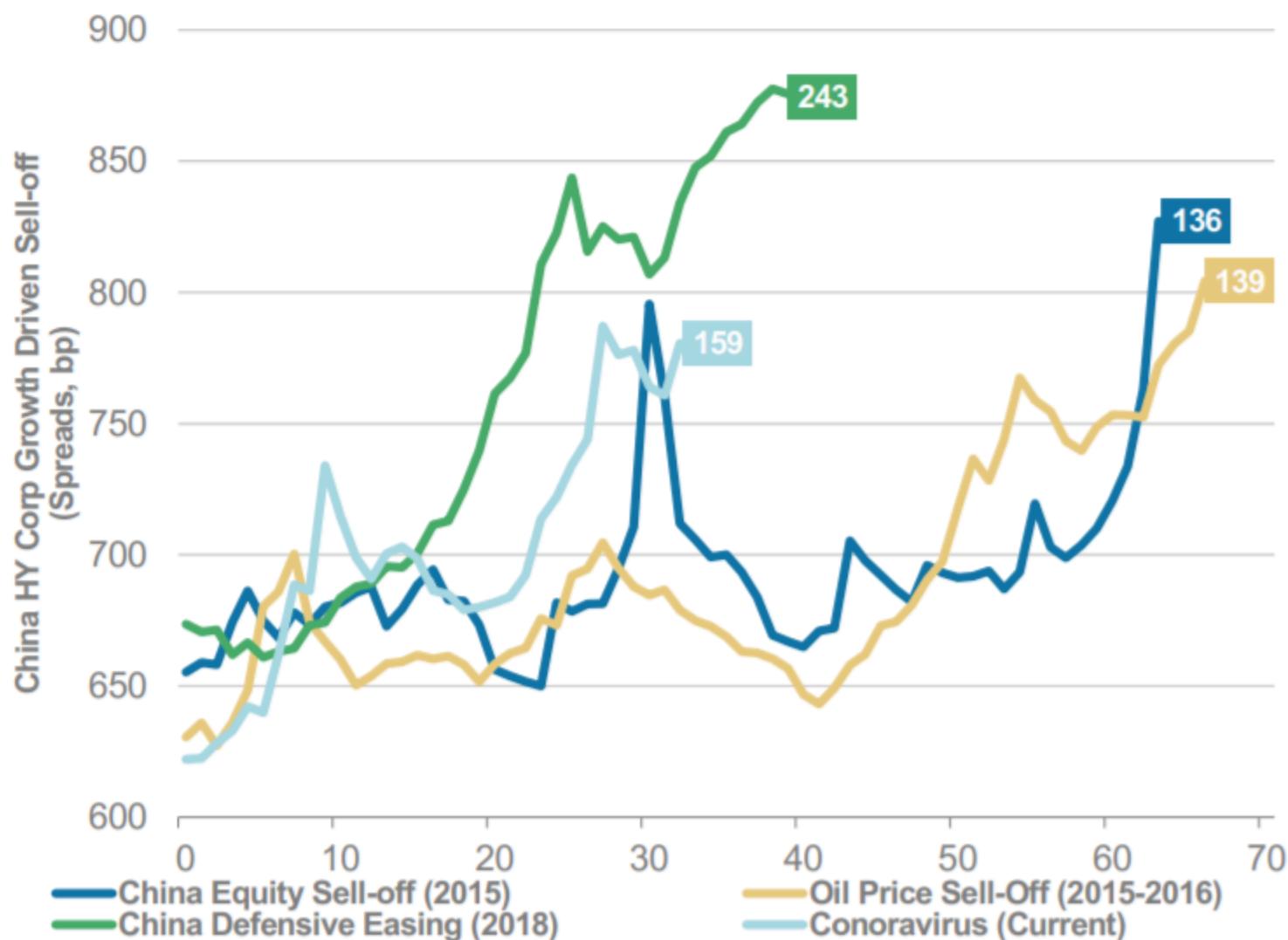
Exhibit 14: Materials and energy contribute to half the defaults in offshore Asia credit since 2009



Source: Bloomberg, Morgan Stanley Research

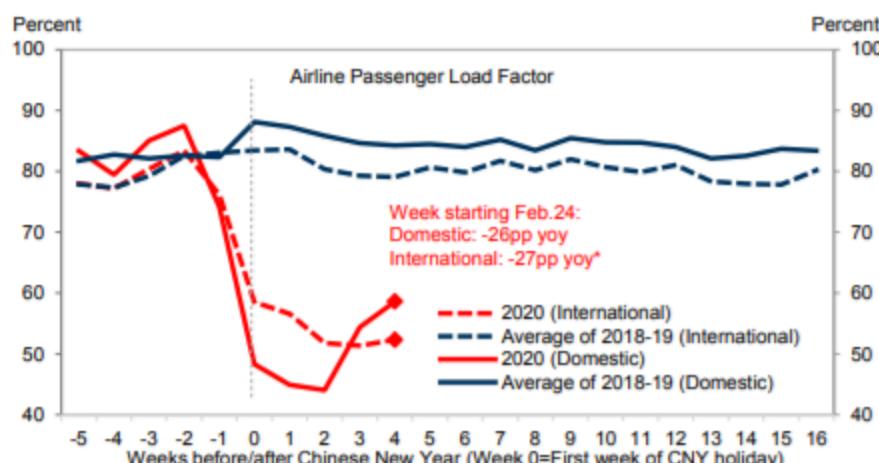
Asia credit: China HY is the place to hide from commodities sector exposure

Exhibit 16: China HY was less exposed to weakness in the oil price sell-off (2015-16)...



Source: iBoxx, Morgan Stanley Research

Exhibit 7: Passenger load factor on domestic flights last week rose to 59%



Passenger load factor measures the capacity utilization of airlines calculated as passenger-kilometer divided by seat-kilometer. Flight cancellations have been significant, so load factors have dropped less than total passenger volume.

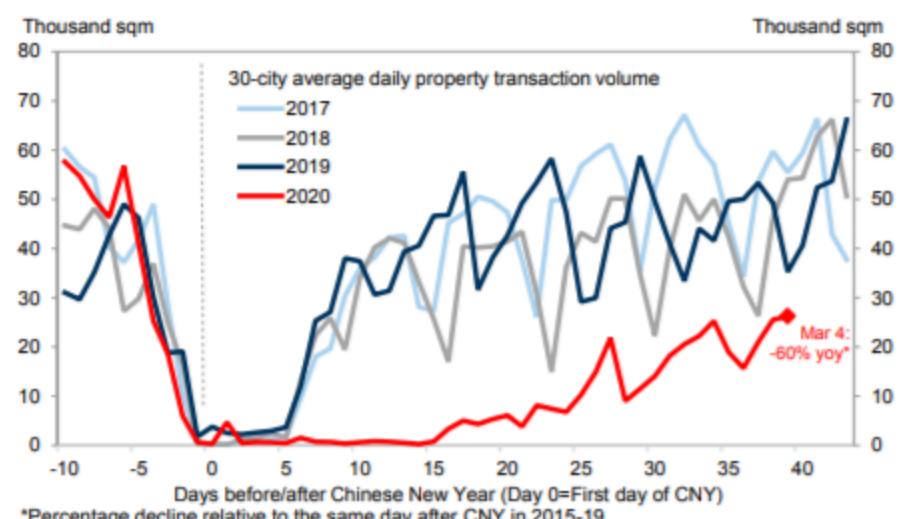
Source: Travelsky

Exhibit 9: Steel demand in the fifth week after Chinese New Year continued to rise



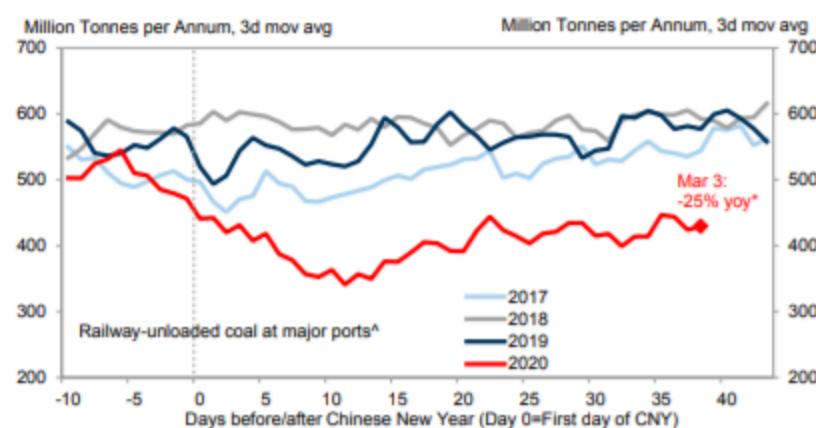
Source: Mysteel

Exhibit 8: Daily property sales volume in 30 major cities has seen a mild rising trend over the past few weeks



Source: Wind

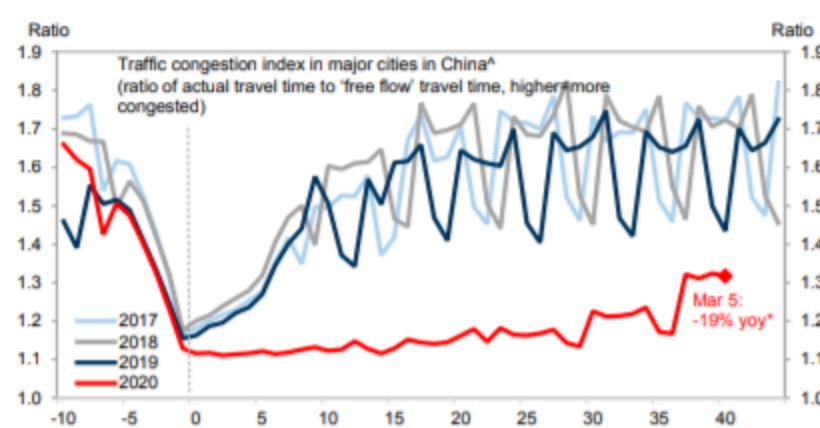
Exhibit 3: Railway-loaded coal volume over the past week remains below normal level



^aMajor ports include Qinhuangdao, Huanghua, Caofeidian, Jing Tang ports

Source: Sxcoal, Wind, Goldman Sachs Global Investment Research

Exhibit 5: Traffic congestion remains below the same period in previous years but showed a notable increase this week



^aPopulation weighted; covering 100 major cities in China

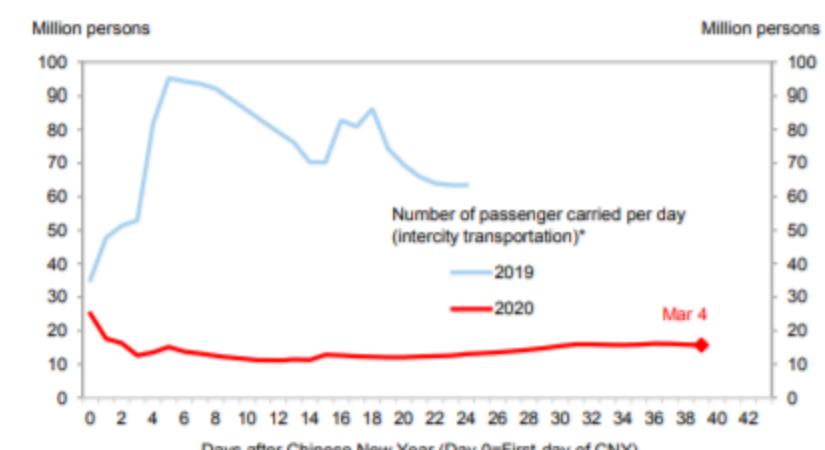
Source: Wind

Exhibit 4: Air pollution levels have been below typical seasonal norms over the past week



Source: Haver Analytics, Goldman Sachs Global Investment Research

Exhibit 6: The daily volume of intercity passenger traffic remains around 16 million per day



*Passengers of intra-city public transportation (e.g., subway, bus, etc.) are not included.

Source: Ministry of Transportation

