Prior Weeks

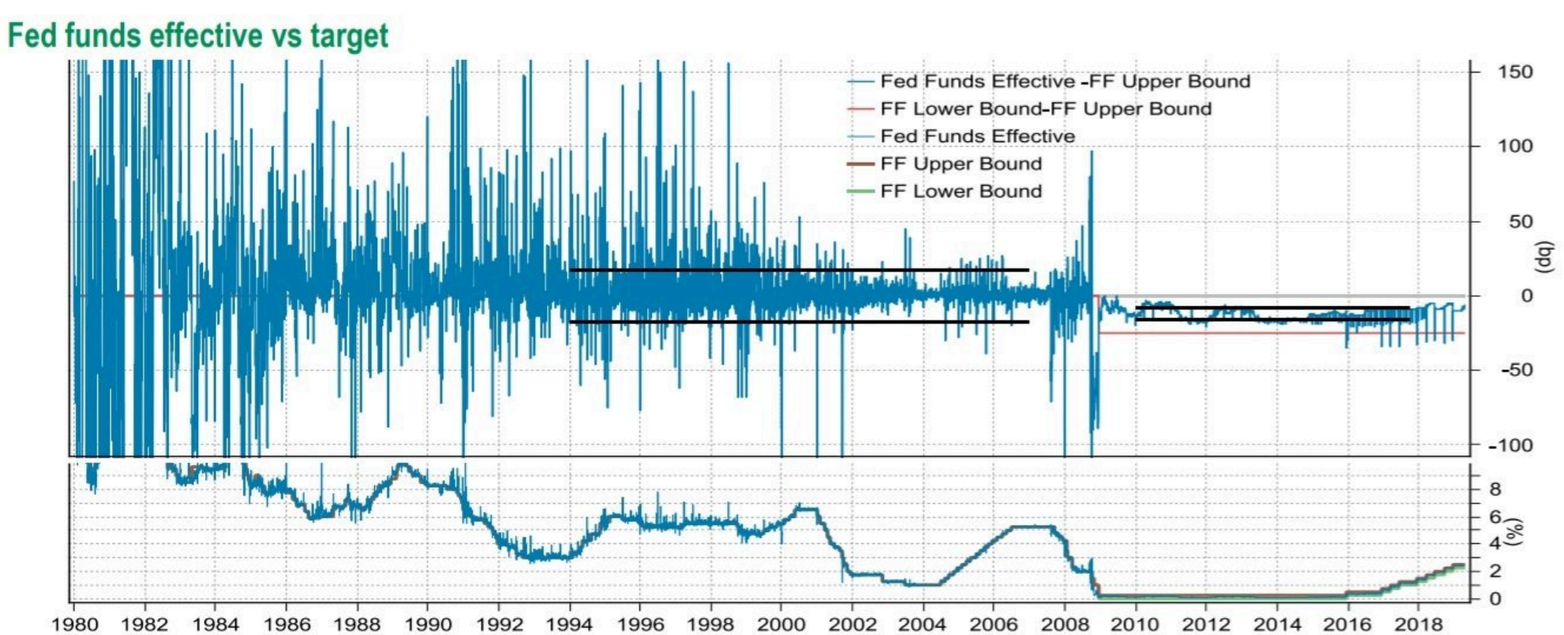
https://drive.google.com/drive/folders/10T__NeN13HyRPYecKqRbZFrPWnaogcqZ?usp=sharing

“Published” version (just easier for viewing)

https://docs.google.com/document/d/e/2PACX-1vRi7r_doDMHWgM_tVn3ISy5q61pPIU4SEBk1Yo9U2SKy929oDjNH5neOqZVtNwegO1d8y_ycqHRpkLr/pub

(if you’ve saved this as PDF from the LinkedIn post, click on the links above to see the updated version)

Historically the Fed has had less control of money-market rates



Sources: BNP Paribas, Macrobond

- Fed funds effective traded in a much wider range before the financial crisis than after it:
  - 1994-2006: 1SD range = 35bp, mean spread vs fed funds target = 0bp (first official targeting of fed funds was in 1994)
  - 2010-09/2017: 1SD range = 8bp, mean spread vs fed funds upper bound = -12bp
- Can/will the Fed tolerate (a return to) higher fed funds volatility?
- It will likely be difficult to manage overnight rates in the future, given: the greatly increased size of reserves (though normalization reduced their abundance); the diversity of bank business models; and the complexity of regulation. Also, recall that managing overnight rates was never straightforward:
  - *“…the pre-crisis monetary policy framework was successful in meeting its monetary objectives, the associated operational procedures were complex and opaque. The operational framework relied on a discretionary and interventionist approach (Logan 2017) based on daily management of the supply of reserves that required detailed market intelligence and expert judgment (Bernanke 2005). The Desk had to provide daily forecasts of reserve demand and supply over multiple days, and to conduct repurchase (“repo”) or reverse repo operations almost daily. Reserve demand was difficult to forecast daily, and even predictable changes required OMOs on most days (Logan 2017). Forecasting the autonomous factors that caused daily variations in the supply of reserves was also challenging….”* https://www.newyorkfed.org/medialibrary/media/research/epr/2018/epr_2018_pre-crisis-framework_sarkar.pdf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95) Compare
96) Actions
97) Edit
Line Chart
06/28/2019 - 09/30/2019
Last Px
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Key Events
1D 3D 1M 6M YTD 1Y 5Y Max Daily
Table
Chart Content
Track Annotate News Zoom
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FFX9FFZ9 COMB Com
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6M
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Daily
Table
Chart Content
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News
Zoom
Spread 0.02
High on 09/18/19 0.04
Average -0.0151
Low on 08/20/19 -0.04
0.04
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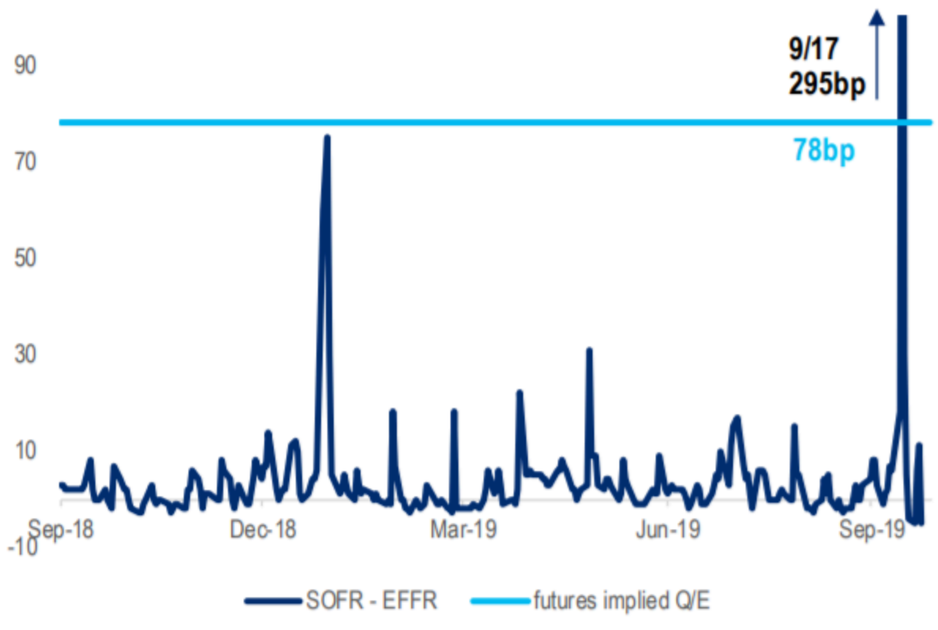
Jul 15
Jul 31
Aug 15
2019
Aug 30
Sep 16
Sep 30

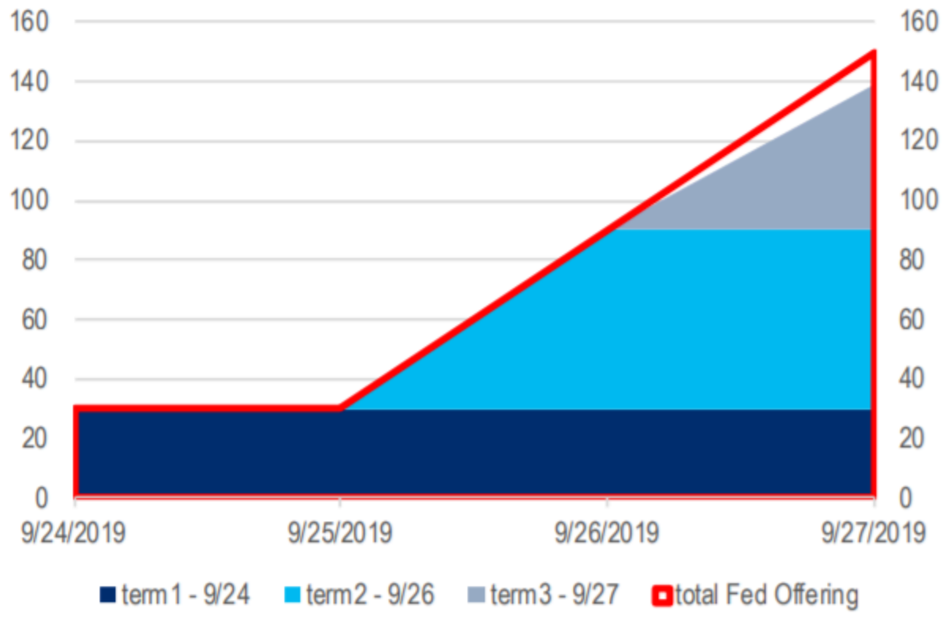
In our view, this quarter-end will serve as an important data point from the Fed's perspective. Higher repo rates would imply limits of TOMO (i.e., using primary dealers' balance sheet) to push the Fed towards more aggressive permanent open market operations (POMO, like QE-lite, bill-coup-pass) earlier and larger – meaning slightly tighter spreads in the near term (on higher repo) but on net wider spreads in the medium term (on more aggressive Fed). The Fed is likely to get more worried about the year-end as GSIB surcharges can make things much worse in Q4. We have discussed rough design considerations and size of POMO in the past[1] [2]. On the other hand, lower repo rates at this quarter-end would have an opposite impact as it reduces the likelihood of a more aggressive Fed in the future and higher risk of error in December, in our view.

Figure 1. SOFR/FF overnight spread – the market is expecting a year-end like scenario for this Q/E



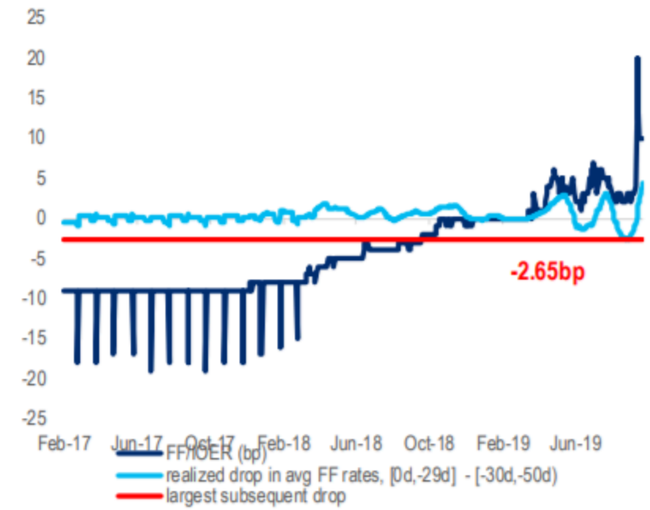
Source: Citi Research, Bloomberg

Figure 2. Total funding provided over the quarter-end by the Fed so far



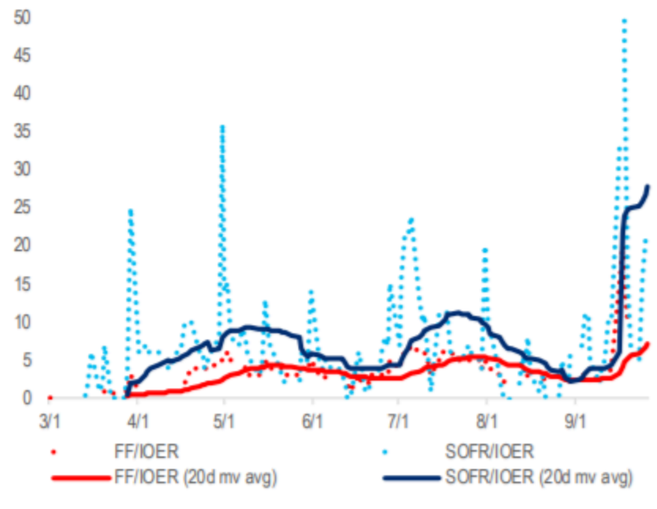
Source: Citi Research, Bloomberg

Figure 7. FF/IOER time series – drops in this spread has been shallow



Source: Citi Research, Bloomberg

Figure 8. Last week's dynamic notes more upside risk in SOFR vs FF



Source: Citi Research, Bloomberg

Terms of trade

We like to fade this year-end dislocation by selling FFX9, buying FFZ9, selling FFF0 and buying FFG0 in -55K :155K : -106K : 7K ratio (-1375 : 3875 : -2672 : 172 contracts), which would give you 100K exposure to the year-end premium in FF noted in Figure 6. By construction, it is not exposed to the Fed cut/hike risk at the FOMC meetings. Please see the appendix.

The package is currently at +4.5bp (2PM 9/27/2019) with DV01 of 100K. We target +1.5bp and put a stop at +6bp. The risk of this trade is a messy quarter-end, which can get extrapolated to the year-end premium. However, we think the downside risk for this position is limited with the expectation of a more aggressive Fed and stretched levels. It is also possible to structure this trade with FFX9, FFZ9 and Dec FOMC OIS.

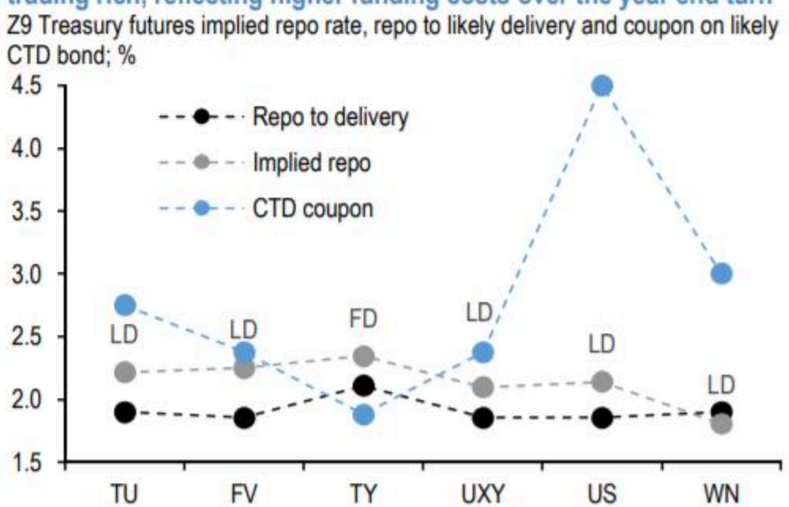
We look to add SERFFZ9 tightener at better levels, as a hedge.

We also look to short SERZ9 vs FFZ9 (or F0s, as Jan tends to see spillovers from Dec) at more attractive levels (around -8-8.5bp vs current levels of -9bp, Figure 9 and Figure 10) to hedge for a messier year-end. Weaker Fed intervention would increase that likelihood. Given a (roughly) x4 ratio between SOFR/IOER and FF/IOER in Figure 8, we look to enter 25K DV01 of SERFFZ9 tighteners. A risk of this position would be the stability in funding markets over the year-end – which in turn would benefit our FF position.

Despite this sanguine outlook, there are compelling arguments for a more permanent fix. A few have been proposed[3], but **perhaps the most straightforward is a tactical expansion of the balance sheet (TEBS)**. Following last week's FOMC meeting, our economists brought forward there expectation of an announcement of reserve run-off to the October meeting (see *Powell sticks to the script this time*, M. Feroli, 9/18/19). In addition to this, we now expect the balance sheet to once again begin growing organically to meet demand for currency, as had been the status quo prior to the crisis, in a world of significantly lower aggregate reserve balances (see *US: Fed balance sheet expansion: don't panic, it's organic*, M. Feroli, 9/27/19). Taking last week's $1.38tn aggregate reserve level as signifying an approximate inflection point for reserve demand, assuming a buffer defined by the volatility of autonomous balance sheet factors, plus the expected $100bn rise in the TGA over the coming weeks, this implies ~$220bn in Fed purchases of Treasury securities is needed to safely return to a flat region of the reserve demand curve. If this were to occur over six months, and we further assume continued maximal reinvestments of agency MBS paydowns, **this would result in $56bn monthly outright Treasury purchases by the Fed starting in November**.

Exhibit 4: With late delivery most likely on all Z9 contracts except for TY, high implied repo rates relative to cash repo suggests futures are trading rich, reflecting higher funding costs over the year end turn

Z9 Treasury futures implied repo rate, repo to likely delivery and coupon on likely CTD bond; %



Note: FD = first notice date as optimal delivery, LD as the last delivery date.

Source: J.P. Morgan

Exhibit 5: Based on past experience, an increase in the monthly pace of Fed net purchases of Treasuries to $56bn from $20bn would be worth approximately 5 bp to 10-year swap spreads

Coefficients from a 2010-14 regression of 10-year matched-maturity swap spreads against various factors

Factor	Coeff	T-stat
1M GC/OIS; bp	-1.0	-24.2
6M fwd avg monthly Fed net purch; $bn	**0.13**	**20.6**
FRA/OIS; bp	0.28	24.4
1Y ahead budget deficit expectations; $bn	-0.003	4.4
R-squared	58%	
Std. error	3.9	

Source: J.P. Morgan, FRBNY, Bluechip survey

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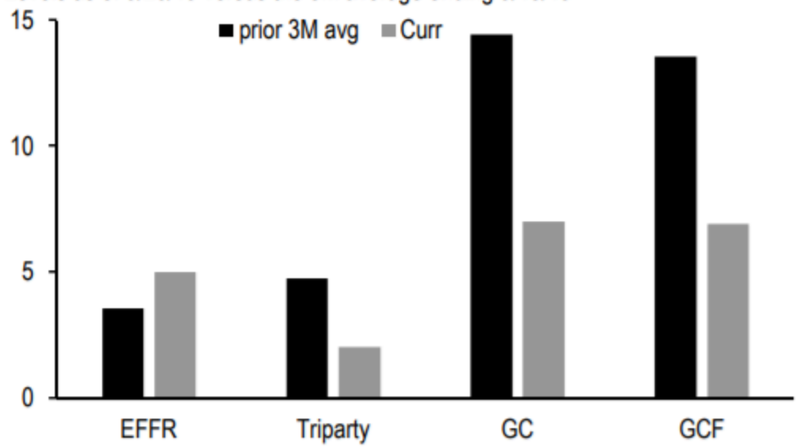
J.P.Morgan

Exhibit 1: Though unsecured overnight rates remain quite wide to their medium-term average, repo markets have mostly normalized …

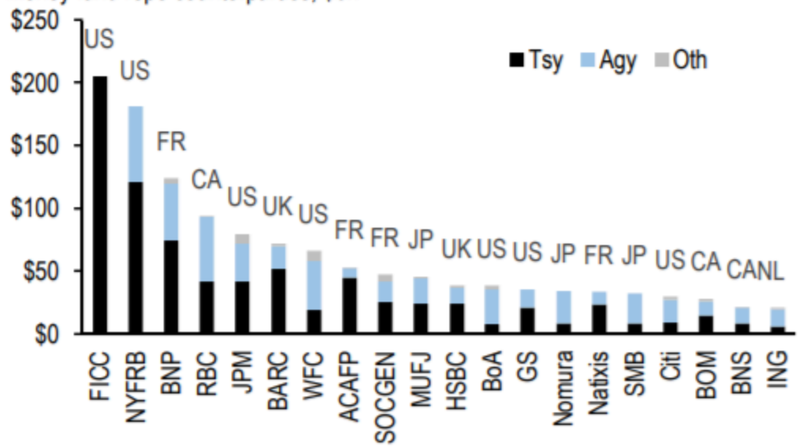
Levels as of 9/26/19 versus the 3M average ending 9/13/19



Source: J.P. Morgan, NYFRB

Exhibit 2: … though only with extensive and regular intervention by the Fed, which is now $181bn in USD repo

Money fund repo counterparties; $bn



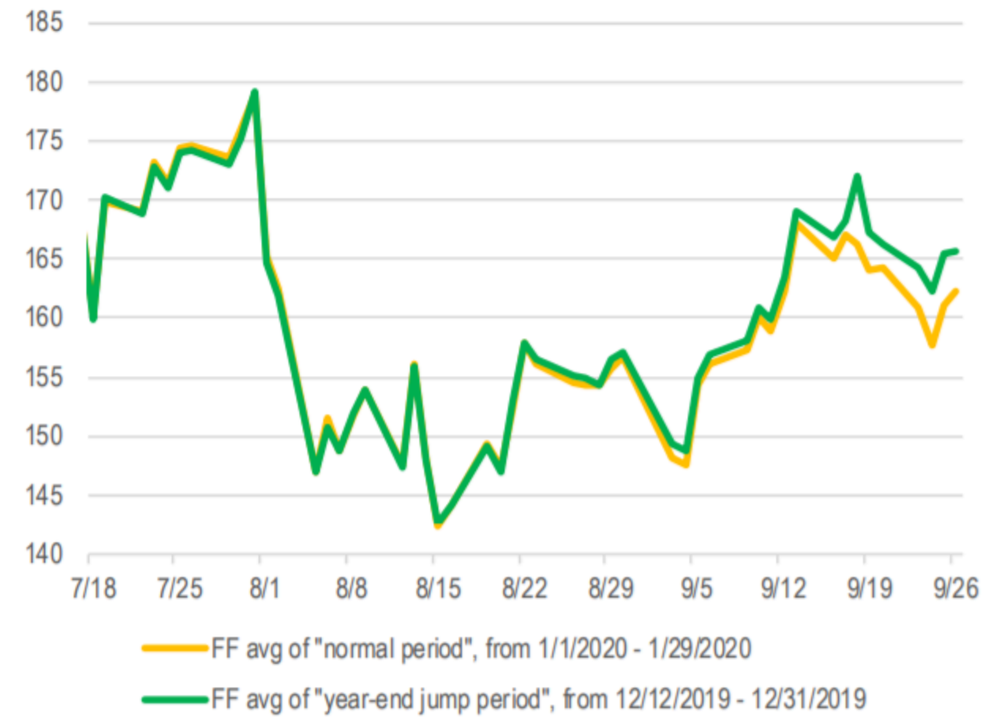
Note: FICC and data by name from August 2019 MMF holdings disclosure. NYFRB includes the most recent overnight and all outstanding term TOMOs.

Source: J.P. Morgan, NYFRB, Crane Data

Why the reallocation? In part, we believe MMFs are being crowded out by the Fed. In **Exhibit 3**, we summarize the results of overnight and term TOMOs conducted since last Tuesday. Perhaps most notable are the weighted average rates and stop-outs, which suggests a decent fraction of participants were filled at the minimum rate and well inside the effective Federal funds rate (EFFR)—at least until the last couple of days. **In an ideal world, this competition would be resolved by an alignment between triparty and weighted average Fed auction pricing**. That this was not true for most of the past two weeks likely reflects a timing mismatch: non-primary dealers, who do not have direct access to TOMOs, are likely willing to pay up to get funded by MMFs early in the morning (see also discussion in Short Term, *US Fixed Income Markets Weekly*, 7/12/19), while the primary dealers can wait for better rates from the Fed. Though this has thus far limited the extent to which average GC rates—and, by extension, SOFR—can tighten, the richening of Bills in particular should help catalyze greater competition and a compression in triparty/TOMO spreads, and with them more tightening in GC/OIS.

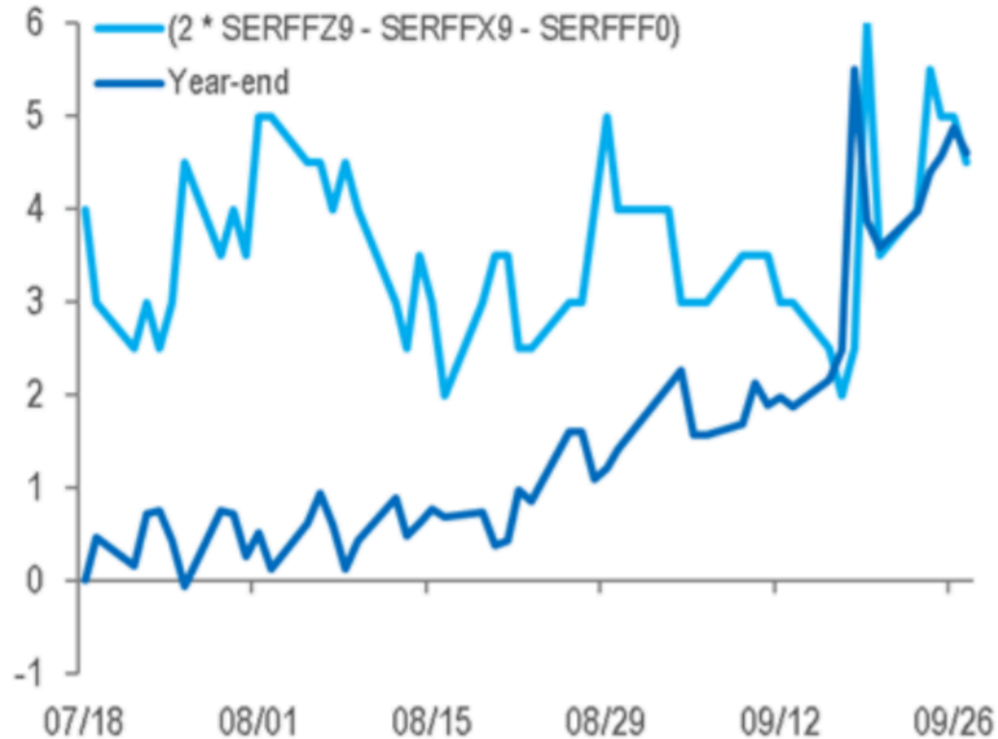
line, “year-end Jump”, 12/12/2019 – 12/31/2019) and implied averages of the subsequent days before the Jan FOMC (yellow line, “normal days”, 1/1/2020 to 1/29/2020). Darker blue line in Figure 6 shows the time-series of this gap (put it another way, the drop after the year-end). This gap has been increasing since the funding market volatility picked up from 9/16 – and currently, the market is expecting a technical FF drop of -4.5bp post the year-end.

Figure 5. The FF curve is pricing in high dislocation at this year-end…



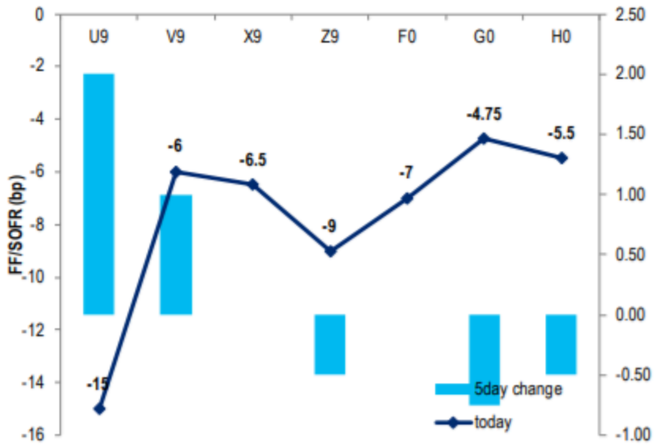
Source: Citi Research, Bloomberg

Figure 6. …and this gap grew as funding rate vol increased from 9/16



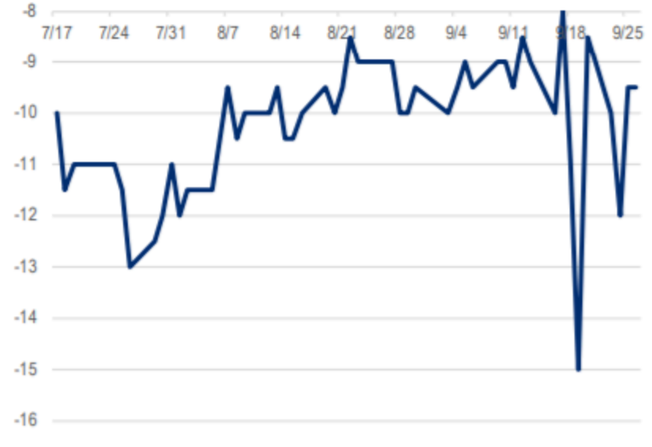
Source: Citi Research, Bloomberg

Figure 9. FF – SOFR (SERFF spread), as of 9/27/2019



Source: Citi Research, Bloomberg

Figure 10. Time series of SERFFZ9



Source: Citi Research, Bloomberg

Appendix

$FF_{Nov}, FF_{Dec}, FF_{Jan}, FF_{Feb}$ are Fed fund futures of respective months. We call $\Delta Dec\ FOMC, \Delta Jan\ FOMC$ as change in Fed funds as a result of rate setting decisions. We call YE as the year-end premium – defined as a difference in average FF rates from 12/12/2019 – 12/31/2019 and 1/1/2020 – 1/29/2020.

1) $FF_{Dec} = \frac{11}{31} FF_{Nov} + \frac{20}{31}(FF_{Nov} + \Delta Dec\ FOMC + YE)$

2) $FF_{Jan} = \frac{29}{31}(FF_{Nov} + \Delta Dec\ FOMC) + \frac{2}{31}(FF_{Nov} + \Delta Dec\ FOMC + \Delta Jan\ FOMC)$

3) $FF_{Feb} = FF_{Nov} + \Delta Dec\ FOMC + \Delta Jan\ FOMC$

Thus, we have a system of three equations in three unknowns: $\Delta Dec\ FOMC$, $\Delta Jan\ FOMC, YE$

Solving for the three unknowns, we get the following closed-form set of solutions:

1) $\Delta Dec\ FOMC = -FF_{Nov} + \frac{31}{29} FF_{Jan} - \frac{2}{29} FF_{Feb}$

2) $\Delta Jan\ FOMC = -\frac{31}{29} FF_{Jan} + \frac{31}{29} FF_{Feb}$

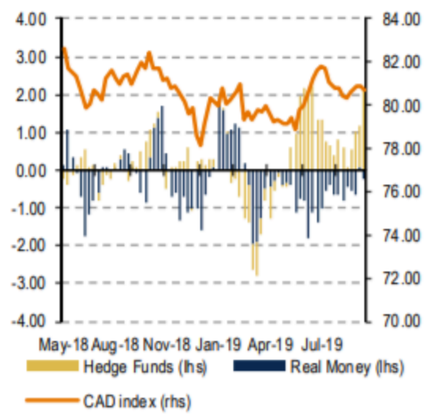
3) $YE = -\frac{11}{20} FF_{Nov} + \frac{31}{20} FF_{Dec} - \frac{31}{29} FF_{Jan} + \frac{2}{29} FF_{Feb}$

Highlights from flows and positioning

Oil prices support CAD and NOK

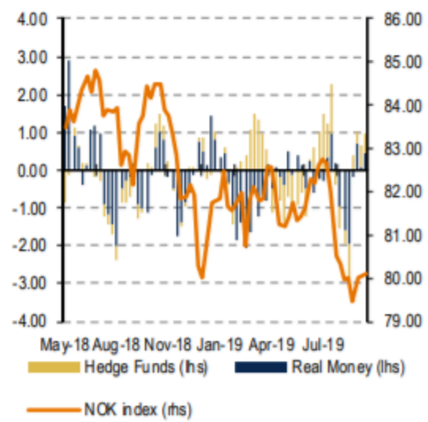
Higher oil prices following Middle Eastern geopolitical risks have triggered CAD flows (Table 1, Chart 3). NOK has also benefited, but not to the same extent (Chart 4). Demand for CAD started earlier, following risk-on on expectations of global central bank easing. NOK has also benefited from the hawkish Norges Bank, although positioning is already long (Chart 5).

Chart 3: Proprietary 4-week CAD flows (z-score)



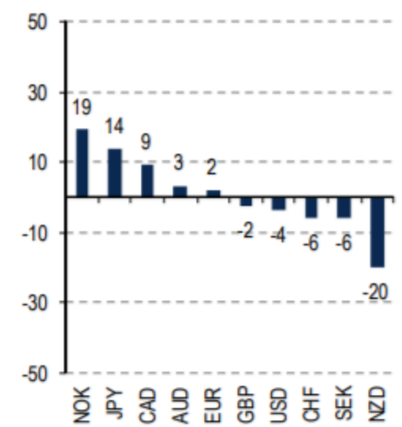
Source: BofA Merrill Lynch Global Research.

Chart 4: Proprietary 4-week NOK flows (z-score)



Source: BofA Merrill Lynch Global Research.

Chart 5: G10 FX market position index

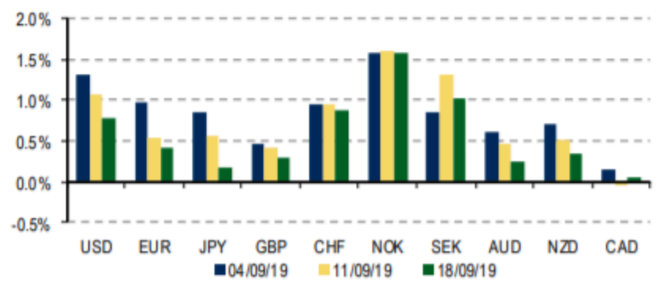


Source: BofA Merrill Lynch Global Research.

Recession fears

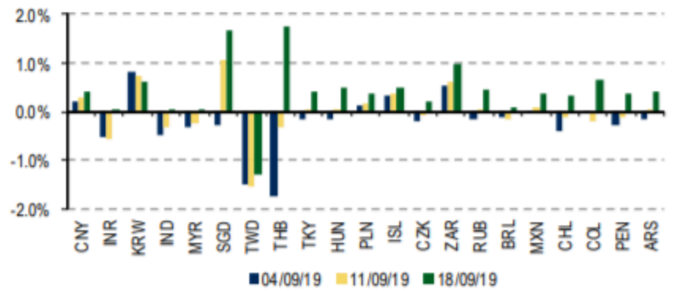
The EPFR data show a strong rotation from stocks to bonds, despite stretched positioning (Charts 6-9). All G10 economies enjoy bond inflows, while with the exception of the US all of them see equity outflows. EM bond flows are mixed, but with few exceptions EM equities are selling-off. We have argued that recession fears may be exaggerated, but a lot depends on the trade policy negotiations.

Chart 6: G10 4-week bond flow as %AUM



Source: EPFR

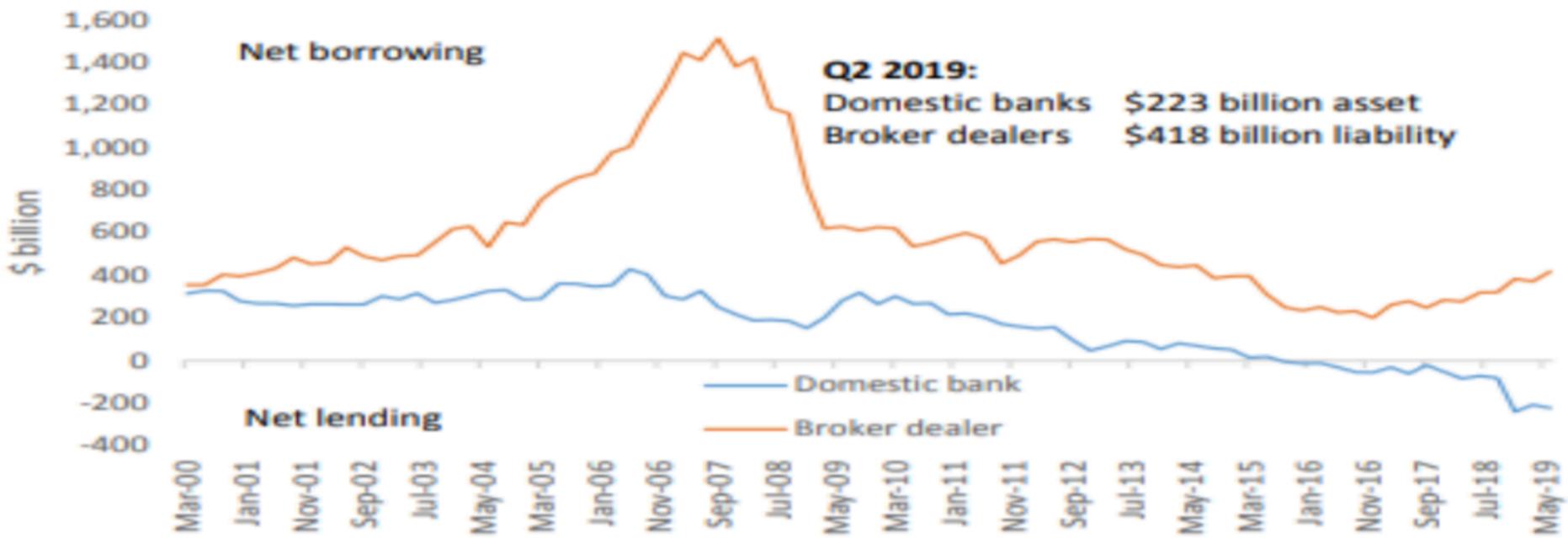
Chart 7: EM 4-week bond flow as %AUM



Source: EPFR

(if you thought this “disclaimer” was going to be in regard to “investment advice” you’re clearly mistaken, this piece has nothing to do with investments or markets, this is a literary pamphlet on deciphering the Medieval Voynich Manuscript, anything market-related must have been surreptitiously injected by a 3rd-party which corrupted this file….)

Figure 2: Banks have shifted from net borrowers to net lenders in repo markets



Source : Federal Reserve, Haver Analytics

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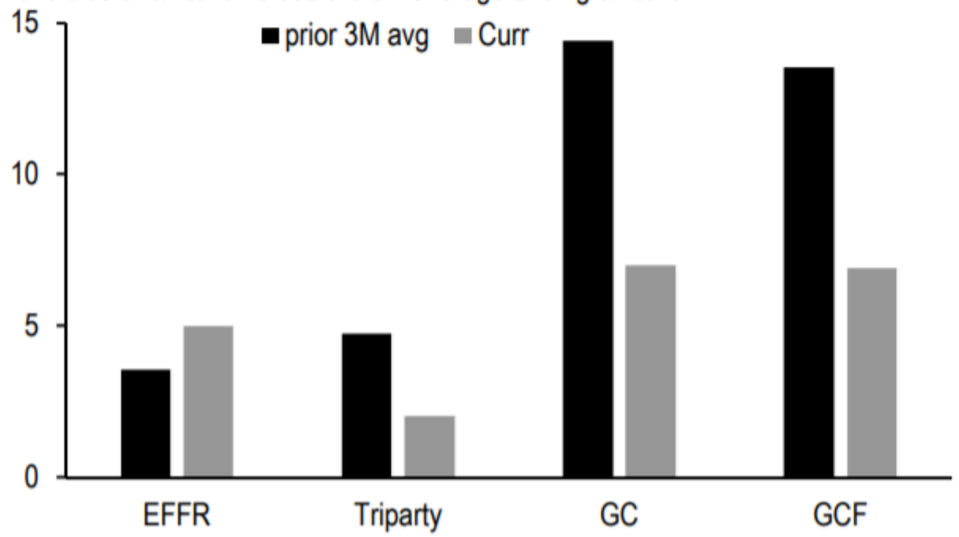

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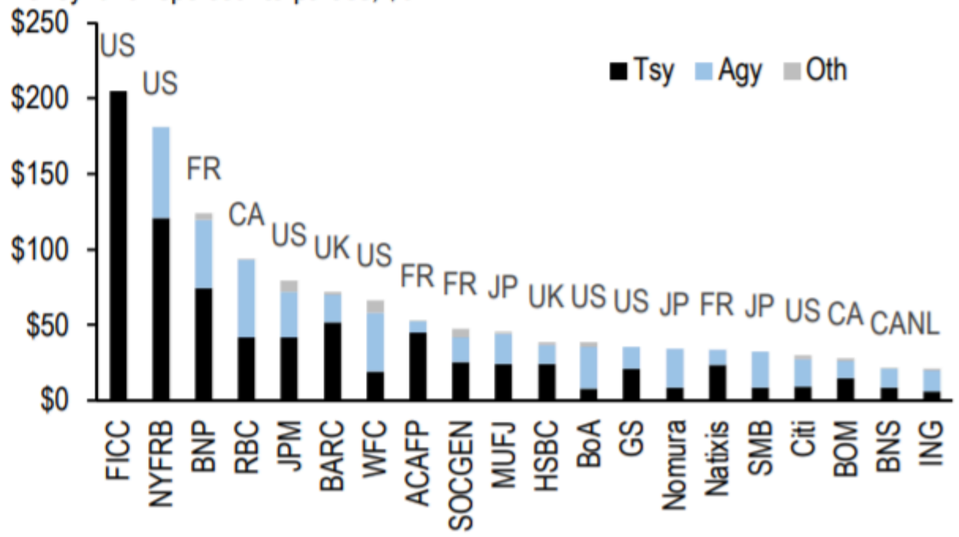

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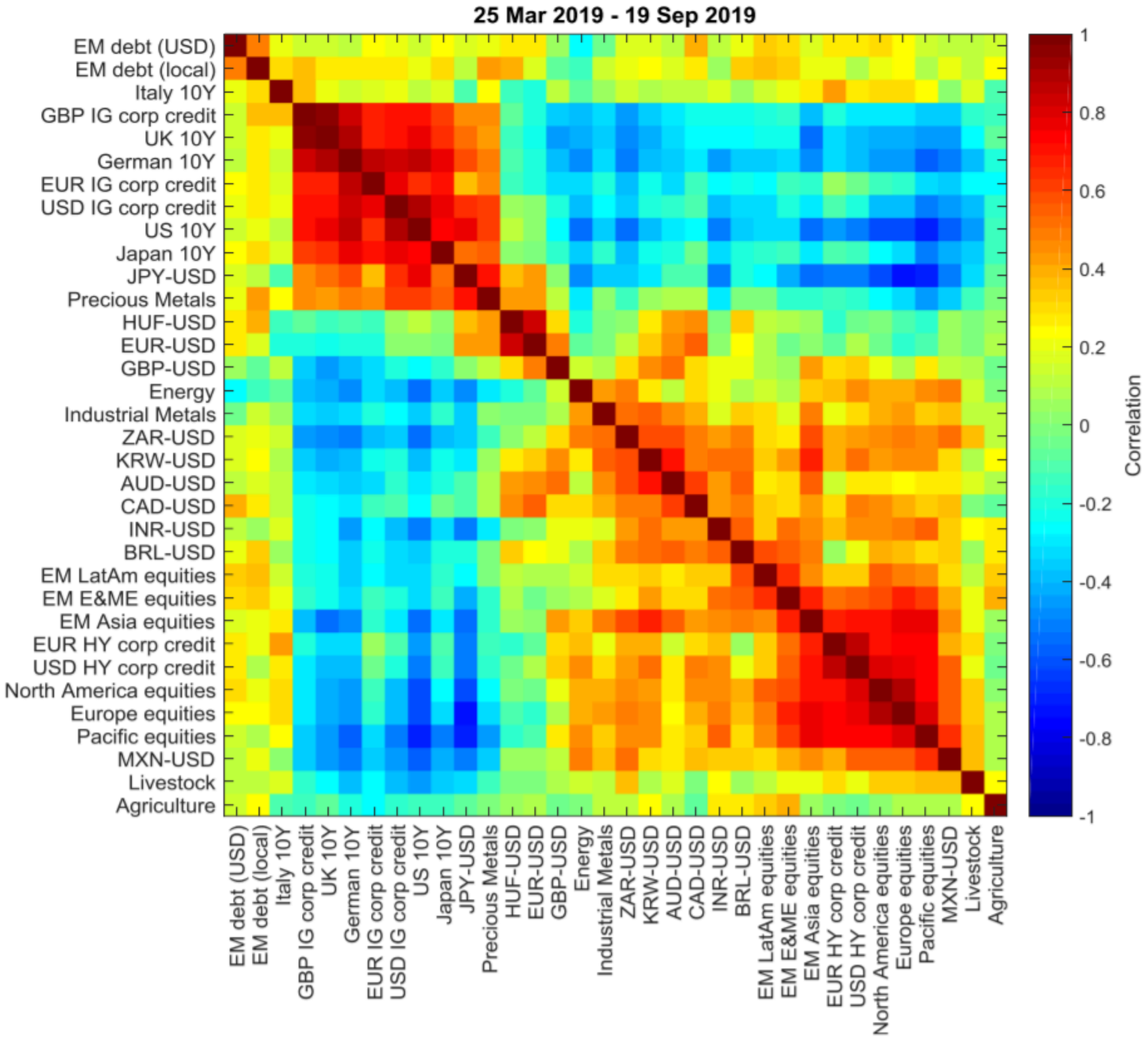
Source: J.P. Morgan, NYFRB, Crane Data

4. Multi-Asset heat map



Source: MSCI, Bloomberg, Refinitiv Datastream, HSBC

Correlation

- Correlations of several EM asset classes illustrate the recent rise in risk-on/risk-off patterns in markets (see also *Uncertainty ≠ Risk*, 4 Sep).
- The correlation between EM external debt (EMXD) and US equities has moved sharply higher in recent months. Additionally, the upper diagonal of chart 1 indicates that EMXD is also correlated more positively with other equity markets compared to the past fifteen years. All this indicates how risk assets have been moving much more in tandem of late.
- On the other hand, intra-EM correlations still indicate 'normality'. We have seen correlations move higher across the major EM asset classes in the past two decades. These have remained roughly stable at such high levels in the past few years, and indeed months, as shown in chart 3 for example.

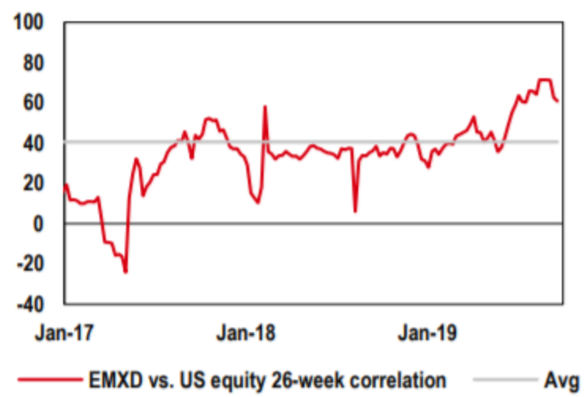
Lower diagonal: 1 year correlations

Upper diagonal: difference in 1 year correlation vs long-term correlation (Jan-05)

	USTs	EUR core	EUR non-core	Gilts	JGBs	USD IG	USD HY	EUR IG	EUR HY	Asia credit	US equity	Japan equity	EUR equity	UK equity	EMXD	EMLC	EM equity	Inflation linked	Oil (WTI)	Indust. Metals	Gold	JPY-USD	GBP-USD	EUR-USD
USTs		9	8	3	15	9	-20	-9	-22	9	-13	-17	-8	3	-10	-12	-16	4	-6	0	36	20	-15	3
EUR core	81		2	7	10	16	-9	-3	-10	17	2	-8	0	4	-8	-13	-9	26	1	2	33	12	-20	4
EUR non-core	22	19		13	21	19	0	-6	11	7	7	10	3	7	18	1	24	4	-9	-16	9	-9	1	6
Gilts	72	85	30		-1	8	-5	2	-9	13	0	4	4	16	-5	-13	-3	22	8	-7	16	2	-26	-12
JGBs	60	58	32	42		16	-8	3	1	22	-3	-8	-4	-12	8	-1	-7	20	-2	2	27	10	14	7
USD IG	80	70	36	60	52		-32	-11	-27	5	-14	-17	-8	-3	-9	-13	-22	3	6	-6	34	18	-14	-3
USD HY	-44	-29	6	-23	-17	0		-26	-8	-30	25	16	13	2	-4	-11	8	-13	30	-8	-17	-15	0	-10
EUR IG	29	54	25	41	30	58	13		-5	-6	11	4	4	0	-4	-16	-4	0	5	-6	21	-5	-12	-12
EUR HY	-46	-32	23	-31	-12	4	71	44		-24	28	22	24	10	4	-3	14	-21	21	-2	-18	-26	7	-15
Asia credit	81	69	39	65	56	86	-5	53	-3		-11	-18	-13	-13	-31	-42	-33	-1	-5	-12	-4	19	-20	-12
US equity	-53	-32	13	-27	-20	-23	81	15	67	-14		18	1	-13	9	-16	4	-10	5	-11	-21	-11	-8	-22
Japan equity	-53	-41	13	-30	-39	-20	64	12	66	-15	71		13	5	9	-3	13	-17	10	-7	-33	-8	-6	-22
EUR equity	-53	-39	26	-29	-28	-15	72	15	73	-13	78	77		-3	15	-9	7	-17	5	-13	-32	-8	-11	-19
UK equity	-33	-23	22	-5	-30	-3	61	13	52	0	61	64	84		0	-17	-4	-16	-8	-26	-32	0	-32	-24
EMXD	-5	-6	35	1	15	31	54	34	60	37	53	42	59	44		-12	0	-10	2	-10	-17	4	-2	-10
EMLC	-22	-30	19	-23	-1	2	36	0	36	2	38	34	46	39	60		-13	-31	-22	-7	-18	7	-8	-6
EM equity	-48	-39	31	-28	-23	-15	66	10	65	-4	76	76	84	70	62	65		-27	-11	-20	-48	-19	-14	-27
Inflation linked	49	55	31	62	47	55	11	37	2	58	2	-14	-7	-6	30	19	3		-13	-25	6	5	-41	-27
Oil (WTI)	-37	-24	-11	-18	-15	-5	66	0	45	-11	43	39	43	36	26	14	34	4		-11	-35	-19	-21	-33
Indust. Metals	-29	-24	-10	-29	-11	-10	31	-1	33	-11	30	25	30	18	23	38	35	-5	36		-22	-13	-3	-17
Gold	47	40	12	26	39	40	-13	21	-15	32	-13	-36	-31	-23	6	19	-21	45	-9	18		34	-18	11
JPY-USD	70	48	-5	39	39	50	-35	9	-45	52	-46	-59	-47	-31	-4	5	-42	42	-28	-25	62		-5	8
GBP-USD	-33	-47	3	-57	4	-19	24	-15	31	-24	23	18	17	-20	22	37	27	6	10	31	12	-5		-9
EUR-USD	0	-22	9	-23	12	1	7	-21	1	-1	9	-12	0	-6	18	51	14	33	-4	16	54	32	51	

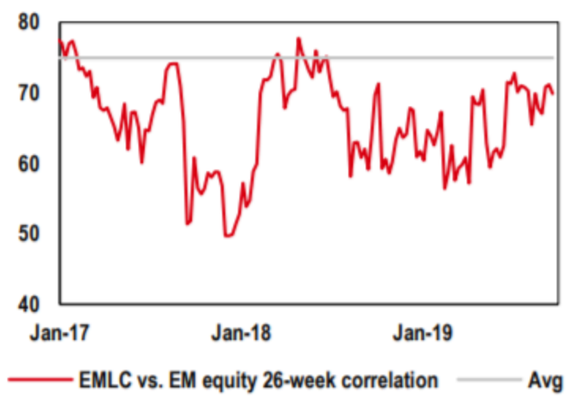
Source: Bloomberg, HSBC; EMXD= EM external debt; EMLC = EM local debt

2. EMXD vs US equity



Source: Bloomberg, HSBC; Average since 2005

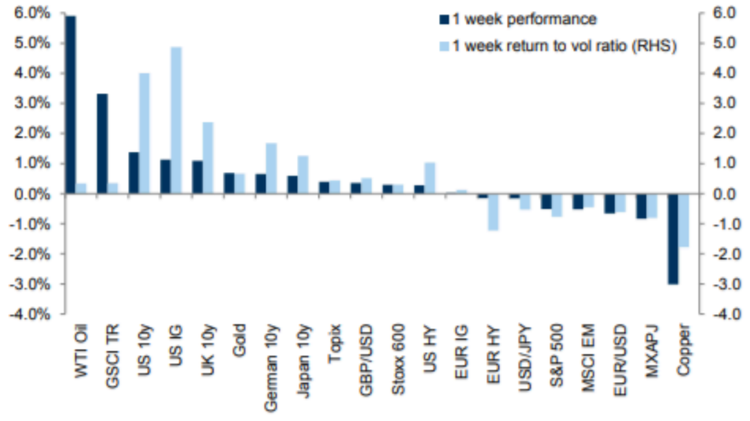
3. EMXD vs EM equity



Source: Bloomberg, HSBC; Average since 2005

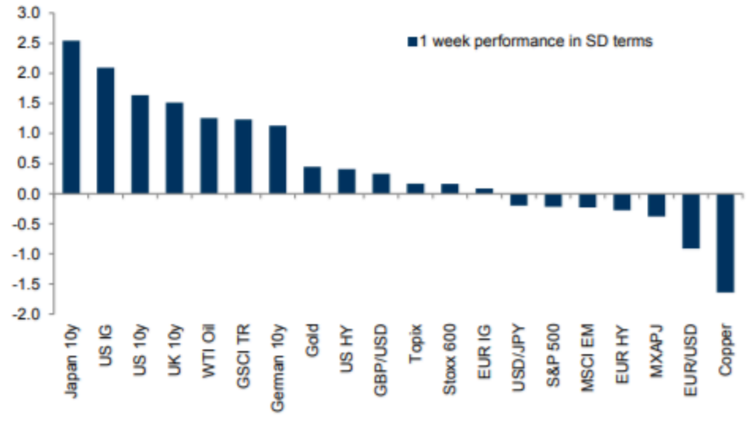
Cross-asset: Weekly and YTD performance, absolute and risk-adjusted

Exhibit 6: Local currency total returns and return to vol ratios over the past week
Weekly returns, return to vol ratios based on weekly volatility



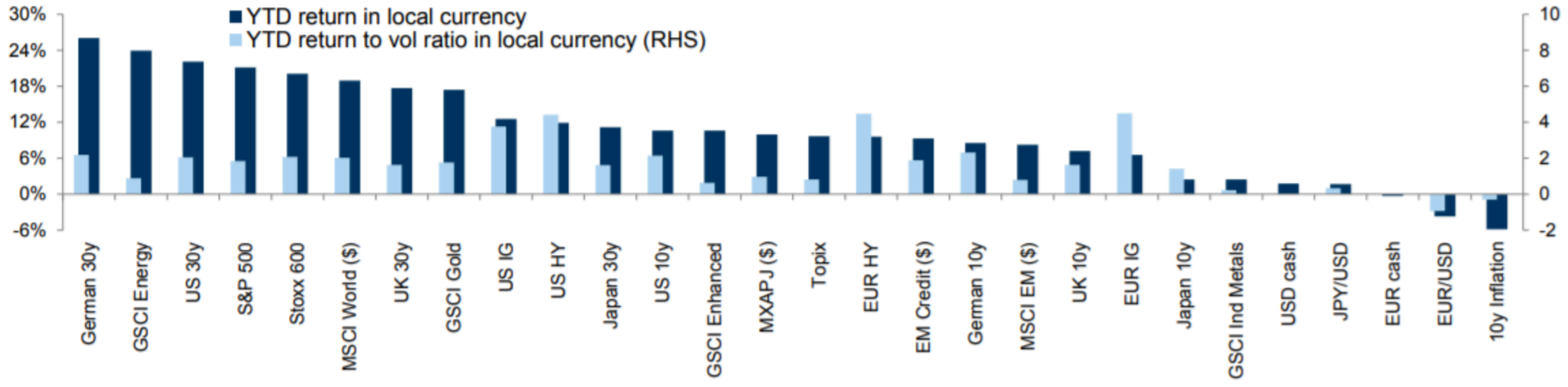
Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 7: Local currency total returns in standard deviation terms
1 week performance in rolling 12m standard deviation terms



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Exhibit 8: YTD local currency returns and return to vol ratios
Since December 31, 2018



Source: Datastream, iBoxx, Goldman Sachs Global Investment Research

Period 1 - Balance Sheets ($)

Federal Reserve			
Assets		**Liabilities**	
Securities	100	Currency	90
Gold	10	Reverse Repo	5
Loans (Discount Window)	0	Other	5
Total	110	Reserves	10
		Total	110

Bank			
Assets		**Liabilities**	
Cash	2	Deposits	311
Reserves (Deposits @ Fed)	8	Debt	45
Fed Funds & Repo	25	Fed Funds & Repo	11
Securities, Loans & Other	380		
Total	415	Total Liabilities	367
		Shareholder Equity	48

Period 2 - Balance Sheets ($)

Federal Reserve			
Assets		**Liabilities**	
Securities	200	Currency	90
Gold	10	Reverse Repo	5
Loans (Discount Window)	0	Other	5
Total	210	Reserves	110
		Total	210

Bank			
Assets		**Liabilities**	
Cash	2	Deposits	311
Reserves (Deposits @ Fed)	108	Debt	45
Fed Funds & Repo	25	Fed Funds & Repo	11
Securities, Loans & Other	280		
Total	415	Total Liabilities	367
		Shareholder Equity	48

Source: Bloomberg Intelligence

Bloomberg

YTD Returns

	Local			USD		
Equities	Global Equities (local)	18.4%		Global Equities (USD)	17.6%	
	Developed Equities (local)	18.4%		Developed Equities (USD)	17.7%	
	S&P 500	20.9%		S&P 500	20.9%	
	Stoxx 600	17.8%		Stoxx 600 (USD)	12.6%	
	Topix	9.9%		Topix (USD)	12.2%	
	EM Equities (local)	8.5%		EM Equities (USD)	6.6%	
Credit	US IG Credit	12.6%		US IG Credit	12.6%	
	US HY Credit	11.2%		US HY Credit	11.2%	
	Europe IG Credit	6.7%		Europe IG Credit (USD)	2.4%	
	Europe HY Credit	8.2%		Europe HY Credit (USD)	3.9%	
	EM External (USD)	12.3%		EM External (USD)	12.3%	
Comdty	Brent	23.0%		Brent	23.0%	
	Copper	-1.9%		Copper	-1.9%	
	Gold	17.2%		Gold	17.2%	
Rates	US Gov Bonds	7.2%		US Gov Bonds	7.2%	
	EMU Gov Bonds	10.0%		EMU Gov Bonds (USD)	5.5%	
	Germany Gov Bonds	6.5%		Germany Gov Bonds (USD)	2.1%	
	Japan Gov Bonds	3.7%		Japan Gov Bonds (USD)	5.6%	
	UK Gov Bonds	13.0%		UK Gov Bonds (USD)	9.8%	
	EM Local	5.5%		EM Local (USD)	3.9%	
	US 3m Libor	1.9%		US 3m Libor	1.9%	

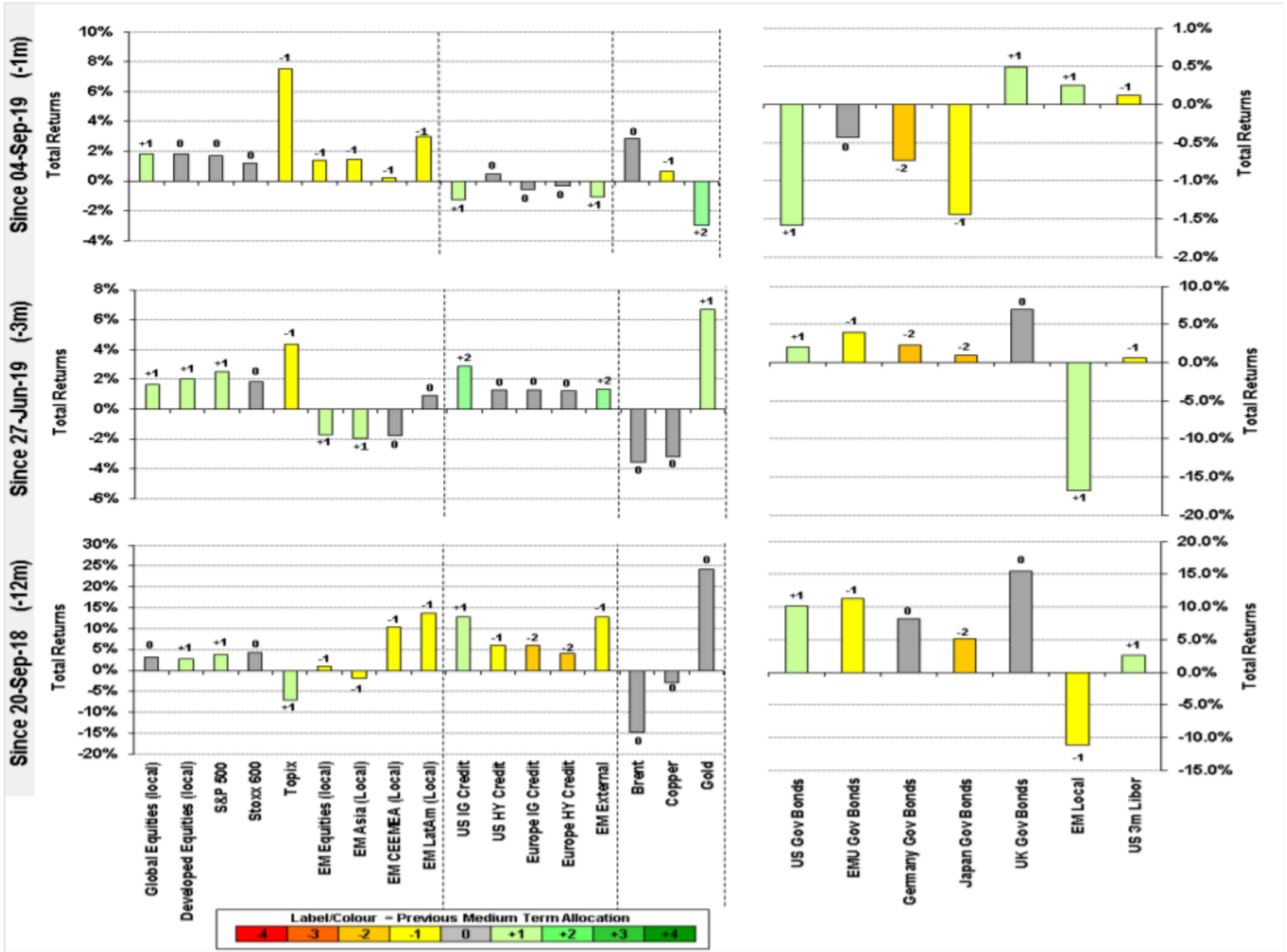
12m Rolling

	Local			USD		
Equities	Global Equities (local)	3.1%		Global Equities (USD)	1.8%	
	Developed Equities (local)	2.8%		Developed Equities (USD)	1.5%	
	S&P 500	4.5%		S&P 500	4.5%	
	Stoxx 600	4.0%		Stoxx 600 (USD)	-3.3%	
	Topix	-9.0%		Topix (USD)	-4.5%	
	EM Equities (local)	0.7%		EM Equities (USD)	-0.6%	
Credit	US IG Credit	13.0%		US IG Credit	13.0%	
	US HY Credit	6.2%		US HY Credit	6.2%	
	Europe IG Credit	6.3%		Europe IG Credit (USD)	-0.6%	
	Europe HY Credit	4.1%		Europe HY Credit (USD)	-2.8%	
	EM External (USD)	12.3%		EM External (USD)	12.3%	
Comdty	Brent	-18.1%		Brent	-18.1%	
	Copper	-6.7%		Copper	-6.7%	
	Gold	24.8%		Gold	24.8%	
Rates	US Gov Bonds	10.2%		US Gov Bonds	10.2%	
	EMU Gov Bonds	11.5%		EMU Gov Bonds (USD)	3.7%	
	Germany Gov Bonds	8.6%		Germany Gov Bonds (USD)	1.0%	
	Japan Gov Bonds	5.4%		Japan Gov Bonds (USD)	10.5%	
	UK Gov Bonds	16.0%		UK Gov Bonds (USD)	9.1%	
	EM Local	-11.2%		EM Local (USD)	7.6%	
	US 3m Libor	2.5%		US 3m Libor	2.5%	

Source: Bloomberg and Citi Research

Cross-Asset Returns – Performance Review

Figure 2. Total Returns Since Publication 1m, 3m and 12m ago vs. Respective Medium-Term Allocation*

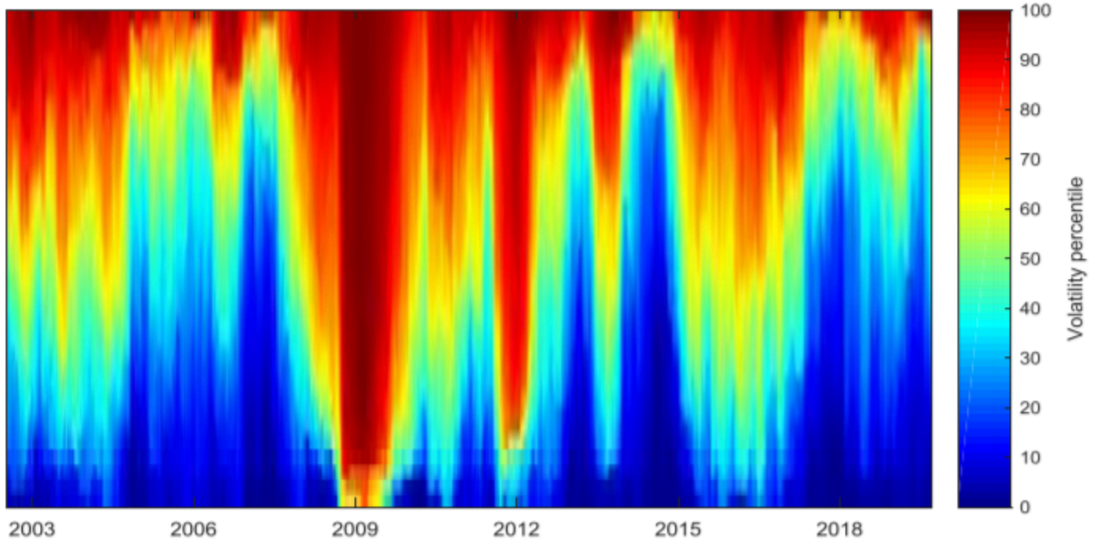


Source: Citi Research and Bloomberg. * ~12m horizon. Allocation measured in units of under/overweight. To compare to our previously used ±2 scale, we map to ±4

Volatility

- Short-term implied volatilities either fell slightly or were little changed last week as equities mostly traded with little direction and DM sovereign bond yields fell.
- Even implied volatility only spiked briefly at the beginning of last week. By Friday, 3-month implied vol on WTI was only 1.1 points higher compared to the previous week.
- Implied to realised volatilities are still low across most asset classes. We do note that they have risen slightly in the equity space of late. This should limit the extent of any setback as our CAPCA ratio also retreated slightly into less bullish territory last week. Skews in equity markets are also still above average.

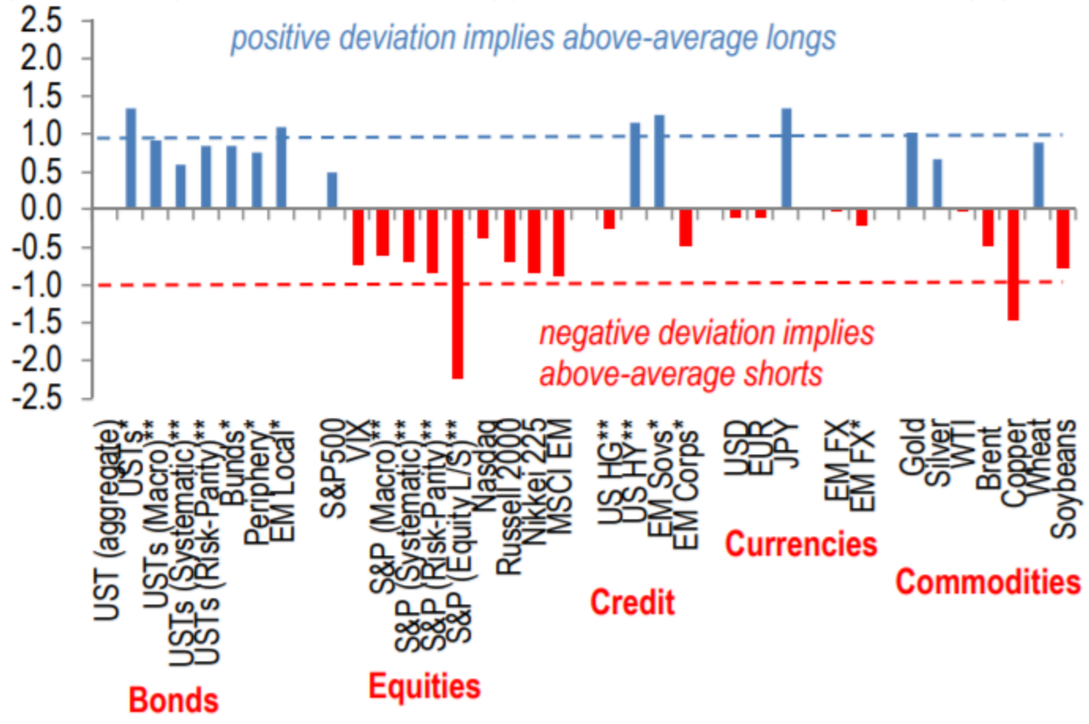
1. Cross-asset volatility wave



Source: MSCI, Bloomberg, Refinitiv Datastream, HSBC; for more information see *Data Matters*, 4 Sep 2019

Chart 6: Positioning across asset classes, measures and investor types

Positioning metrics expressed as sigmas from 5Y average, based on futures data (no asterisk), JPM client surveys (*) and hedge/mutual fund betas (**).

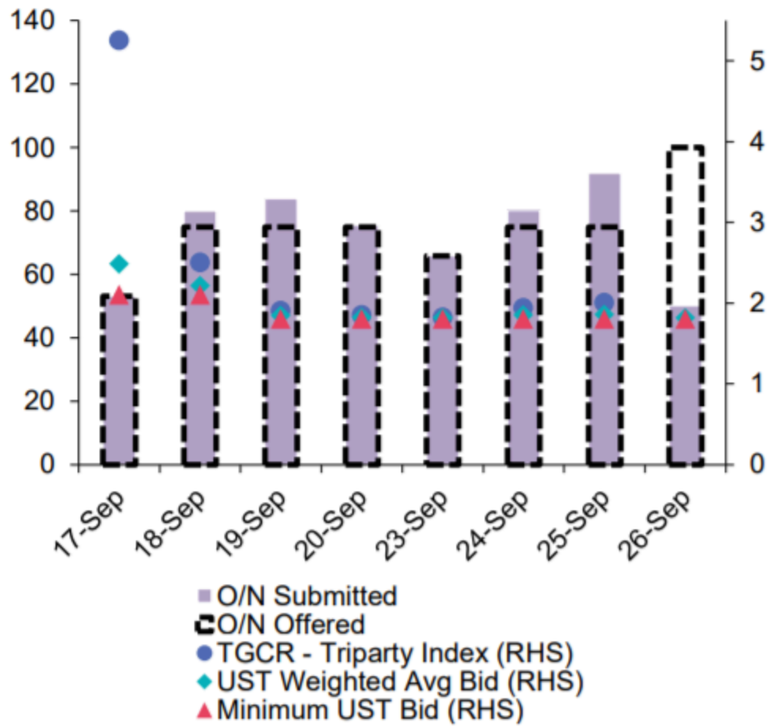


Source: J.P. Morgan

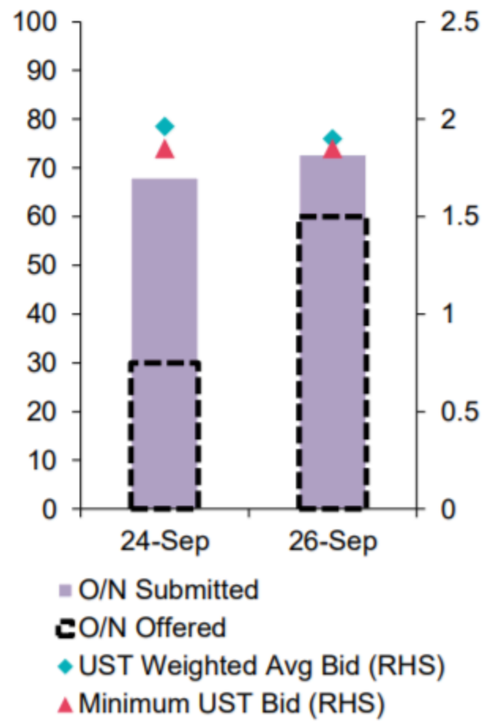
It's possible they are forced to continue operations past October 10th, or return to the market before December. However, Thursday's overnight operation was fairly undersubscribed, and we expect stress in overnight markets will have largely passed by October 10th, although we admittedly have fairly low conviction at this point. With another $54bn of mid-month UST settlements in October and the events of the last few weeks fresh in market participants' minds, it might not take much of a spark to set things off again. November should be a bit more benign with only $23bn of mid-month UST supply, and the month-end settlements being pushed to December.

Overnight Repo TOMOs ($bn,%)

Source: Federal Reserve Bank of NY, NatWest Markets



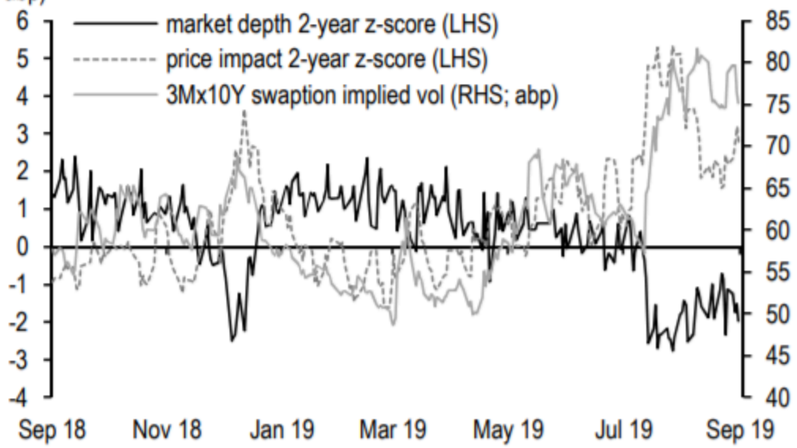
Term Repo TOMOs ($bn,%)



To an extent, we are not surprised that market depth has declined. **Exhibit 3** shows that the sharp increase in volatility in August was concurrent with the decline in market depth and also drove a sharp increase in price impact—indicating that the same size trade was having a much larger impact on the Treasury market than it did earlier in the year. Moreover, we find that Treasury market depth has become much more sensitive to increases in volatility recently: 10-year market depth has tended to decline $27mn for each 1bp increase in delivered volatility in 10-year yields versus a $17mn decrease on average during 2018 (**Exhibit 4**).

Exhibit 3: As market depth declined and vol increased in August, price impact increased, suggesting that each trade in the Treasury market had a larger impact than for most of the year

Rolling 2-year z-score of market depth and price impact* in the hot-run 10-year Treasury interdealer market (LHS; unitless); 3Mx10Y swaption implied vol (RHS; abp)

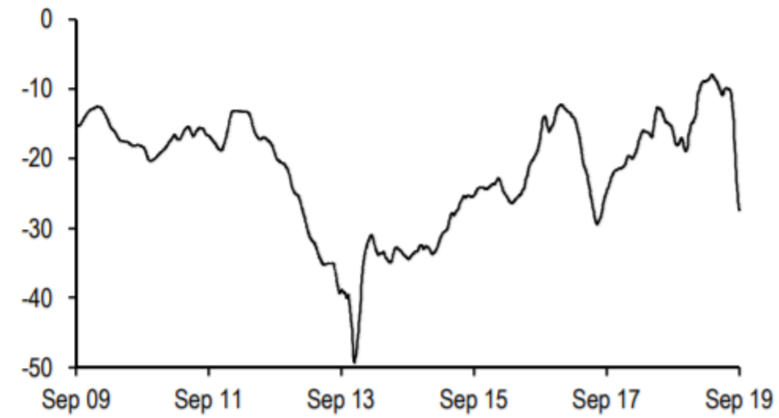


*Price impact defined as the average move in order book mid-price against a $100mn flow in traded notional. See *Drivers of price impact and the role of hidden liquidity*, J. Younger et al., 1/13/17 for more details.

Source: J.P. Morgan, BrokerTec

Exhibit 4: Market depth has become increasingly more sensitive to volatility in rates markets since the end of July

Rolling 2-year beta of 1-month average of 10-year Treasury market depth ($mn) with respect to 1-month standard deviation of daily changes in 10-year Treasury yields (bp/day) and slope of 3m/1y3m OIS curve (bp)



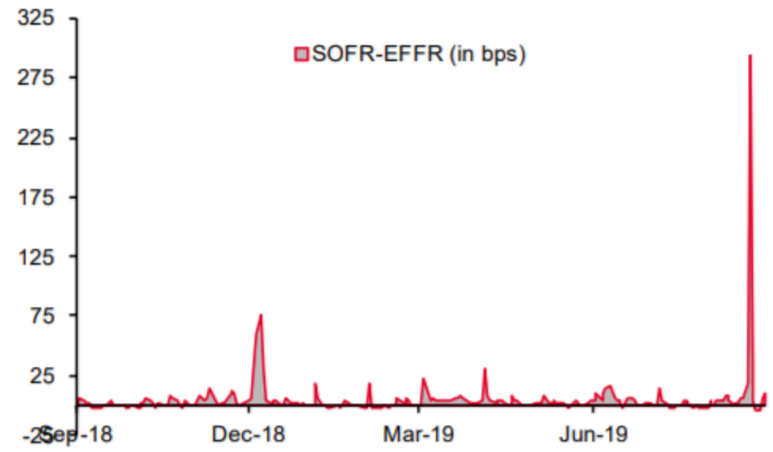
Source: J.P. Morgan

Graph 1: Repo operation schedule and parameters

OPERATION TERM	OPERATION DATE	OPERATION TIME (ET)	SETTLEMENT DATE	MATURITY DATE	MINIMUM BID RATE	PROPOSITION LIMIT	AGGREGATE OPERATION LIMIT
Term	9/26/2019	8:00 - 8:15 a.m.	9/26/2019	10/10/2019	1.85 %	$10 billion	$60 billion
Overnight	9/26/2019	8:30 - 8:45 a.m.	9/26/2019	9/27/2019	1.80 %	$15 billion	$100 billion
Overnight	9/25/2019	8:15 - 8:30 a.m.	9/25/2019	9/26/2019	1.80 %	$10 billion	$75 billion
Term	9/24/2019	8:00 - 8:15 a.m.	9/24/2019	10/8/2019	1.85 %	$5 billion	$30 billion
Overnight	9/24/2019	8:30 - 8:45 a.m.	9/24/2019	9/25/2019	1.80 %	$10 billion	$75 billion

Source: NY Fed

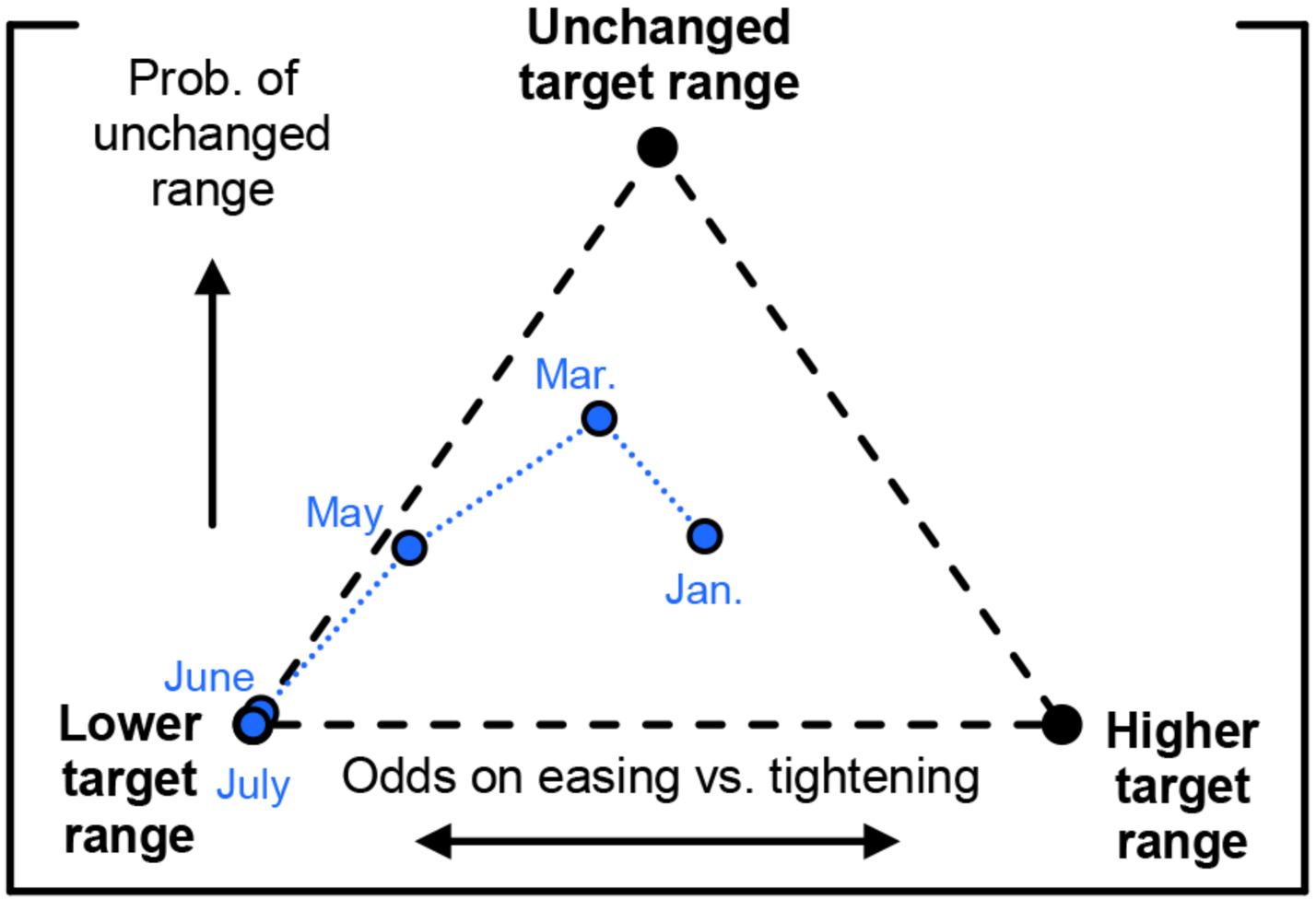
Graph 2: SOFR rate traded above and below EFFR this week



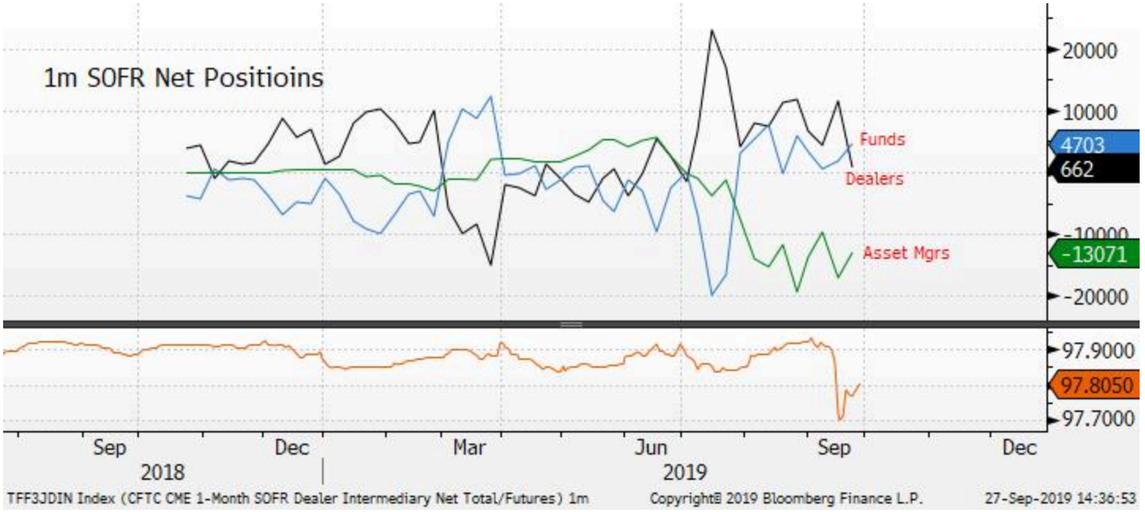
Source: SG Cross Asset Research/Rates, Bloomberg

Following the introduction of the repo operations this week, the SOFR rate, which typically trades above the effective fed funds rate (EFFR), dipped 5bp below EFFR on 23 September but rose 11bp above EFFR the following day (see **Graph 2**). Although the Fed is trying to grease the wheels, liquidity in the money market complex continues to remain fragmented. While the sharp rise in the Treasury cash balance (owing to corporate tax payments and Treasury coupon settlements) largely contributed to the recent spike in repo rates, there are four key secular trends that are the underpinnings of recent events:

DOT PLOT REDUX?



https://www.federalreserve.gov/econres/notes/feds-notes/new-way-to-visualize-the-evolution-of-monetary-policy-expectations-20190920.htm


1m SOFR Net Positioins
20000
10000
4703
662
Funds
Dealers
-10000
-13071
Asset Mgrs
-20000
97.9000
97.8050
97.7000
Sep
2018
Dec
Mar
Jun
2019
Sep
Dec
TFF3JDIN Index (CFTC CME 1-Month SOFR Dealer Intermediary Net Total/Futures) 1m
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27-Sep-2019 14:36:53


3m SOFR Net Positions
Funds
48328
40000
20000
769
Asset Mgrs
-20000
-40000
Dealers
-50755
98.1325
Sep
2018
Dec
Mar
Jun
2019
Sep
TFF3ILFN Index (CFTC CME 3-Month SOFR Leveraged Funds Net Totals/Futures) 3m sof
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Goldman Sachs | Economics Research

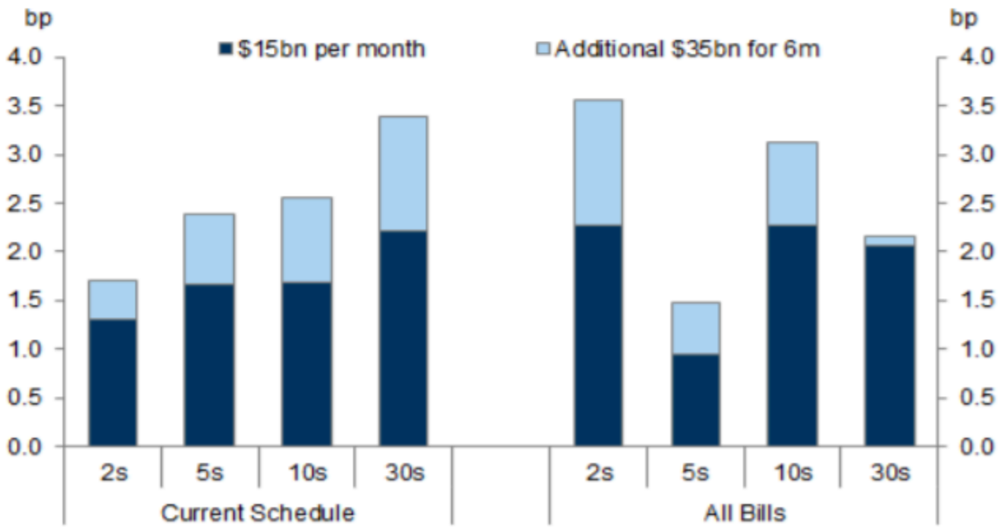
27 September 2019 | 6:04PM EDT

Global Rates Trader: POMOs in the pipeline

In this week's *Rates Trader*, we highlight the consolidation of yield ranges that appears to be under way despite elevated volatility levels. In the US, absent a major shift in the balance of risks, we expect moves in either direction to be limited in size. We note that the Fed's reluctance to commit to easing, taken together with foreign spillovers, suggest the US curve could trade directional with yields in the near-term despite ample distance from effective lower bound. With Fed POMOs on the horizon, we discuss the potential impact on swap spreads, which we think is mild, and note that bill or short-coupon heavy purchases should aid spread curve flattening positions. In Europe, we highlight the greater sensitivity of core yields to weak data rather than to potential fiscal expansion, the impact of which looks small, by our estimates. We also note that the dispersion of views among ECB officials puts the prospect of further easing down the road in question; EUR traded inflation could move lower still if data disappoint materially. In the UK, a BoE official's dovish slant opens up the potential for a further rally in UK front end; the bias is toward a steeper front end curve.

Bill or short-coupon heavy POMO purchases should modestly aid spread curve flatteners, whereas an upsizing of the existing MBS replacement purchase schedule would do the opposite

Net impact of permanent OMOs on UST-OIS spreads (through YE20)

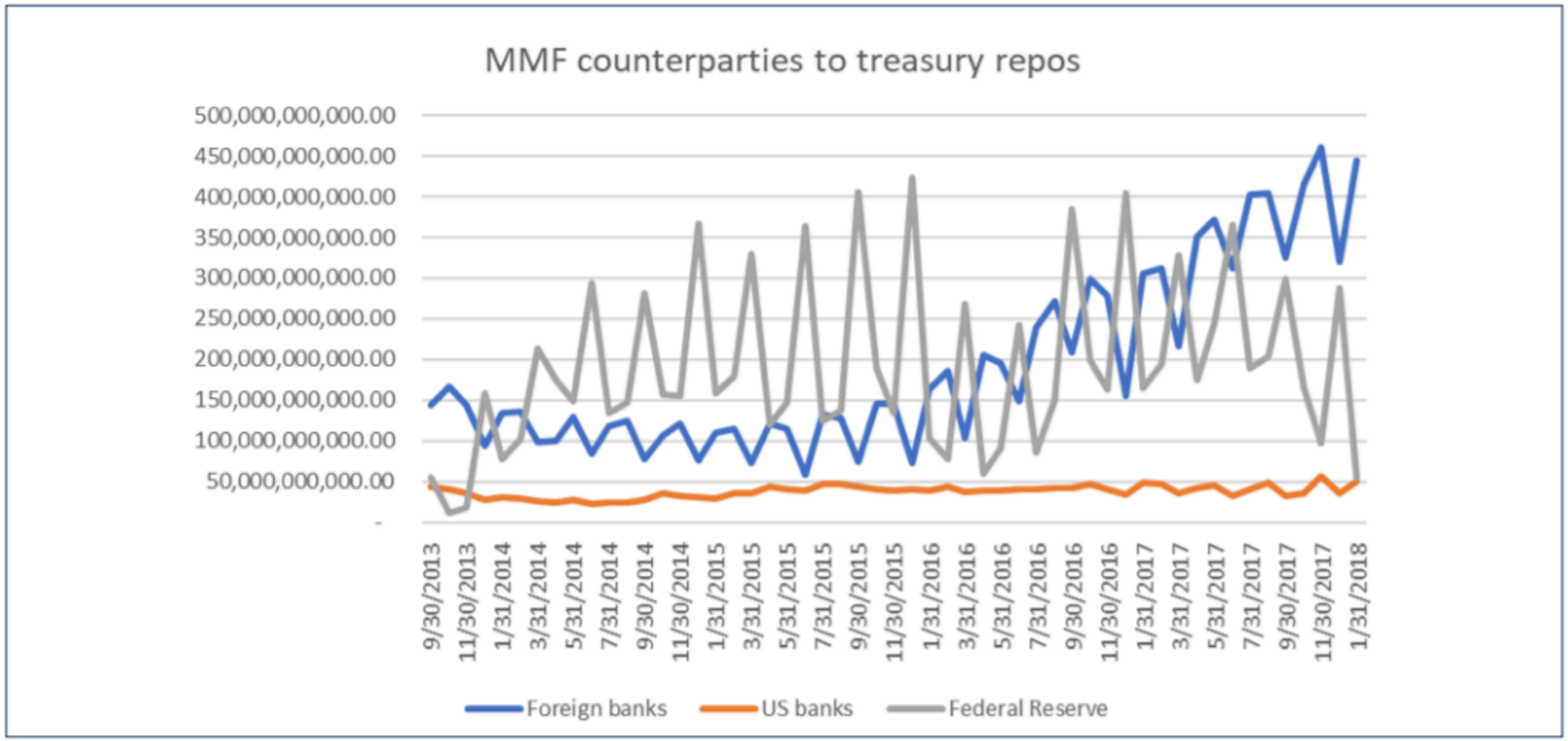


■ **Potential Fed POMOs a modest positive for swap spreads.** As noted previously, we expect the Fed to announce a resumption of Treasury purchases (permanent open market operations, or POMOs) at its upcoming October meeting. While elevated term repo will likely weigh on spreads near term, the resumption of purchases in November should be a net positive as it decreases Treasury free float, all else being equal. How the spread curve evolves will be influenced by various Fed decisions on repurchases—for instance, if the Fed tries to rebuild a "reserve buffer" over a short period, say over either 3 months or 6 months, it would need to purchase roughly $60bn and $35bn of USTs respectively on a monthly basis (both in addition to the ~$20bn/month of MBS being replaced), the impact would be somewhat larger over the next year than if the Fed bought at our baseline speed of roughly $15bn/month (Exhibit 2). As can be seen in the exhibit, focusing purchases on bills or short maturity coupons should benefit front end spreads more. The broader message is two-fold: first, the medium-term impact is small, and to the extent purchases are bill or short coupon heavy, they would reinforce our spread curve flattening view.

TO THE NEXT CRETIN WHO CLAIMS THESE MOVES AREN'T "TECHNICAL".....

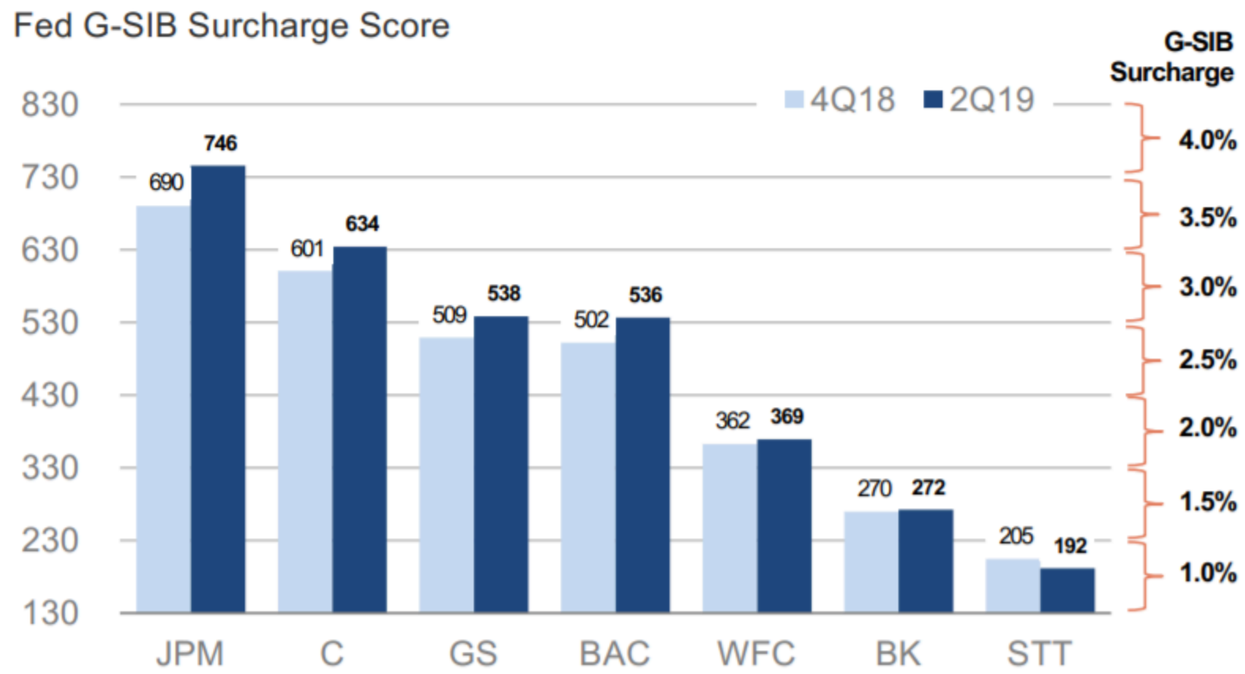
Table 22 below demonstrates how the leverage ratio, among other factors, drives counterparty behaviour in the US market, in terms of counterparties to repo transactions by US money market funds (MMFs). While the capacity provided by the US banks has remained relatively stable over the period (US SLR was implemented in 2013), the capacity provided by foreign banks only subject to quarter-end reporting of the leverage ratio has grown. These banks expand their offering mid-quarter and scale down their repo book at quarter and year-ends. The resulting volatility in supply of private sector repo transactions with the US MMFs is currently offset by the Federal Reserve, expanding its repo balance sheet at quarter and year-ends by hundreds of billions of US dollars. Some of the US banks – to a much smaller degree – have also started offering capacity at quarter-ends.

Table 22: MMF counterparties to US Treasury repos



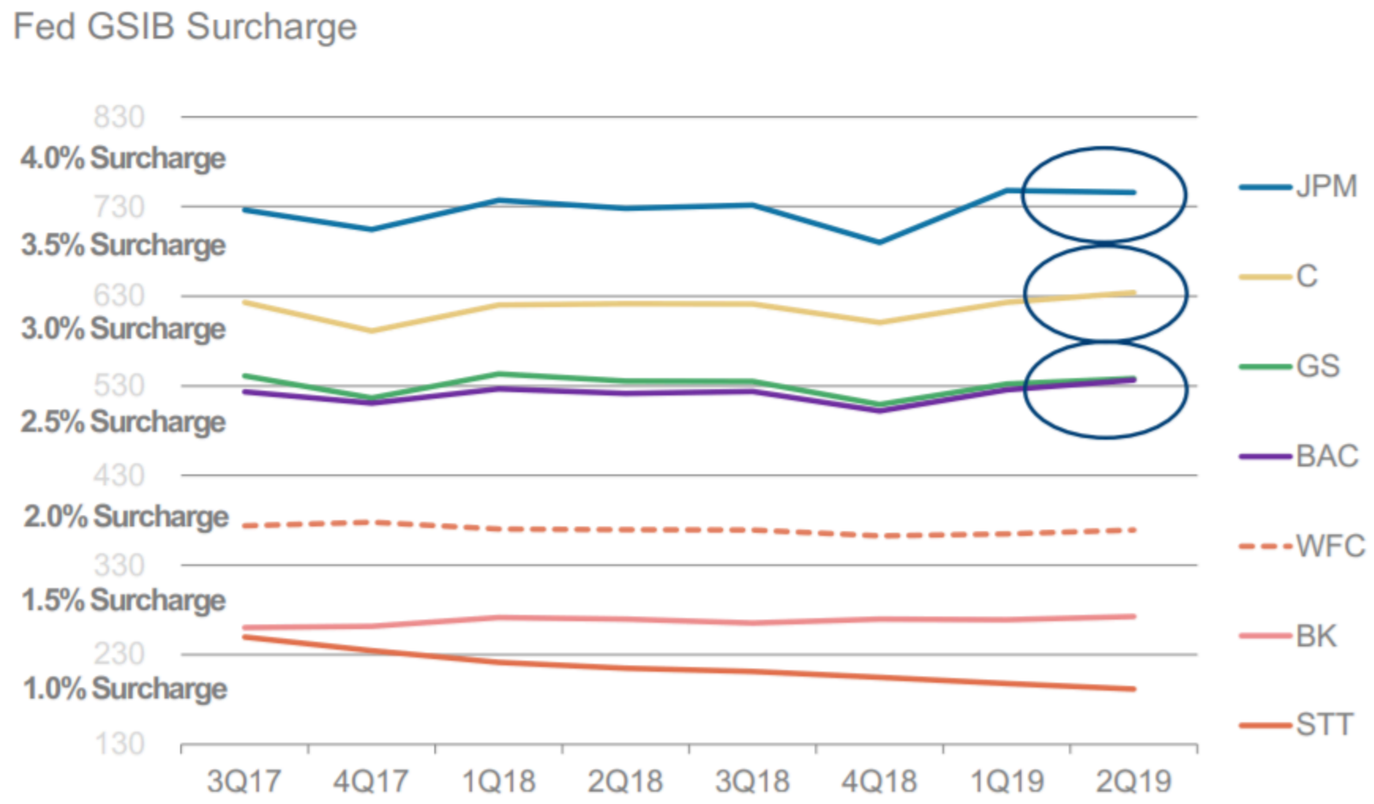
Sources: SEC Form N-MFP2, OFR and GFMA analysis

Exhibit 1: G-SIB banks likely to shrink their balance sheets through repo by the end of 2019, to drop back into lower G-SIB buckets and keep capital requirements flat. This will likely cause further pressure on repo market if the Fed does not intervene further. See below for G-SIB Surcharge scores compared to 2018 end of year.



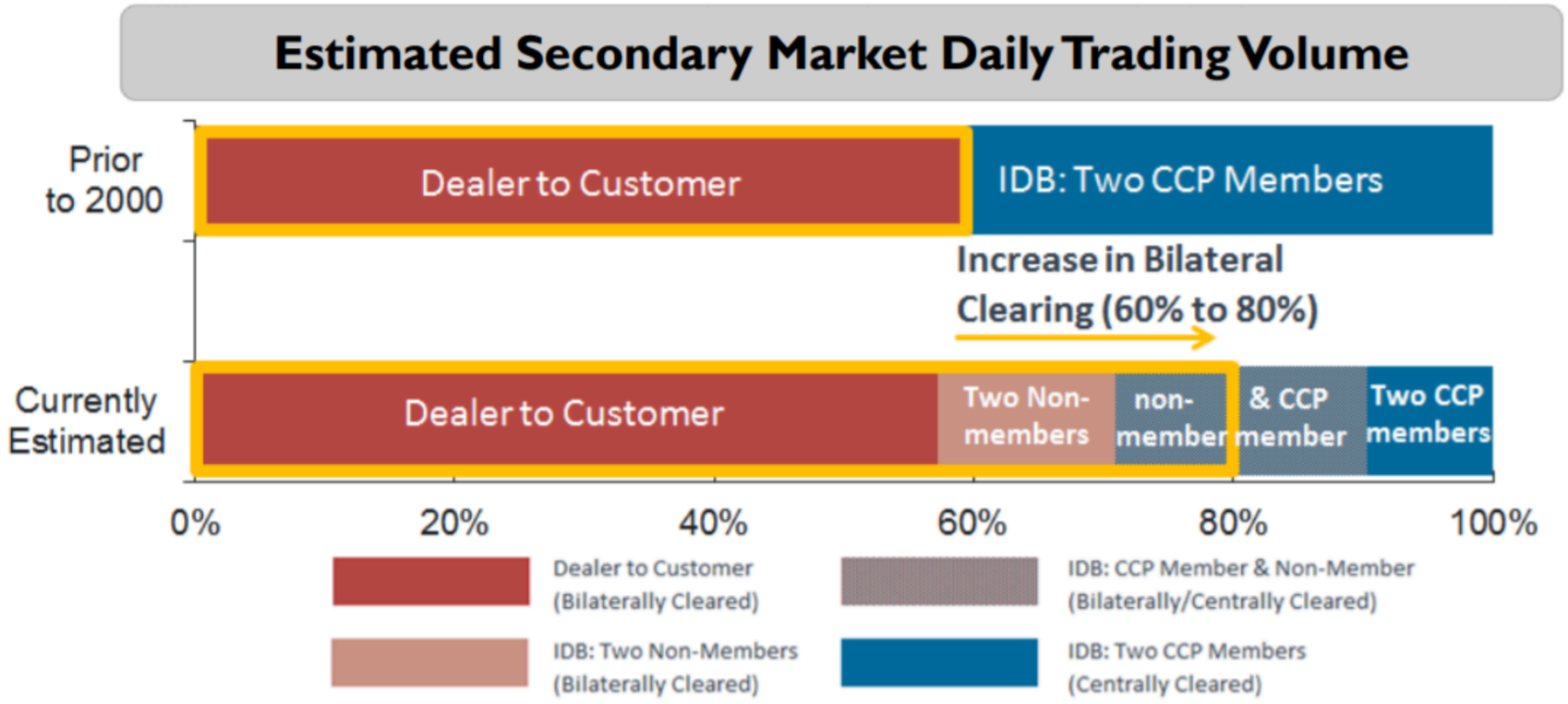
Source: Company Data, Morgan Stanley Research

Exhibit 3: How G-SIB Surcharge scores have evolved over the last two years

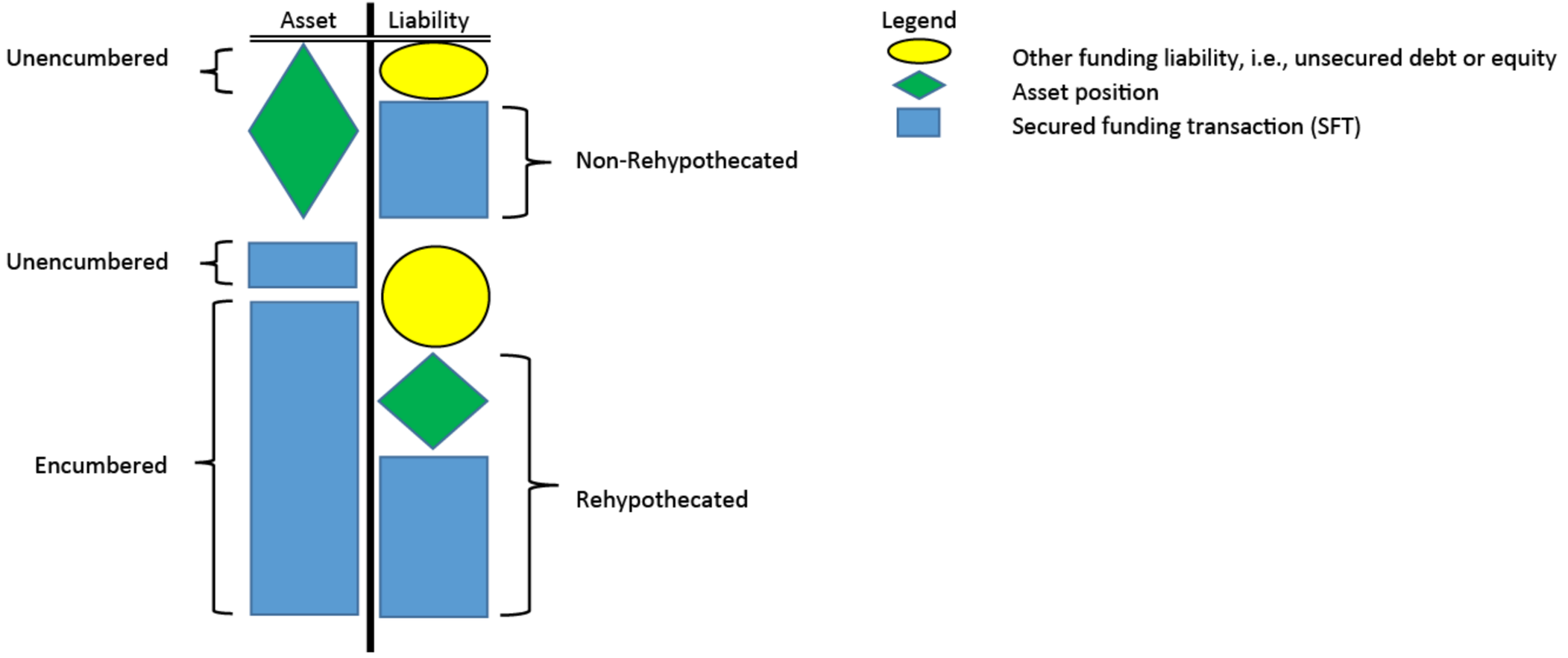


Source: Company Data, Morgan Stanley Research

- Two segments in the Treasury cash market
  - Dealer to customer segment (DtC)
  - IDB platform segment
    - High speed central limit order book like futures, equities
    - Traditionally only broker-dealers, but since early 2000's open to others (mostly PTFs)



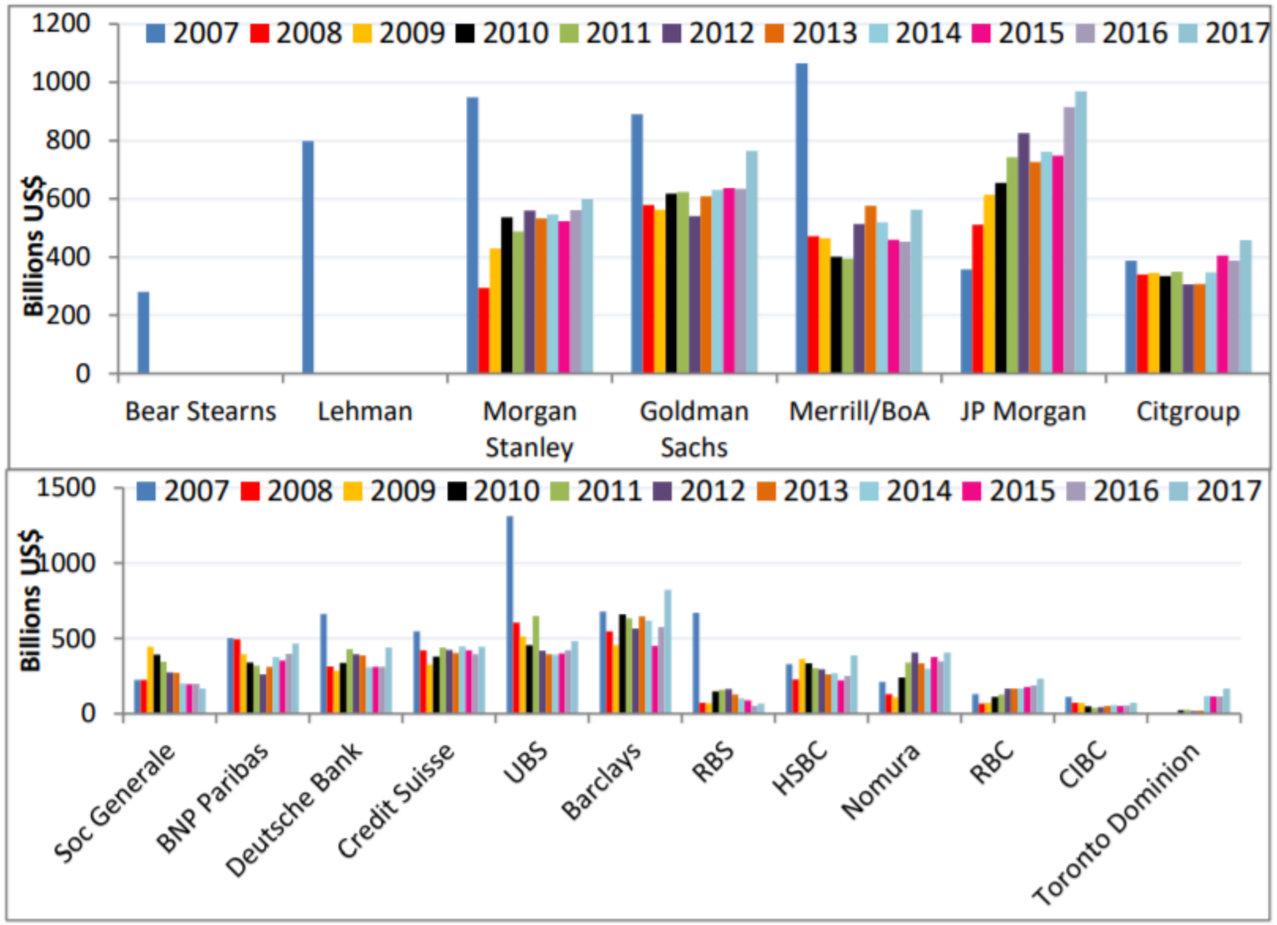
Notes: The figures are estimated using FR 2004 data covering the first half of 2017 and various assumptions, including that a) primary dealers account for all dealer activity, b) 5% of dealers' trading not through an IDB is with another dealer, c) the shares of dealer and non-dealer activity in the IDB market for coupon securities equal the weighted averages of the shares reported in the October 15 report (that is, 41.5% and 58.5%, respectively), d) only dealers trade bills, FRNs, and TIPS in the IDB market, and e) the likelihood of dealer and non-dealers trading with one another in the IDB market solely reflects their shares of overall volume.


Asset
Liability
Unencumbered
Non-Rehypothecated
Unencumbered
Encumbered
Rehypothecated
Legend
Other funding liability, i.e., unsecured debt or equity
Asset position
Secured funding transaction (SFT)

Box 1. The Demand/Supply of Global HQLA—the Macro Picture via Collateral Reuse Rate

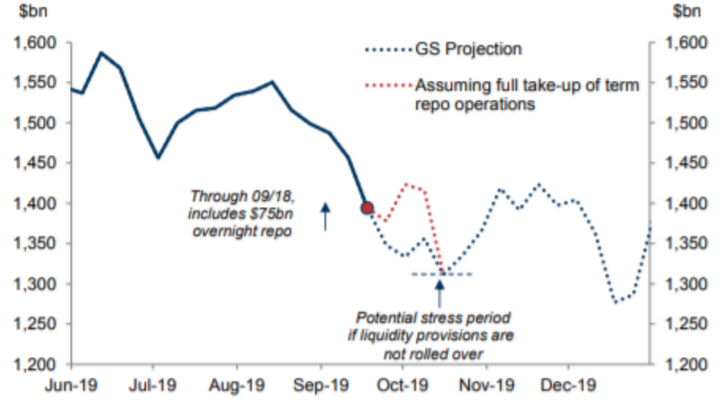
As of end-2017, the pledged collateral received by the major banks that could be onward re-pledged in their own name was US$7.5 trillion, an increase of 25 relative to end-2016—see figures. Most global banks, and a couple of newcomers from Canada, were instrumental in this increase, after a decade of approximately US$6 trillion market for pledged collateral.

Pledged Collateral Received by U.S. Banks (top panel) and European Banks (bottom panel)



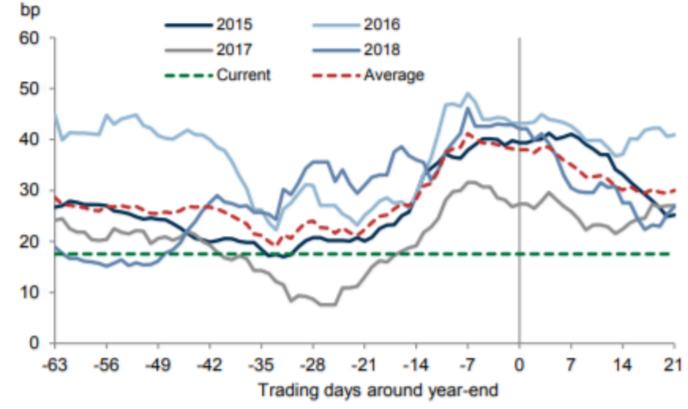
- **Fed O/N and term repo should plug the near term liquidity shortfall.** While this week's spike in repo and other short-term rates can be attributed to a confluence of events that resulted in a large swing in the US Treasury's cash balances, the extent of the move suggests either that reserves may have been closer to their "terminal level" than previously thought, and/or that intermediation is currently constrained. The introduction of temporary OMOs to inject about $75bn of daily liquidity and three upcoming 14-day term repo offerings (of at least $30bn each) should alleviate stress over the quarter-end. However, as Exhibit 1 shows, there will be a sharp drop-off in liquidity around the middle of next month based on our reserve projections and stated expiry of the term offerings—this suggests to us that the Fed will either have to roll over some term offerings on expiry, or potentially upsize its daily offering. A more permanent solution, as we noted here, is the resumption of asset purchases to offset reserve depletion—we expect the Fed will announce this at the October meeting.

Exhibit 1: While the current Fed repo offering should alleviate quarter end pressures, we believe they will need to be rolled next month
Total reserve balances held at the Fed



Source: Federal Reserve Board, Goldman Sachs Global Investment Research

Exhibit 2: Commercial paper-T-bill spreads widen over 10bp in the final quarter of the past few years
3m CP-Bill spreads around year-end



Source: Goldman Sachs Global Investment Research

Today's Expanded Operation Sizes. The Desk has increased the size of this morning's repo offerings to $100 billion for the overnight operation and $60 billion for the 14-day term. Those increases may be sufficient to ensure that the remainder of the Fed's operations through quarter-end are undersubscribed. Our tentative guess (as shown in our reserve forecast table) is that the dealers will take down $50 billion of the term operation and perhaps $60 billion of the overnight. If anything, we think the risks are on the high side of our term estimate and the low side of our overnight assumption. We cannot rule out the possibility that dealers might take down the full $60 billion of term operations, but we might also be overestimating how much overnight funding they will still require given the bump-up in 14-day borrowing.

Looking ahead to tomorrow's 14-day repo, which is the last term operation on the current schedule, we would recommend that the Desk give dealers the right of withdrawal. Breakable RPs used to be a standard tool for the Desk in situations where it wanted to ensure that the market had adequate liquidity over a peak pressure date, but did not want to lock in excess repos that might prove to be unnecessary in subsequent days. Giving dealers the right of withdrawal on tomorrow's term operation would allow them to solidify their funding over the turn without forcing them to commit to holding a non-nettable repo position through October 10 that might be more burdensome once the statement date is past.

- **Thursday:** Even with the likelihood of a significant increase in the total volume of Fed RPs outstanding today, we expect most major repo indexes to move at least slightly higher. Weekly bill settlement frictions and waning liquidity ahead of quarter-end should nudge most levels up somewhat.
- **Friday:** We expect most major overnight rate indexes to be flat or up only slightly on Friday, but the risks are always tilted to the high side on the final business day before quarter-end.
- **Monday:** As noted yesterday, we have penciled in a GCF-IOER spread of 100 basis points for the statement date, which would put the treasury GCF index at 2.80%.
- **Tuesday:** With a very large volume of system RPs still in place, quarter-end pressures may retreat relatively quickly at the beginning of October.
- **Wednesday:** Funding costs may continue to retreat at midweek.

		Rates							Volumes (in $ billions)				Collateral Flows:
		Fed Funds	OBFR	SOFR	TGCR	BGCR	GCF Tsy	GCF MBS	Fed funds	TGCR	Trimmed DVP Repo*	Fed Reverse RPs (O/N + Term)	Treasury Issuance (less Interest)**
Mon	9-Sep	2.13	2.11	2.12	2.11	2.11	2.197	2.220	64	491	721	2.8	---
Tue	10-Sep	2.13	2.11	2.14	2.13	2.13	2.229	2.244	63	495	657	3.6	10
Wed	11-Sep	2.13	2.11	2.15	2.14	2.14	2.240	2.261	61	491	655	3.6	---
Thu	12-Sep	2.13	2.13	2.20	2.18	2.18	2.268	2.294	60	491	622	3.5	14
Fri	13-Sep	2.14	2.14	2.20	2.19	2.19	2.288	2.298	53	482	625	2.7	---
Mon	16-Sep	2.25	2.18	2.43	2.42	2.42	2.876	3.109	46	498	640	2.2	18
Tue	17-Sep	2.30	2.25	5.25	5.25	5.25	6.007	6.699	61	509	644	1.8	0
Wed	18-Sep	2.25	2.18	2.55	2.50	2.50	3.000	3.462	58	504	664	18.9	---
Thu	19-Sep	1.90	1.85	1.95	1.90	1.91	1.975	2.108	59	485	621	5.0	12
Fri	20-Sep	1.90	1.85	1.86	1.85	1.85	1.908	1.999	65	490	617	7.6	---
Mon	23-Sep	1.90	1.85	1.85	1.82	1.82	2.000	1.987	74	470	650	7.5	---
Tue	24-Sep	1.90	1.85	1.96	1.94	1.94	2.014	2.110	71	453	604	0.1	-5
Wed	25-Sep	1.90	1.85	2.01	2.00	2.00	2.010	2.136	77	438	613	0.1	---
Thu	26-Sep	1.92	1.88	1.98	1.96	---	2.05	---	---	---	---	---	12
Fri	27-Sep	1.92	1.89	1.98	1.97	---	2.06	---	---	---	---	---	18

Market Participants Split Over Fed Operations' Funding Impact

(Bloomberg) 9/24/19 - While Federal Reserve Bank of NY's o/n & 14-day term repurchase agreement operations were both oversubscribed, there's a lack of consensus among participants as to what that means for repo rates at the end of the qtr.

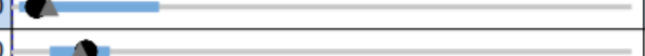
- **“Quarter-end window dressing still matters,” said Credit Suisse strategist Jonathan Cohn. “The fact that repo operations require some extension of the bal sheet suggests dealers’ ability to intermediate between the Fed and the broader market may be hampered”**
- **Citi recommended buying Nov SOFR futures and selling fed funds futures contracts expiring the same month as the market may be interpreting higher subscriptions at the Fed’s open mkt operations as a “harbinger for higher repo rates” over qtr-end.**
- **Primary dealers flocked to the Fed’s repo operations on Tuesday, signaling a need for cash to satisfy liquidity demands heading into the end of the third quarter.The Secured Overnight Financing Rate set at 1.85% as of Sept. 23, down from 1.86% the prior day, according to NY Fed.**

Fed Boosts Repo Operations, Fueling Concerns About Market Issues

(Bloomberg) 9/25/19- The NY Fed increased the size of its overnight and term repurchase agreement operations, and some market participants have interpreted that as evidence funding constraints are still a problem.

- **“It’s great that the Fed is pumping liquidity into the system, however, why were the existing operations insufficient,” Curvature Securities Exec VP Scott Skyrm said in Wed note.**
  - **As of Wed, the Fed has injected $105b of liquidity into the repo market, but rates were still “stubbornly high.”**
  - **“Whatever changed last week to cause the funding spikes is clearly still a problem.”**
- **“The fact that we’re discussing a quarter trillion dollars is telling as to the depth of the constraint in repo, as well as the Fed’s desire to make Sept 30 boring,” BMO strategists led by Ian Lyngen said in Wed note.**
- **Former Minneapolis Fed Pres Narayana Kocherlakota said in a Bloomberg op-ed that while the recent unrest in money markets won’t undermine the central bank’s ability to achieve its longer-term economic goals, it does signal that “something’s very wrong with the financial system.”**

Liquidity Stress Dashboard

			09-20-19	1Y avg	1Y min	1-year range: 09-20-19 / 09-13-19 / 1M range	1Y max	Z-score	Status
Treasury market depth	5Y cash ($mn)		145	280	89		474	-1.5	Amber
	10Y cash ($mn)		138	256	90		362	-1.9	Amber
	30Y cash ($mn)		12	31	8		50	-2.0	Amber
	FV futures (# of contracts)		2496	7656	1548		20069	-1.5	Amber
	TY futures (# of contracts)		4846	12556	3090		25490	-1.8	Amber
	US futures (# of contracts)		612	2156	450		4538	-1.9	Amber
Futures implied repo rates (%)	TU Implied repo		2.254	2.560	1.320		9.167	-0.6	Normal
	FV Implied repo		2.173	2.480	2.022		2.850	-1.8	Normal
	TY Implied repo		2.269	2.412	-8.444		2.890	-0.2	Normal
	US Implied repo		2.122	2.380	1.978		2.845	-1.6	Normal
	WN Implied repo		1.807	1.692	-65.797		3.004	0.0	Normal
Funding spreads (bp)	O/N Tsy GCF - GC spread		6.5	9.8	-5.8		219.9	-0.2	Normal
	3M Tsy GC Repo/OIS spread		27.6	15.8	7.8		30.9	2.6	RED
	SOFR/FF spread		0.0	4.4	-3.0		295.0	-0.2	Normal
	1M MBS GC Repo/OIS spd		47.1	17.2	6.6		47.1	4.3	RED
	Dollar-roll impl. repo vs act. financing rate spd		0.0	-33.7	-252.9		21.2	0.7	Normal
	3M Libor/OIS spread		34.1	24.8	14.1		42.2	1.2	Amber
	3M Libor/Tsy GC Repo spread		6.5	9.0	-4.9		25.7	-0.3	Normal
1Y Cross-currency bases (bp)	EUR/USD		-12.2	-15.6	-23.4		-8.2	1.0	Normal
	GBP/USD		3.0	-0.1	-11.1		9.2	0.8	Normal
	USD/JPY		-35.6	-30.6	-42.4		-21.9	-1.1	Amber
US credit (bp)	HG New Issue vs JULI Performance (2wks)		-8.5	-4.1	-23.0		7.2	-0.8	Normal
Dealer positions ($bn)	<6-year maturities		115.8	110.2	35.9		152.1	0.2	Normal
	6- to 11-year maturities		17.4	28.7	11.4		46.0	-1.3	Normal
	>11-year maturities		40.9	39.4	27.8		48.0	0.3	Normal
	Total Treasuries		219.3	221.5	111.2		286.9	-0.1	Normal

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

Liquidity Stress Dashboard

			09-23-19	1Y avg	1Y min	1-year range: 09-23-19 / 09-16-19 / 1M range	1Y max	Z-score	Status
Treasury market depth	5Y cash ($mn)		132	279	89		474	-1.6	Amber
	10Y cash ($mn)		135	255	90		362	-1.9	Amber
	30Y cash ($mn)		12	30	8		50	-2.0	Amber
	FV futures (# of contracts)		3222	7642	1548		20069	-1.3	Amber
	TY futures (# of contracts)		6402	12526	3090		25490	-1.4	Amber
	US futures (# of contracts)		766	2149	450		4538	-1.7	Amber
Futures implied repo rates (%)	TU Implied repo		2.196	2.561	1.320		9.167	-0.7	Normal
	FV Implied repo		2.181	2.480	2.022		2.850	-1.8	Normal
	TY Implied repo		2.149	2.411	-8.444		2.890	-0.3	Normal
	US Implied repo		2.073	2.380	1.978		2.845	-1.9	Normal
	WN Implied repo		1.737	1.688	-65.797		3.004	0.0	Normal
Funding spreads (bp)	O/N Tsy GCF - GC spread		5.8	9.8	-5.8		219.9	-0.3	Normal
	3M Tsy GC Repo/OIS spread		25.3	15.9	7.8		30.9	2.0	RED
	SOFR/FF spread		0.0	4.4	-4.0		295.0	-0.2	Normal
	1M MBS GC Repo/OIS spd		34.4	17.4	6.6		47.1	2.4	RED
	Dollar-roll impl. repo vs act. financing rate spd		-65.4	-34.2	-252.9		21.2	-0.6	Normal
	3M Libor/OIS spread		32.9	24.9	14.1		42.2	1.0	Amber
	3M Libor/Tsy GC Repo spread		7.6	9.0	-4.9		25.7	-0.2	Normal
1Y Cross-currency bases (bp)	EUR/USD		-13.0	-15.6	-23.4		-8.2	0.7	Normal
	GBP/USD		4.5	-0.1	-11.1		9.2	1.1	Normal
	USD/JPY		0.0	-30.6	-42.4		-21.9	6.5	Normal
US credit (bp)	HG New Issue vs JULI Performance (2wks)		-1.4	-4.1	-23.0		7.2	0.5	Normal
Dealer positions ($bn)	<6-year maturities		115.8	110.2	35.9		152.1	0.2	Normal
	6- to 11-year maturities		17.4	28.7	11.4		46.0	-1.3	Normal
	>11-year maturities		40.9	39.4	27.8		48.0	0.3	Normal
	Total Treasuries		219.3	221.5	111.2		286.9	-0.1	Normal

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Liquidity Stress Dashboard

			09-24-19	1Y avg	1Y min	1-year range: 09-24-19 / 09-17-19 / 1M range	1Y max	Z-score	Status
Treasury market depth	5Y cash ($mn)		130	278	89		474	-1.6	Amber
	10Y cash ($mn)		138	255	90		362	-1.9	Amber
	30Y cash ($mn)		11	30	8		50	-2.0	RED
	FV futures (# of contracts)		3026	7623	1548		20069	-1.3	Amber
	TY futures (# of contracts)		6720	12504	3090		25490	-1.3	Amber
	US futures (# of contracts)		730	2143	450		4538	-1.7	Amber
Futures implied repo rates (%)	TU Implied repo		2.226	2.559	1.320		9.167	-0.6	Normal
	FV Implied repo		2.202	2.478	2.022		2.850	-1.6	Normal
	TY Implied repo		2.307	2.411	-8.444		2.890	-0.1	Normal
	US Implied repo		2.069	2.379	1.978		2.845	-1.9	Normal
	WN Implied repo		1.772	1.688	-65.797		3.004	0.0	Normal
Funding spreads (bp)	O/N Tsy GCF - GC spread		18.0	9.9	-5.8		219.9	0.5	Normal
	3M Tsy GC Repo/OIS spread		28.8	16.0	7.8		30.9	2.7	RED
	SOFR/FF spread		0.0	4.3	-5.0		295.0	-0.2	Normal
	1M MBS GC Repo/OIS spd		37.9	17.4	6.6		47.1	2.8	RED
	Dollar-roll impl. repo vs act. financing rate spd		-73.0	-34.4	-252.9		21.2	-0.8	Normal
	3M Libor/OIS spread		34.1	24.9	14.1		42.2	1.2	Amber
	3M Libor/Tsy GC Repo spread		5.3	8.9	-4.9		25.7	-0.5	Normal
1Y Cross-currency bases (bp)	EUR/USD		-15.9	-15.6	-23.4		-8.2	-0.1	Normal
	GBP/USD		2.1	0.0	-11.1		9.2	0.5	Normal
	USD/JPY		-30.7	-30.6	-42.4		-21.9	0.0	Normal
US credit (bp)	HG New Issue vs JULI Performance (2wks)		-10.3	-4.2	-23.0		7.2	-1.1	Amber
Dealer positions ($bn)	<6-year maturities		115.8	110.2	35.9		152.1	0.2	Normal
	6- to 11-year maturities		17.4	28.6	11.4		46.0	-1.3	Normal
	>11-year maturities		40.9	39.4	27.8		48.0	0.3	Normal
	Total Treasuries		219.3	221.5	111.2		286.9	-0.1	Normal

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Liquidity Stress Dashboard

			09-25-19	1Y avg	1Y min	1-year range: 09-25-19 / 09-18-19 / 1M range	1Y max	Z-score	Status
Treasury market depth	5Y cash ($mn)		136	277	89		474	-1.5	Amber
	10Y cash ($mn)		156	254	90		362	-1.6	Amber
	30Y cash ($mn)		12	30	8		50	-2.0	Amber
	FV futures (# of contracts)		2884	7604	1548		20069	-1.4	Amber
	TY futures (# of contracts)		5795	12469	3090		25490	-1.5	Amber
	US futures (# of contracts)		699	2135	450		4538	-1.7	Amber
Futures implied repo rates (%)	TU Implied repo		2.282	2.559	1.320		9.167	-0.5	Normal
	FV Implied repo		2.254	2.478	2.022		2.850	-1.3	Normal
	TY Implied repo		2.307	2.410	-8.444		2.890	-0.1	Normal
	US Implied repo		2.139	2.378	1.978		2.845	-1.5	Normal
	WN Implied repo		1.828	1.686	-65.797		3.004	0.0	Normal
Funding spreads (bp)	O/N Tsy GCF - GC spread		7.4	9.9	-5.8		219.9	-0.2	Normal
	3M Tsy GC Repo/OIS spread		25.9	16.0	7.8		30.9	2.1	RED
	SOFR/FF spread		0.0	4.3	-5.0		295.0	-0.2	Normal
	1M MBS GC Repo/OIS spd		31.7	17.5	6.6		47.1	2.0	Amber
	Dollar-roll impl. repo vs act. financing rate spd		-58.3	-34.6	-252.9		21.2	-0.5	Normal
	3M Libor/OIS spread		30.9	25.0	14.1		42.2	0.8	Normal
	3M Libor/Tsy GC Repo spread		5.0	8.9	-4.9		25.7	-0.5	Normal
1Y Cross-currency bases (bp)	EUR/USD		-17.3	-15.6	-23.4		-8.2	-0.5	Normal
	GBP/USD		0.9	0.0	-11.1		9.2	0.2	Normal
	USD/JPY		-34.0	-30.6	-42.4		-21.9	-0.7	Normal
US credit (bp)	HG New Issue vs JULI Performance (2wks)		-6.6	-4.2	-23.0		7.2	-0.5	Normal
Dealer positions ($bn)	<6-year maturities		115.8	110.3	35.9		152.1	0.2	Normal
	6- to 11-year maturities		17.4	28.6	11.4		46.0	-1.3	Normal
	>11-year maturities		40.9	39.4	27.8		48.0	0.3	Normal
	Total Treasuries		219.3	221.5	111.2		286.9	-0.1	Normal

Notes:

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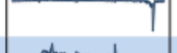
4) Funding spreads: Overnight interdealer Treasury GCF rate minus client GC rate, the difference between various repo rates and matched-tenor OIS rates, the difference between 3-month Libor and 3-month OIS or 3-month Treasury GC repo, the spread between the MBS dollar-roll implied repo rate and the 1-month 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.

Liquidity Stress Dashboard

			09-26-19	1Y avg	1Y min	1-year range: 09-26-19 / 09-19-19 / 1M range	1Y max	Z-score	Status
Treasury market depth	5Y cash ($mn)		117	276	89		474	-1.7	Amber
	10Y cash ($mn)		146	253	90		362	-1.7	Amber
	30Y cash ($mn)		12	30	8		50	-1.9	Amber
	FV futures (# of contracts)		2579	7575	1548		20069	-1.4	Amber
	TY futures (# of contracts)		4668	12433	3090		25490	-1.7	Amber
	US futures (# of contracts)		728	2129	450		4538	-1.7	Amber
Futures implied repo rates (%)	TU Implied repo		2.214	2.558	1.320		9.167	-0.6	Normal
	FV Implied repo		2.250	2.477	2.022		2.850	-1.3	Normal
	TY Implied repo		2.342	2.410	-8.444		2.890	-0.1	Normal
	US Implied repo		2.140	2.378	1.978		2.845	-1.4	Normal
	WN Implied repo		1.803	1.684	-65.797		3.004	0.0	Normal
Funding spreads (bp)	O/N Tsy GCF - GC spread		1.0	9.8	-5.8		219.9	-0.6	Normal
	3M Tsy GC Repo/OIS spread		30.6	16.1	7.8		30.9	3.0	RED
	SOFR/FF spread		0.0	4.4	-5.0		295.0	-0.2	Normal
	1M MBS GC Repo/OIS spd		33.3	17.6	6.6		47.1	2.1	RED
	Dollar-roll impl. repo vs act. financing rate spd		-57.1	-34.9	-252.9		21.2	-0.4	Normal
	3M Libor/OIS spread		33.0	25.0	14.1		42.2	1.0	Amber
	3M Libor/Tsy GC Repo spread		2.4	8.9	-4.9		25.7	-0.9	Normal
1Y Cross-currency bases (bp)	EUR/USD		-16.0	-15.6	-23.4		-8.2	-0.1	Normal
	GBP/USD		1.4	0.0	-11.1		9.2	0.4	Normal
	USD/JPY		-32.4	-30.6	-42.4		-21.9	-0.4	Normal
US credit (bp)	HG New Issue vs JULI Performance (2wks)		-3.8	-4.2	-23.0		7.2	0.1	Normal
Dealer positions ($bn)	<6-year maturities		112.7	110.2	35.9		152.1	0.1	Normal
	6- to 11-year maturities		15.1	28.5	11.4		46.0	-1.5	Normal
	>11-year maturities		41.2	39.4	27.8		48.0	0.4	Normal
	Total Treasuries		205.5	221.1	111.2		286.9	-0.4	Normal

Notes:

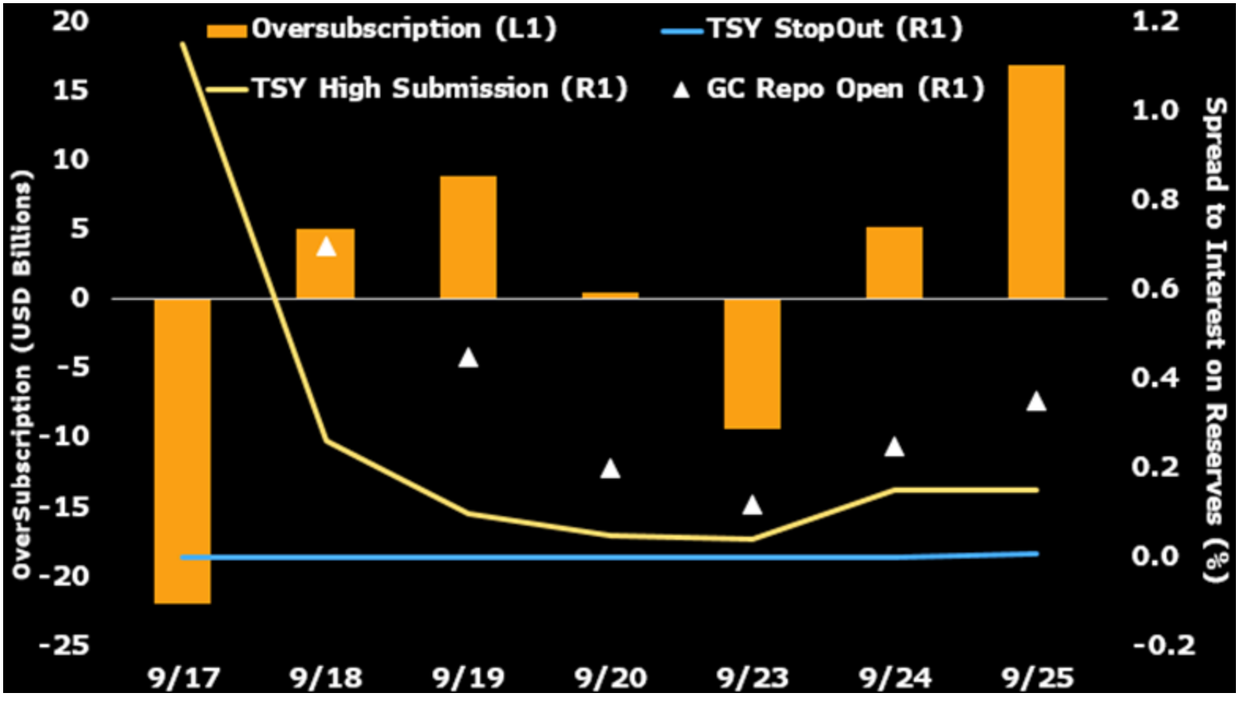
1) The dark blue line charts are 1-year time series. The bar chart depicts the range spanning from the 1-year minimum to the 1-year maximum. The blue bars indicate the 1-month range, and the black dot is the current value, while the grey triangle is the 1-week-ago value.
2) Market depth: cash market 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.

2) How would you grade the Federal Reserve System's communication with the markets and with the public since the last policy survey? Please provide a rating between 1 and 5, with 1 indicating ineffectiveness and 5 indicating effectiveness.

	Number of Respondents
1 - Ineffective	**4**
2	**11**
3	**8**
4	**1**
5 - Effective	**0**

Please explain.

Several dealers indicated that they found communication confusing, and several characterized communication from various Fed officials as inconsistent. In addition, some dealers cited communications toward the end of the intermeeting period as informing their ratings. Finally, several dealers indicated that a readiness to lower the target range was effectively signaled, and several suggested that communication was generally consistent.



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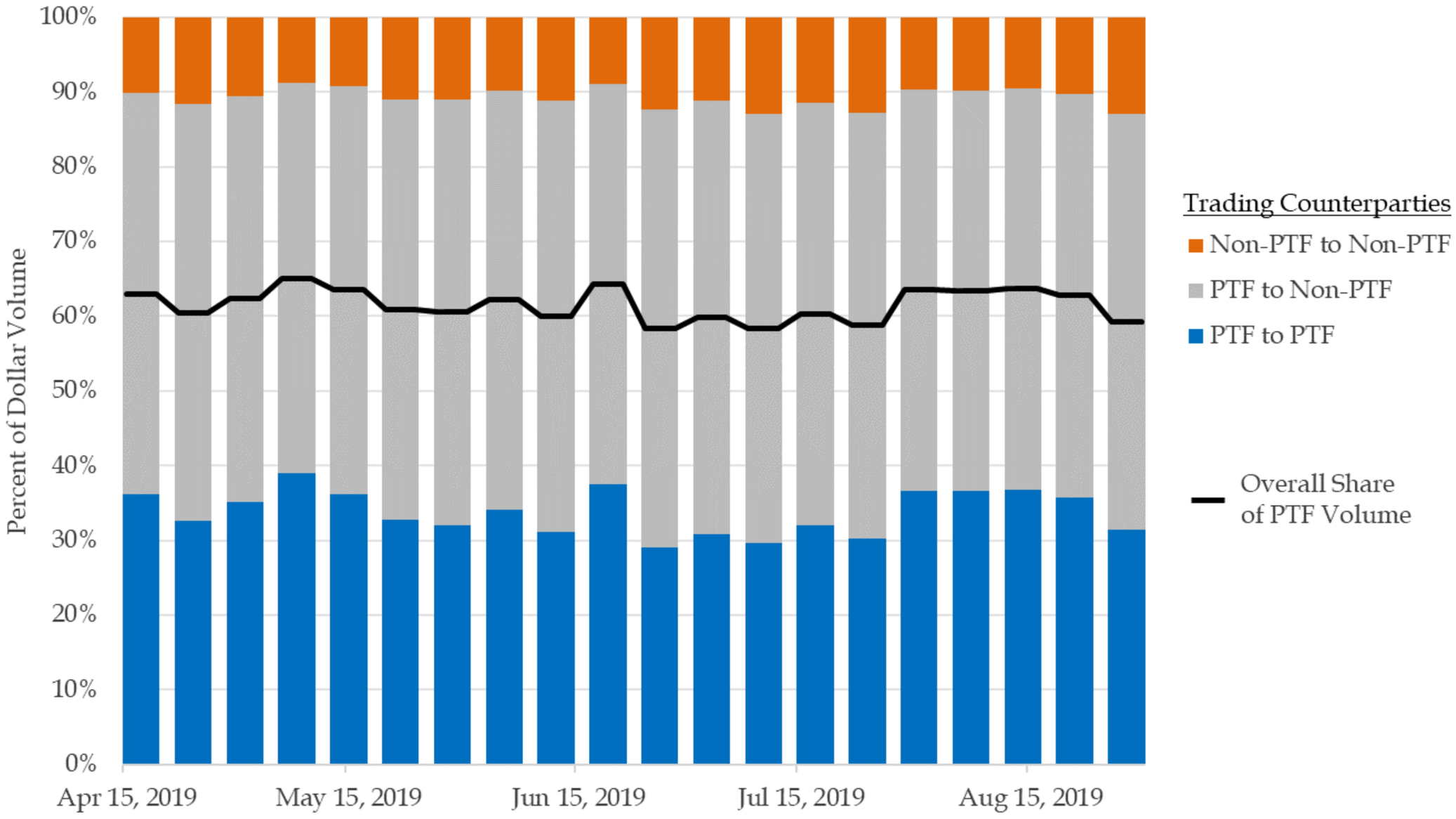
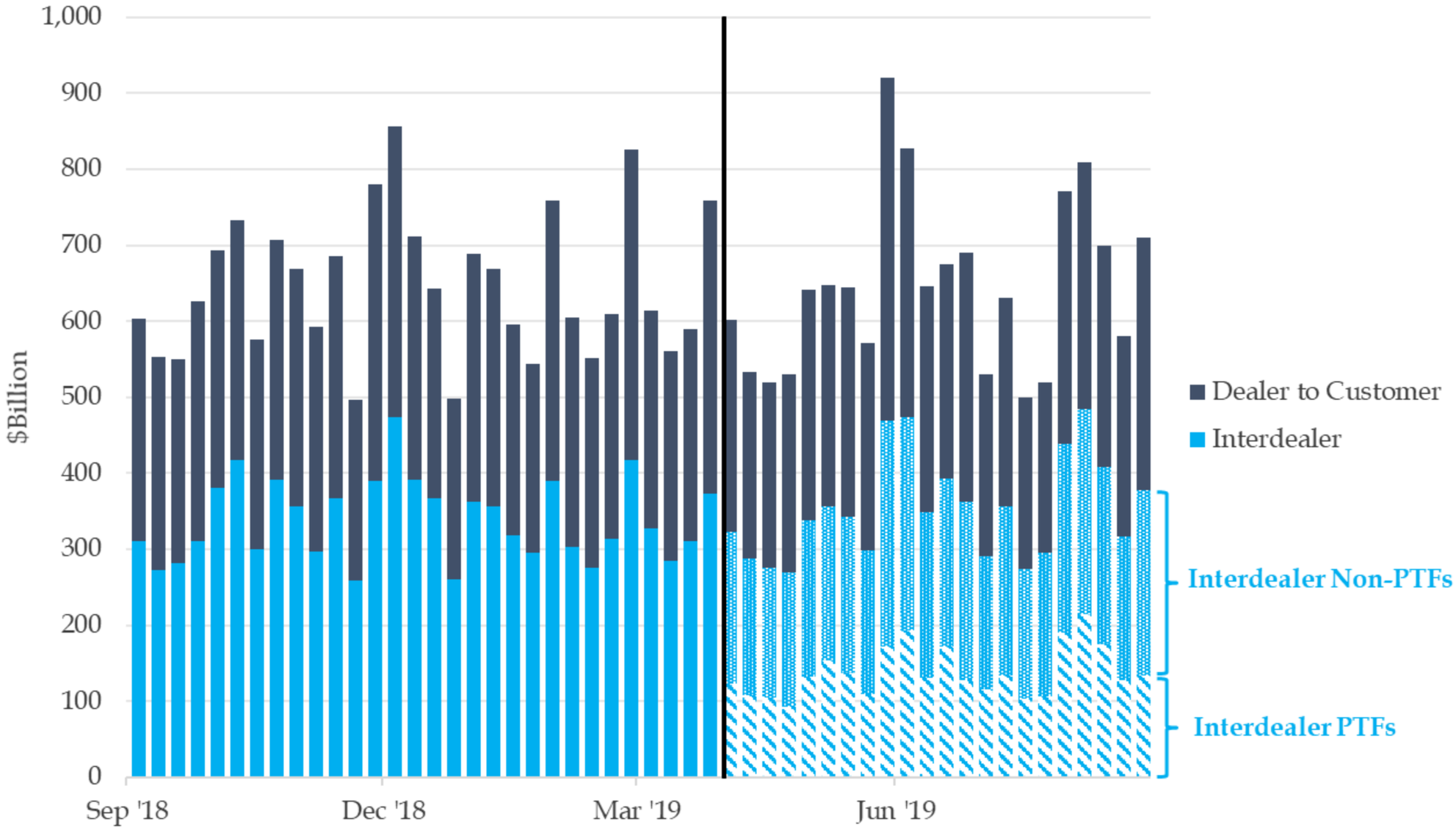
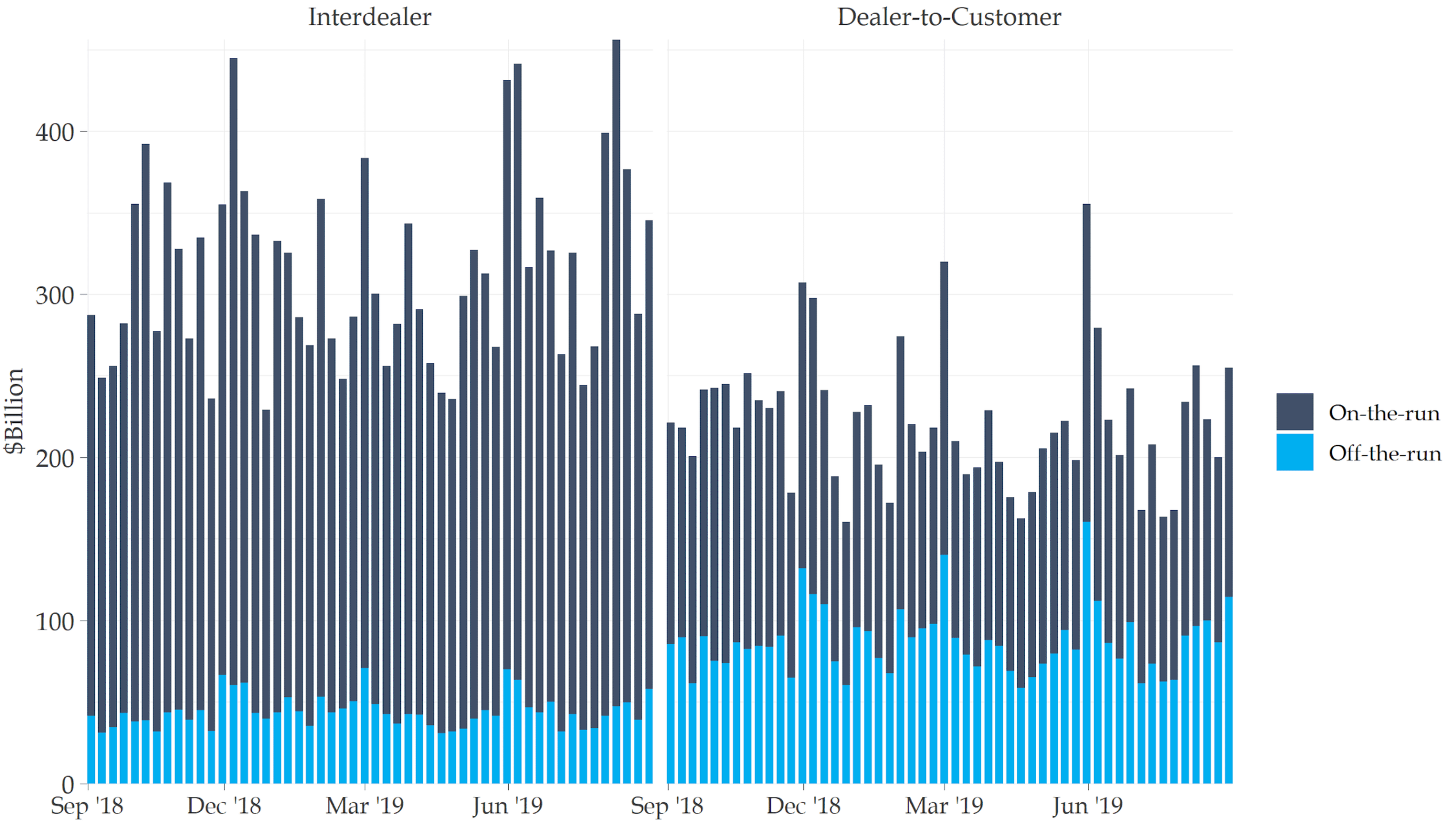
On-the-run Coupons; Weekly; Apr. 15, 2019 - Aug. 31, 2019



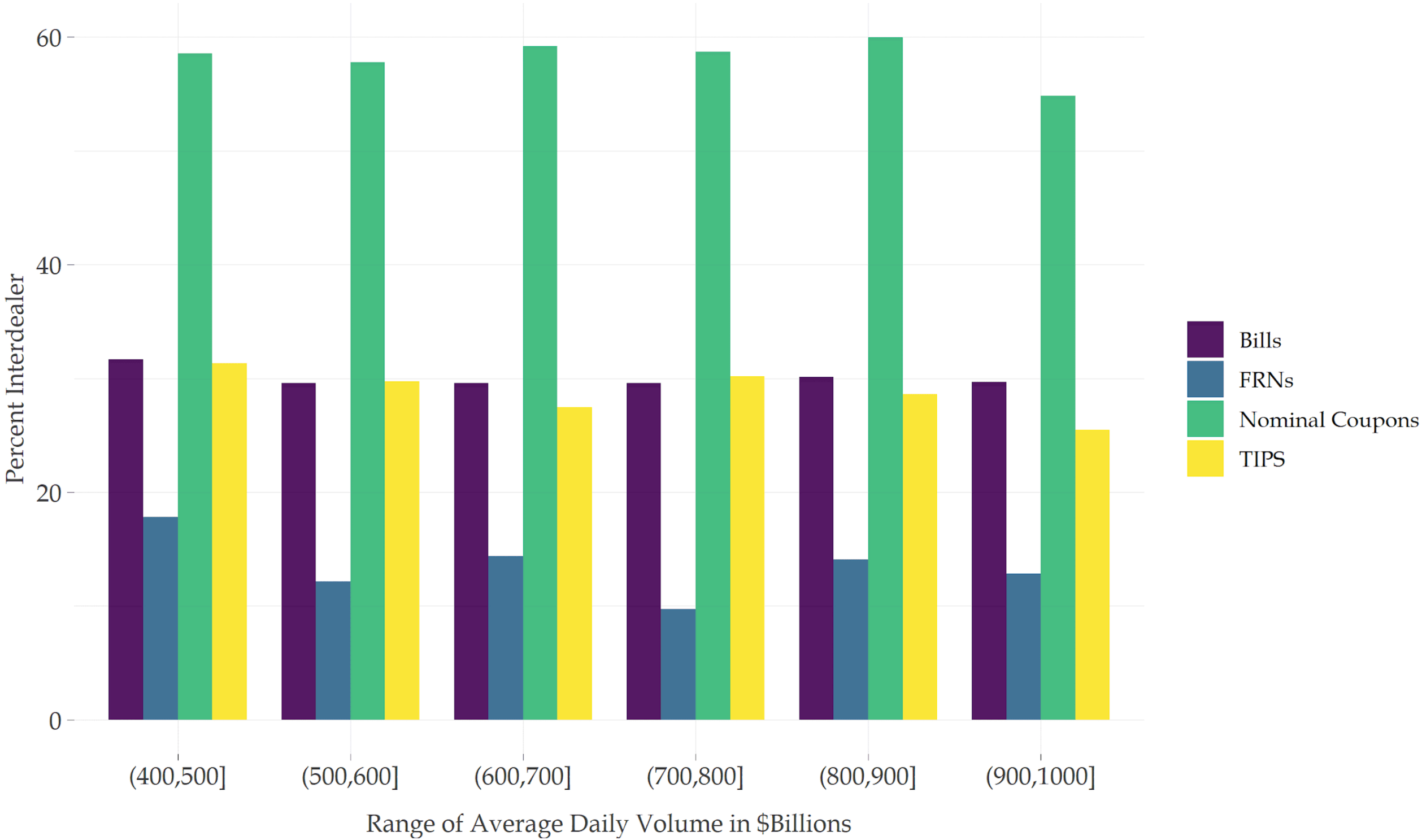
Average Daily Volume by Week; Sep. 2018 - Aug. 2019



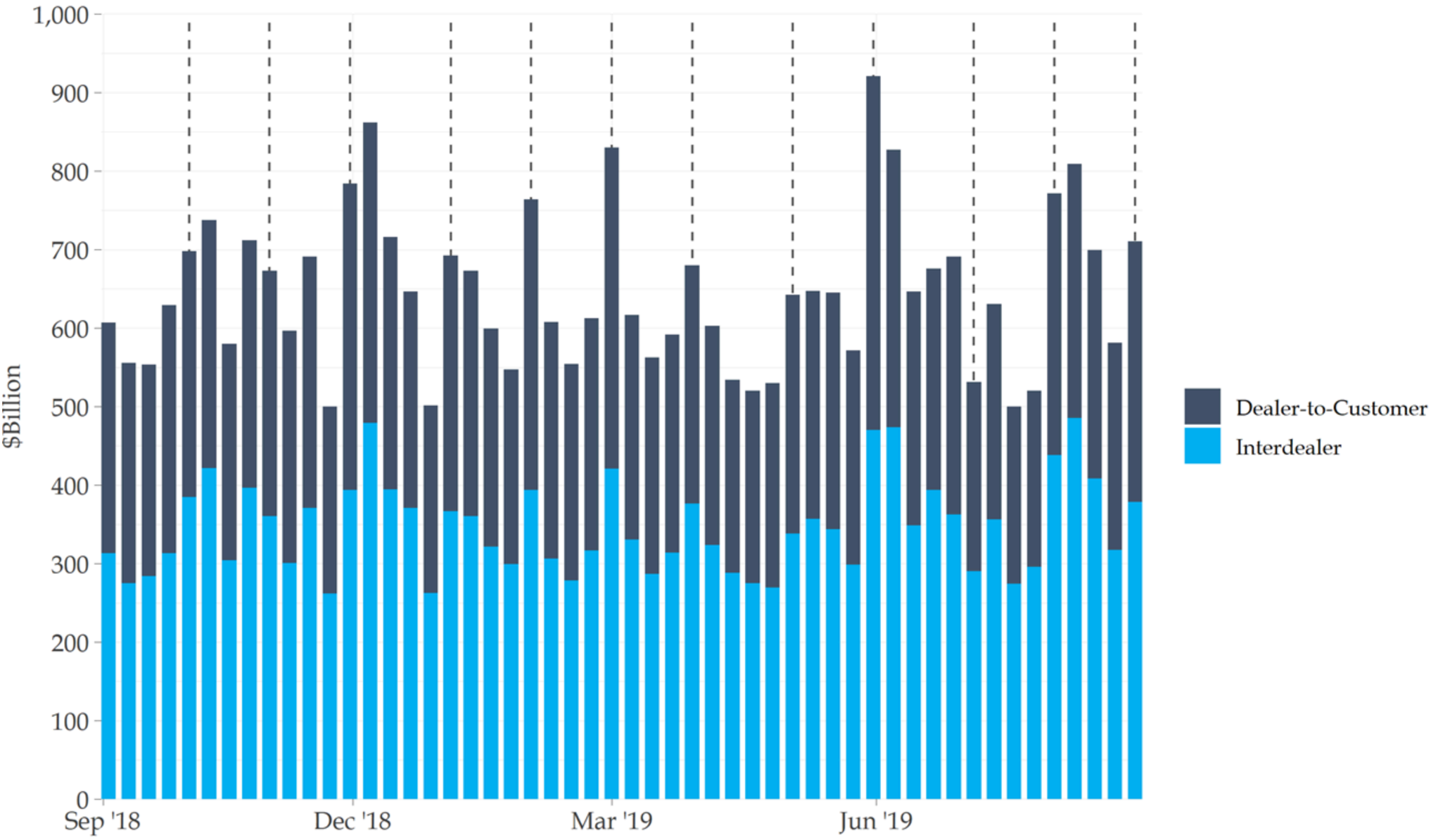
Average Daily Volume by Week; Sep. 2018 - Aug. 2019



Based on the Average Daily Volume by Week; Sep. 2018 - Aug. 2019



Average Daily Volume by Week; Month-ends indicated with vertical lines; Sep. 2018 - Aug. 2019

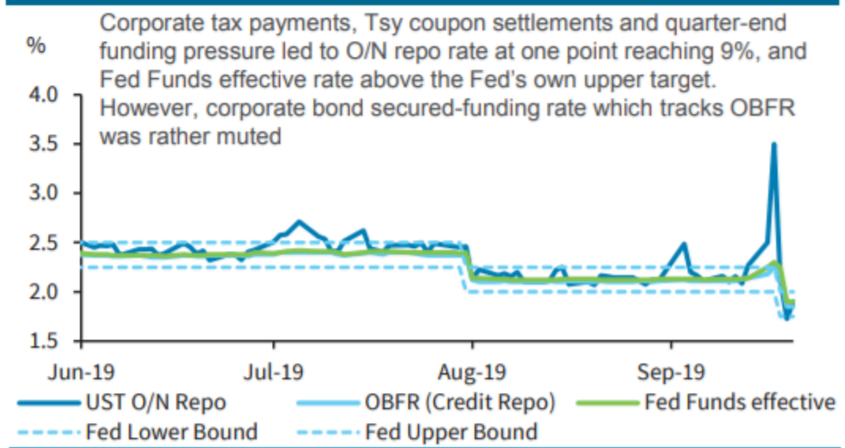


	Interdealer	Dealer-to-Customer	Total
Bills	137.7	338.2	475.9
FRNs	2.1	8.8	10.9
Nominal Coupons	1,727.0	1,274.3	3,001.3
<= 2 years	356.2	299.0	655.1
On-the-run	270.5	131.5	401.9
Off-the-run	85.7	167.5	253.2
> 2 years and <= 3 years	193.6	113.6	307.3
On-the-run	166.7	67.0	233.7
Off-the-run	26.9	46.6	73.5
> 3 years and <= 5 years	509.4	370.7	880.0
On-the-run	432.9	229.3	662.2
Off-the-run	76.5	141.3	217.8
> 5 years and <= 7 years	154.3	112.3	266.6
On-the-run	126.0	52.4	178.4
Off-the-run	28.3	59.9	88.2
> 7 years and <= 10 years	388.5	222.2	610.8
On-the-run	357.4	170.9	528.3
Off-the-run	31.2	51.3	82.4
> 10 years	124.9	156.6	281.5
On-the-run	83.3	51.6	134.9
Off-the-run	41.6	105.0	146.6
TIPS	22.8	38.8	61.6
<= 5 years	9.6	16.7	26.4
On-the-run	6.8	5.8	12.7
Off-the-run	2.8	10.9	13.7
> 5 years and <= 10 years	9.6	13.7	23.3
On-the-run	8.0	5.6	13.6
Off-the-run	1.6	8.1	9.7
> 10 years	3.6	8.3	11.9
On-the-run	2.9	4.8	7.8
Off-the-run	0.7	3.5	4.1
Total	1,889.5	1,660.2	3,549.7

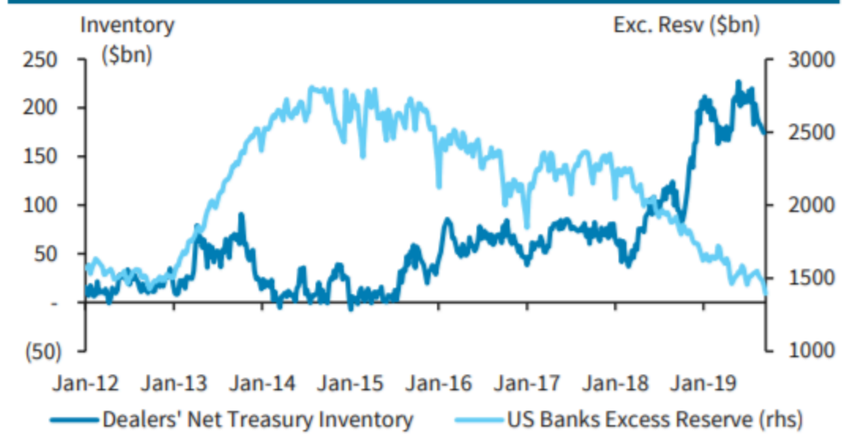
https://home.treasury.gov/news/press-releases/sm782

The short-term funding squeeze spooked the market, leading to Fed Repo Ops to corral the short rate; the impact to corp bond funding rate was limited

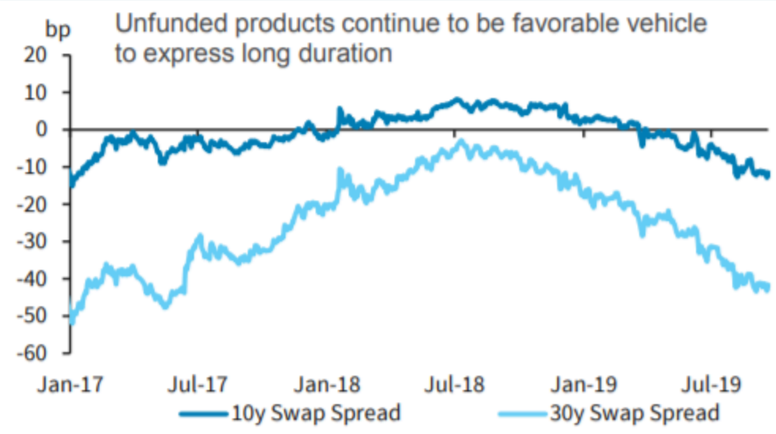
UST O/N GC vs. OBFR vs. Fed Funds rate



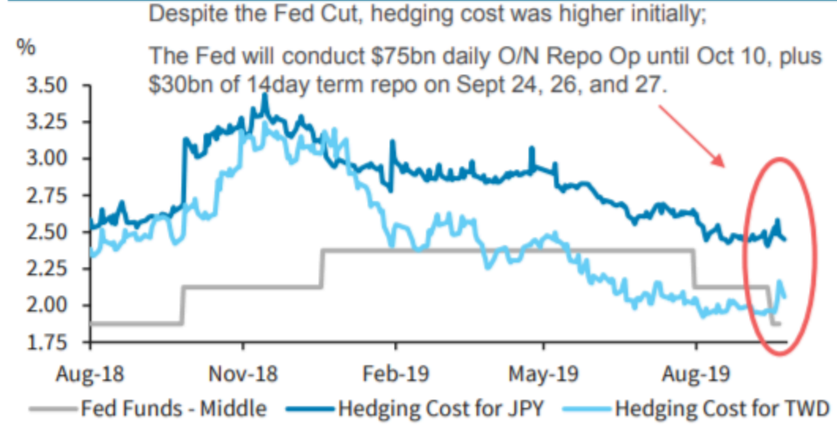
Excess Reserve vs. UST Dealer Inventory*



Swap Spread to Tighten Amid B/S Scarcity



Higher $-Funding Cost Affecting HC Initially



For more detail on , see "Repo rates: Losing control?", Sept 17, 2019. Source for all charts: Bloomberg, Bloomberg Barclays Indices, Barclays Research

Why don't lifers use repos?
Lifers book their foreign bond holdings under the "available-for-sale securities" accounting category, and similar to banks, they need to mark them to market, and the associated interest rate risk, credit risk, and FX risk are all taken into consideration. **At the same time, all of these are counted under "net assets", meaning that fluctuations in value due to FX movements do not end up hitting their P/L until they sell the bonds**.

Instead, if purchases were to be funded via foreign currency repos, then any gain or loss associated with FX changes on the funding side, i.e., USD notional converted to yen, would hit profits. This would in turn create an accounting mismatch between the assets and liabilities sides that could have non-negligible tax implications. As such, lifers will tend to favor either outright borrowing or FX swaps even if this ends up costing them more than foreign currency repos.

MBS….THAT OTHER COLLATERAL

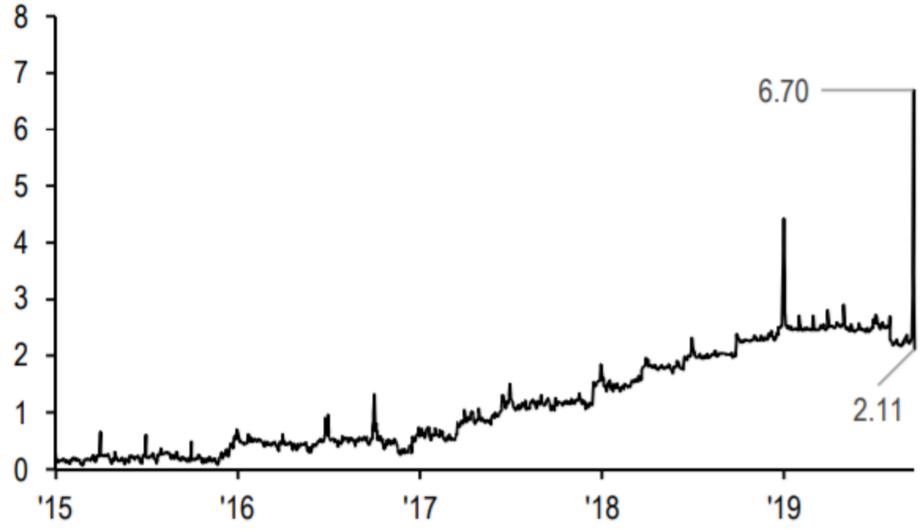
Repocalypse Now: Impact on MBS

The Repocalypse earlier in the week was largely brushed off by the MBS market, at least by observable metrics like spreads and rolls. The nature of the funding spike—primarily an overnight phenomenon—meant that only a fraction of the MBS positions were impacted, and even for those the negative carry was a short lived phenomenon. We leave description of the many factors that drove overnight repo remarkably higher to our short-term colleagues, but below we review the segments of the MBS investor base that were likely impacted by the blip: dealers, mREITs, hedge funds, and other funds engaged in securities lending. The bulk of repo extended by dealers to MBS investors is term, rather than overnight, so most investors should have avoided short term disruption. However, going forward, we expect that MBS funding costs will be modestly higher to reflect the ongoing risk of a funding crunch, pressuring levered MBS strategies on the margin. Anecdotally, we're also hearing that it's tougher for investors to term out their strategies in the wake of the shock.

First, consider the magnitude of the jump for agency MBS repo. **Exhibit 6** plots out the DTCC's par weighted average repo rate for agency MBS over the past five years, and it's clear that Tuesday's spike to an average rate of 6.70% was a dramatic outlier—well beyond what we saw at year end 2018. Meanwhile, the roll implied financing and forward roll settle matched repo both were essentially untouched by the events of the last week, highlighting the overnight nature of the event (**Exhibit 7**).

Exhibit 6: GC MBS repo averaged 6.70% on Tuesday after trading in the 2.15-2.35% range … and now sits at 2.11%

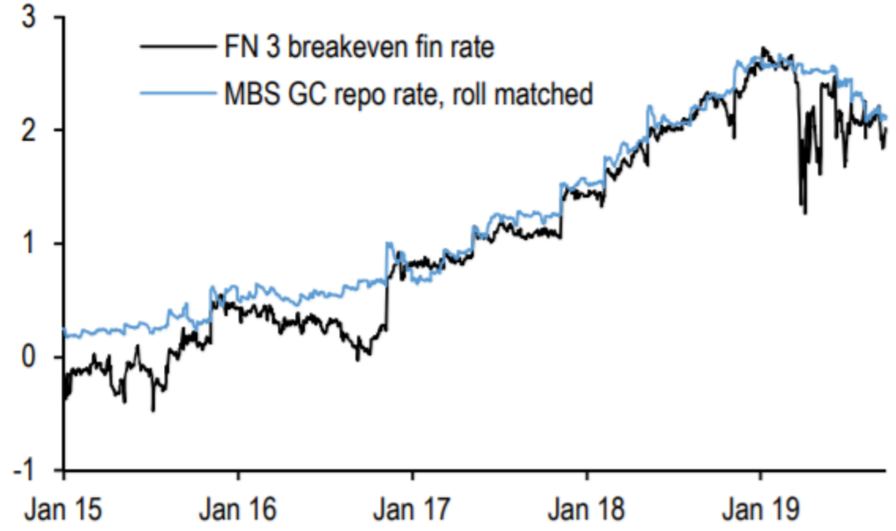
DTCC GC par weighted MBS repo rate



Source: J.P. Morgan, DTCC

Exhibit 7: Roll matched repo and implied financing rates were largely unaffected

FN 3 roll implied financing rate vs. MBS GC repo, roll period matched

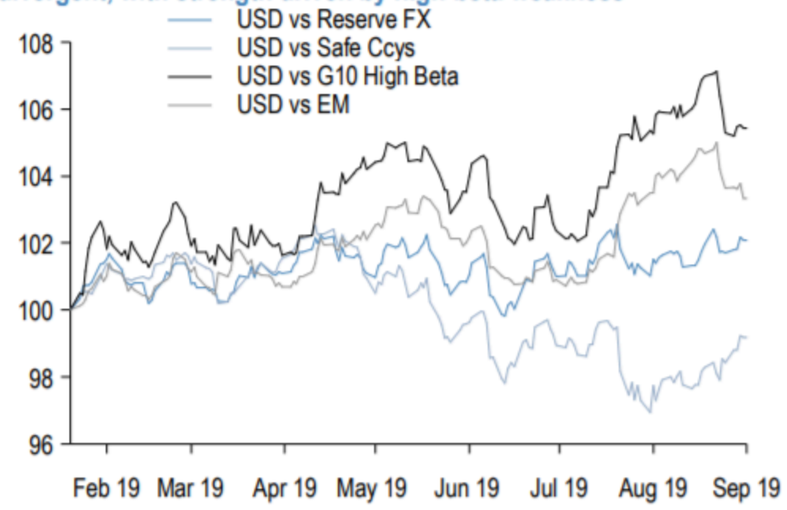


Source: J.P. Morgan

The term distribution of MBS repo extended by dealers:

As **Exhibit 8** shows, the bulk of securities taken in by dealers are done so via termed repo—only around 10% of these repos are overnight. This generally squares with the data points that we have on mREIT repo terms and anecdotal information for other funded MBS investors (more on that below). Meanwhile, the bulk of MBS collateral lent out by dealers settles overnight (**Exhibit 9**). If dealers see elevated risk of overnight repo rate shocks, that will be reflected in term repo rates. In particular, term periods that cross known balance sheet crunch periods, such as year-end, could be problematic for funded investors.

Exhibit 3: And instead USD performance has been much more divergent, with strength driven by high-beta weakness

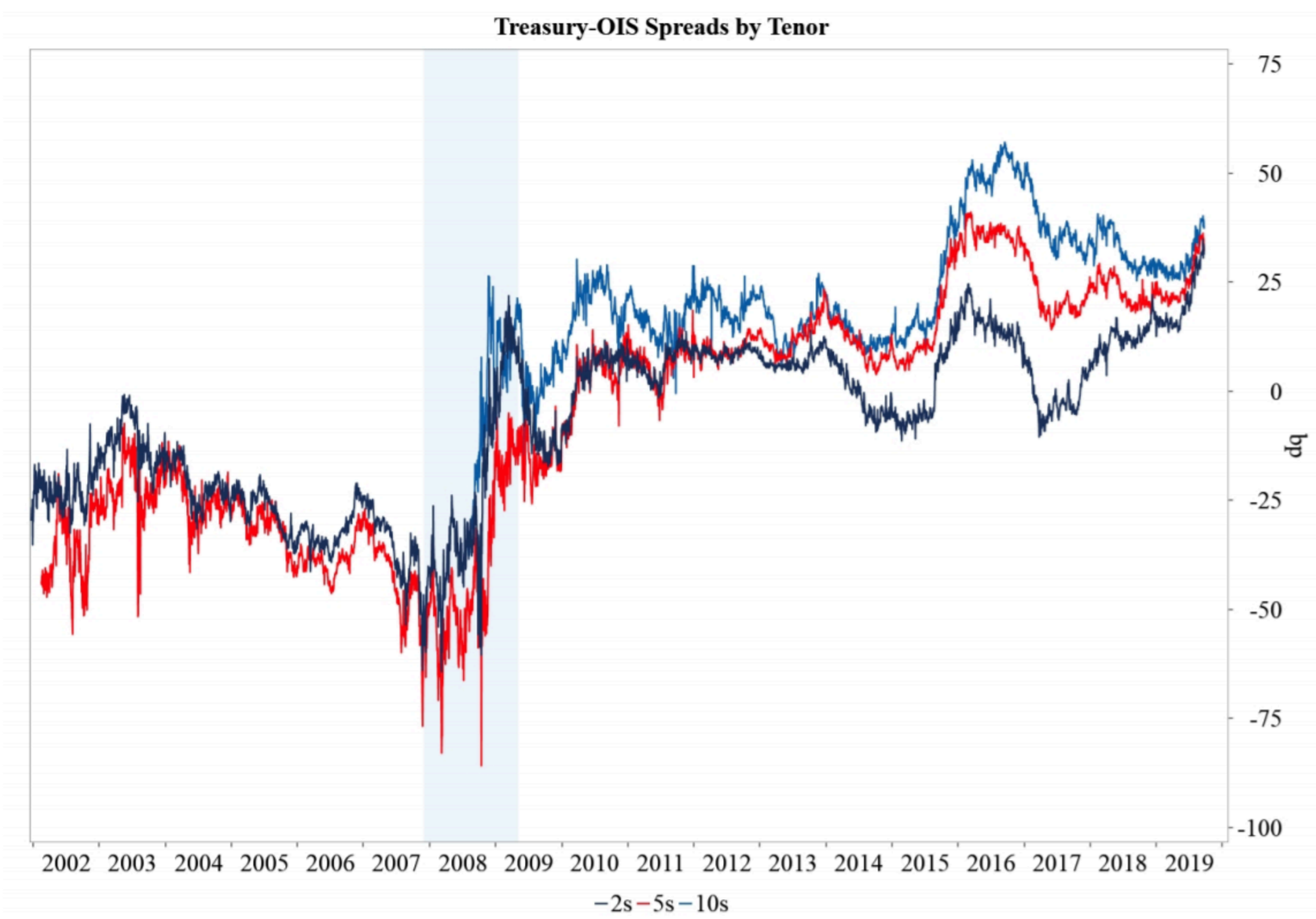


Source: JPMorgan; Note: "Safe Currencies" is CHF and JPY, and is inclusive in "Reserve FX" which also includes GBP, EUR. Currencies are equal-weighted in each index.

https://www.newyorkfed.org/newsevents/events/markets/2019/0923-2019

Bill-OIS Spreads by Tenor

with supply changes


Treasury-OIS Spreads by Tenor
75
50
25
0
-25
-50
-75
-100
bp
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2s
5s
10s

- **Window-dressing is a bad thing.** It is not entirely an accident that Monday's meltdown occurred on the anniversary of the Lehman weekend. We have said repeatedly that we think the prospect of a quarter-end liquidity scramble played a role in the timing of the runs on both Bear Stearns and Lehman Brothers in 2008. Liquidity and risk managers know all too well that the funding market's immune system is compromised at this point in the quarterly cycle, which means that the first sneeze sends them running for cover.

  The stated goal of modern macroprudential regulation is to ensure that banks can continue to perform their role as financial intermediaries even in a stress scenario. We need to understand why banks chose not to perform that role in the repo market last week, and whether perverse regulatory incentives contributed to that.

- **Last week's market breakdown will have an enduring impact.** Whatever you thought the aggregate amount of desired reserve balances was at the close of business on Friday, September 13, your estimate went up a lot by mid-morning on Monday, September 16. In deciding how much of their liquidity cushion to hold in reserves rather than securities, banks have to make a judgement about how quickly they could convert Treasuries to cash. To borrow terminology from a slightly different debate, banks' estimate of the "moneyness" of Treasury securities took a big hit last week. That will affect their liquidity management decisions until the Fed introduces some version of an intraday standing repo facility.

- **Administration of the foreign RRP pool should be less generous.** We think the Fed should tighten the pricing on the internal repo pool that it operates for foreign central banks. We are confident that the Fed's internal repo pool for foreign official institutions did not play a major role in triggering last week's funding squeeze, but the fact that there was any net inflow at all during a funding squeeze is unhelpful. The foreign RRP pool in general serves a very useful purpose, and should be maintained. However, recent signs that participation has become more rate-sensitive are a problem. If participants in the program are responding to short-term rate signals, we should give them an incentive to move *out* of the program rather than in during a funding squeeze. That could be accomplished by capping the daily rate on the foreign pool at the IOER – and we would not necessarily disagree with those who would argue that the cap should be set even lower at the domestic overnight RRP rate instead. Either way, the key point is that the pricing should be reformed sooner rather than later.

- **Was this a reserves market issue or a repo market issue?** The New York Fed has argued that the fundamental issue last week was the behavior of the funding market rather than the absolute level of reserves. We largely agree. We've been telling readers for the past week that we think the decline in the supply of reserves *enabled* the funding market squeeze, but it was the outflow of deposits from banks and money market mutual funds that actually *triggered* the meltdown. The lower level of reserves by itself would not have led to a funding crisis. Rather, it was the large-scale transfer of cash from the banking system to the Treasury in the context of a lower overall supply of reserves that precipitated the funding shortfall. The distinction is important because it has implications for how the Fed should respond. If this were simply a question of the level of reserves, it would not matter whether the Desk bought a lot of Treasuries on outright basis or intervened in the repo market. However, if the problem had more to do with the size of the short-term movements in the Fed's balance sheet, then there may be a greater role for Fed RPs (and ultimately a Fed standing repo facility) to smooth out those fluctuations.

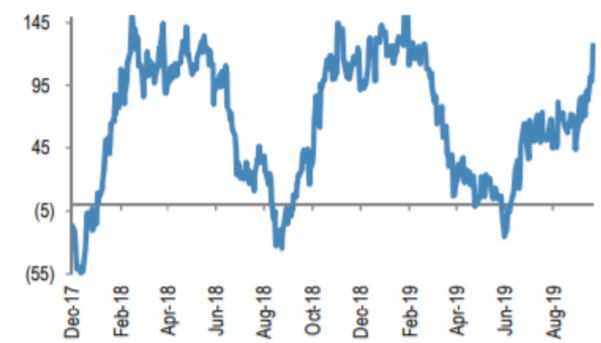
A PITIFUL CULT BEHOLDEN TO THOSE THEY DESPISE

- **At the same time, we do not view the current bullish setup for gold as the onset of another decades-long Golden Era, as was experienced in the first decade of this century.**

We last updated our gold and silver price forecasts at the end of August.[3] Since then, despite the Fed delivering another cut at its September meeting as expected, Treasury yields are close to 22 bp higher. Gold, for its part has held up comparatively well (only down 3% off its peak) but is now trading at about a $130/oz premium to US 10-year real rates, screening quite expensive versus recent averages **(Exhibit 1)**.

Exhibit 1: Gold's premium/discount to 10-year real yields

US$/oz



Source: Bloomberg

Looking to the near term, while still somewhat overextended positioning and valuations linger as the

[3] This section is largely an updated excerpt from our *Metals Weekly* report on August 28th when we originally changed our gold and silver price forecast. Please see: Kaneva et al., *Metals Weekly: While not the start of a new Golden Era, advancing end-of-cycle dynamics keep us bullish gold. We now target $1,780/oz.*, 28 August 2019 for the original.

Synchronized central bank easing and its implication for gold prices

The key determinant of the post-1971 free-floating price for gold has been central bank activity. Simplistically, the impact of central banks on the gold price is two-fold. Indirectly, through their monetary policy decisions, central banks can affect the opportunity cost of holding gold relative to other asset classes but they can also have a more direct impact through their gold buying/selling activities undertaken in the process of managing their FX reserves.

Among central banks, the Fed holds the crown as the most influential factor in the formation of the benchmark USD gold price. Over the last year, even as US 10-year real rates have ranged from more than 115bp to -10bp, the level of US real yields has explained about 3/4 of the variation in USD gold price **(Exhibit 2)**. Similar regressions for 10-year German real yields return a correlation that is about half as strong whereas 10-year Japanese real yields show very little consistent relationship.

Exhibit 2: Realized spot gold price vs model-predicted price based on US real 10-year yields

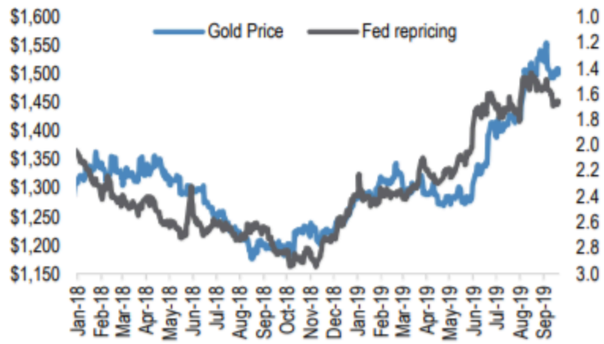
US$/oz

Source: Bloomberg

Moreover, pertaining to gold, empirical evidence suggests that prices are most sensitive to US policy rates (R^2 of 82% since 2006) and less sensitive to the size of the Fed's balance sheet (R^2 of 4%) and buying/selling activities of all central banks combined (R^2 of 5%). **The rule of thumb suggests that every 25bp move in the US 10-year real yields should result in gold prices moving about $80/oz in the opposite direction**. Even more importantly, the same relationship holds between the gold price and the OIS rates market expectations which continue to fundamentally underpin our outlook for gold prices in the future **(Exhibit 3)**.

Exhibit 3: Gold price vs market expectations for Fed funds rate at Dec'19 FOMC date derived using 1-months OIS forward rates

LHS: Gold price in US$/oz; RHS: Fed Funds rate by Dec'19 as priced in 1y OIS, inverted scale



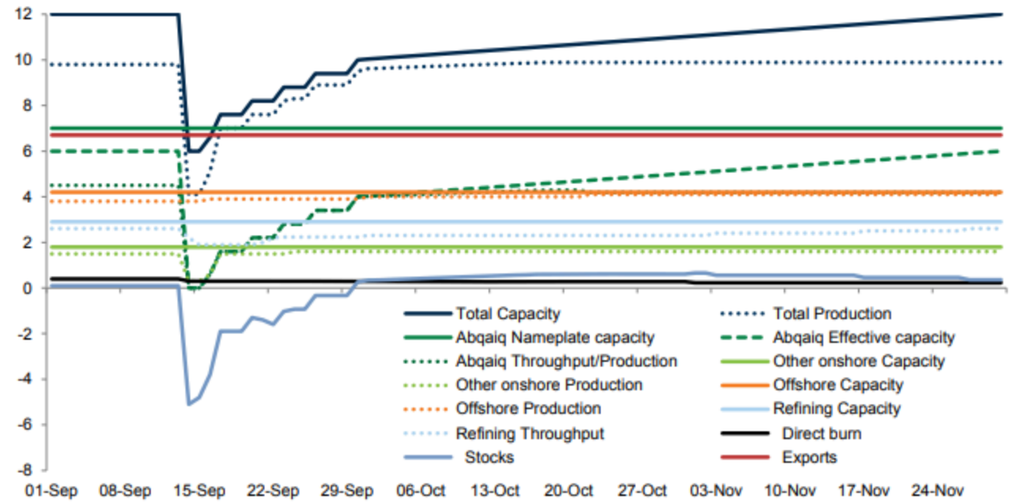
Source: Bloomberg

Thirteen months into the trade war, we see evidence that major political shocks are turning into economic shocks, depressing global economic growth. The global nature of this slowing calls for a broad policy response. Since the Fed's dovish pivot in February, other central banks have matched the Fed in action and willingness to cut earlier and deeper than what we expected and what the traditional indicators might suggest. The dovishness is broad and spans across both EM and DM.

I SUPPOSE WE'RE OBLIGATED TO GLANCE AT THIS

Exhibit 1: Exports can be maintained at 6.7 mb/d via a ramp up in unaffected fields, destocking, and reduced refinery runs

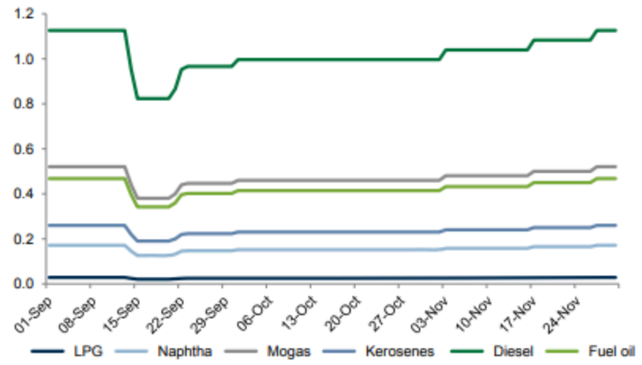
Daily Saudi Arabia crude balance (mb/d) required to maintain exports at pre-disruption levels



Source: Goldman Sachs Global Investment Research, JODI, IIR, Kayrros, Kpler

Exhibit 2: Reduced domestic refinery runs will affect product markets too but to lesser degree

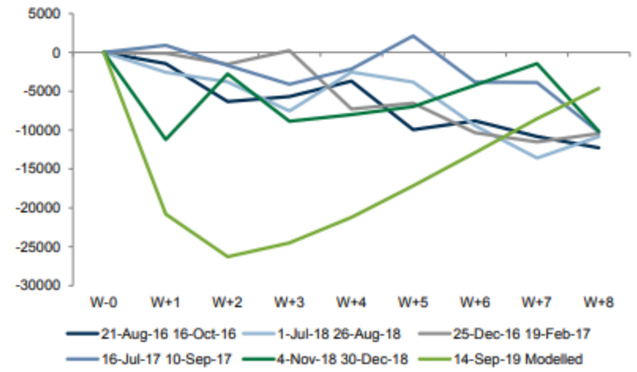
Saudi Arabia's product output following production disruption (mb/d)



Source: Goldman Sachs Global Investment Research, IIR, JODI

Exhibit 3: The Saudi crude drawdown will be historically large but should be able to be replenished as production ramps up

Modelled damaged facility impact on Saudi crude stocks vs historical large drawdowns (kb)



Source: Goldman Sachs Global Investment Research, Kayrros

J.P.Morgan

Global Commodities Research

Correction (first published 24 September 2019) (See page 2 for details)

25 September 2019

Oil Market Monitor

Trump's China rhetoric darkens macro outlook

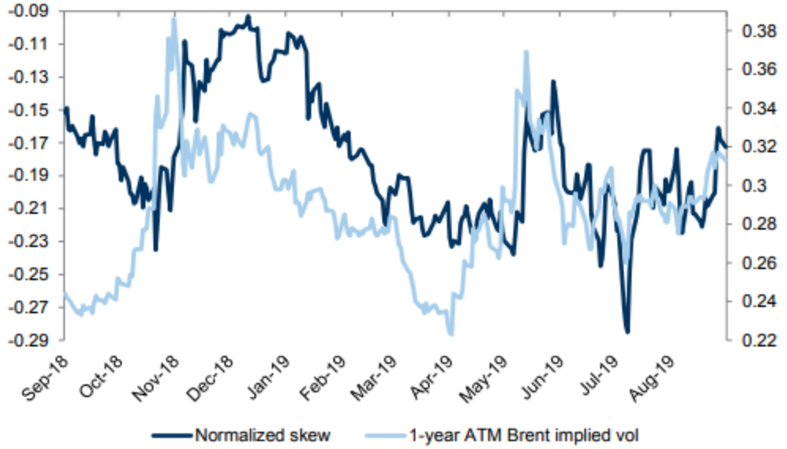
- **Brent crude dropped $1.7 to the lowest levels ($63.1/bbl) since the Saudi attacks as the US-China trade-war rhetoric dialed up".** In a similar vein, oil fundamentals, even after taking into account the perceived impact of the drone attacks on Saudi oilfields, appear to have tightened as reflected by the underperformance of flat price relative to time spreads. Separately, Russia reiterated its commitment to cut production to Oct'18 levels of 11.418 mbd. Russian officials stated that the country had 500 kbd of spare crude production capacity, but no request had been made to increase output in response to the Saudi attacks. Curve structure was weaker in both WTI and Brent, with Brent Dec'19-Jun'20 spreads falling more than $0.30 against yesterday's close.

- **While reports suggest that Saudi refineries have started to ramp up operations to meet export commitments, our analysis indicates that throughput output has only increased marginally (100 kbd) since last week with at least 800 kbd of refining capacity still offline.** According to Orbital Insight, Saudi stockpiles are down over 8% since the attacks on the Abqaiq facility, averaging 1.3 mbd. We expect Saudi crude inventories to have drawn in excess of 2 mbd during the week since the attacks. And as discussed in yesterday's daily report, with signs of geopolitical tensions easing, tanker rates for key Middle East to Asian routes have declined and near-term call premium for Brent has also fallen. That said, while we continue to believe that Saudi supply will take closer to three months to normalize, the threat of further trade tensions and their knock-on effects to global growth and business sentiment could accelerate the weakness we observed in oil demand earlier this year.

Market too skeptical of Saudi Arabia production recovery but too complacent on heightened geopolitical risks

Even assuming Saudi Arabia returns to its full production capacity within the guided timeframe, geopolitical risks in the oil market have increased. We see little signs of such a higher risk premium however. Long-dated prices - which should reflect the probability of future disruptions and the need for higher precautionary inventories - are only $0.6/bbl higher than before the attack. Further, Brent call skew[2] for maturities 1-year and longer also remains near pre-disruption levels. While this is likely explained by a strong appetite for hedging by US producers, this ultimately appears too little a risk premium given the unresolved and heightened tensions in the Middle East and the global oil market.

Exhibit 12: There has been a limited move in call skew, implied vol...
Normalised skew (implied vol of 25 delta call less implied vol of 25 delta put divided by at-the-money implied vol, %, lhs) and 1yr ATM Brent implied volatility (%, rhs)



Source: Goldman Sachs Global Investment Research, ICE, CME

25 September 2019

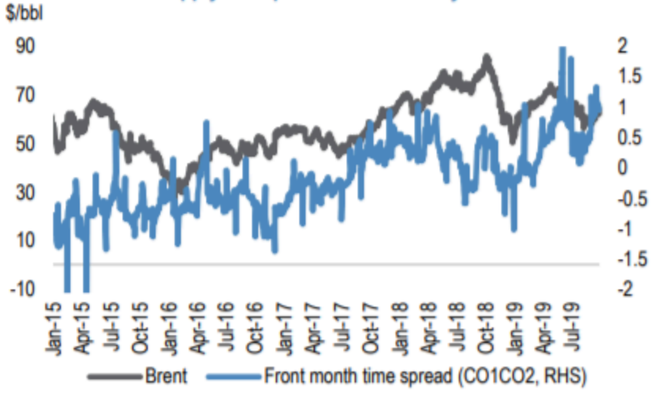
Oil Market Monitor

Oil drops for the second consecutive day as focus shifts back to Saudi output recovery

- **Brent crude shed another $0.7/bbl as the market re-focused again on prospects for a speedy recovery in Saudi oil output (Bloomberg).** Some fears surrounding a further escalation in the trade war were allayed by US President Trump, who said that the trade dispute with China could be resolved "sooner than you think" (Bloomberg). US crude inventories grew by 2.4 mbd last week according to the weekly data released by the DOE. The market appeared to shrug off the data and began to rally into the close with some of the inventory build attributed to Tropical Storm Imelda, which temporarily shut pipelines and export terminals last week. Curve structure was marginally weaker in both WTI and Brent at the very front. However despite paring some of the gains in the front since last Monday, structure remains pretty strong compared to previous years. Brent Dec'20-Dec'21 spread fell $0.15 versus yesterday's close.

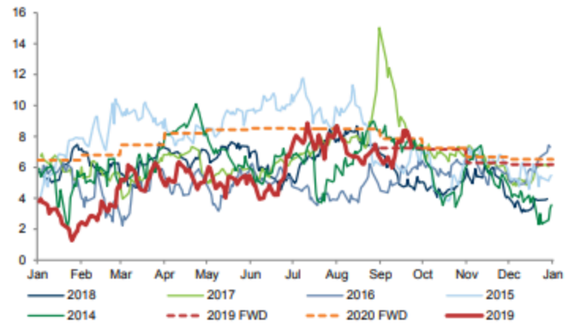
- **Information related to Saudi Arabia's domestic and international crude inventory levels remains limited.** Hence it is difficult to estimate storage cover to maintain exports in the event of a prolonged supply outage. Several data providers which monitor floating roof tank top storage sites have implied a possible draw of up to 15m bbl in inventory since the drone strikes on Sep 13. Meanwhile, shipping tracking data from several vendors suggest Saudi crude exports at 5.5 mbd for the month to date. Shipping data from Reuters indicate that crude exports could rise by the end of the month if all scheduled loadings were to complete on time. We estimate Saudi crude exports could average a maximum of 6.2 mbd for Sep'19 (when also accounting for a resumption in pipeline flows). If realized, this would be the lowest level exported by Saudi Arabia since Dec'10. We were expecting Saudi Arabia to maintain crude exports at a higher rate (compared to Aug'19 levels of 7 mbd) in spite of the supply disruptions, through inventory drawdowns. If exports slipped below 6 mbd this month and also remained low (on a relative basis) in Oct'19 as per our expectations, physical market premiums could rise further supporting oil prices in line with our base case scenario (exhibit 2).

Exhibit 1: Saudi supply disruption scenario analysis



Source: J.P. Morgan Commodities Research

Exhibit 8: Refinery margins rallied on the production disruption as the shock to products creates a pull on global ex-Saudi Arabia refinery utilisation
Global weighted refinery margins (USD/bbl)



Source: Goldman Sachs Global Investment Research, Platts, CME, ICE

Exhibit 9: Compared to current JODI stocks, the deficit is most significant for diesel and fuel oil
Net product aggregate deficit vs latest JODI stocks (mb)

	Net Deficit	Current stocks
LPG	0.2	0.4
Naphtha	1.5	3.0
Mogas	4.5	34.9
Kerosenes	2.2	17.0
Diesel	9.6	31.1
Fuel oil	4.0	9.5
Other	1.2	0.5
Total	23.2	96.5

Source: Goldman Sachs Global Investment Research, JODI

Such a producer inventory drawdown shouldn't matter to Brent timespreads

We have argued previously that EM inventories should have limited impact on crude timespreads, which have historically closely followed OECD commercial inventories (in days of demand vs 5-yr average). Firstly, China's - and to a lesser extent other consuming EMs – inventories have built strongly over the last decade as its demand has grown and due to its new SPR. Instead of weakening inventories, this has instead acted to tighten ex-China balances and Brent timespreads. Furthermore, teasing apart China's commercial and strategic reserves has also been difficult due to shared infrastructure and limited data. Second, as discussed above, inventory of an OPEC producer with spare capacity shouldn't matter if one expects that the inventory can be replenished with future higher output.

Demonstrating this empirically is however difficult – satellite data is only available from 2016 and only for crude, while JODI data is often incomplete and volatile (and often

conflicting with satellite measures).

- In Exhibit 10, we show that supplementing IEA OECD commercial stocks with satellite data for crude stocks in EM producers and consumers adds no informational value in a simple model of Brent timespreads on inventories in levels. This would imply that front-to-back (1m vs 3yr) timespreads should not have rallied due to the current outage in Saudi Arabia (except that they were too cheap relative to our fair value model by $1.20/bbl ahead of the disruption). This suggests that the $3.0/bbl rally in Brent timespreads remains excessive relative to the guidance provided by Saudi Arabia, with the market instead cautiously pricing a 1 mb/d OECD commercial stock draw of 1 mb/d.
- In Exhibit 11, we use a longer but smaller sample of crude and product stock data from JODI, as well as our own measure of Chinese inventories. Normalizing by demand, we find that year on year timespread moves seem to be better explained when supplementing OECD inventories with EM consumer or and/producer inventories[1]. However, due to small sample size this model has a poor explanatory power and the results are only tentatively indicative. It suggests EM inventories do add incremental value but not necessarily that they are 'equally' as important as OECD stocks. Nonetheless, in the extreme case where we treat EM stocks as OECD stocks, our peak Saudi inventory impact of 35 mb (crude and products) would imply a larger impact on timespreads of $1.8/bbl (with another $1.20/bbl to correct for too weak timespreads heading into the disruption).

After initially rallying by $7/bbl, front-to-back spreads are now $3.0/bbl higher than before the disruption. This suggests that the decline in timespreads this week is warranted and may in fact have further room to go with current market pricing still reflecting concerns on Saudi Arabia's recovery plan (or inventory destocking ability).

Exhibit 10: Supplementing OECD stocks with EM satellite crude inventories adds no informational value
R-sq of level regressions of front-to-back crude timespreads vs different inventory measures in million barrels

	Brent	Average (Brent. Dubai)
IEA DM	**75.8%**	**76.4%**
IEA DM + EM Kayrros consumers	73.6%	73.6%
IEA DM + EM Kayrros Consumers + EM Kayrros Producers	74.1%	74.3%
IEA DM + EM Kayrros producers	75.6%	76.3%

Sample: Apr-16 - Jul-19, includes a time trend and intercept

Source: Goldman Sachs Global Investment Research, IEA, Kayrros

Exhibit 11: Utilizing JODI data suggests that EM stocks for both consumers and producers are incrementally informationally valuable

R-sq of YoY changes in inventories in days of demand vs YoY changes in timespreads (Brent, and average of Brent and Dubai)

	Brent	Average (Brent. Dubai)
IEA DM	17%	18%
IEA DM + EM JODI consumers	21%	21%
IEA DM + EM JODI Consumers + EM JODI Producers	**24%**	**24%**
IEA DM + EM JODI producers	21%	22%

Sample: Jun-11 - Jul-19, includes a time trend and intercept

Source: Goldman Sachs Global Investment Research, IEA, JODI, Kayrros

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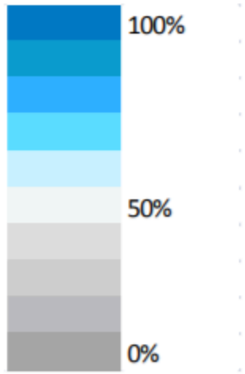
G10/DM

(YEAH… THAT INCLUDES SGD, TWD, KRW, ILS, HKD etc…. ALL OF WHICH ARE REALLY DM yet sometimes lumped in with the riff-raff)

USD vol surface: Vols on shorter tails remain rich

USD vol surface

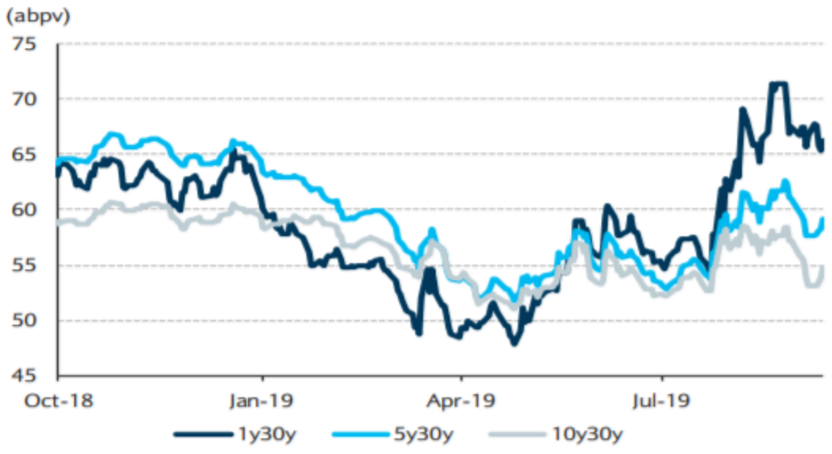
(abpv)	1y	2y	5y	7y	10y	15y	20y	30y
3m	67.8	74.0	76.4	76.4	76.4	76.6	76.8	77.0
1y	66.3	67.3	67.9	67.9	67.9	67.2	66.8	66.3
3y	66.3	66.5	66.8	66.4	65.9	64.0	62.6	61.7
5y	66.3	66.0	65.4	65.1	64.6	62.0	60.2	59.2
7y	65.3	64.8	64.1	63.6	62.9	60.2	58.3	57.4
10y	63.6	62.8	61.7	61.3	60.6	57.2	55.6	54.7
15y	60.1	59.5	58.7	58.2	57.4	54.9	53.7	53.0



Note: Richness/Cheapness is determined using the expression (current value – 1y min.) / (1y max – 1y min)

While USD 1y*5y has come off a little, it remains rich compared to its 1y history

USD 1y*30y vols are close to one year highs



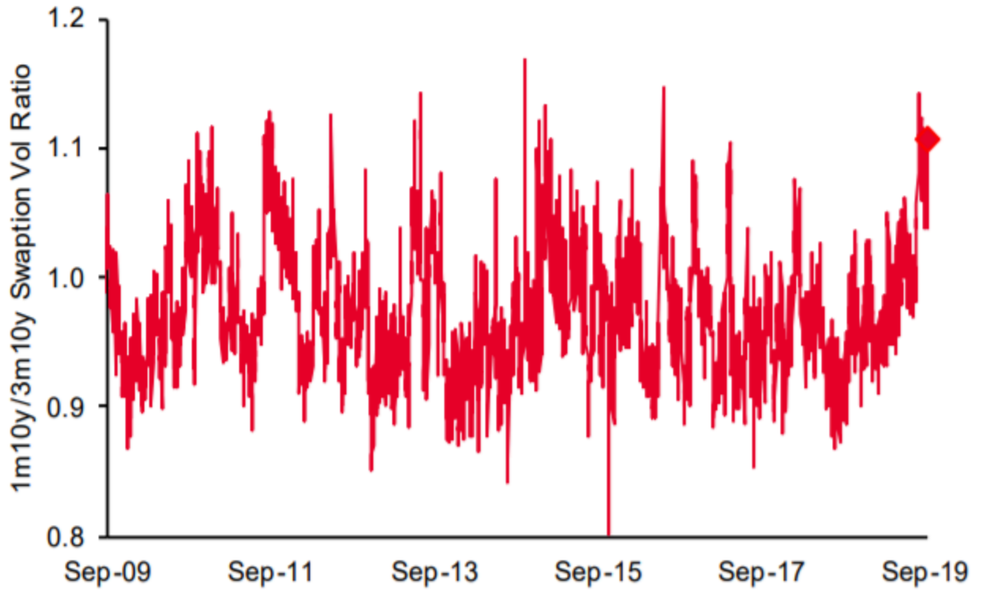
Note: As of 23 September 2019. Source for table and charts: Barclays Research

Long volatility at year-end via 1m10y/3m10y calendar spread

After selling off sharply in the first half of September (40bp on 10s in two weeks) and retracing halfway subsequently, the 10yT yield has remained volatile but directionless. Elevated realised volatility has understandably caused short expiry rates vols to outperform and the implied vol term structure to remain inverted. We highlighted the vol inversion recently and recommended ways to take advantage of it, such as the CMS curve cap calendar spread to cost-efficiently position for a delayed rate curve steepening (US Volatility Weekly, 20 September 2019).

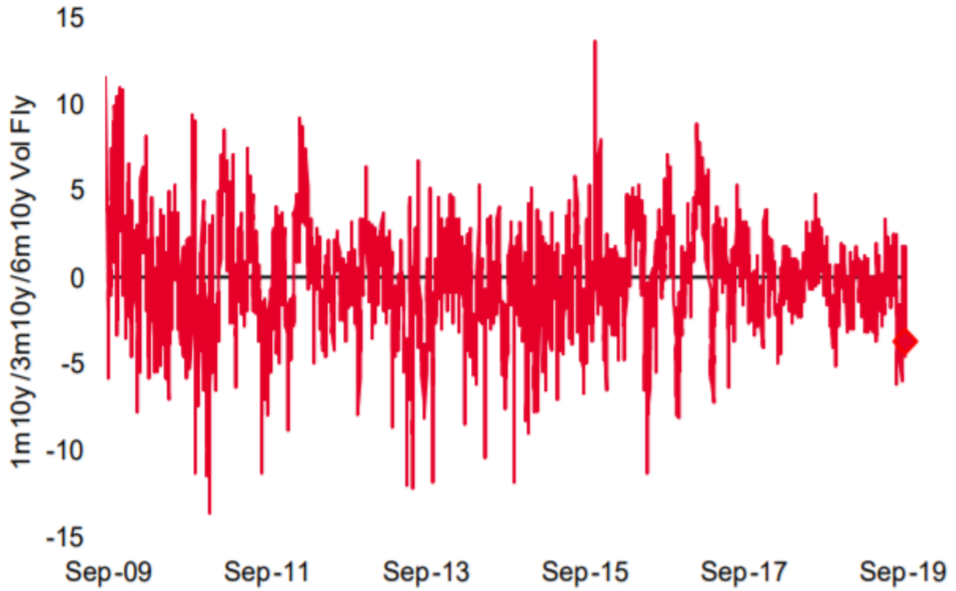
Focusing on the very short expiry swaptions, we see that the 1m10y/3m10y swaption vol ratio is currently near its post-2009 financial crisis high (see **Graph 5**), which is somewhat surprising given that the 3m expiry covers all the remaining 2019 FOMC meetings, the Brexit deadline, and the typically illiquid weeks just before year-end. In contrast, the 1m expiry falls just a few days short of the October FOMC meeting and the Brexit deadline at time of writing. In the context of the current market, it might not be that the 1m expiry is too rich, but rather that the 3m expiry is not rich enough. Relative to its neighbouring expiries, the 3m expiry appears to be slightly undervalued based on the 1m10y/3m10y/6m10y implied vol fly (see **Graph 6**). A scatter plot of the 1m10y/3m10y/6m10y vol fly on the outright level of vol suggests that the 3m expiry on the vol term structure is too low and seems to lack the premium that one would expect given the illiquidity and gap moves seen around last year-end (see **Graph 7**).

Graph 5: 1m10y/3m10y swaption vol ratio is currently near its post-2009 financial crisis high



Source: SG Cross Asset Research/Rates, Bloomberg

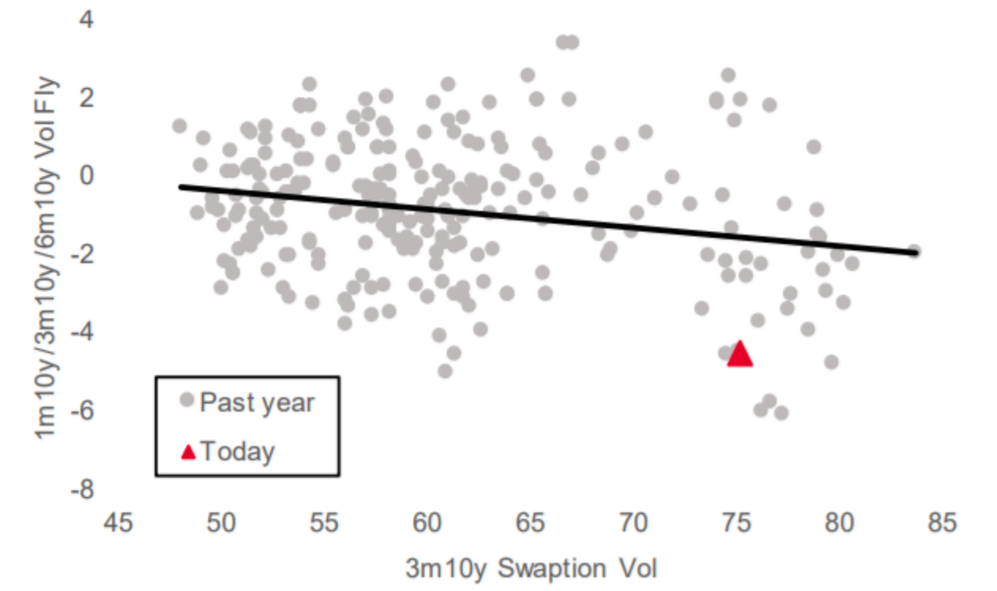
Graph 6: The 3m expiry appears to be slightly undervalued relative to its neighbouring expiries



Source: SG Cross Asset Research/Rates, Bloomberg

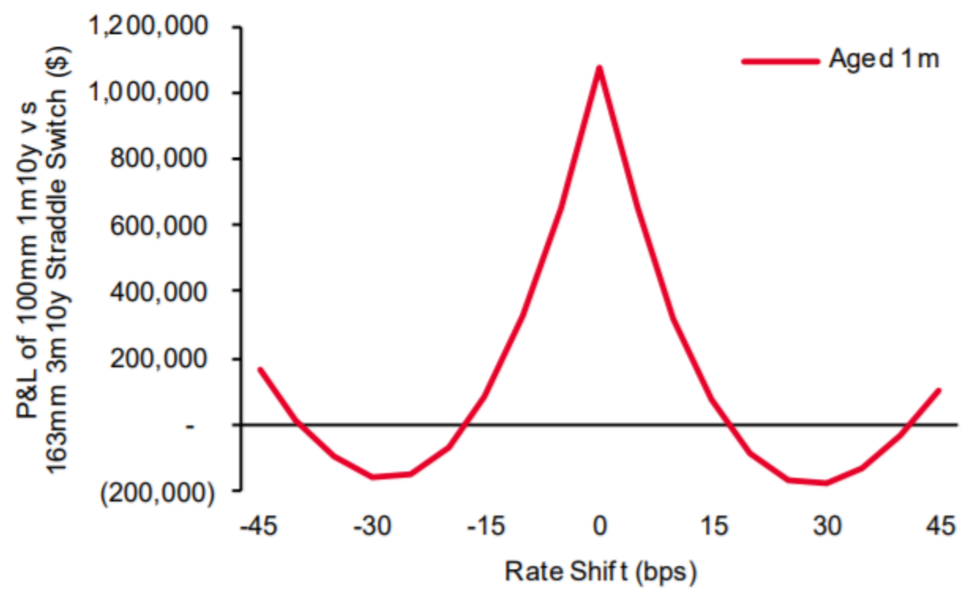
Source: SG Cross Asset Research/Rates, Bloomberg

Graph 7: Regression of 1m10y/3m10y/6m10y vol fly on outright vol suggests that the 3m expiry is undervalued



Source: SG Cross Asset Research/Rates

Graph 8: P&L profile of the short 100mm 1m10y vs long 163mm 3m10y straddle calendar spread for various rate shifts



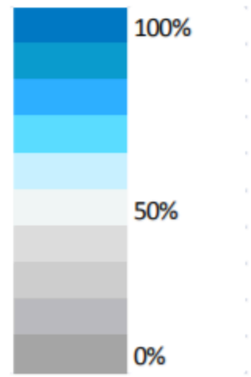
Source: SG Cross Asset Research/Rates, Bloomberg

Given the event risks mentioned above between the end of October and the year-end, we favour being cost efficiently long volatility ahead of the year-end via 1m10y/3m10y calendar, which takes advantage of the extreme vol inversion**. Specifically, we recommend selling a $100mm 1m10y straddle and buying a $163mm 3m10y straddle at flat gamma weighting at $2.87mm premium** (mid model pricing, 1m10y ATMF: 1.56%, 3m10y ATMF: 1.554%). The trade is structured to be flat gamma to minimise the initial exposure to realised rate moves and net long $40k vega to benefit from any increase in market uncertainties. As shown in the P&L profile for various rate shifts and horizons, the 1m10y/3m10y calendar carries positively over the first month (+38% of the premium) and has a 1m breakeven rate range of +/-17bp, assuming unchanged implied volatility (see **Graph 8**). The risk to the trade is if the market reprices for low uncertainties the rest of the year, which would likely cause implied vols to collapse and result in potentially unlimited loss.

USD vol skew: Top-left skews have richened recently

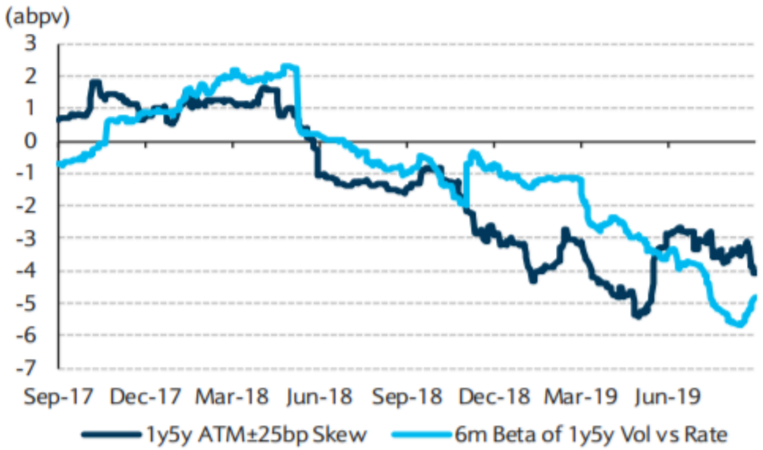
USD ATM+50 vs. ATM-50 USD skew

(abpv)	1y	2y	5y	7y	10y	15y	20y	30y
3m	-22.8	-20.4	-14.3	-12.7	-10.4	-9.5	-8.8	-8.1
1y	-9.8	-8.9	-7.6	-7.1	-6.3	-5.8	-5.3	-4.9
3y	-2.1	-1.3	-1.2	-1.1	-0.9	-1.0	-1.1	-1.0
5y	-0.7	-0.5	-0.7	-0.6	-0.5	-0.6	-0.7	-0.7
7y	0.0	0.0	-0.1	-0.2	-0.3	-0.5	-0.6	-0.6
10y	0.4	0.2	-0.1	-0.2	-0.3	-0.5	-0.6	-0.5
15y	0.4	0.2	0.0	0.0	-0.1	-0.3	-0.3	-0.3

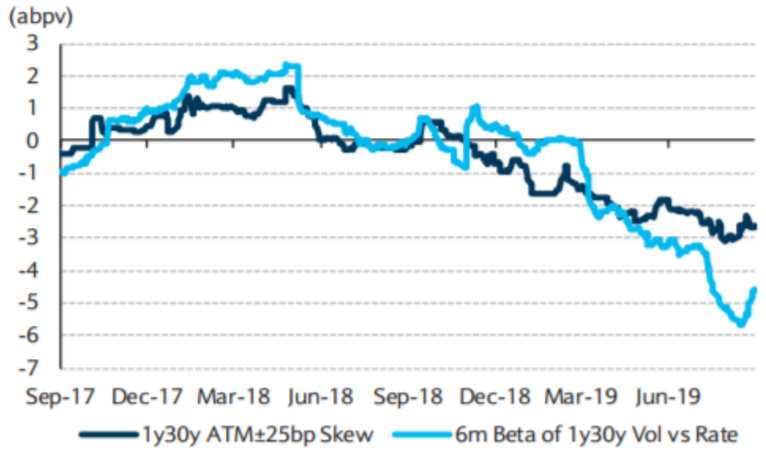


Note: Richness/Cheapness is determined using the expression (current value – 1y min.) / (1y max – 1y min)

USD 1y*5y skew appears to be reasonably priced



USD 1y*30y skew looks rich compared with the realised rate vol relationship

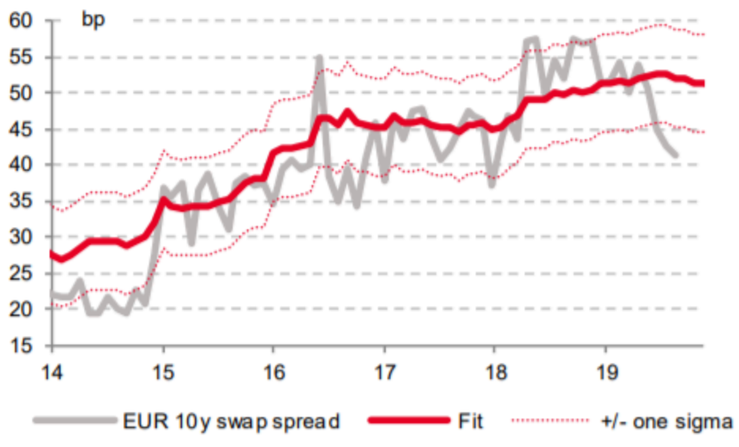


Note: As of 23 September 2019. Beta has been multiplied by 0.5 and then scaled for the width of the collar. Source for table and charts: Barclays Research

Swap spreads are narrowing – for good reason

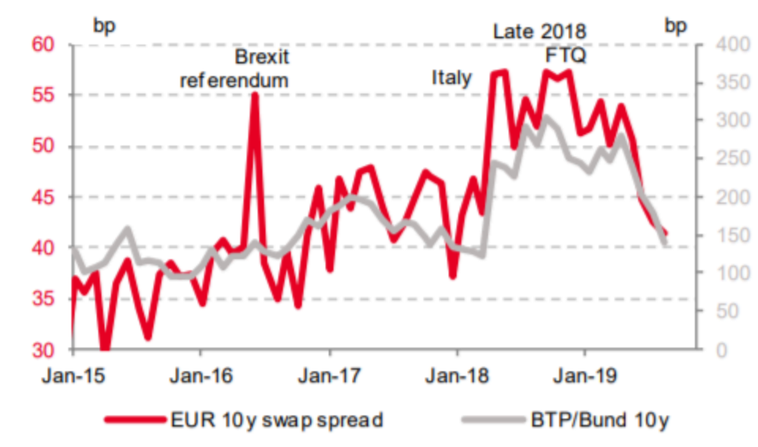
EUR swap spreads narrowing is consistent with generalised spread compression and the hunt for yield. Looking at our long-term macro model (see here), EUR 10y swap spreads are too narrow, with residual error of -1.5 standard deviations (Graph 4). Year-to-date, the narrowing has been consistent with a decompression of the safety premium in Bunds on the back of improved sentiment on Italy (Graph 5). Swap spreads narrowing also seems in line with the strengthened perception of rates set to remain low for longer and with generalized spreads compression – factors that are not explicitly accounted for by our model (Graph 6).

Graph 4: Bund ASW is narrow vs our LT model's fair value



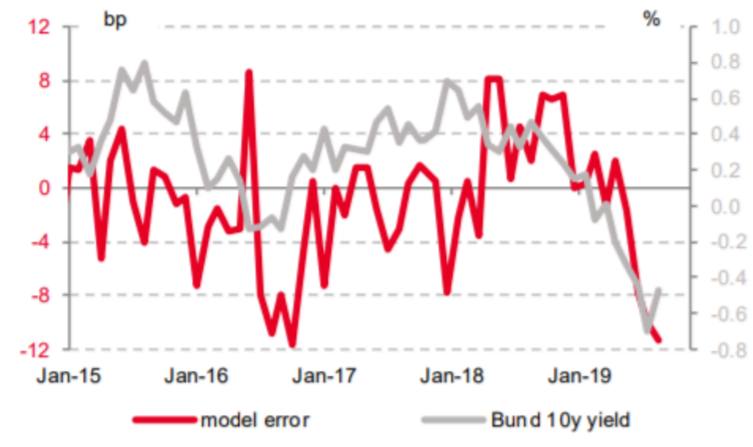
Source: SG Cross Asset Research

Graph 5: Swap spreads narrowing in tandem with BTP/Bund spread



Source: SG Cross Asset Research

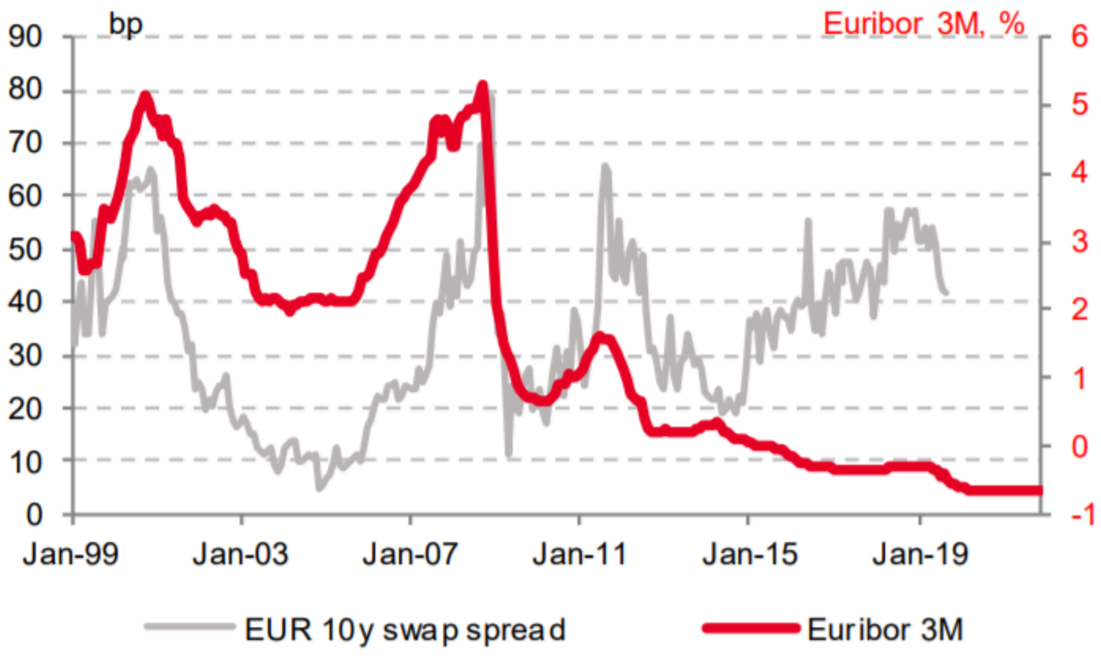
Graph 6: Swap spreads narrowing in line with low for long and generalized spreads compression



Source: SG Cross Asset Research

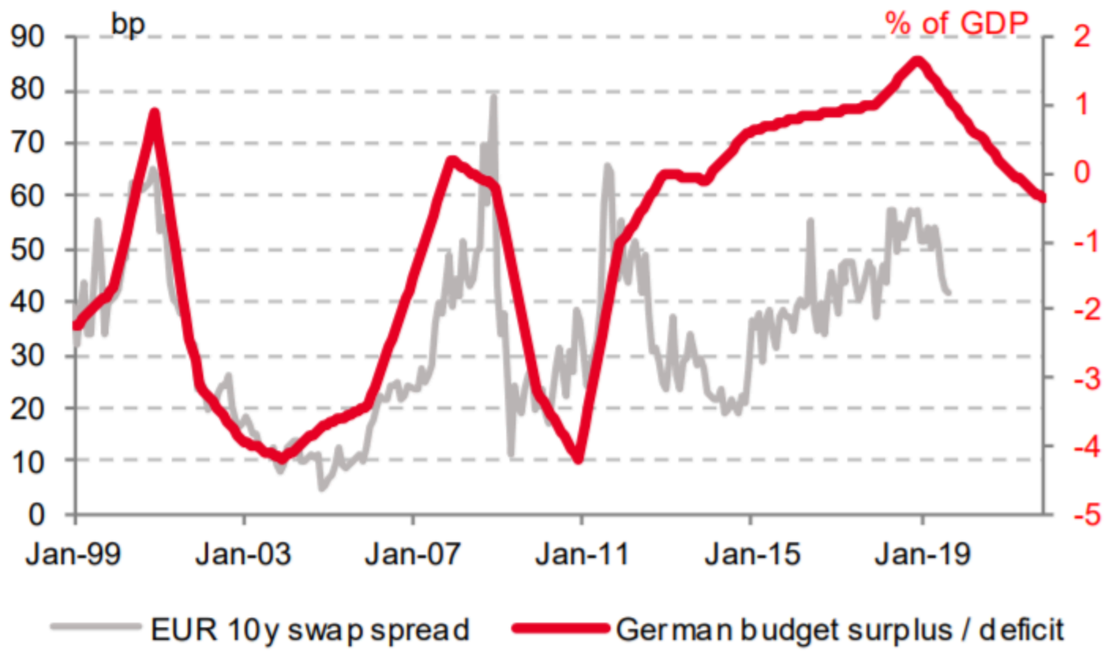
(Graph 8). There is certainly space for fiscal easing in Germany (Graph 9). Our economists estimate the fiscal room to be in the order of 1% of GDP, according to German fiscal rules (1.8% according to EU's Stability and Growth Pact rules) with the cyclical downturn quickly reducing the high budget surplus of 1.7% seen in 2018 – see here.

Graph 7: Low rates typically favour narrow swap spreads



Source: SG Cross Asset Research

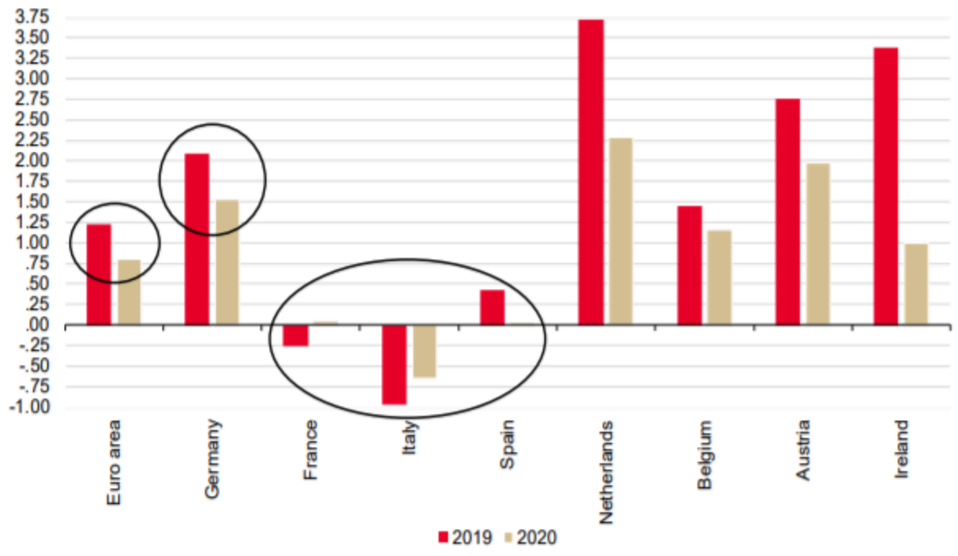
Graph 8: Are narrower swap spreads anticipating a looser fiscal stance in Germany?



Source: SG Cross Asset Research

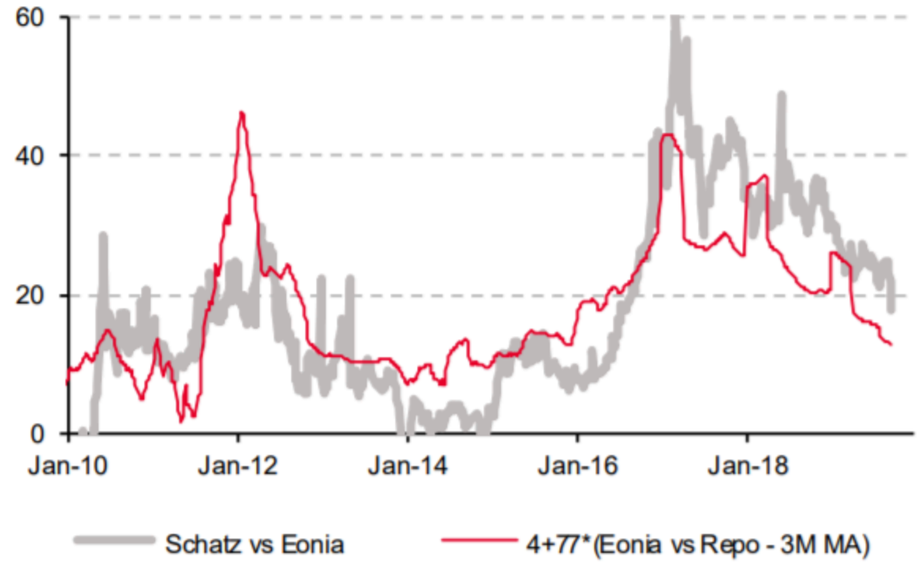
Carry matters. Carry is no longer supportive of swap spreads wideners. As conditions in German repo have normalized, while German yields have moved down, owing German bonds vs swaps is slightly carry negative. This is particularly impacting Schatz (Graph 10) – but is also a factor at play on longer maturities. In long maturities, receiving flow linked to new issuance, but also 10-30y flattening and fear of receiving programs, have maintained a narrowing bias on Bund swap spreads. With 1y30y Bund vol trading flat vs swaptions, we see value in buying 1y30y Bund puts vs 1y30y payers – see here.

Graph 9: Fiscal scope: change in primary budget balance stabilising debt ratio (% of GDP)



Source: SG Cross Asset Research

Graph 10: Schatz vs Eonia explained by Eonia vs repo 3M moving average (fit 13bp, std error 8bp)



Source: SG Cross Asset Research/Economics

BNP PARIBAS

The bank for a changing world

FLASH | GLOBAL

26 September 2019

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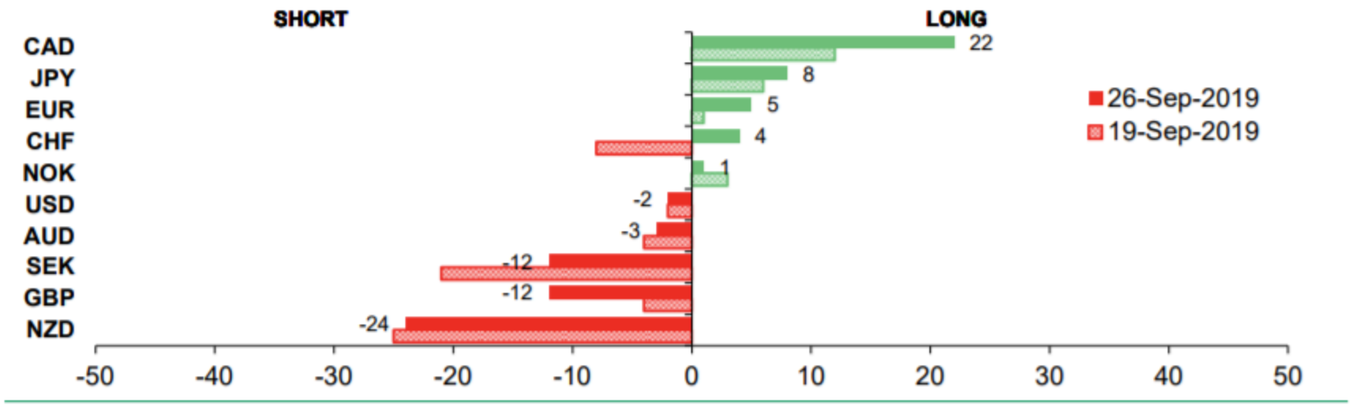
MACRO QUANT STRATEGY | G10 FX

- **EUR positioning shifts to a score of +5 (-/+ 50 scale) from +1 last week as a result of the Risk Reversal and the FX Fund Position Tracker components turning more bullish on the EUR.**
- **USD positioning remains neutral with a score of -2.**
- **GBP short positioning extends to a score of -12 as the FX Fund Position Tracker component unwinds GBP longs.**
- **SEK shorts moderate to a score of -12. In contrast, the market is neutral on the NOK with a score of +1.**

Fig. 1: BNP Paribas FX positioning analysis – overall positioning*



Source: BNP Paribas

*The positioning scores above are reported as a percentile based on the prior five years of data. These percentiles are rescaled to give a value between −50 and +50. Values above 40 and below −40 represent extreme positions.

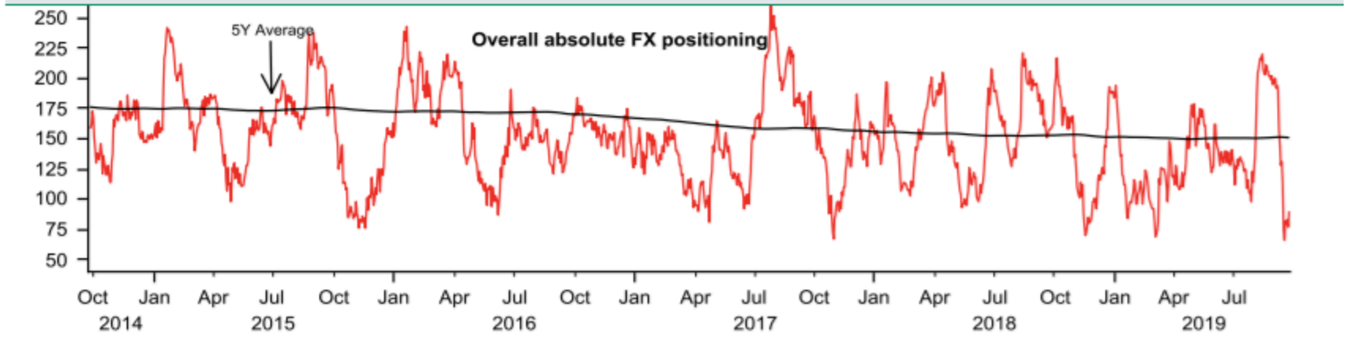
To interpret a score of −27, for example, add 50 to give 23. This tells us that 23% of observations over the past five years have been below the current observation.

Client Exposure	IMM	Risk Reversals	FX Fund Position Tracker	BNPP Trending Indicator	Buy Sell Pressure	
10	3	-5	-33	16	-2	USD
2	-11	36	46	-21	-22	EUR
23	32	-12	-18	20	3	JPY
-5	-40	-19	-17	15	-8	GBP
-4	14	-20	5	26	5	CHF
18	30	9	16	31	30	CAD
-7	-17	-3	5	-13	16	AUD
-45	-50	-9	-3	-43	7	NZD
14	-	20	6	-27	-7	NOK
-34	-	-23	-7	-8	13	SEK

- **Client exposure** – Internal sales desks' estimate of FX investor exposure.
- **IMM** – The commitment of traders (COT) is a widely used proxy for US-based hedge-fund/CTA activity.
- **Risk reversals** – Risk reversals indicate the relative price of calls relative to puts, and thus incorporate a "market sentiment" option.
- **FX Fund Position tracker** – Regression based decomposition of currency fund positioning.
- **BNPP trending indicator** – A technical measure of the strength of a currency's momentum.
- **Buy sell pressure** – An indicator of price momentum and direction that utilises tick data, aggressor information and price movements.

The overall currency score is then calculated as the equally-weighted average of the components

Fig. 2: Absolute total G10 positioning



Three-year plot of G10 currency positioning scores

Fig. 3: USD overall positioning

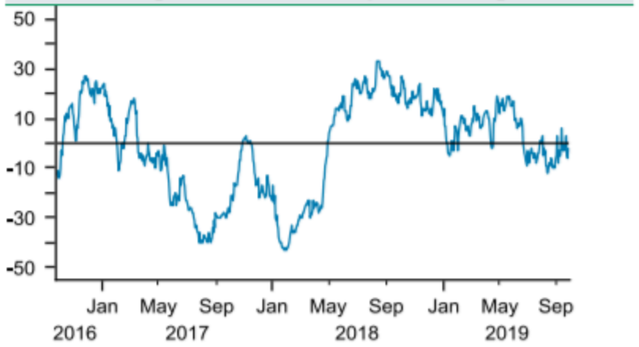


Fig. 4: GBP overall positioning

Fig. 5: EUR overall positioning

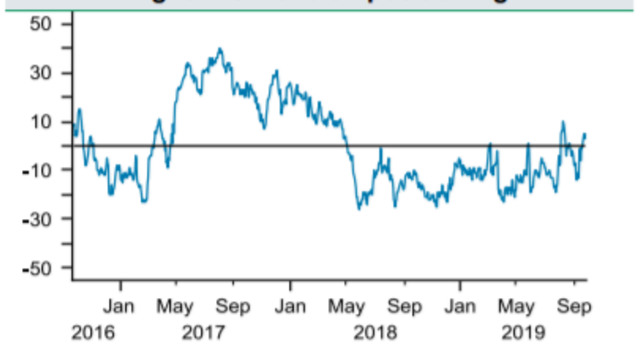
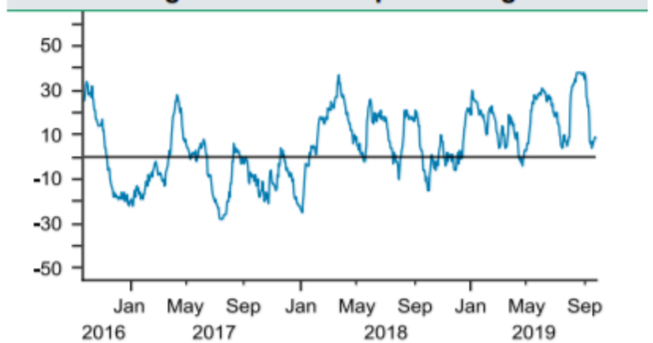


Fig. 6: JPY overall positioning



One-year plot of G10 currency positioning – individual scores

Fig. 13: USD positioning components

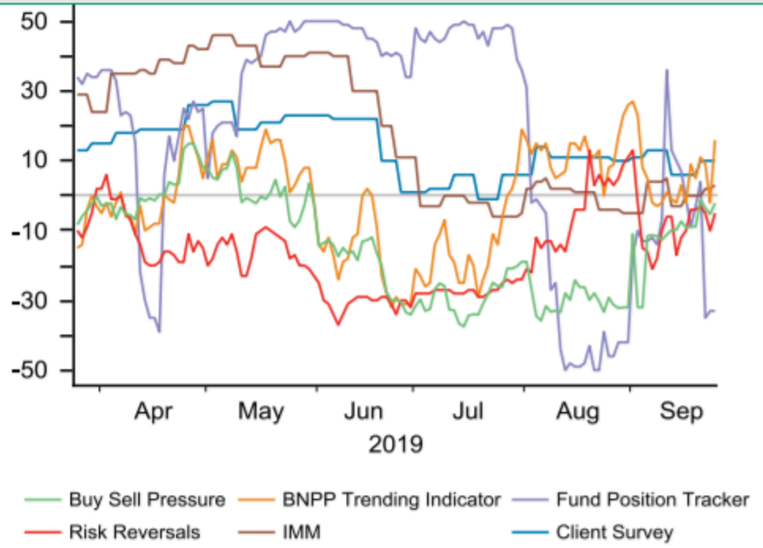


Fig. 14: GBP positioning components

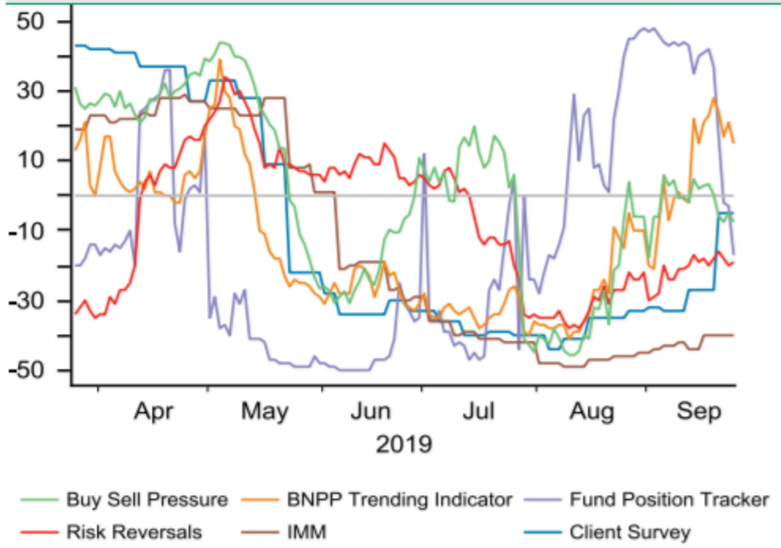


Fig. 15: EUR positioning components

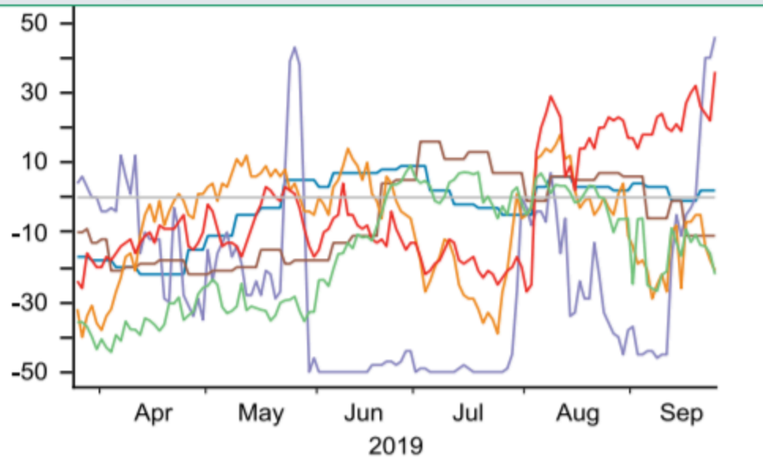
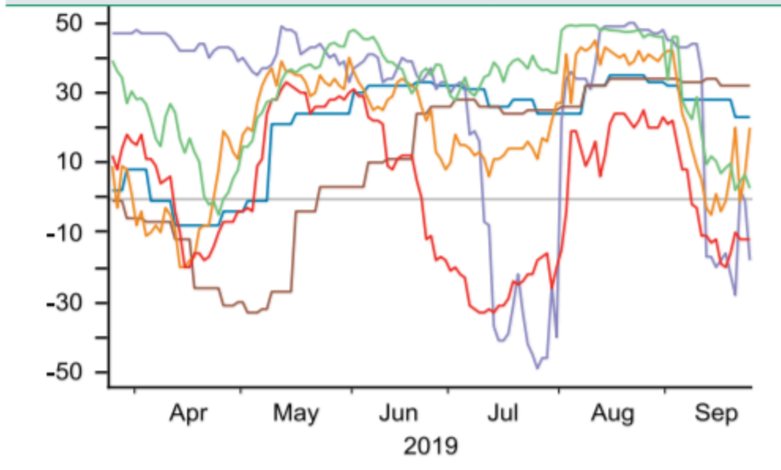


Fig. 16: JPY positioning components



Decomposing volatility at a high frequency: continuous and jumps

…and apply a statistical filter to it to decompose daily volatility into 'jump' – discontinuous non-normal moves – and 'continuous' components

We then use a statistical filter, detailed in the Appendix, to decompose high-frequency realised volatility into two parts: 'continuous' volatility, that portion represented by 'small', normally-distributed changes in exchange rates; and 'jump' volatility, the portion that represents 'large', discontinuous moves in exchange rates. Continuous volatility thus measures the trending and 'white noise' components of volatility, while jump volatility – which is not normally distributed – represents discontinuities associated with new information revealed to markets through data releases or news reports that instantaneously change perceived risks or expected returns to capital, or liquidity gaps in markets. Figure 21 through Figure 27 in the Appendix plot alongside total realised volatility our measure of continuous volatility for each currency; the apparent difference between the two is jump volatility.

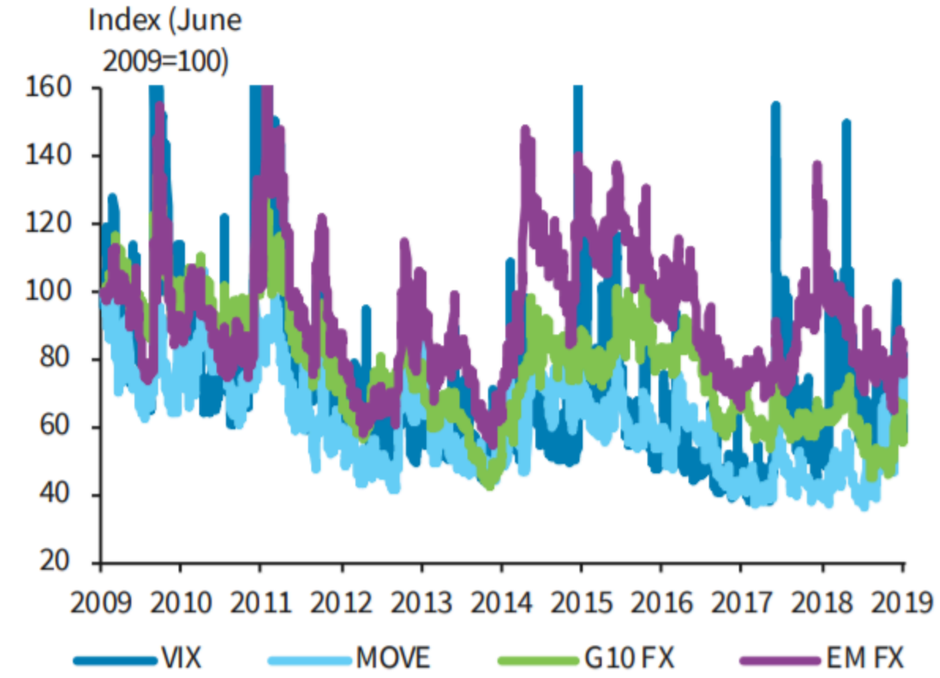
White noise can't jump

Segmenting out jump volatility leaves only the regular, continuous sources of transactional volatility…

By decomposing high-frequency realised volatility into its continuous and jump components, we can now estimate the effective lower bound of FX volatility by currency. By definition, volatility cannot fall below zero. But the reality is that it will always be a strictly positive number as there always are – for open capital account economies of significant size – commercial and investment transactions occurring. Reduced to minimum necessary commercial transactions, these should result in an underlying 'white noise' level of volatility that will vary by currency liquidity and economy size. Segmenting out jump volatility related to news or liquidity gaps leaves only the continuous, regular cross-border transactions: continuous volatility in our decomposition. However, recall that continuous vol is *not* strictly commercial volatility in our conceptual model; it also represents trending financial transactions. Furthermore, commercial activity waxes and wanes, both in a predictable seasonal fashion and day to day.

FIGURE 4

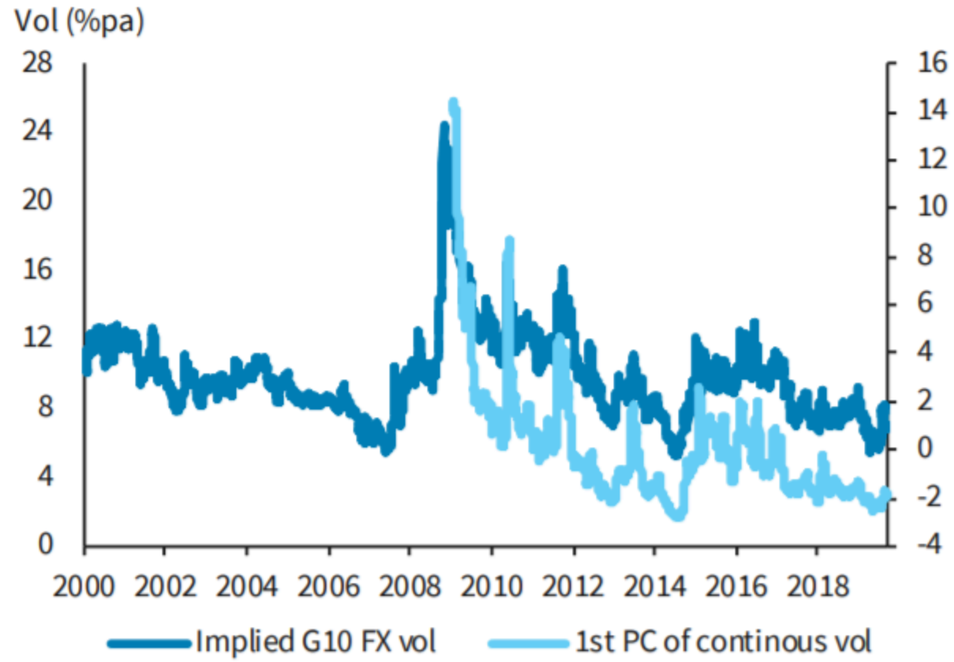
Normalised cross-asset 3m implied volatilities



Source: Bloomberg, Barclays Research.

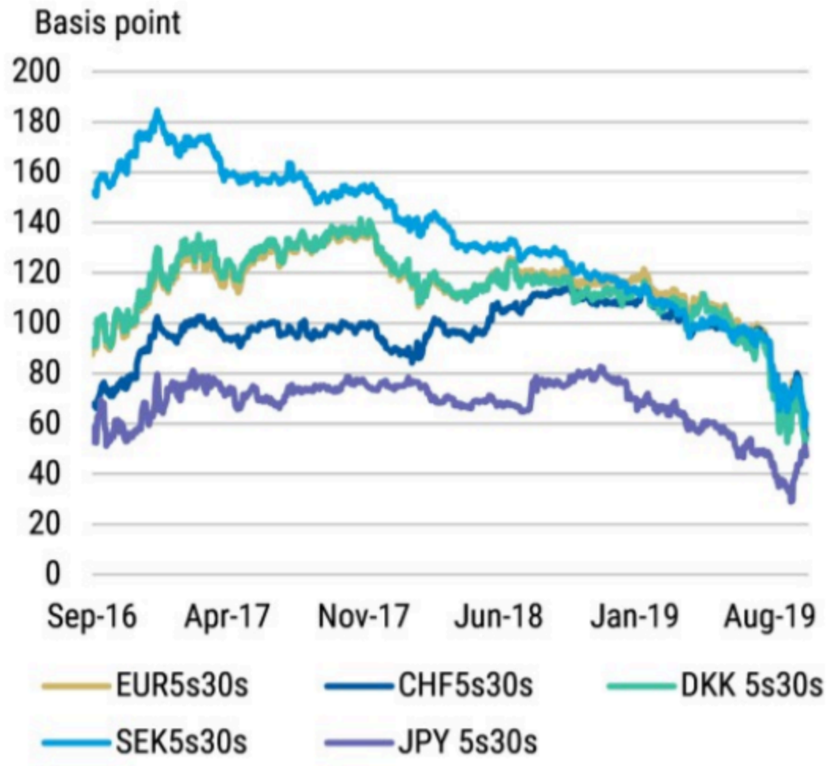
FIGURE 5

Implied G10 FX volatility and 1st principal component of continuous volatility across currencies



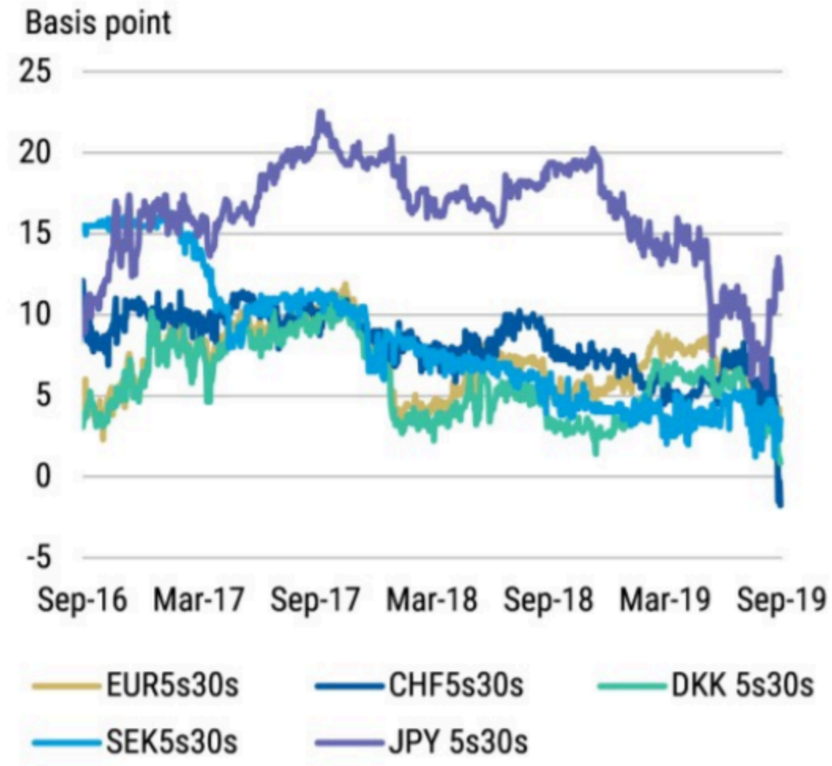
Source: Bloomberg, Barclays Research

Exhibit 25: 5s30s swap curve for regions that have introduced negative interest rates



Source: Morgan Stanley Research, Bloombeg

Exhibit 26: 20s30s swap curve for regions that have introduced negative interest rates



Source: Morgan Stanley Research, Bloomberg

TU-OIS….AGAIN

As such, we heed caution to market participants as this quarter-end approaches. We have already seen repo volumes decline over the last two weeks given funding stress (see Exhibit 39), which likely shows that some banks are currently unwilling to intermediate. As European banks have to window dress, there is the possibility that

these volumes drop further and funding stress picks up on the turn. **Therefore, as a natural hedge to long UST 2y and 5y vs OIS, we suggest selling SERV9 vs FFV9 to capture any quarter-end turbulence.**

Trade idea: Maintain long UST 2y vs OIS at 27.25bp
Trade idea: Maintain long UST 5y vs OIS at 30.25bp
Trade idea: Maintain short SERV9 vs FFV9 at -6bp
Trade idea: Maintain Dec FRA/OIS widener at 40.5bp

Treasuries have become spread product

Despite the Fed's reserve-adding operations over the past weeks, 2y spreads remain negative. While 2y UST has richened 6bp versus the cheaps of 16 Sep, at -29bp vs OIS, Treasuries still look extremely cheap vs OIS, and are a temping buy vs OIS. However, the question for the near term is whether the Fed's full footprint has already been priced, which would mean it's possibly time sell UST again vs OIS, or might the Fed introduce new surprises within the next month leading in to the October FOMC meeting that further richen UST vs OIS/LIBOR? We are skeptical in regards to possible Fed actions a few clients have offered in the past week including (1) announcement of outright purchases ahead of the Oct FOMC meeting (2) material changes to SLR or LCR regulation tweaks (3) introduction of a Standing Repo Facility by year-end. Each of these may be partially reflected in the recent richening Treasuries versus other benchmark curves.

Given these dynamics and our sense of positioning we are now turning a bit more cautious on broad UST richening vs OIS. This view is founded in a sense that some might want to 1) position against consensus, and 2) position for a Fed that delivers only what is currently expected, or maybe even a little less. If OIS spread trades are crowded, which is probably the case now, the risk/reward which seems sensitive to a large unwind in a period of funding stress - which we think can persist through year end - could lead to another sharp cheapening round for UST.

Also in the background is a reliable deficit problem which is a slower moving story but a powerful one. We think deficits can surprise negatively in either presidential outcome next year: either to support slowing growth when the Fed is out of ammunition or as a popular reform and investment theme in a good economic backdrop.

Trade Ideas

Below you will find a list of our trade ideas discussed in this report, with entry levels, entry dates, rationales, and risks.

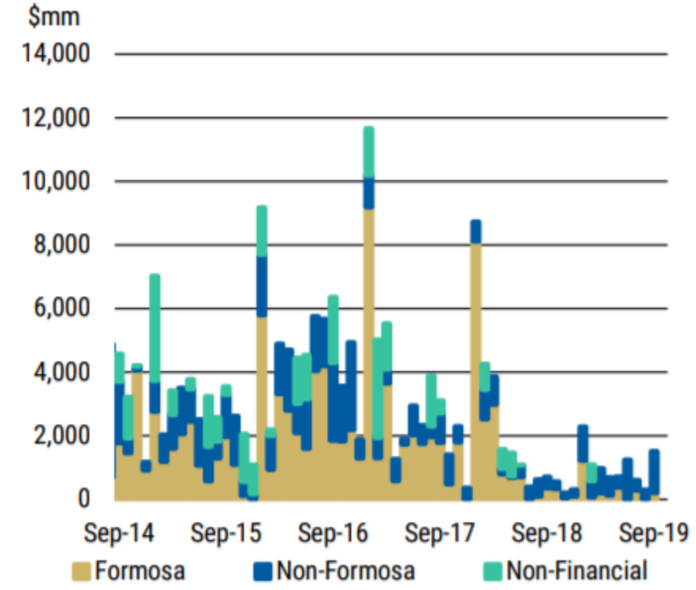
Trade	Entry Level	Entry Date	Rationale	Risks
Sell SERV9 vs buy FFV9	-5bp	9/25/2019	We expect increased funding pressure over quarter end as European dealers have to reduce repo intermediation activity, limiting the efficacy of the Fed's repo operations.	If the Fed takes more substantial action prior to quarter end by announcing the start of balance sheet expansion, repo could richen relative to fed funds.
Long UST 2y vs OIS	30.5bp	9/17/2019	We expect the Fed will have to start purchasing collateral in the secondary market in order to increase the level of reserves in the system. Even if the Fed continues repo operations, this should be supportive of collateral.	The Fed does not intervene as quickly or to the extent that we expect, so dealer balance sheets continue to be constrained.
Long UST 5y vs OIS	33bp	9/17/2019	We expect the Fed will have to start purchasing collateral in the secondary market in order to increase the level of reserves in the system. Even if the Fed continues repo operations, this should be supportive of collateral.	The Fed does not intervene as quickly or to the extent that we expect so dealer balance sheets continue to be constrained.

DVEGA/DRATES

Callable bond issuance remains subdued, while bond ETF issuance continues to grow…
Callable bond issuance picked up marginally in September but largely remains subdued compared to recent history. There has been a total of ~$1.5bn notional in new issuance (as of Sep 25, 2019) that consists of ~$210mm in Formosa deals and ~$1.30bn in non-Formosa deals (see Exhibit 42). YTD issuance remains at subdued levels, currently at just under $10bn with only one quarter remaining in the calendar year (see Exhibit 43).

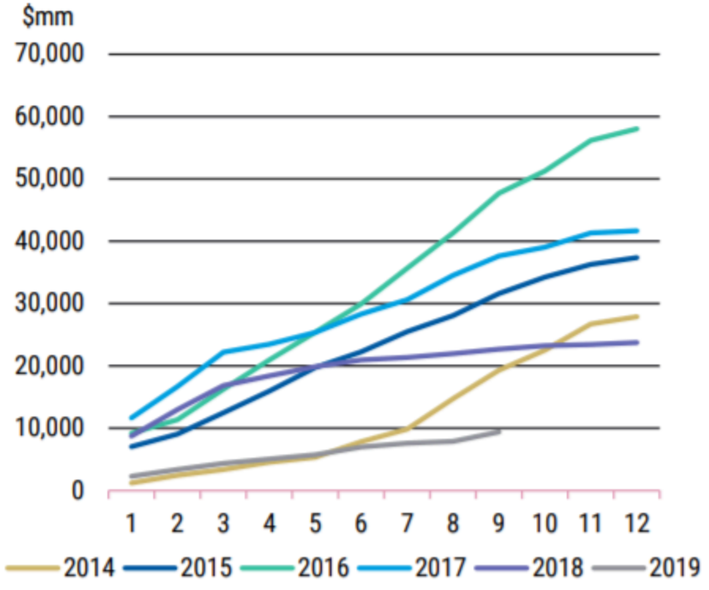
Although rates had drifted lower this year, the net flows into the Taipei Exchange listed bond ETFs have been growing at a modest pace, as shown in Exhibit 44. On average, there has been ~$2bn inflows in bond ETFs per month, with roughly 50% allocating into long-term debt with a maturity of 10y+ (see Exhibit 45). Inflows into long-term debt saw a brief pause in August, but have resumed the pace in September.

Exhibit 42: USD-denominated callable bond issuance: monthly notional



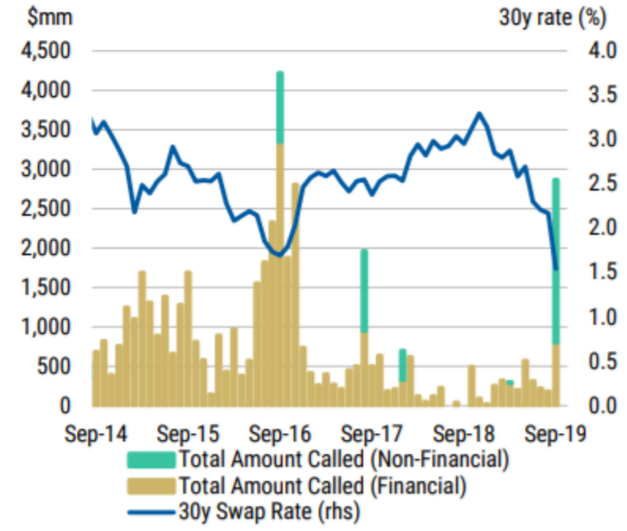
Source: Morgan Stanley Research, Bloomberg

Exhibit 43: USD-denominated callable bond issuance: cumulative notional



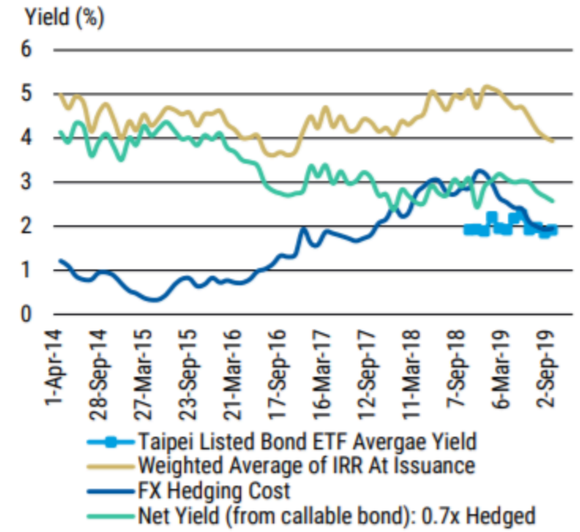
Source: Morgan Stanley Research, Bloomberg

Exhibit 47: Outstanding Formosa called



Source: Morgan Stanley Research, Bloomberg

Exhibit 48: Callable IRR net of FX hedging cost



Source: Morgan Stanley Research, Bloomberg

...the reasons are low yields, low vols, contained credit spreads, and tight regulation...

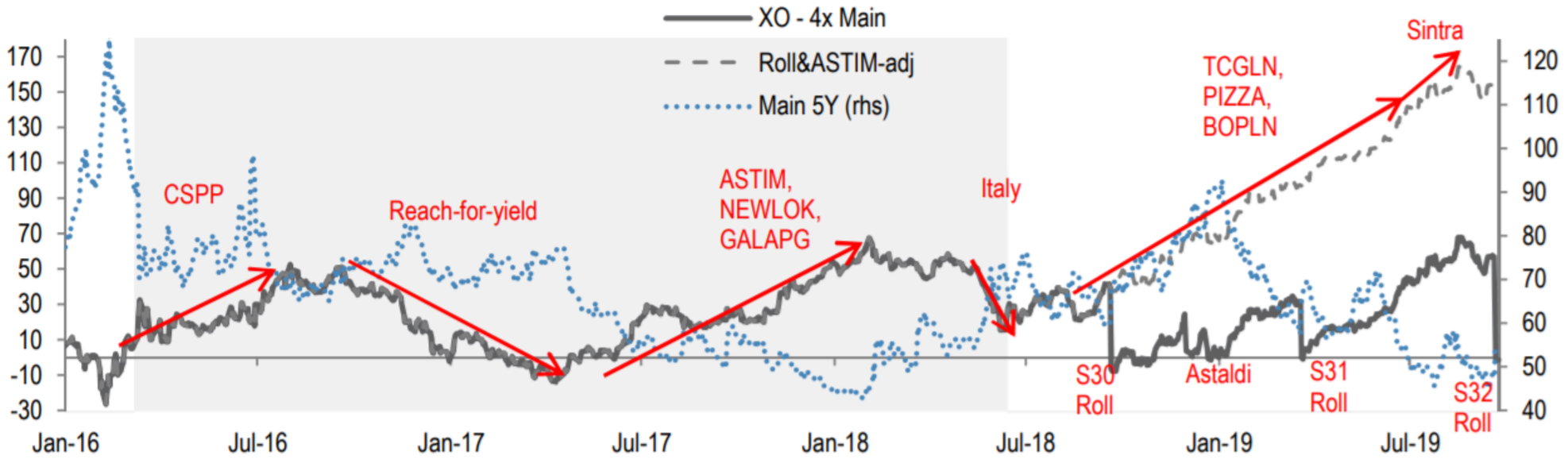
We attribute the current low issuance regime to the following factors:

- The aggressive move lower in yields has dominated the marginally richening bottom right implied rate vol, thus resulting in a current IRR that is more than 100bp lower than earlier this year (seeExhibit 48).
- Though credit spreads have recently widened marginally, they remain at historically tight levels, indicating a low all-in yield.
- FX hedging cost for Taiwanese investors has cheapened, but it only functions as a secondary factor. After adjusting for the ~70% hedging ratio, the net yield is currently at around 2.5% (see Exhibit 48). This level of yield is only marginally higher than the average yield from the bond ETFs (including both short-term and long-term debt).
- Regulation regarding Taiwanese insurance companies' balance sheets in foreign asset holdings and the FX hedging ratio remains tight.

CREDIT-RATES IMPLIED CORR

Figure 22: Decompression in XO/Main – a risk premium to get used to in a QE2 world?

XO-4x Main headline spread differential (straight line) versus realised performance (dashed)



Source: J.P. Morgan.

No. 2: Implying spread-rates correlation from option markets

In the "linear" fixed income space, it is common for investors to use "all-in" yield as well as pure credit and pure rates instruments. By definition, the yield (y) of a credit-risky bond can be decomposed into simple sum of risk-free rate (r) and spread (s):

$$y = r + s.$$

This link allows investors to take advantage of relative mispricings across instruments, for example by switching into a (long-risk) CDS out of a rates-hedged bond position when the bond is trading at much tighter spreads versus the CDS. This relationship also applies (approximately) in the index space, where a credit ETF (yield product) can be seen as a (linear) combination of CDS index long and receive-fixed interest rate swap / long in benchmark bond.

With the introduction of ETF options (IHYG options in Europe and HYG/IEAC options in the US), we now have a menu of options on all three components in the above relationship: namely, options on "s" (CDS index options), options on "r" (swaptions & treasury future options) and options on "y" (credit ETF options). It is thus instructive to understand how the relationship between yield, spreads and rates holds in the "volatility" space.

The volatility of yield (σ_y) is linked to the rates vol (σ_r) and spread vol (σ_s) and rates-spreads correlation ($\rho_{r,s}$) via the formula:

$$YieldVol^2 = RatesVol^2 + SpreadVol^2 + 2 \times Corr \times RatesVol \times SpreadVol$$

$$\sigma_y^2 = \sigma_r^2 + \sigma_s^2 + 2\rho_{r,s}\sigma_r\sigma_s$$

Mathematically, re-arranging the “variance of sum" formula, we get an expression for the correlation as a function of std. deviations of individual variables as well as of their sum:

$$\rho_{x,y} = \frac{\sigma_{x+y}^2 - \sigma_x^2 - \sigma_y^2}{2\sigma_x\sigma_y}$$

To aid our analysis and intuition, we also establish three special cases:

(1) $\rho_{x,y} = 1 \Rightarrow \sigma_{x+y} = \sigma_x + \sigma_y$

(2) $\rho_{x,y} = -1 \Rightarrow \sigma_{x+y} = \sigma_x - \sigma_y$
(assuming $\sigma_x > \sigma_y$)

(3) $\rho_{x,y} = 0 \Rightarrow \sigma_{x+y} = \sqrt{\sigma_x^2 + \sigma_y^2} \leq \sigma_x + \sigma_y$
(with $\sigma_x, \sigma_y > 0$)

In other words, (1) and (2) mean that the vol of a sum is bounded by zero from below and the sum of vols from above.

In our context, σ_x and σ_y denote the volatility (defined as the standard deviation of periodic changes) of the risk-free rate and of the spread of an ETF. Thus σ_{x+y} can be seen as the yield volatility of the ETF.

It follows that the vol of yield will only be equal to the sum of spread vol and rates vol when the spread-rates correlation is equal to 100%. When correlation is less than one, the diversification effect means that yield vol is less than the sum of component vols (see the box on the left).

The above means that we can use implied volatilities from the three option markets to back out the forward-looking implied correlation between credit spreads and risk-free rates that these markets are effectively pricing. We can use this correlation measure not just as an estimate of "market-implied" future correlation between rates and spreads, but also as an indicator of the relative richness/cheapness of ETF vol versus standalone spread and rates vols.

Given that HYG ETF options have been around for several years in the $ HY markets, we can test the above relationship using the history of ATM implied volatility of HYG ETF options, CDX.HY options as well as maturity-matched $ Libor swaptions.

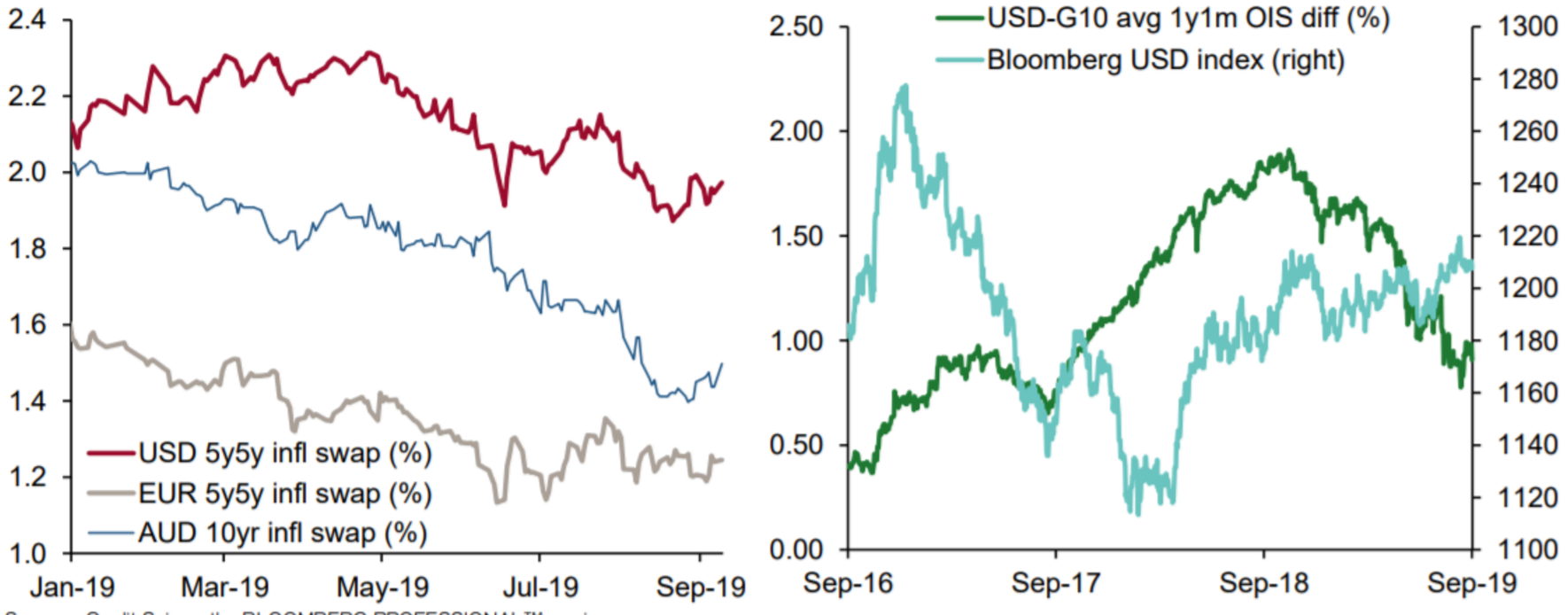
Note that given the equity-like nature of ETFs, HYG ETF quoted vols are price-based, while credit/rates vols typically follow the absolute spread/yield convention. Thus we need to bring CDS and rate vol quotes to the price terms (see further details in *A Brief Introduction to Credit ETF Options, CD Player, 12 Sept*).

Figure 29 plots the implied correlation between US HY spreads and rates. It is important to keep in mind that our measure of implied correlation does not have to

obey the typical [-1, 1] arbitrage bounds due to composition/duration mismatch in the underlying indices, presence of bond-CDS basis, HY bond callability, to name a few reasons that introduce imprecisions into our calculations and thus breaking the theoretical correlation range.

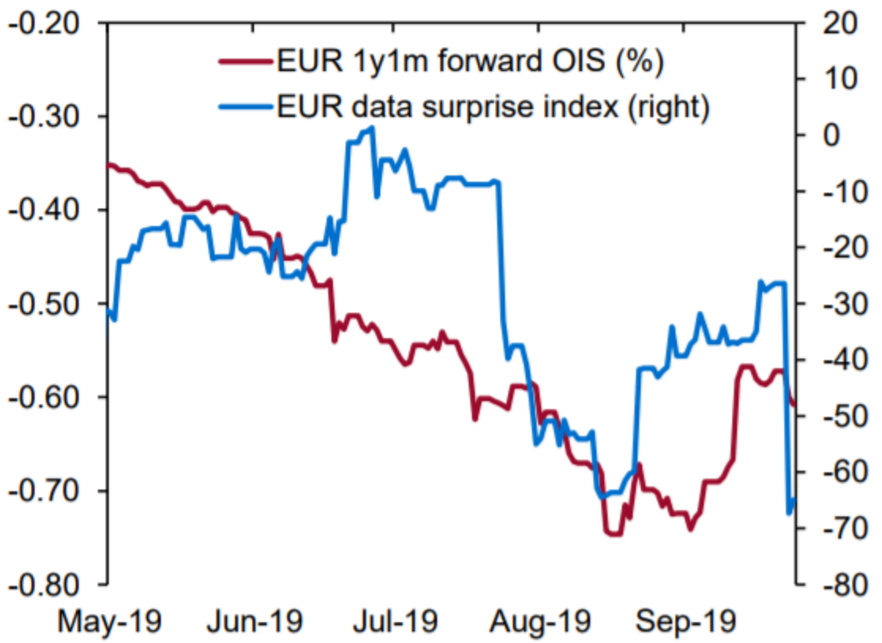
Figure 29: Implied Correlation between spreads and rates in US HY
Implied from 3M HYG, CDX.HY and $Libor 3m4y iVol. Implied Corr smoothed with 5d rolling average. Realised Corr is the 3m rolling corr of daily CDX.HY and 4y swap returns using overlapping 5d window.

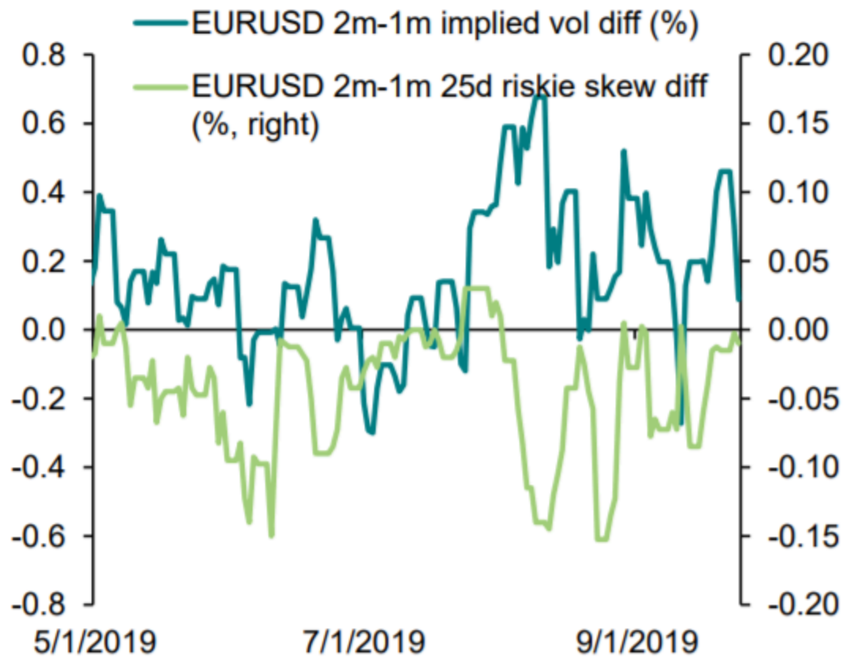
Source: J.P. Morgan, Bloomberg



Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

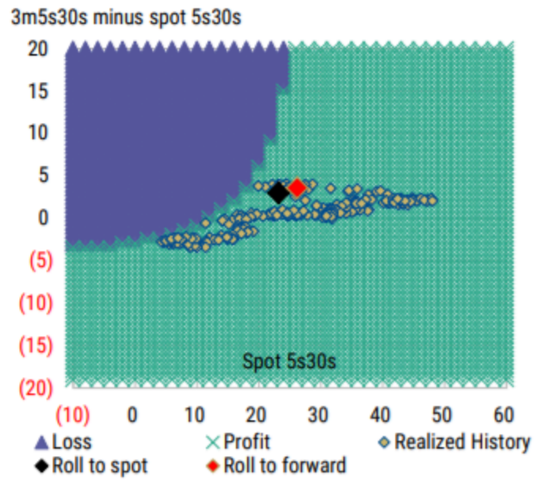
– Vol markets are pricing in very little idiosyncratic EUR risk around that date.





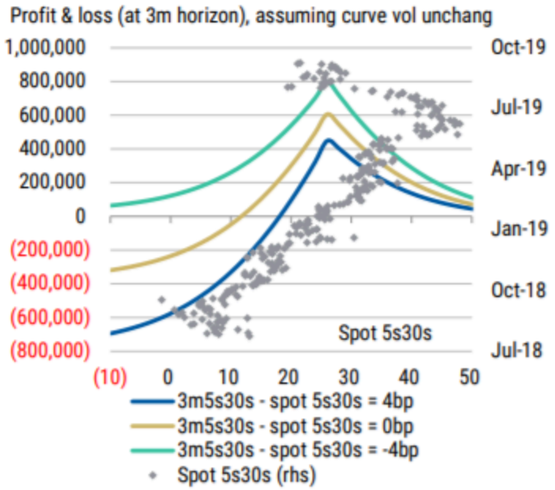
Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Exhibit 54: Profit and loss area at 3m horizon (assuming curve vol remains unchanged) vs Aug 2018 to Sep 2019 curve levels (dots)



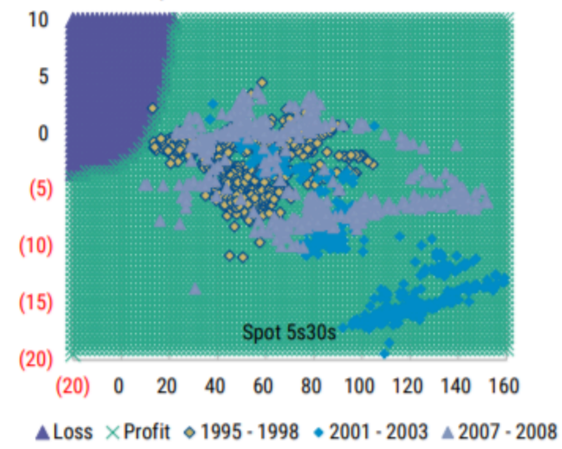
Source: Morgan Stanley Research

Exhibit 55: Profit and loss diagram at 3m horizon (assuming curve vol remains unchanged) vs Aug 2018 to Sep 2019 curve levels (dots)



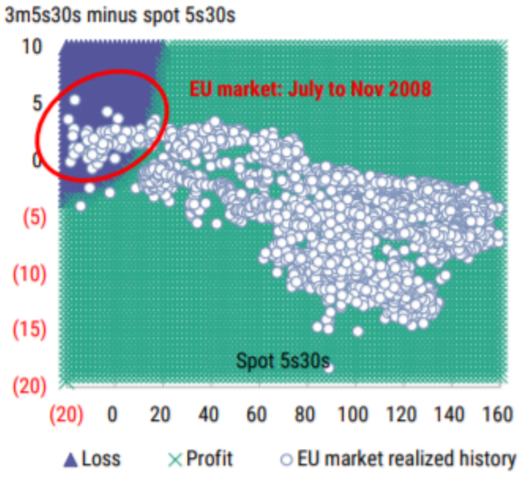
Source: Morgan Stanley Research

Exhibit 56: Profit and loss area at 3m horizon (assuming curve vol remains unchanged) vs previous US easing cycles



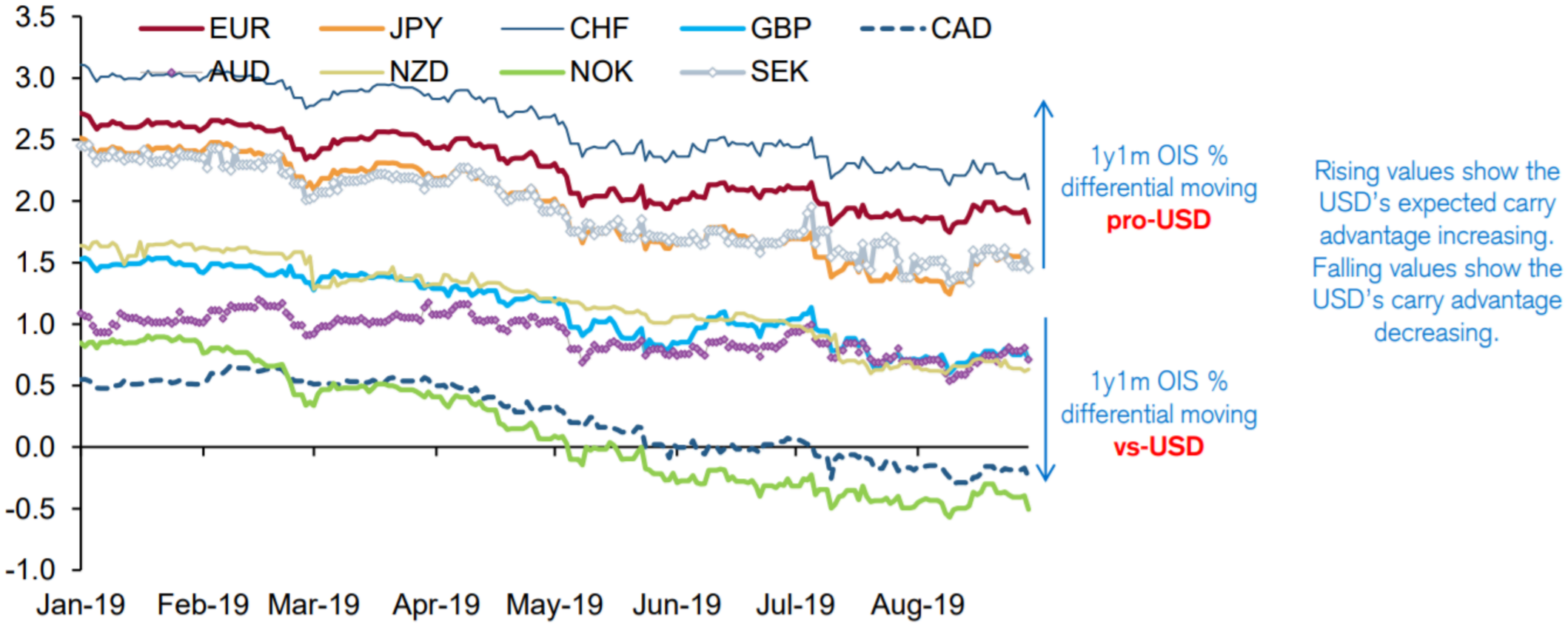
Source: Morgan Stanley Research

Exhibit 57: Profit and loss area at 3m horizon (assuming curve vol remains unchanged) vs EU curve levels over the past 10y history



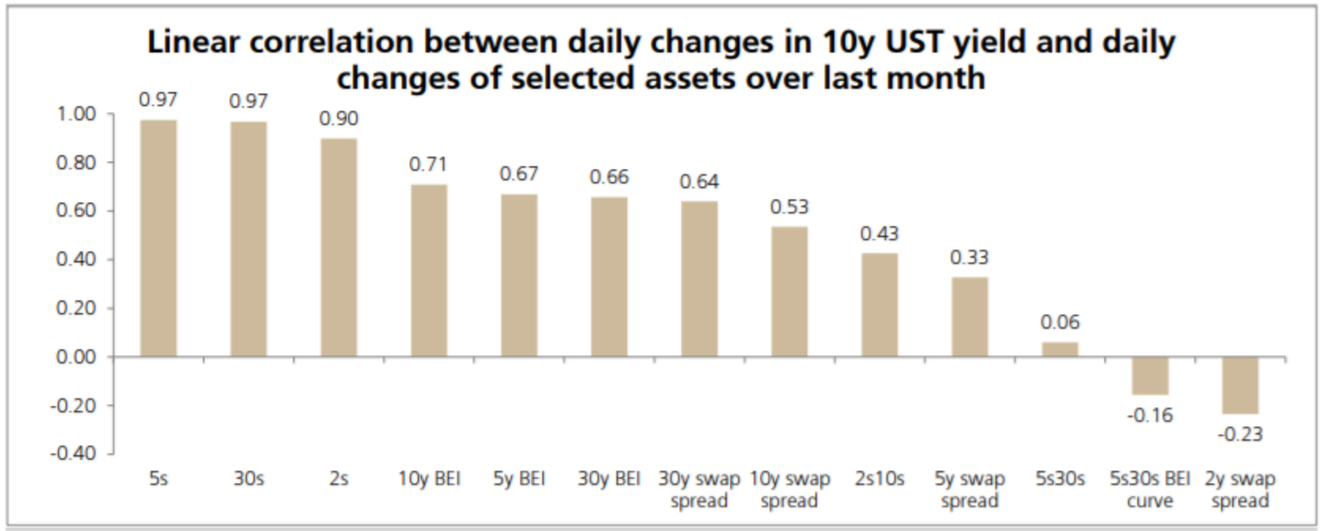
Source: Morgan Stanley Research

1y1m OIS rate differentials, USD vs G10 (%)



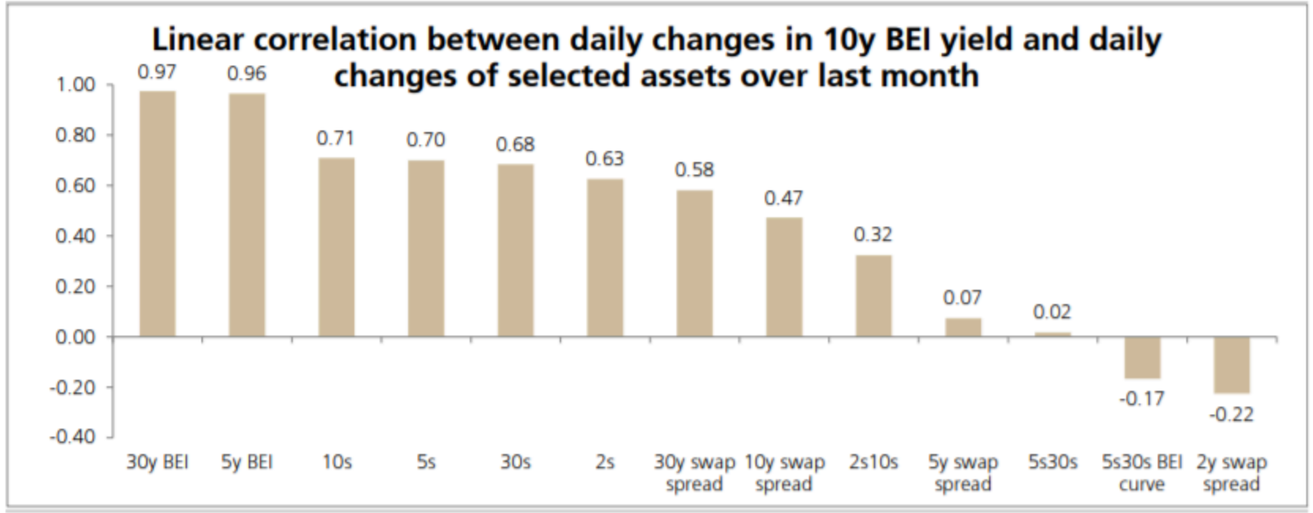
Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Figure 38: Daily changes in 10y UST vs daily changes in selected securities



Source: UBS, Bloomberg As of 22-Sep-19

Figure 39: Daily changes in 10y BEI vs daily changes in selected securities



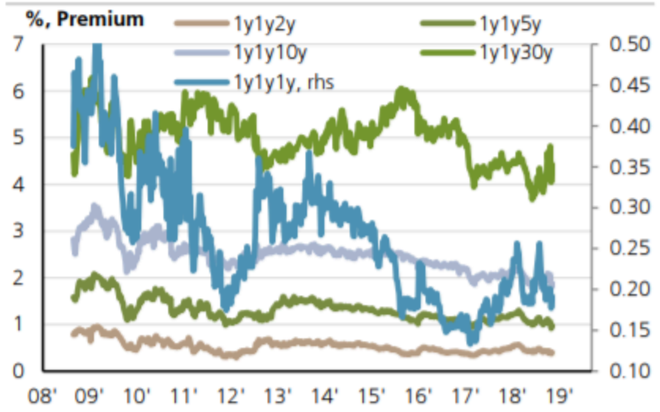
Source: UBS, Bloomberg As of 22-Sep-19

We are tracking Option triangles: Long-end tenors have cheapened a lot recently

We started tracking Option triangles, which is an expression of forward implied volatilities. An option triangle is constructed from three straddles. In our analysis, we use AyByCy option triangle to represent AyBy forward volatility whose underlying swap starts after A+B year and last for C years. Let us use 2y3y10y option triangle as an example. In this example, the underlying option is 2y forward 3y expiry (implied vol: 2y fwd 3y) and the underlying is the 5y forward 10y rate swap rate. For the same notional, we 1) Long 5y10y straddles 2) Short 2y13y straddles 3) Long 2y3y straddles. Combined together, the structure is equivalent to long the 2y3y forward volatility whose underlying swap lasts from 5th year (and has a tenor of 10y). Effectively, if you are long such a structure, you are expecting 2y3y forward implied volatility (for 5y10y rate) to move higher.

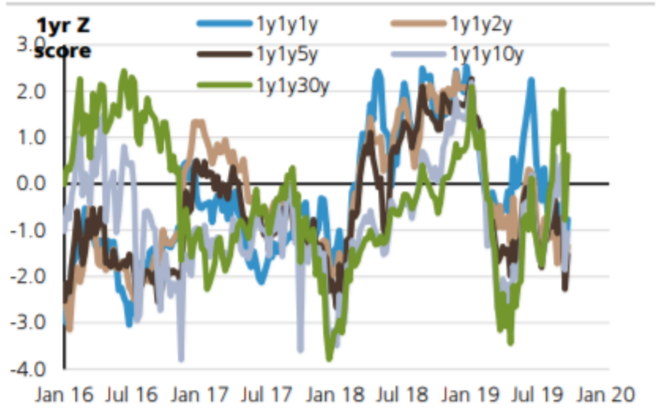
Figure 24 presents the 1y1y forward volatility corresponding to forward swaps of 1y/2y/5y/10y/30y tenors. As can be seen, the premium for the 30y underlying rate option triangle has declined substantially over the past few weeks. Z-score also indicates relative cheapness (See **Figure 25**).

Figure 24: Option Triangles' Premium, % of Notional



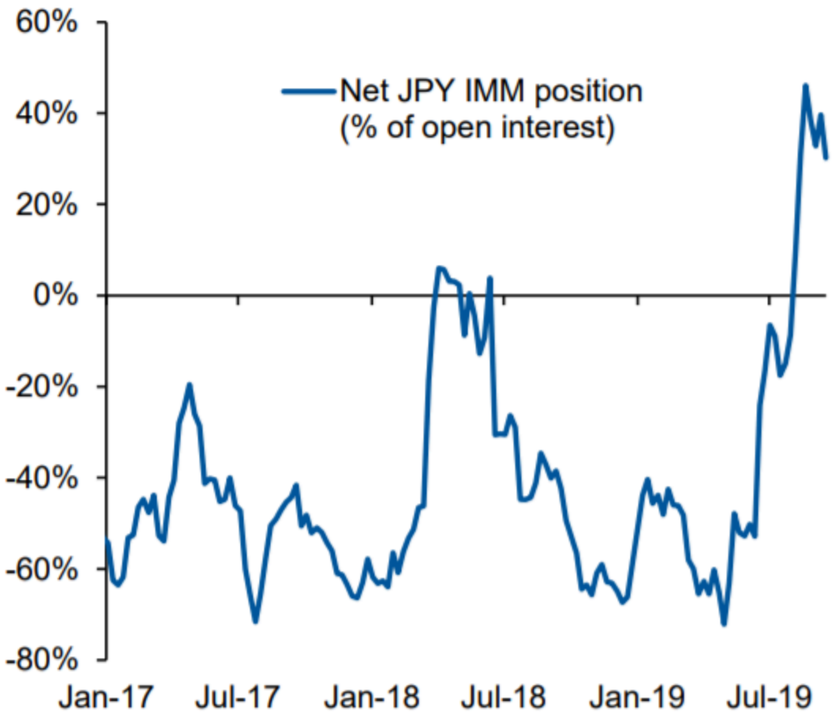
Source: UBS, Bloomberg As of 22-Sep-19

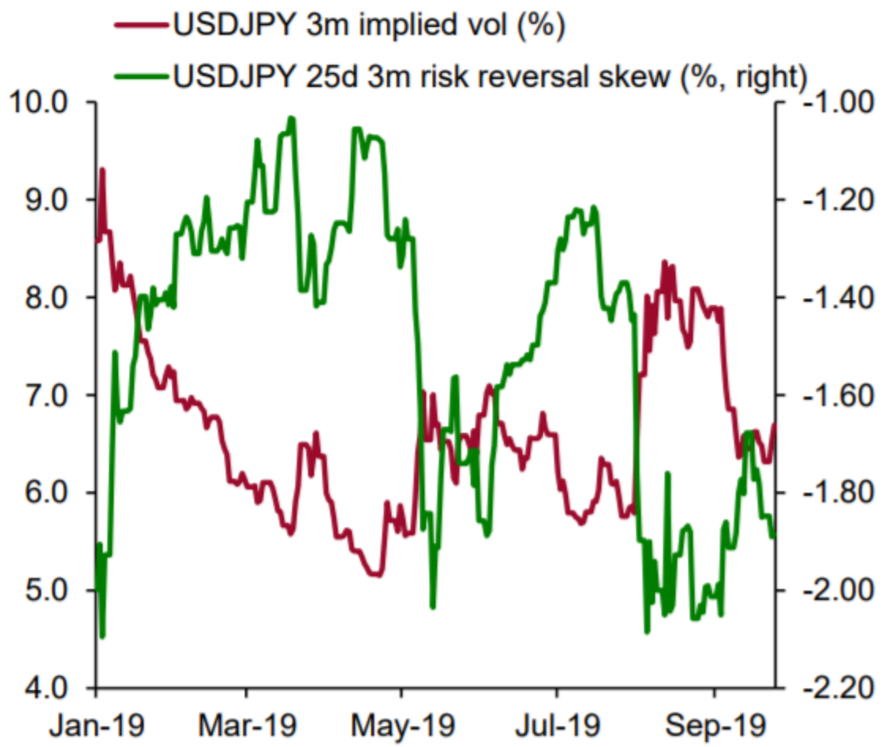
Figure 25: Option Triangles' Premium, 1yr Z score



Source: UBS, Bloomberg As of 22-Sep-19

- We share the underlying view but suggest trades such as JPY call spreads or RKOs to cheapen the cost of carry and to provide protection against a short squeeze (a risk if the US and China reach a trade agreement).

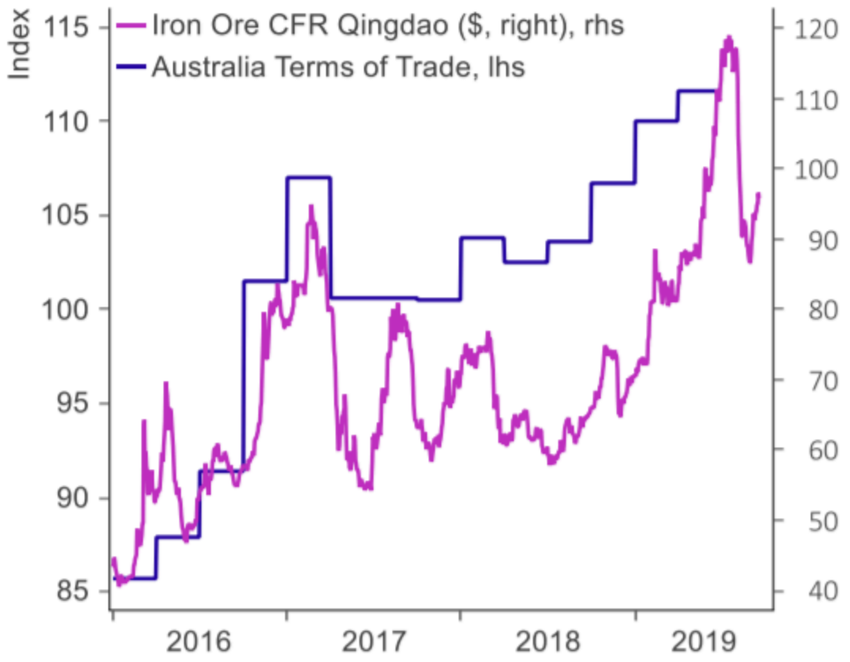


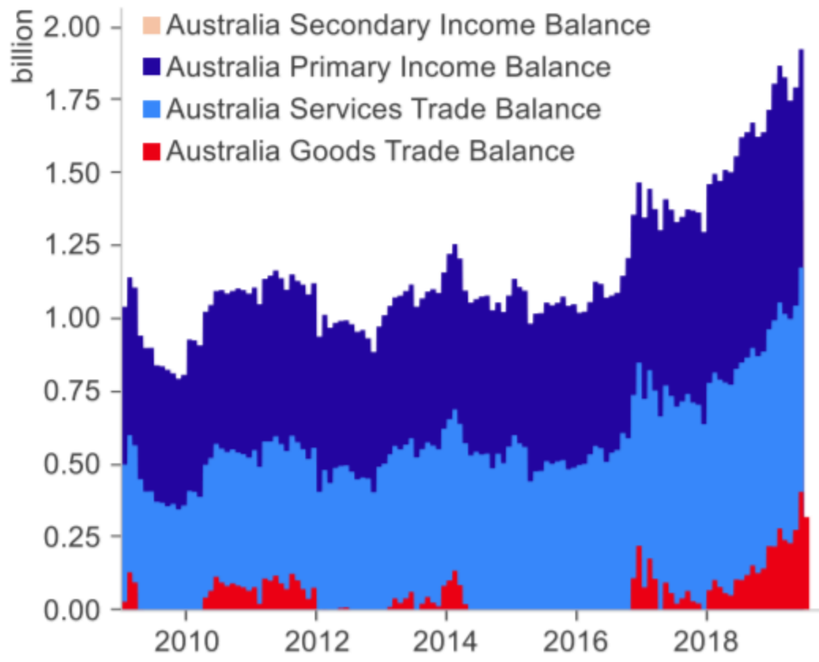


Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

AUD: Geopolitical tension may have yet to be fully felt

- Australia is heavily exposed to Chinese demand, yet its external balances have been strengthening even amid US-China trade war negatively impacting Chinese growth.
- Strength in iron ore prices has been one of the key sources of support for the current account surplus, via the trade balance.
- The recent unwind in iron ore prices creates potential for terms of trade to suffer, and for weak Chinese demand to have a more direct impact on Australia's external balances.





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

DON'T FORGET THE LEAKY FLOATERS

Turning to investor types, fund manager participation has declined meaningfully by 6%-pts to 43%, while commercial bank demand has remained subdued at just 13% YTD. Meanwhile, demand from central banks and state/local governments both strengthened by 3%-pts over the year. **Looking ahead, though the release of Treasury's Housing Finance Reform plan signaled the first steps to GSE reform, the lack of a specific timeline and low likelihood of Congressional action means uncertainty on the future of the GSEs will persist, which will deter any material rebound in foreign demand.** Additionally, the cadence of issuance from Fannie and Freddie has slowed considerably in recent years, and issues have also shrunk in size given the large declines in the GSEs' retained portfolios. Absent a rebound in the portfolios, which currently seems improbable at best, these developments are likely to keep the official community at bay as well, given their preference for liquid securities.

Exhibit 4: Government MMF have added exposure to GSE SOFR FRNs as AUM has grown this year

Government MMF holdings as of month end; $bn

	Treasuries			Agencies				Repo		Other	Total
	Bills	Coupons	FRNs	Discos	Coupons	SOFR FRNs	Other FRNs	ex-RRP	RRP		AUM
Dec 18	557	99	196	231	5	21	356	865	28	19	2,378
Aug 19	509	98	218	195	22	139	265	1,091	2	24	2,564
YTD chg	(47)	(1)	22	(36)	17	118	(91)	226	(26)	5	186

Source: Crane Data, J.P. Morgan, Bloomberg

Turning to the front-end, MMF AUMs have risen $186bn over the first 8 months of the year, with the bulk of this increase concentrated in repo. Money funds also added $27bn to holdings of Agency floaters YTD, and this has been driven by an $119bn increase in exposure to SOFR FRNs, while holdings of Libor FRNs have actually fallen $91bn this year (**Exhibit 4**). Looking ahead, however, MMF demand for SOFR floaters could slow, given rich relative valuations (see *JPM Mid-Week US Short duration Update*, 9/12/19). Meanwhile, MMF holdings of discos have fallen $36bn YTD, which does not come as a surprise given the $33bn decline in Agency discos outstanding YTD. However, we could see some mean reversion as advances are set to seasonally rebound over 4Q, which could bring with it a rebound in disco supply.

Stage 4: KHFC securitises the loans and the MBS are sold back to the banks
The securitisation creates mortgage backed securities (MBS) as an asset and liability on KHFC's balance sheet. The selling of the MBS by KHFC to banks would cause money from Stage 3 to return back to KHFC.

Stage 5: Final position
The main balance sheet changes from the initial position are:

- Households: Liabilities have changed from a floating rate loan to a fixed rate loan.
- Banks: Assets changed from a floating loan to MBS.
- KHFC: Assets now include a fixed rate loan, and liabilities now include MBS.

The associated change in interest rate exposure for banks is important. In the initial stage, banks were receiving floating rate from their loans; in the final stage, it will be receiving fixed rate from the MBS. Banks may pay KRW IRS to hedge the change in interest rate exposure, which would put upward pressure on KRW IRS rates.

Table 2: Mechanism of relief switch loan programme

	Household		Banks		KHFC	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Stage 1: Initial position	Property	Floating rate loan	Floating rate loan	Deposits	Money	Funding
Stage 2: Conversion to fixed rate loan		(Floating rate loan) Fixed rate loan	(Floating rate loan) Fixed rate loan			
Stage 3: Transfer of fixed loan to KHFC			(Fixed rate loan) Money		(Money) Fixed rate loan	
Stage 4: KHFC securitises the loans and the MBS are sold back to the banks			(Money) MBS		MBS (MBS) Money	MBS
Stage 5: Final position	Property	Fixed rate loan	MBS	Deposits	Fixed rate loan + money	MBS + funding

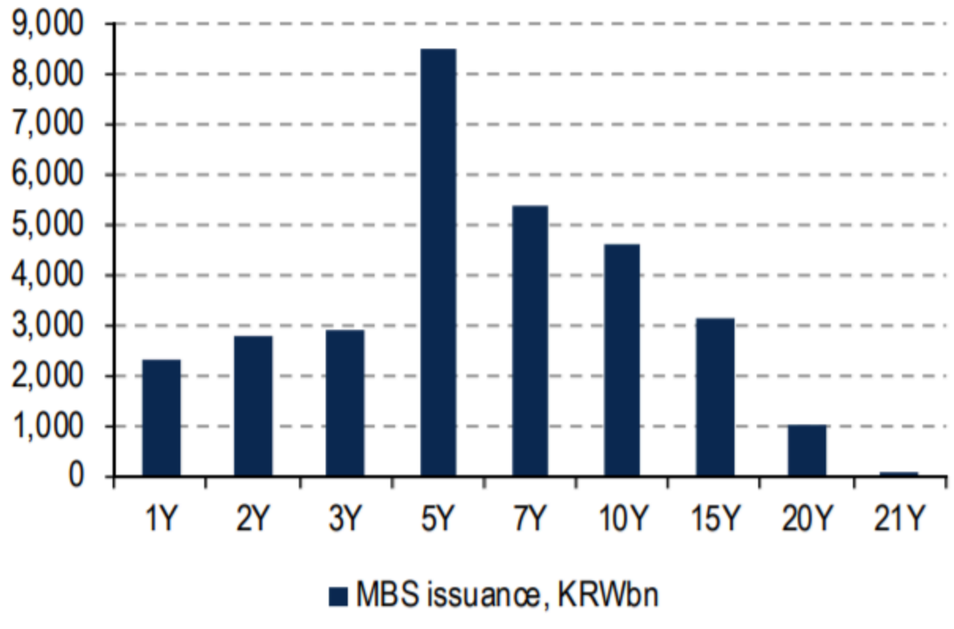
Source: BofA Merrill Lynch Global Research

Difficult to disentangle US pressures

It is difficult to disentangle the steepening pressures on the KRW curve due to the relief loan programme from US steepening pressures, which were present when the 2015 and 2019 programmes were announced and implemented (Chart 5). In 1Q 2015, steepening pressures were driven by hawkish signals from the US Federal Reserve January 2015 meeting, which raised expectations of a rate hike in June 2015.

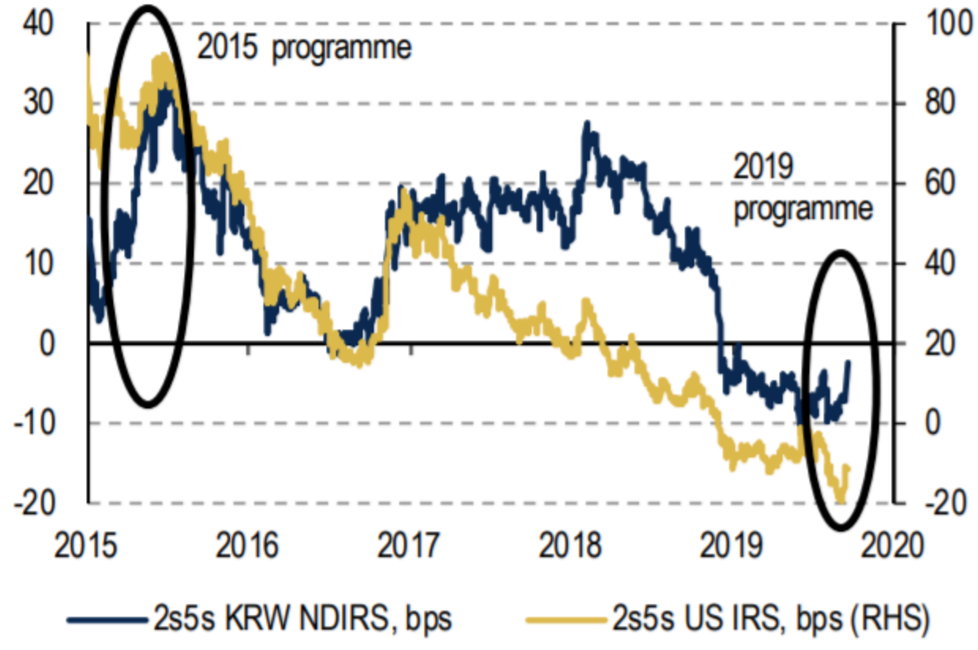
In 2019, US rates steepened while the Korea market was closed for the Chuseok holidays on 12-13 September. When the Korea reopened on 16 September, the first day of the application period for the 2019 programme, the strong steepening of the KRW curve may have also incorporated catchup movements to the US curve.

Chart 4: Maturity distribution of MBS issued for 2015 programme



Source: BofA Merrill Lynch Global Research, KHFC

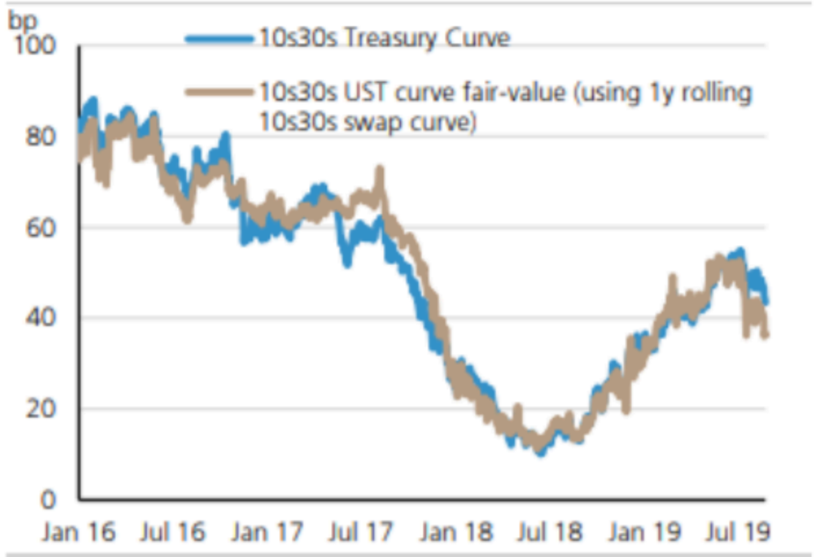
Chart 5: Steepening pressures from US rates occurred at the same time



Source: BofA Merrill Lynch Global Research, Bloomberg

US Treasury will probably have to confirm issuance.

Figure 1: We found 10s30s Treasury curve well explained by swap curve



Source: UBS, Bloomberg

Figure 2: 10s30s Treasury curve has already steepened 7bps on indication of increase in long-end supply.

Source: UBS, Bloomberg

Metrics	30-year Treasury (2.25% Aug 2049)	30-year p-strip (0% August 2049)	30-year swap	50-year swap
Duration	21.92	29.89	23.25	33.20
Convexity	5.81	8.89	6.57	14.40
Yield	2.20	2.23	1.78	1.73
Coupon	2.25	0.00	1.78	1.74

Source: UBS, Bloomberg

If liquidity was perfect, the greater convexity of a 50-year Treasury would make the yield ~5bp lower than an OTR 30-year Treasury (Figure 5). In the Libor swap market, a 50-year swap trades lower in yield than a 30-year swap (by ~5bps). Similarly in the UK, we see that the OTR 50-year Bond (UK Govt 3.5% July 2068) trades ~8bp lower in yield than a OTR 30-year (UK Govt 1.75 2049 @ 1.045%)

Similarly, the much greater convexity of a 100-year Bonds means that a 100yr Treasury would likely trade 2bp lower in yield than the 30yr OTR (even after accounting for its lower illiquidity, Figure 6). If there were perfect liquidity, the OTR 100-year Treasury yield would be ~18bp lower than that of a OTR 30-year Treasury.

Figure 6: UBS estimate of 50y &100y Treasury yields, compared to 30-year Treasury at 2.20%.

Metrics	50-year Treasury (UBS Market Trade Estimate)	50-year Treasury (UBS Fair-value)	100-year Treasury (UBS Market Trade Estimate)	100-year Treasury (UBS Fair-value)
Duration	30.04	30.04	39.71	39.71
Convexity	12.31	12.31	25.90	25.59
Yield	2.22	2.15	2.18	2.03
Coupon	2.13	2.13	2.13	2.00

Source: UBS, Bloomberg

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ECB's €STR
Tiering-proof

The tiering system announced by the ECB at its September meeting (exemptions for each bank calculated as 6x each bank's reserve requirement) might create arbitrage opportunities for some banks, as we discuss in *Swiss tiering has not convinced the market*, 12 September 2019. This is because the exemption for a bank could be higher than that bank's total reserves in excess of the reserve requirement held at the current account at the domestic central bank[1].

This could be the case particular for Italian banks (about €38bn of arbitrage opportunities, according to our calculations) and to a much lesser extent for Portuguese and Greek banks. In Spain, the total amount of excess reserves for the entire banking system is higher than the exemption (by about €20bn according to our calculation), but this gap could shrink (due, for example, to early repayment of TLTRO II that is not rolled into TLTRO III), thus potentially creating arbitrage opportunities for some banks. For banks in core countries, the exemption is lower than the total amount of excess reserves. Therefore, we see a risk the tiering system could create upward pressure on the general collateral (GC) rate in the peripheral repo market, especially in Italy, while it should not impact the core GC rate.

We do not expect tiering to create upward pressure on €STR, the ECB's new benchmark for the overnight unsecured rate that will be launched on 2 October. Importantly, the change in the Eonia calculation methodology, as from 2 October when it will be calculated as €STR + 8.5bp, makes the ECB's index a crucial benchmark rate in the euro money market and for rates derivative products.

Why we do not expect the tiering to affect €STR

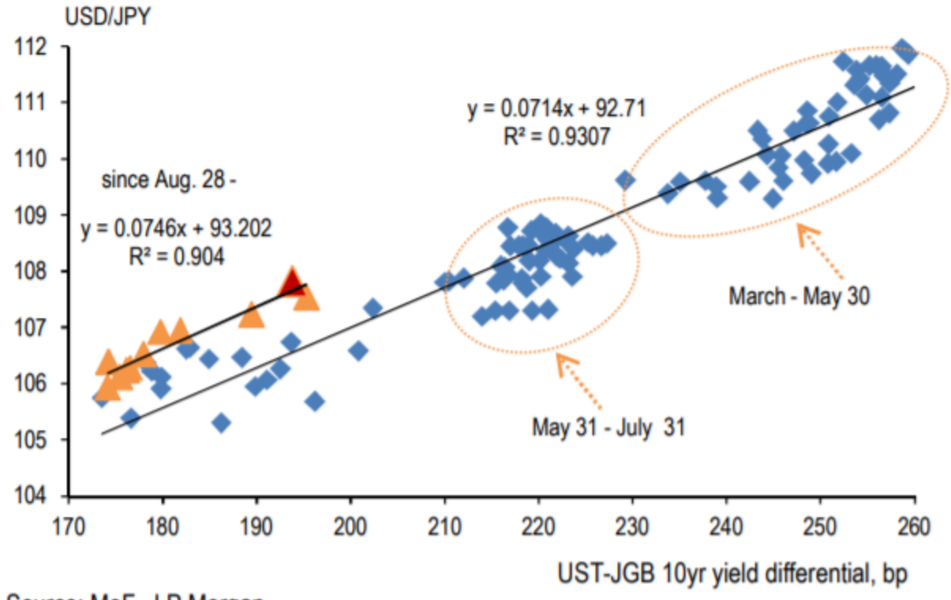
The reasons we do not expect the tiering to affect €STR mainly relate to regulatory aspects affecting the rates of eligible transactions for the €STR calculations as well as the calculation methodology.

Regulatory aspects

The only eligible transactions for the calculation of €STR are overnight unsecured deposits from financial institutions at the 50 banks which report every day all their liquidity transactions (secured and unsecured) to the ECB under Money Markets Statistical Reporting (MMSR). These are the 50 largest banks in the euro

- **We think that Japanese investors continuing to receive proceeds from maturing JGBs will continue to have no option but to invest in foreign securities** while shouldering considerable FX risk, because the carry on FX-hedged investment in US treasuries is negative, and we see this as a supportive factor for USD/JPY.
- **Current conditions are indeed conducive to FX-unhedged investment in US Treasury by Japanese investors.** Exhibit 4 compares the three-month

Exhibit 3: Correlation between USD/JPY and UST-JGB10yr yield gap



Source: MoF, J.P.Morgan

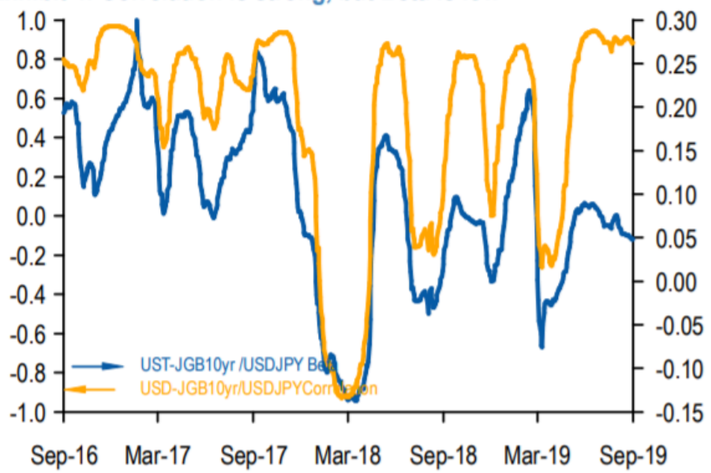
correlation (the orange line) between the Japan-U.S. yield differential and USD/JPY with beta (the blue line). This suggests that beta is relatively high when the correlation is strong (when orange line is close to 1.0). For example, when the correlation was strong between 2016 and 2017, the beta was generally 0.2 or higher. This implies that when the Japan-U.S. 10-yr yield differential moved 10bp, USD/JPY moved at least 2-yen. Since the correlation strengthened from March this year however, the beta has been gradually falling from an already low level and now the relationship is such that USD/JPY only moves 50pips even when the yield differential moves 10bps.

- **It is highly unusual for the beta to be this low when the correlation between the Japan-U.S. yield differential and USD/JPY is strong**. Furthermore, this somewhat unusual phenomenon is making it relatively easy for Japanese investors to invest in US treasuries while shouldering FX risk. This is because the gains from the rise in US bond prices when US yields falls are greater than the losses from the decline in USD/JPY.
- **USD/JPY has strong seasonality to appreciate between Sep. and Nov.** In the six years between 2013 when Abenomics started and 2018, USD/JPY rose during this three-month period each year. JPY nominal effective exchange rate depreciates most in November, followed in order by September and October (Exhibit 5).

Given the recent appreciation in USD/JPY and outperformance in Nikkei 225 index led by banking stocks, our risk scenario may become realized. Since the market has already priced in Fed rate cut, while has not priced in BoJ move, USD/JPY is unlikely to react much.

- **As we wrote in the note published on Sep. 10th, our bullish bias toward the yen has weakened for now, and we have decided to flatten out our USD/JPY projections.** Our mid-2020 target was previously 103, but our quarterly targets through mid-2020 are now flat at 107. In the very near term, we think the yen will depreciate and USD/JPY may test 109-110 level.

Exhibit 4: Correlation is strong, but Beta is low



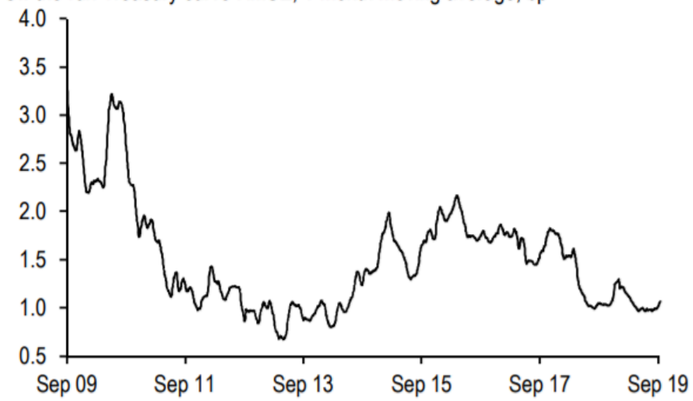
Source: J.P.Morgan

Treasury curve dispersion remains low despite more expensive financing

Turning to the off-the-run space, dispersion in off-the-runs remains near historically low levels. **Exhibit 12** shows the Root Mean Square Error (RMSE) of yields along our par fitted Treasury curve as a measure of yield dispersion: this remained relatively stable at the lower end of the range observed over the past decade.

Exhibit 12: Treasury curve RMSE remains near levels observed during the QE era...

Off-the-run Treasury curve RMSE, 1-month moving average; bp



Source: J.P. Morgan

Exhibit 13:...and though increased balance sheet pressures should bias RMSE higher, it's been offset by a relatively flat yield curve and, more recently, an end to Fed balance sheet runoff

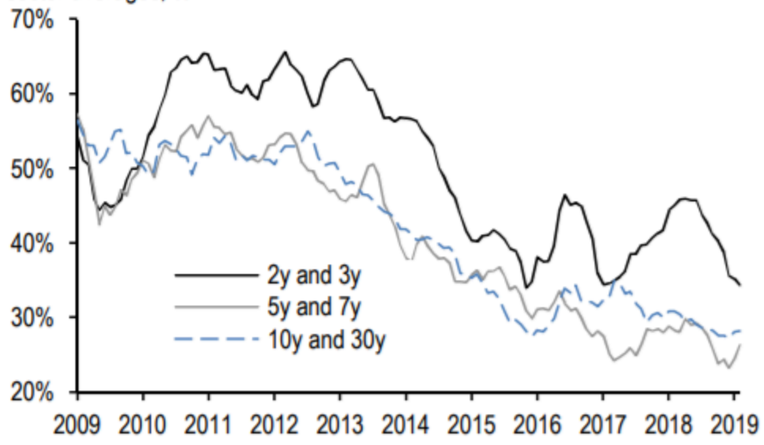
Three-month moving average of Treasury RMSE regressed on the 3-month moving average GCF/Fed funds spread (bp), 3-month moving average of dealer positions in UST, 3-month change in the Fed's Treasury holdings ($bn), and 3-month moving average of 2s/30s curve (bp); monthly regression over the last six years; bp

Variable	Current value	Coefficient	T-stats
Intercept		0.6	2.7
GCF/Fed funds, 3m MA; bp	12	0.048	8.2
Dealer positions in UST, 3m MA; $bn	241	-0.002	-3.2
Fed UST holdings, 3m chg; $bn	-23	-0.002	-3.6
2s/30s curve, 3m MA, bp	68	0.003	3.1
R-squared	95.2%		
Standard Error; bp	0.2		

Source: J.P. Morgan

Exhibit 14: Dealer demand at auction has declined in 2019, reversing last year's increase

Six-month average of dealers and brokers' share* of demand at Treasury auctions, sector averages; %

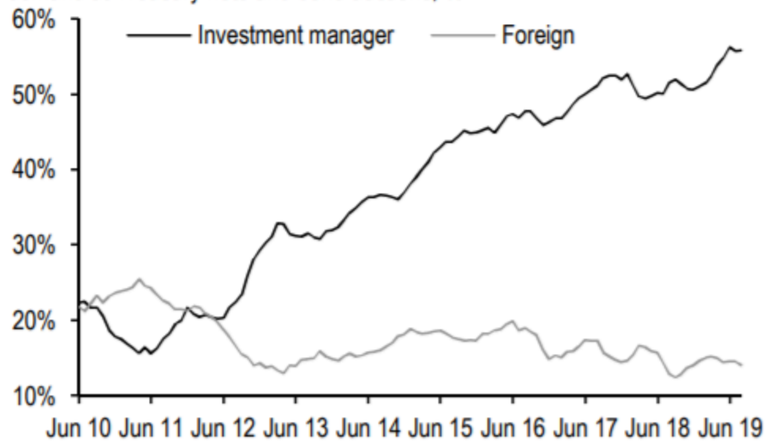


* Includes primary dealers, other commercial bank dealer departments, and other non-bank dealers and brokers

Source: US Treasury

Exhibit 15: Investment manager demand at auction continues to increase

Six-month average of investment fund* and foreign and international** share of demand at Treasury note and bond auctions; %



* Includes mutual funds, money market funds, hedge funds, money managers, and investment advisors

** Includes private foreign entities, non-private foreign entities placing tenders external of the Federal Reserve Bank of New York (FRBNY), and official foreign entities placing tenders through FRBNY

Source: US Treasury

In conclusion, liquidity conditions in the Treasury market have broadly deteriorated, with market depth declining to post-crisis lows and becoming less resilient—thus, if volatility remains high over the near term, market depth is likely to remain impaired. Moreover, recent events highlight the importance of HFTs in the current Treasury market structure, as they likely accounted for an outsized share of the pullback in liquidity provision this summer. Additionally, dealer inventories of Treasuries remain elevated near all-time highs, likely contributing to the recent volatility in financing rates. A widening in term GC/OIS rates implies that balance sheet has become scarce, reducing dealers' ability to warehouse risk. While we have not yet observed a rise in off-the-run yield dispersion along the curve, the Fed's secondary market purchases and a flat yield curve are likely keeping curve RMSE low. We expect the pace of Fed purchases to pick up beginning in November, which should slowly help to alleviate the buildup of Treasury collateral on dealer balance sheets over time, but this process should be slow.

TLTRO ARB?

To the extent banks do engage in these trades, from a purely profit-seeking perspective, we think the options for banks probably rank in the following order, assuming that some combination of optimization trades will likely be implemented:

1. Borrow at future TLTROs assuming benchmark standard met, deposit up to 6x tier at 0%, carry trade with any residual, for a profit of 50bp or more.

2. Borrow in the O/N market, but subject to daily rollover risk, credit perception changes and/or a shortage of banks willing to offer liquidity.

3. Sell negative-yielding government bonds, deposit at 0%, reallocate if short-term yields move back positive.

Sweetened TLTRO terms recently included in the ECB package may have been included in order to ensure that the benefits of the tier and the transmission of monetary policy were shared equally, considering that the majority of the TLTRO-II take-up currently sits in Italy/Spain and our equity colleagues expect a similar geographical mix of the future take-up. Additionally, rate cuts to the deposit rate and any impacts on Euribor, disproportionately impact Southern European lenders, due to floating loan books.

More broadly, our equity colleagues expect the net TLTRO-III take-up to reduce by ~50% from current levels, as the scheme is a marginal positive but unlikely to offer material benefits given cheap funding alternatives elsewhere. However, considering the €25-45bn potential headroom to optimize tier allowances in the context of ~€672bn TLTRO-II outstanding (pro forma for the first auction), we do not see a constraint.

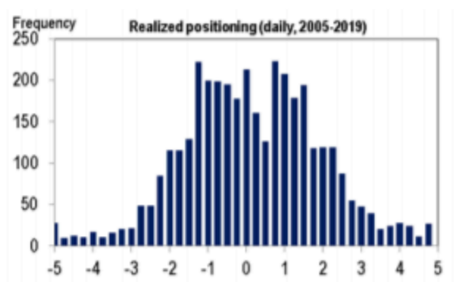
Source: Citi Research

- **Realized vs Unrealized:** Realized: "What is the outstanding market positioning (i.e. has there been net buy or selling recent history)?" This realized positioning data is what we use in the previous section where the time series goes back to 2005. Unrealized: "What is the unrealized profit or loss within the market (given the current outstanding market positioning)?" This unrealized positioning could be thought of as positions that could be activated but are not.

- **Futures:** "For exchanged traded future contracts public data is available on the trade activity (such as volumes and open interest) but net positioning is always zero (since exchange matches buyers and sellers). However, combining these measures with price action we can estimate 1) if the aggressor was a buyer or seller, and 2) if the trade was a covering an existing position or initiating a new position. Performing this analysis on a day by day basis creates a "trade activity" history over a 3mth period which can be converted into a snap shot of cumulative positioning and unrealized P&L."

- **Cash:** "In the cash markets the situation is different. There is no publicly available information and hence we look at the trades executed on Citi trading book with real and fast money accounts. In contrast to futures, trade direction is clear however absolute trade position (of the client) is unknown. In this case, RPM assumes that trade positioning is zero at the start of a 3mth period, and the reported positioning is the cumulative sum of the traded flow. Similar methodology is used to calculate level of covered trades, unrealized P&L and visualization."

Figure 10. Realized Positioning



Source: Citi Research

Daily Positioning Data Beat the Random Walk

The specific data we start with is the realized positioning (the average of both cash and futures positioning) available beginning in 2005 (Figure 10). This positioning data comes from Citi's trading desks and describes buying and selling flows of the 10-year over the previous three months. A positive value for positioning indicates that there has been net buying of the asset recently (previous 3 months), while a negative value indicates net selling. The data are normalized from -5 to +5. Therefore, for the 10-year yield, a positive positioning score (1 to 5) should be associated with negative moves in the yield. These data are not distributed in a normal distribution, in that the daily realized positioning is not the norm. The mean of 0.25 is consistent with the bull market.

First, we run a variety of regressions of the RPM positioning data vs. the 10-year yield to determine if there is any additional statistical value to the RPM data relative to a random walk regression of the 10-year yield. **We find that both the**

Should we care about positioning or changes in positioning? Over the 3-month period that is the window for the RPM, the positioning represents a flow of buying, with the 1 to 5 representing 'how much'. On the other hand, the delta of the positioning can be thought of as a second derivative, which measures how that rate of buying/selling is increasing or decreasing. These results suggest that it is the rate of change of buying/selling in a 3 month period (herding?) that is relatively more relevant for the 10-year yield as compared to the amount of net buying or selling over the 3-month period.

Starting in 2017, more disaggregated information about positioning is available. Testing the hypothesis in the RW formulation, **we find that changes in realized futures positioning and changes in unrealized cash positioning, when added to the random walk equation, are statistically significant.** Unrealized futures and realized cash are not significant, nor are any of the level of positioning for any of the measures.

- **Random walk plus disaggregated positioning data, sample from 2017**
  - **Random walk plus change in realized futures positioning:** *Actual (t) = 0.03 + 0.989*actual (t-1) – 0.05* Δrealized futures positioning (t).*
  - **Random walk plus change in unrealized cash positioning:** *Actual (t) = 0.03 + 0.989*actual (t-1) – 0.02* Δunrealized cash positioning (t).*

Graphically, the negative relationship between realized futures and the yield is evident (Figure 11). Even more interesting is how the relationship seems to have changed over time (Figure 12). In 2017, realized futures positioning was strongly and negatively correlated with the yield. However, this relationship seems to have broken down in 2018, and perhaps even reversed in 2019. This observation matches the rising vs. falling rate environment presented in Figure 4 - Figure 6.

Indeed, returning to Figure 4 (market forecasts and implied forwards), the high correlation between the yield and futures positioning in 2017 corresponds to large gaps between market forecasts and implied forwards that year. This gap then shrinks in 2018, and the positioning-yield correlation disappears.

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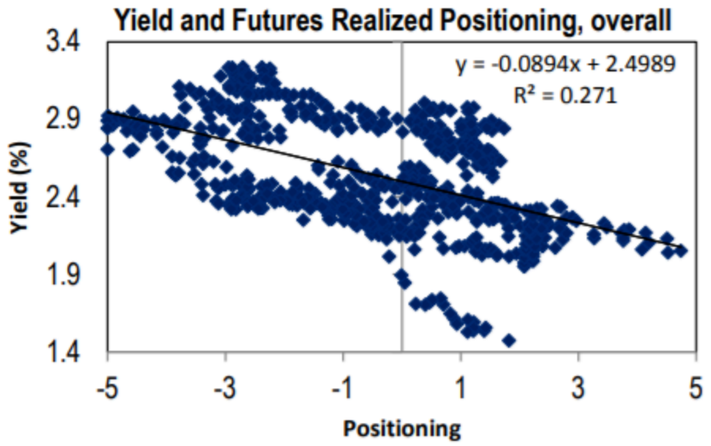
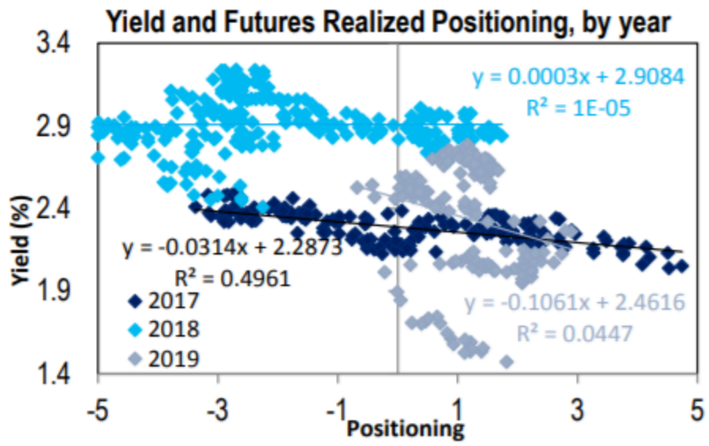
[1] We only find statistical significance using Δpositioning(t) but not at Δpositioning(t-1), Δpositioning(t-2), etc.

Figure 11. Yield vs. realized futures positioning, 2017-2019



Source: Citi Research

Figure 12. Yield vs. realized futures positioning, by year, 2017-2019



Source: Citi Research

Changing correlations over time and the interest rate environment

To dig deeper into the potential relationship to the interest rate environment, we return to a longer time series of positioning data, that includes not just realized but also unrealized, cash and futures. (Figure 13) The unrealized positioning data look more like a normal distribution (with a mean near zero at 0.10, but with a tighter distribution SD=1.16).

Figure 13. Monthly Positioning Data

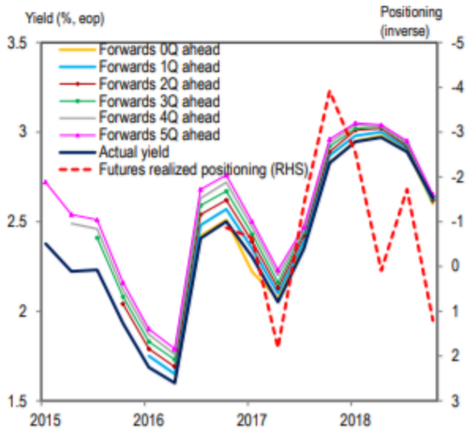
Source: Citi Research

An examination of the 2-year rolling correlation between percentage point changes in the 10-year yield and changes in both monthly realized and unrealized positioning shows a notable but dynamic relationship (**Error! Reference source not found.**). As expected (through intuition and the previous regression), realized positioning and the yield tend to have a negative correlation, although this correlation reached zero 2008-2010 (the height of QE). Meanwhile, unrealized positioning seems to be less correlated, even becoming positively correlated at some points (including most recently).

When adding monthly realized and unrealized positioning to the random walk model, realized positioning adds significant explanatory power, whereas unrealized doesn't. Thus, it is action taken in the market as measured by the realized positioning score that matters for the yield, not unrealized positioning.[2]

Combining Market and Positioning Data

Figure 14. 10-year yield vs. implied forwards vs. futures realized positioning



Source: Bloomberg, Citi Research

To tie together the market data and the positioning data, we built a simple model to relate realized futures positioning data (Figure 14) and the implied forwards data from Bloomberg (Figure 3), with the goal to see if changes in market views about the future yields are reflected in both positioning data and market forwards.

As with the constructed series in the random walk models at the beginning, because the implied forwards in Bloomberg are disconnected points (e.g. at each point in time, there are implied forwards for one quarter ahead, two quarters ahead, etc.), we construct a single continuous time series of implied forwards by finding, at a given point in time, what the implied forwards suggest the yield should be X quarters in the future. For example, for our series "Forwards 0Q ahead", the value at September 30, 2016 would be the implied forward for Q3'16, the value for December 31, 2016 would be the implied forward for Q4'16, and so on. For our series "Forwards 1Q ahead", the value at September 30, 2016 would be the implied forward for Q4'16, the value for December 31, 2016 would be the implied forward for Q1'17, and so on. We repeat this to create six different series, all the way up to 5Q ahead (Figure 14).

Figure 15. Regressions of futures realized positioning against implied forwards of the yield at various points in the future

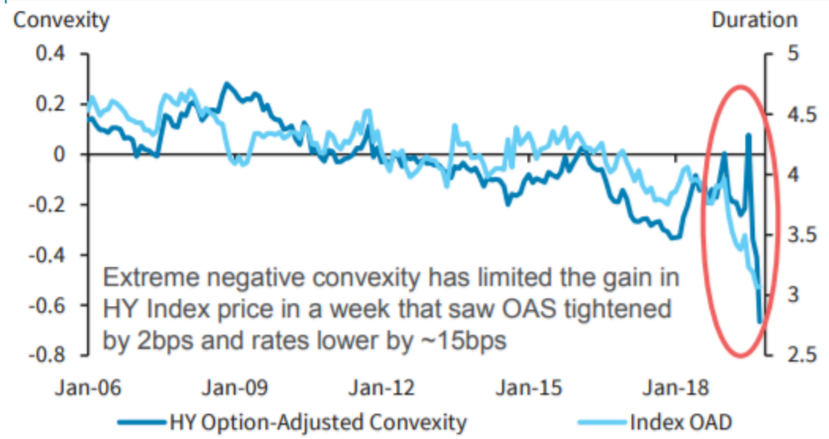
Dependent variable	Coefficient	R^2
Forwards 0Q ahead	-0.124	0.349
Forwards 1Q ahead	-0.123	0.376
Forwards 2Q ahead	-0.121	0.379
Forwards 3Q ahead	-0.119	0.390
Forwards 4Q ahead	-0.117	0.395
Forwards 5Q ahead	-0.114	0.397

Note: none of the regressions are statistically significant. Source: Citi Research

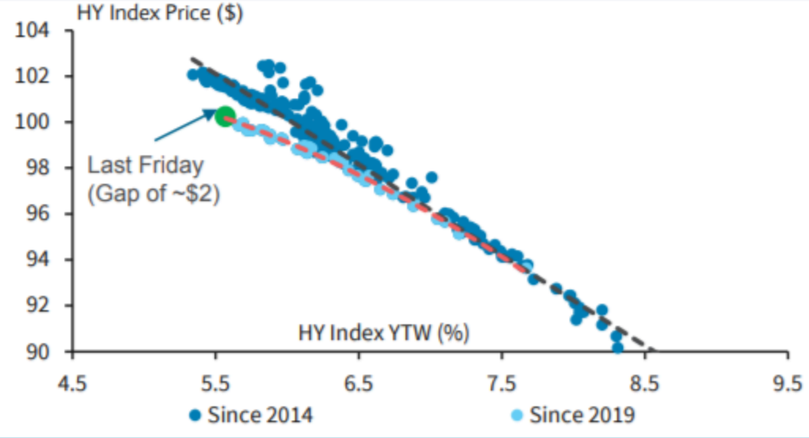
We then use realized futures positioning to try to predict the value of the implied forward. Due to data availability (only 9 quarters of data going back to 2017), the results are limited, and none of the regressions are significant (Figure 15). That being said, we still find some indication that futures positioning is correlated with implied forwards, suggesting that **positioning movements expressing predictions (through futures contracts) are possibly being reflected in market measures of predictions (through implied forwards).** An increase in buying of futures contracts is correlated with a decrease in the implied forward yield, which makes intuitive sense.

We continue to watch negative convexity which limits price upside, especially for BBs. Single-Bs increasingly look like the sweet spot

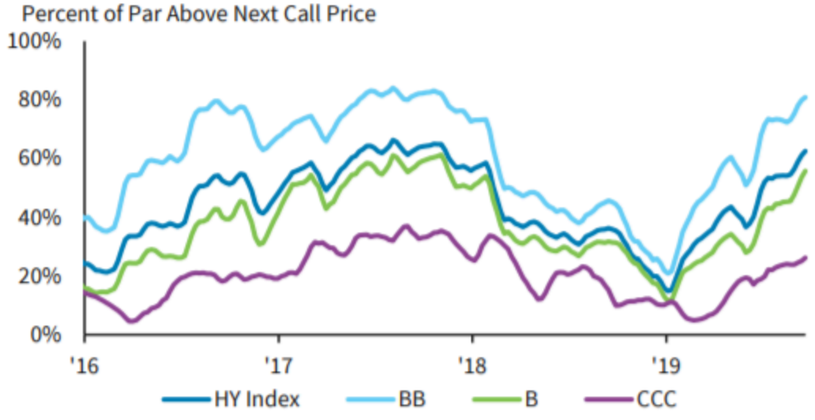
HY OAD and Convexity at an All-time Lows



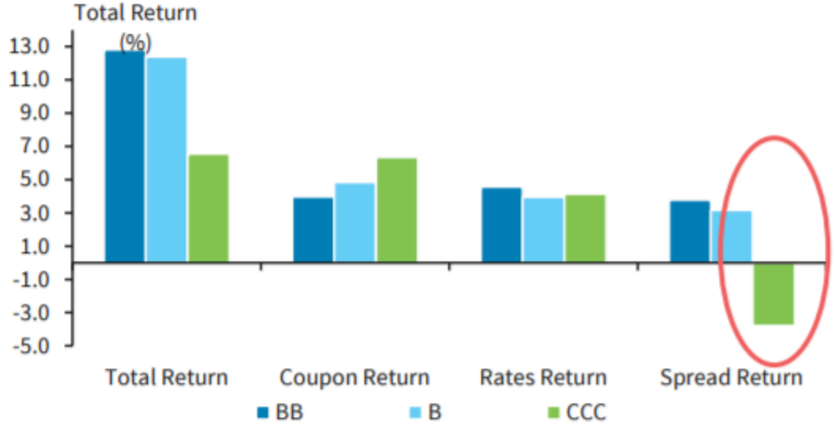
Negative Convexity Limits Px Upside



BBs Remain Most Call-Constrained



Breaking Down the HY YTD Returns



Source for all charts: Bloomberg, Bloomberg Barclays Indices, Barclays Research

BARCLAYS

EM & FM

EM POLITICAL HEAT MAP

Nestor Rodriguez + 52 555241 3325 nestor.rodriguez@barclays.com

Societal stability events (SSE)* and elections calendar for emerging market countries

*Events that threaten societal stability including political expression events, politically motivated attacks, disruptive state acts, political power reconfigurations and mass movements of people.

Shading of cells refers to degree of importance attached to electoral milestone: high moderate low

▲*Protests or strikes* ● *terrorist attacks* ■ *civil strife* P - *Presidential*, G - *General/Parliamentary*, L – *Local*, *R-Referendum.*

	2019												2020											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
EM Asia																								
Hong Kong											L										G			
India					G					L														
Indonesia				G																				
South Korea																G								
Malaysia																								
Philippines					L																			
Singapore																								
Taiwan													G											
Thailand	G																							
EMEA EM																								
Hungary																								
Kazakhstan						P									P									
Poland										G						P								
Romania											P										L			
Russia										L						L								
Turkey			L																					
Ukraine						P		G																
Egypt														G	G									
Ghana																					P			
Iran															G									
Ivory Coast																	G							
Jordan																	G							
Kuwait																		G						
Nigeria	P																							
Qatar																								

CREDIT SUISSE

Central Bank Watch: Emerging Markets

Central bank	Policy instrument(s)	Current	in 3M	in 12M	Comments/Expectations
Brazil (BCB)	Policy rate (%)	6.000	4.500	4.500	The Central Bank of Brazil cut the Selic interest rate from 6.00% to 5.50% at its meeting of September. In the communiqué released after the meeting, the monetary authority indicated a more favorable dynamic for inflation even in scenarios that consider the recent depreciation on the exchange rate. We expect the central bank to cut the policy rate by 50bps in October's meeting and one more cuts of 50bps in the December meetings, setting Selic at 4.5% and keeping it on hold until the end of 2020.
Mexico	Policy rate (%)	8.00	7.00	6.00	The central bank cut the overnight rate by 25bps, to 8.0%, in its August meeting. This was in line with our expectations; the market had been split between no cut and a 25bps rate reduction. The board's vote in favor of the interest rate cut was four to one; the dissent vote was for no change in the policy rate. On the growth front, the bank wrote that slack conditions have widened more than previously expected. On the inflation front, the bank wrote that there is still "marked uncertainty" about the risks to inflation and that it will be watchful of the possible materialization of risks of higher and lower inflation. Our central scenario continues is that the bank will keep reducing the overnight rate, taking it to approximately 6.00% by mid-2020.
Russia (CBR)	Policy rate (%)	7.25	6.75	6.50	As we expected the CBR opened the door for policy easing on 14 June and continued with another 25bps cut on 29 July. Taking into account a more accommodative global financial conditions and our favourable outlook on inflation, we keep our view unchanged, expecting the CBR to continue cutting the policy rate by 50bps, to 6.75% in 2019 and by at least another 25bps, to 6.5% in 1H 2020.
South Africa (SARB)	Policy rate (%)	6.50	6.50	6.50	We treat the recent SARB decision to cut the policy rate as a desire to fine-tune its monetary policy stance, mainly reflecting a big shift in the global financial conditions. We do not expect any further change in the monetary policy unless central banks in developed economies shift to a more accommodative monetary policy.
Turkey (CBRT)	One-week repo rate (%)	16.50	16.00	18.00	On our forecasts, headline inflation will decline further to the vicinity of 10% (with some chance of below-10% prints) in September-October due to favorable base effects, and will increase to around 12% in November as the base effects start to turn unfavorable. We think that the MPC might cut the policy rate further to 16.00% in October, but the risk to this forecast is to the downside given President Erdogan's statement on 8 September that the interest rate will be lowered to single digits. We think that the attainability of the central bank's end-2020 inflation forecast of 8.2% might require monetary policy tightening of 200bps in 2020.

China (PBoC)	Lending rate (%)	4.35	4.35	4.35	In light of the recent introduction of LPR (Loan Prime Rate), the benchmark lending rate became less relevant as a policy rate indicator. Once additional visibility becomes available, the policy reference rate will be switched from benchmark lending rate to LPR. We expect another round of RRR adjustments between now and the Chinese New Year.
India (RBI)	Repo rate (%)	5.40	5.00	4.75-5.00	With Q1 FY20 growth surprising heavily to the downside by registering 5.0%yoy, FY 2020 growth is very likely to fall below the central bank estimate of 6.9%yoy. We expect the RBI to cut the policy rate by another 40-50bps in the October meeting to address growth concerns and continue to maintain its accommodative stance. We can expect another possible cut of 25bps by the end of FY20 if growth continues to surprise to the downside.
South Korea (BoK)	Policy rate (%)	1.50	1.25	1.00	With the outlook for inflation remaining weak, BoK is likely to lower policy rates by another 25bps on October 16. We also see room for rate cuts in 2020.
Taiwan	Policy rate (%)	1.38	1.38	1.25	We expect inflation to remain soft through the rest of the year as domestic demand remains tame. We expect the CBC to keep rates unchanged this year but we see rising possibility of a policy rate cut of 12.5bps in 1Q20.
Indonesia (BI)	Policy rate (%)	5.25	5.00	4.75	Bank Indonesia is likely to deliver another 25bp policy rate cut by end-2019, followed by another possible 25bp cut in Q1 of 2020.

Figure 2. Investor flows have resumed downtrend for KRW

Source: Citi Velocity

Asia: KRW's underperformance resumes

Citi flows data suggest negative flows for KRW over past couple of months. After the significant corrective move lower in USDKRW, this resonates with the resumption of uptick in USDKRW. Weak data run, dovish comments from the BoK, and wobbly risk sentiment may be driving this resumption of bearish KRW moves. We discuss the macro and market factors in our note: Path for USDKRW, Upwards. We do acknowledge that positioning and sensitivity to news-flow may risk choppy price action for the won in an otherwise upward USDKRW trend. Hence, investors may consider USDKRW call spreads, leveraged call spreads and calls with EKOs to express the bearish KRW view.

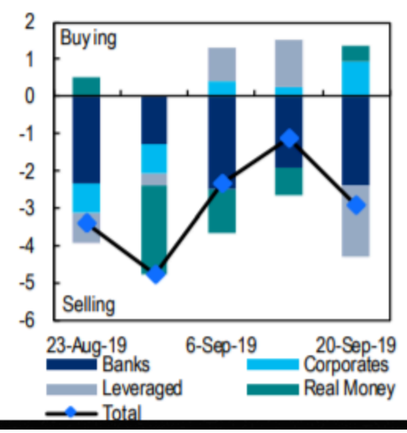
Figure 3. Real money 4-week avg flows and USDTRY (inverted, RS)

Source: Citi Velocity

CEEMEA: RM inflows into TRY

CEEMEA FX saw net inflows last week on the back of the Fed rate cut. There were inflows from RM investors into RUB due to higher oil prices after the attack on the Saudi oil facilities early last week. There were cautious inflows into low-yielders ahead of rate decisions this week, namely HU and CZ (both likely to keep unch.). Surprisingly, RM and leveraged investors increased positioning in TRY despite a fall in consumer confidence (55.8 vs 58.3 prior). We are monitoring headlines from the U.N. general assembly where there could be sideline trade talks between Presidents Trump and Xi and also the sentiment in CEEMEA FX following disappointing Eurozone manufacturing PMIs this morning.

Figure 4. Latam weekly flow by client type



LATAM: Leveraged flow turns negative

Leveraged accounts net sold Latam FX last week, selling all currencies except the ARS. The outflow reverses two weeks of inflow earlier and reflects a turn in EM sentiment. With US-China trade tensions unresolved, weak data out of China and Europe, and a somewhat hawkish Fed, leveraged flow behavior doesn't bode well for Latam FX in the near term.

Valuation rankings: Indonesia, Brazil and Turkey are ranked at the top, while Peru, Poland and the Czech Republic at the bottom.

Figure 4: EMFI Scorecard: Countries ranked from best long (rank 1) to best short (rank 18)

Countries	Final Rank	Technicals/Financials						Valuation/Dynamics					
		Positioning	Liquidity	Credit Risk	Real Rates	External valuation	Overall Technicals	Term Premium	Monetary Policy Impulse	Inflation impulse	Bond valuation	Expected return	Overall Valuation
India	1	3	4	6	4	13	1	5	9	13	2	1	3
South Africa	2	11	1	17	2	7	4	1	14	3	3	11	5
Indonesia	3	15	16	10	4	1	9	5	2	13	1	3	1
Russia	4	8	11	13	3	3	4	11	11	8	6	4	6
Malaysia	5	6	8	2	4	12	3	15	6	5	15	8	10
Turkey	6	1	18	18	8	8	12	10	1	9	8	2	3
South Korea	7	10	6	2	11	16	7	17	4	5	9	5	6
Brazil	8	12	13	15	8	11	16	2	6	1	14	6	2
Israel	9	2	3	7	13	6	2	13	14	2	16	14	14
Colombia	10	13	10	14	7	9	12	5	11	10	7	9	8
Thailand	11	9	2	1	10	17	6	18	5	12	11	10	13
Mexico	12	14	9	16	1	15	15	16	3	18	4	7	9
Hungary	13	7	14	9	16	2	10	8	18	4	12	17	14
Romania	14	5	17	12	15	4	12	3	8	17	13	13	12
Peru	15	17	7	5	13	10	11	8	16	11	10	15	16
Poland	16	4	5	4	18	14	7	13	10	15	17	18	18
Chile	17		12	11	12	18	18	4	11	7	18	12	11
Czech Republic	18	16	15	8	16	5	17	11	16	16	5	16	17

Source : Deutsche Bank

Compared to the July Scorecard, Mexico (+5) and Turkey (+3) improved the most, while the rankings deteriorated the most for Malaysia (-4), Thailand (-4) and Hungary (-3).

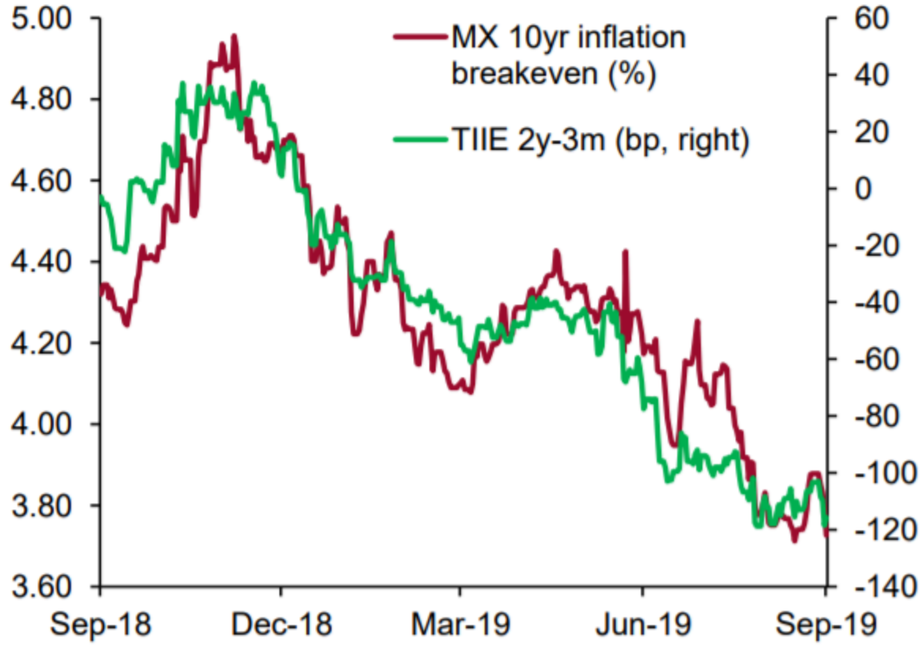
Figure 6: Compared to July, Mexico and Turkey improved the most, while deteriorated the most for Malaysia and Thailand

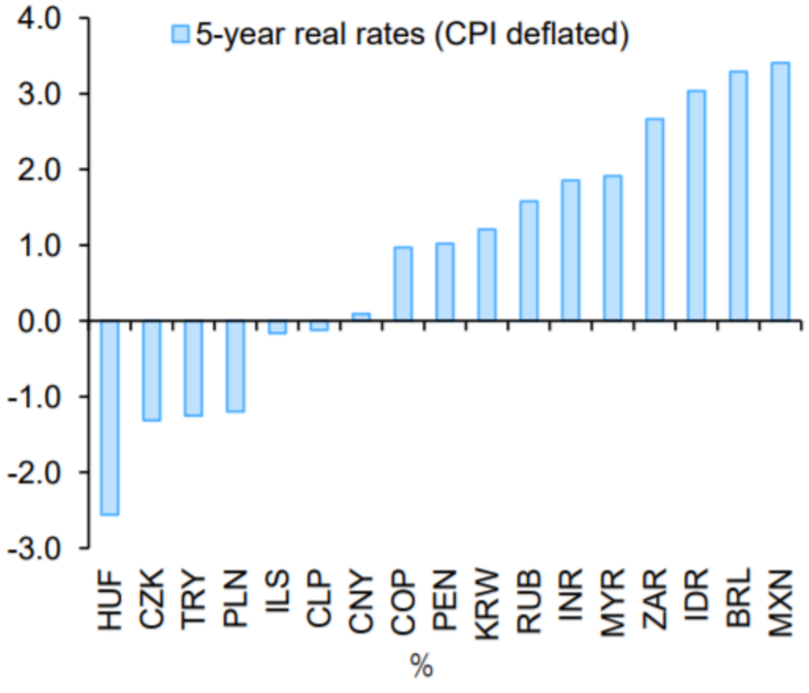
changes vs previous EMFI Scorecard													
Countries	Final Rank	Technicals/Financials						Valuation/Dynamics					
		Positioning	Liquidity	Credit Risk	Real Rates	External valuation	Overall Technicals	Term Premium	Monetary Policy Impulse	Inflation impulse	Bond valuation	Expected return model	Overall Valuation
India	1	0	1	-1	0	4	2	10	-5	-8	7	2	2
South Africa	2	2	0	-1	3	1	4	0	0	-2	3	1	-2
Indonesia	0	0	0	0	-3	8	1	1	0	-11	6	-1	0
Russia	1	2	0	1	3	-2	3	0	0	-2	-3	7	2
Malaysia	-4	-1	0	1	-2	-2	-2	-3	0	7	-11	-3	-4
Turkey	3	0	0	0	-1	4	2	5	7	0	-6	-1	1
South Korea	1	2	1	0	-2	-1	2	-9	4	-3	8	3	3
Brazil	-2	-3	0	-3	0	0	-5	0	-5	8	2	-2	0
Israel	2	0	-1	6	1	-4	0	1	-3	6	-3	3	3
Colombia	2	-2	-1	-3	2	4	-1	0	-6	6	5	-2	2
Thailand	-4	-3	1	0	3	-3	-2	0	-2	-5	3	-4	-1
Mexico	5	0	1	0	2	1	2	1	11	-2	-3	6	6
Hungary	-3	0	0	-2	2	5	1	-1	-12	-2	-1	-2	-7
Romania	0	3	0	2	1	-1	3	-1	6	-2	-8	-4	-2
Peru	-2	0	-3	-2	-2	-6	-5	1	-2	5	0	-5	-3
Poland	-1	0	0	2	-1	-8	-2	0	3	-3	-2	0	0
Chile	1		0	-3	-1	0	0	0	-1	5	0	4	3
Czech Republic	-2	0	0	0	-2	0	-2	-1	2	-5	3	-2	-2

Source : Deutsche Bank

MXN: Carry gives scope to outperform EM, not USD

- High nominal and real rates have allowed MXN to outperform the rest of EM FX since the resumption in US-China trade turbulence in early August.
- USDMXN is nevertheless still above the levels that prevailed during the benign June-July 2019 period, even amid strong bullishness in the rates markets and high FX carry.
- Ultimately the MXN outlook vs the USD is more dependent on geopolitical developments than on domestic factors. Carry still calls for outperformance vs the rest of EM FX.



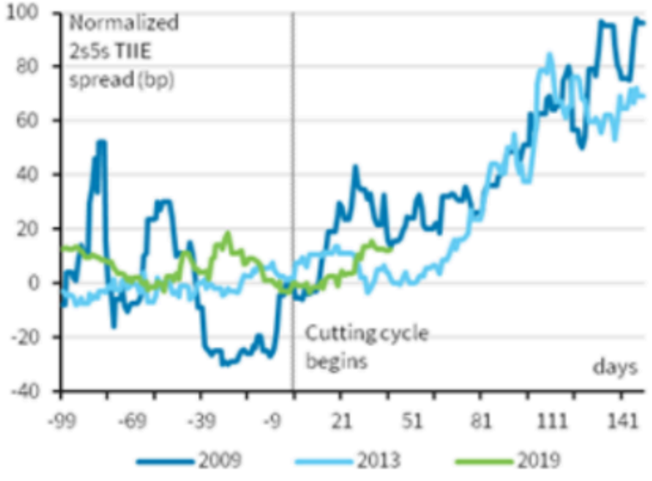


Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service


Mexico's Risk Meter
Pemex - Mexico 2027 yield spread
3.6
3.5
3.4
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
Percentage points
Mar
Apr
May
Jun
Jul
Aug
Sep
2019
Source: Bloomberg
Bloomberg

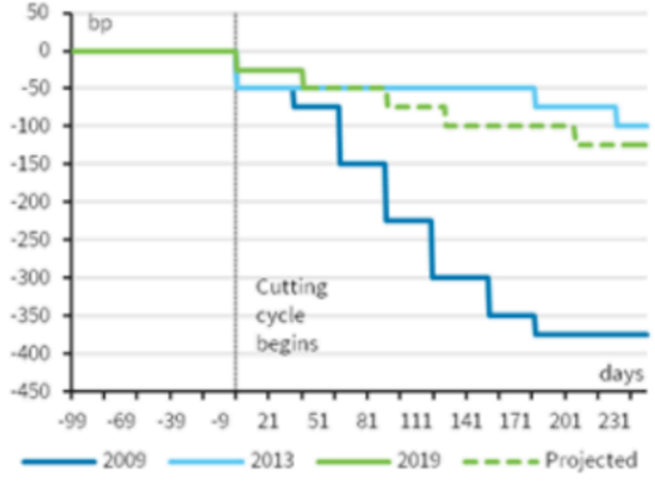
Source: Bloomberg, Barclays Research

Figure 2: The TIIE curve steepens during Banxico's cutting cycles, but…



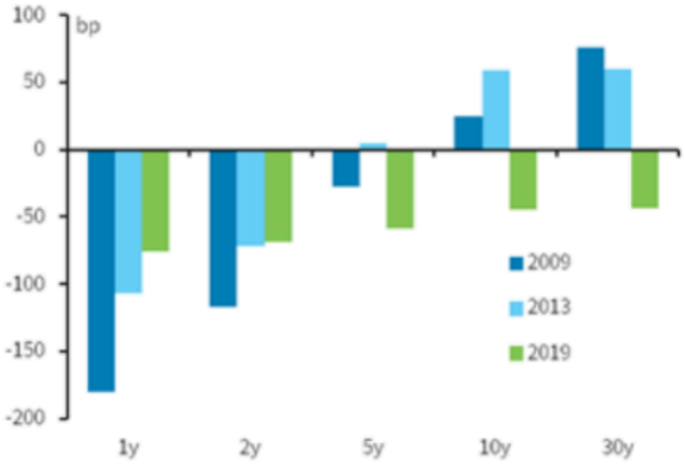
Note: The chart shows the 2s5s TIIE spread normalized to zero at the beginning of each cutting cycle. Source: Bloomberg, Barclays Research

Figure 3: … we believe that Banxico is likely to follow a gradual approach for now…



Note: The chart shows the cumulative change in Banxico's policy rate during previous cutting cycles and Barclays forecast for the current one. Source: Bloomberg, Barclays Research

Figure 4: … while significant upside moves in the long end of the curve could be contained



Note: We show the cumulative changes in different nodes of the TIIE curve during Banxico's cutting cycles: January 2009 to July 2009, March 2013 to June 2014, and August 2019 to present. Source: Bloomberg and Barclays Research

HSBC Global Research

26 September 2019

Mexico rates

Banxico: Speed rather than distance

Fixed Income
Rates

Mexico

- Room for steepening with faster easing cycle rather than lower terminal rate
- Risks may not allow more cuts than already priced in
- Value in Mexico rates; negative carry in front end; we stay long duration

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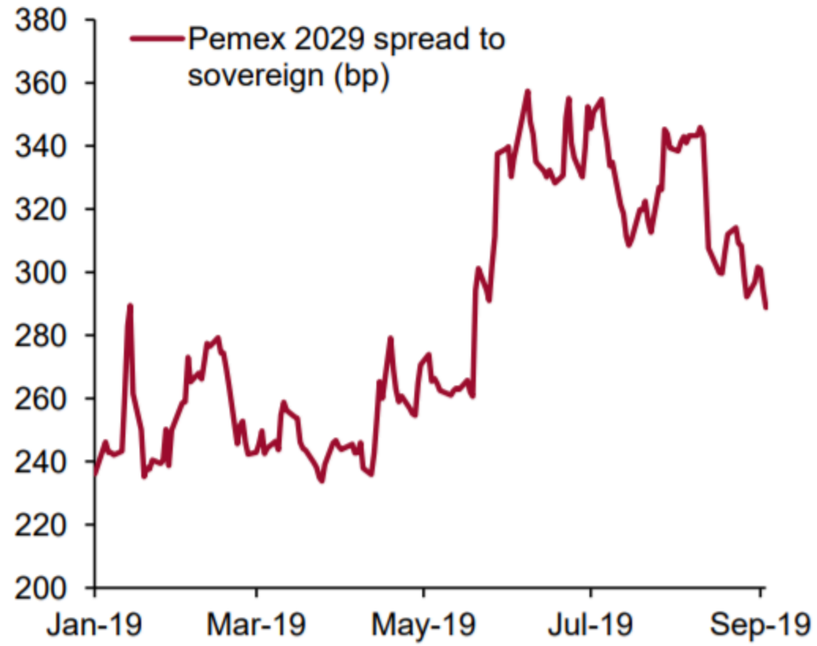
Rates: a matter of speed rather than distance

In Mexico, the curve is finally giving signs of a moderate steepening move after Banxico signaled a more dovish attitude in the way the board is now voting. The front-end of the curve may begin to outperform the belly and long-dated tenors. This is because markets are likely to make the interpretation that Banxico could now front-load the easing cycle as two members voted for a 50bps rate cut while the other three voted for a 25bps cut.

MXN: Budget outlook & Pemex rating risks limit strength

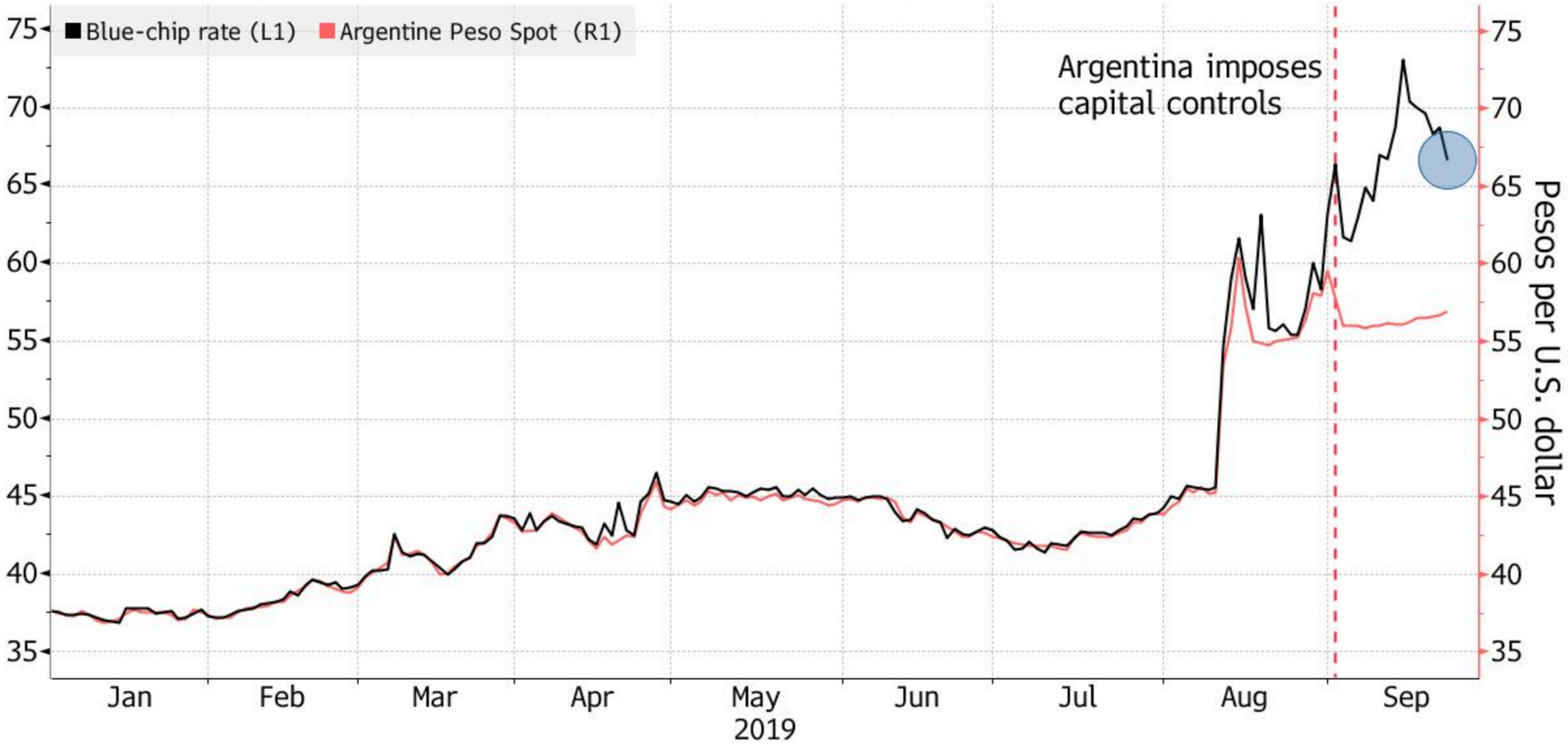
- Idiosyncratic risks leave us looking to buy USDMXN below 19.40 with a 20.15 target.
- Growth assumptions for 2019 and 2020 in latest budget seem unrealistic.
  - Creates potential for budget numbers to start surprising negative in coming months.
- Fitch downgraded Pemex to 'junk' in June, another downgrade before year end is likely.
  - Bonds trading wide to sovereign suggests this would not be a complete surprise.
  - The potential for outflows from rating constrained investors would still be significant.



Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Widening Gap

Peso blue-chip swap is near record lows after capital controls



Source: Bloomberg

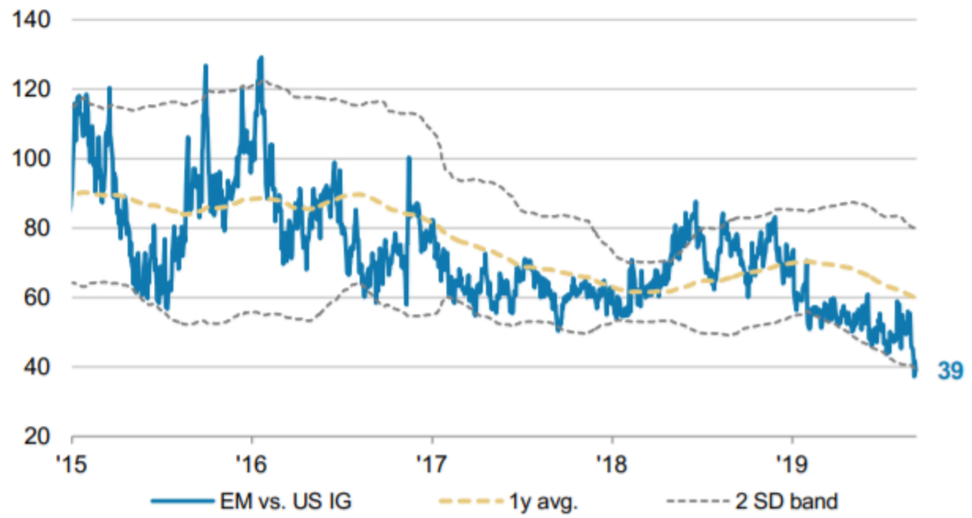
No Panic

Implied volatility on EM currencies remains below the average in the past year

Source: Bloomberg

EM HY also looks cheap versus IG... The analysis above suggests that being positioned in EM HY versus IG is the better hedge against rising UST yields. Valuations also back this up, where EM IG spreads have outperformed US IG (Exhibit 18) and now look very rich compared to EM HY, which has generally lagged US HY (Exhibit 19).

Exhibit 18: EM IG looks very rich versus US IG spreads...



Source: Bloomberg, Morgan Stanley Research

Exhibit 19: ...while EM HY has underperformed US HY

Source: Bloomberg, Morgan Stanley Research

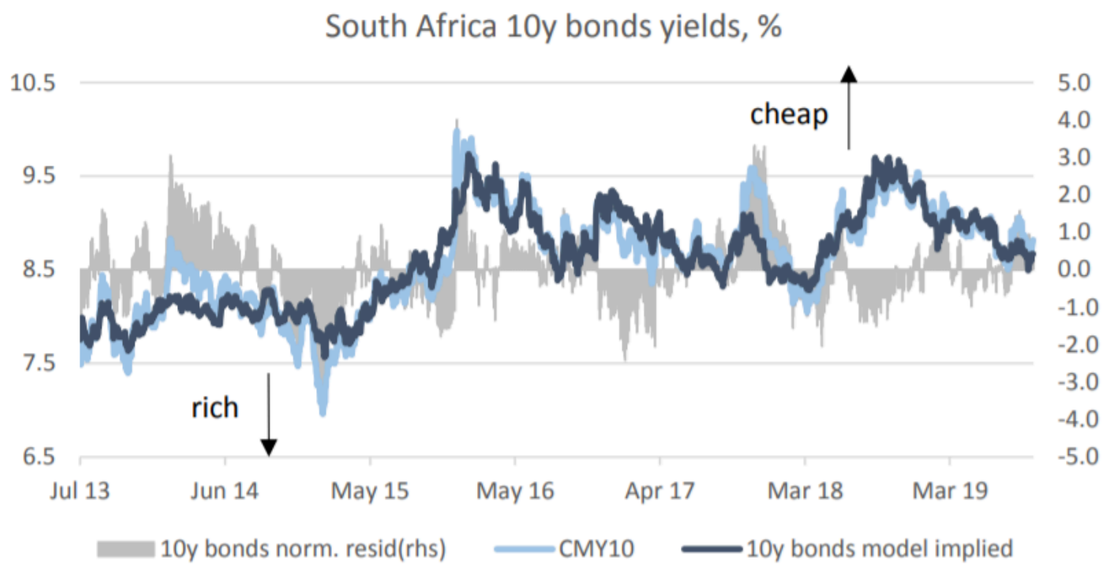
Comparing EM HY versus EM IG, and excluding the more idiosyncratic names VENZ, ARG and LEB, also shows EM HY as the cheaper part of the asset class (Exhibit 20). The HY-IG differential remains 55bp wider than the average differential over the last 12 months and the HY/IG ratio has increased sharply as well, indicating that at the margin there is better spread cushion now in the EM HY credits.

BHRAIN 7 10/12/28 $↑111.919 -.463 111.612/112.225 5.362/5.282
As of 25 Sep --x-- Source CBBT
QZ7711026 Govt 96) Actions G #BTV 3946: Bahrain Vs Sth Africa
01/04/2019 - 09/26/2019 USD
1D 3D 1M 6M YTD 1Y 5Y Max Daily Table Chart Content

Yield Convergence

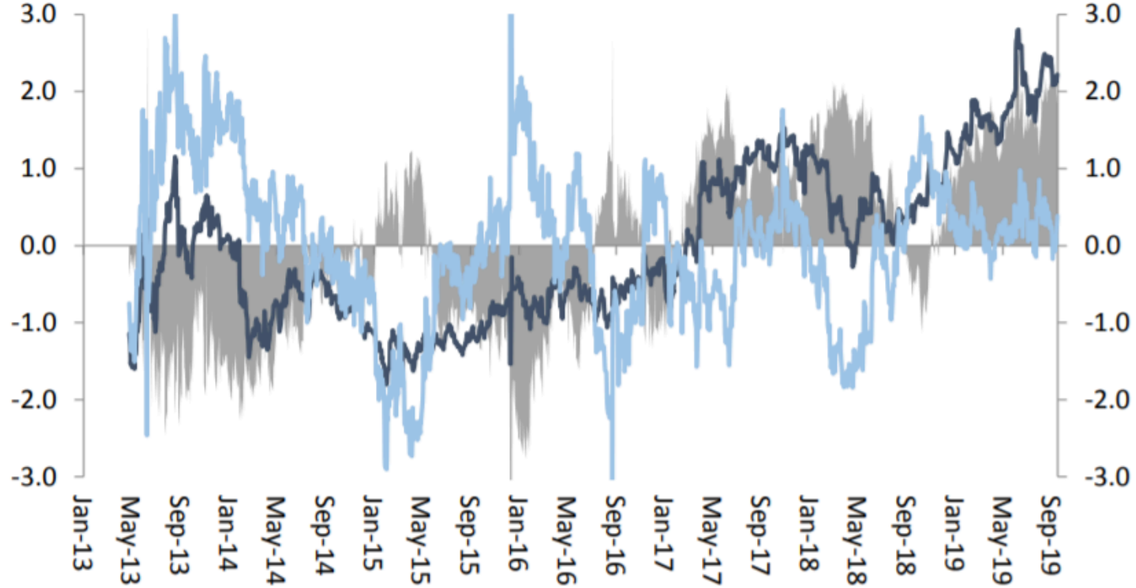
South Africa's risk premium is rising toward Bahrain's

Figure 61: 10y bond yields - model vs actual



Source : Deutsche Bank

Figure 62: Term premium - bonds vs swaps



Source : Deutsche Bank

SOAF 4.85 09/30/29 $↑98.977 -1.130 98.900/99.053 4.991/4.971

As of 25 Sep --x-- Source BVAL

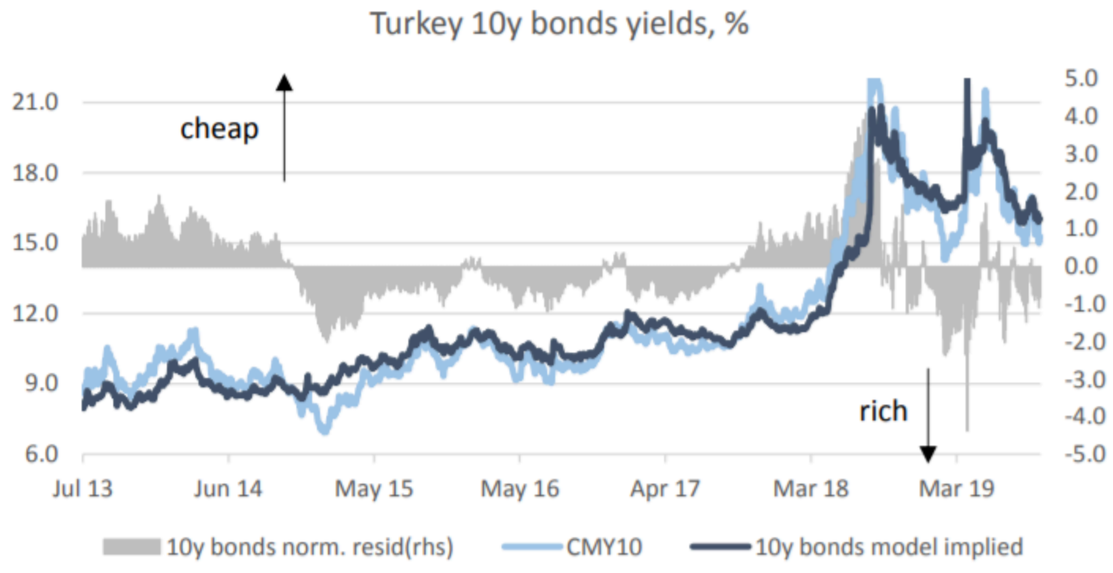
SOAF 4.85 09/29 Corp 96) Actions G #BTV 3915: Sth Africa Dollar Bonds

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

Steep Climb

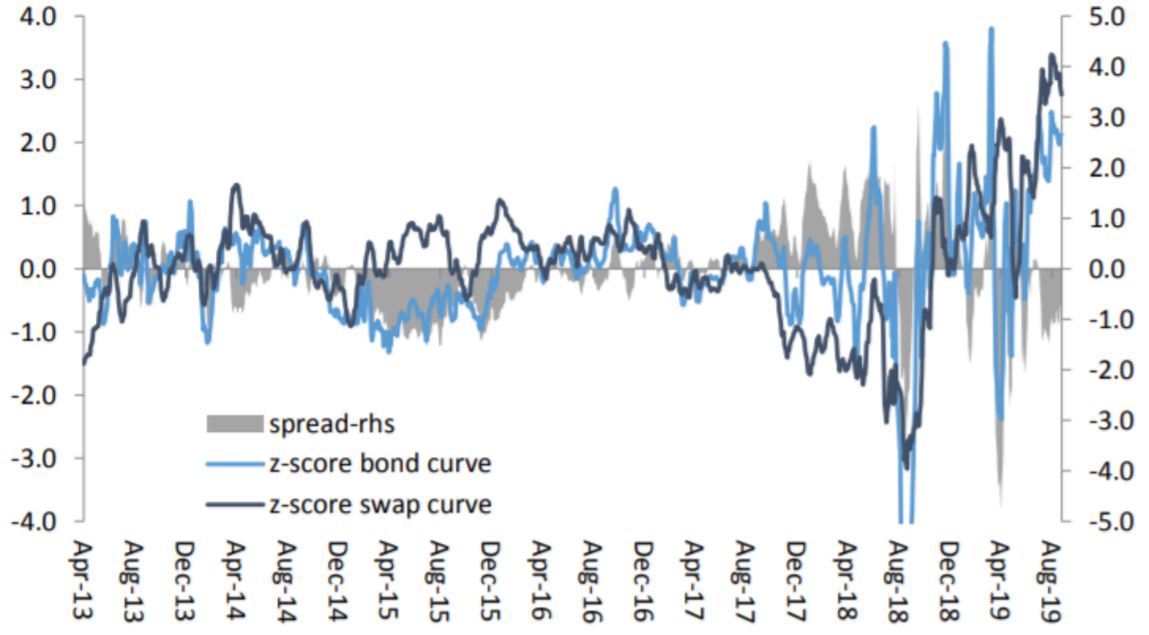
Yields on South Africa's newly issued dollar-bonds are already climbing

Figure 66: 10y bond yields - model vs actual



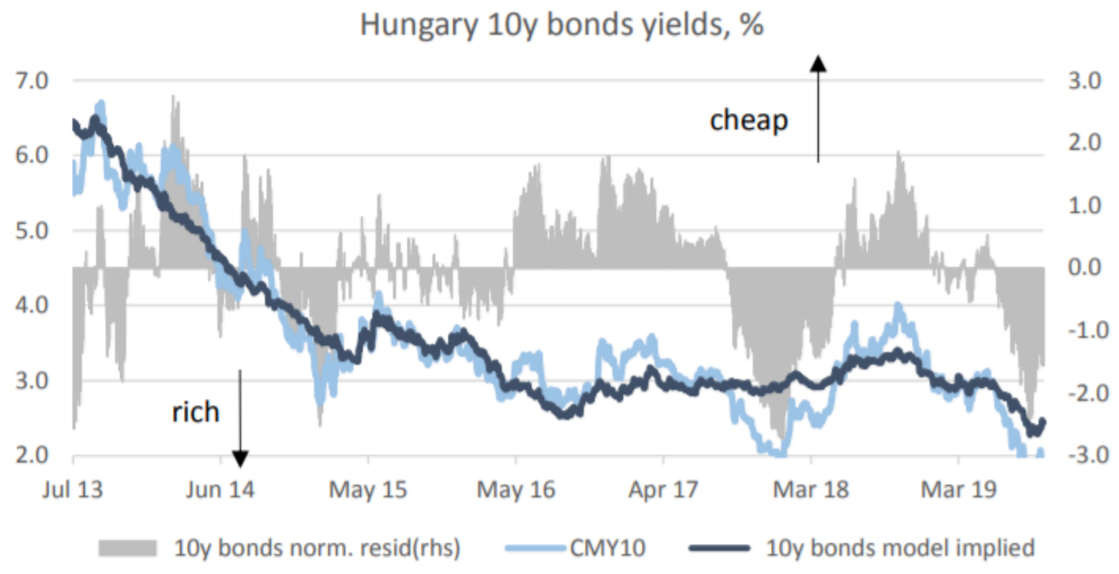
Source : Deutsche Bank

Figure 67: Term premium - bonds vs swaps



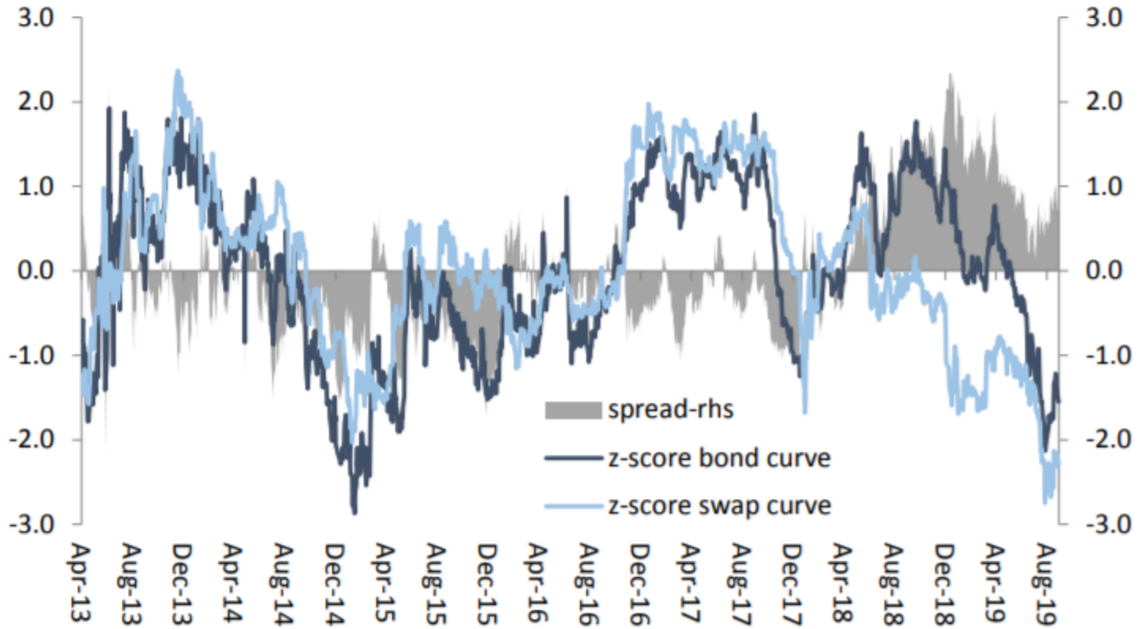
Source : Deutsche Bank

Figure 41: 10y bond yields - model vs actual



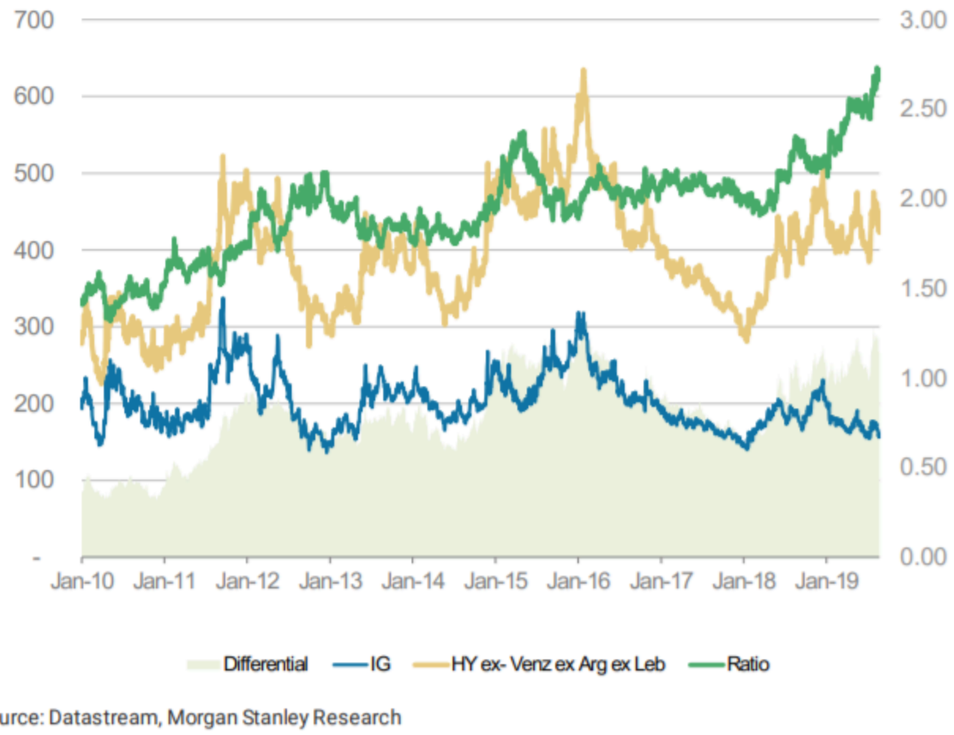
Source : Deutsche Bank

Figure 42: Term premium - bonds vs swaps



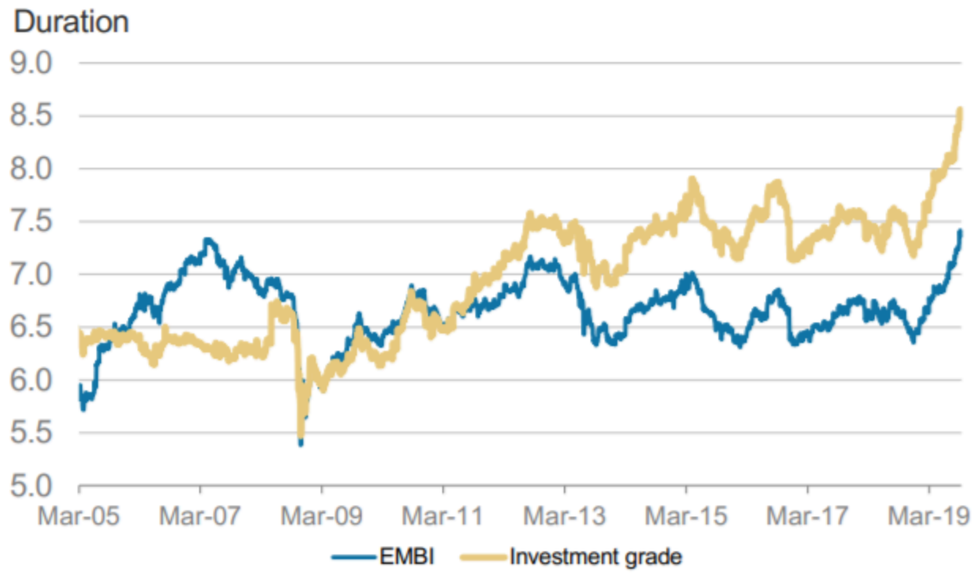
Source : Deutsche Bank

Exhibit 20: EM HY also cheap versus EM IG, including when adjusting for the main idiosyncratic credits



Source: Datastream, Morgan Stanley Research

Exhibit 21: Mind the rapidly increasing duration of IG



Source: Datastream, Morgan Stanley Research

...yet there have already been significant inflows into EM... There are risks to the view of HY outperforming from here as well. The one to monitor in the near term would be ETF flows. EM HC ETFs are primarily a retail product and total return by nature, which is therefore a risk, given the recent back-up in yields. Furthermore, should EM HC ETFs see

LCEETRUU 140.2790 -.3850 Ret MTD +3.77 Ret 3M +11.19
As of 09/25/19 YTW 14.35 OAS 15.09
LCEETRUU Index 96) Actions G #BTV 4213: Line Chart
12/31/2018 - 09/24/2019 Local CCY
1D 3D 1M 6M YTD 1Y 5Y Max Daily Table Chart Content

In Demand

Egypt has the best-performing local bonds in EM this year

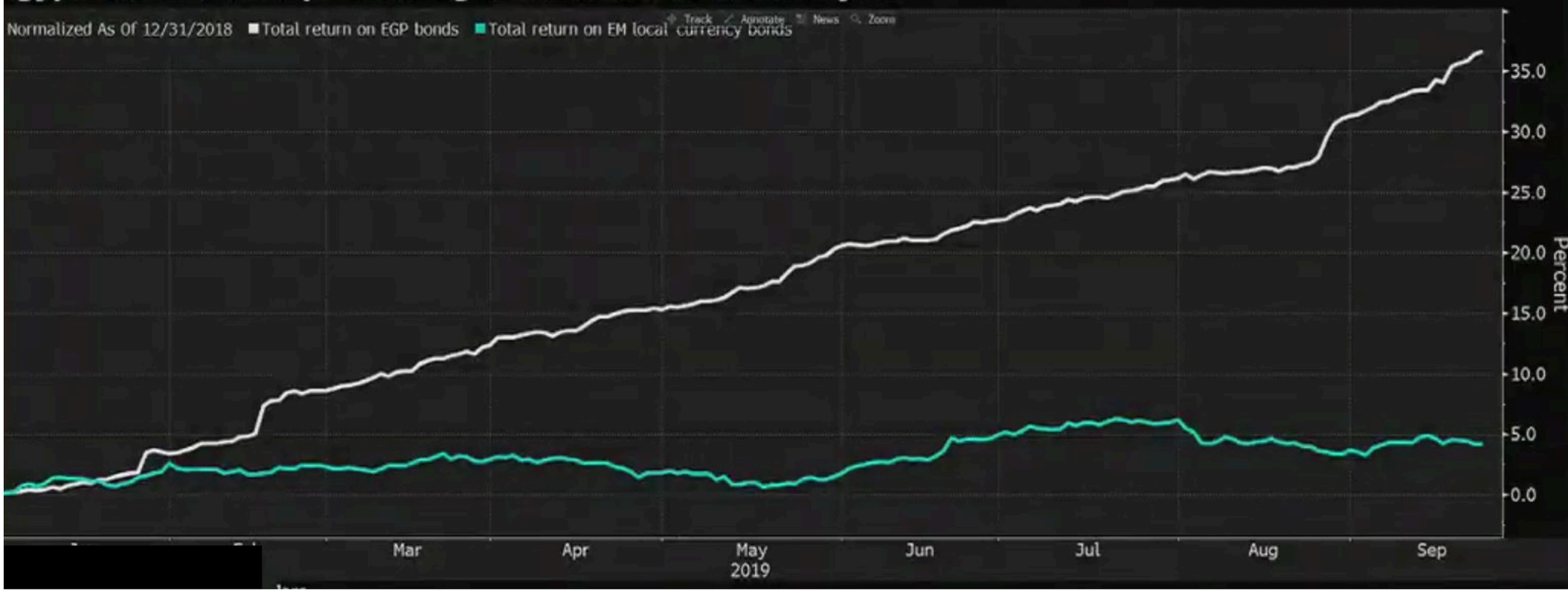
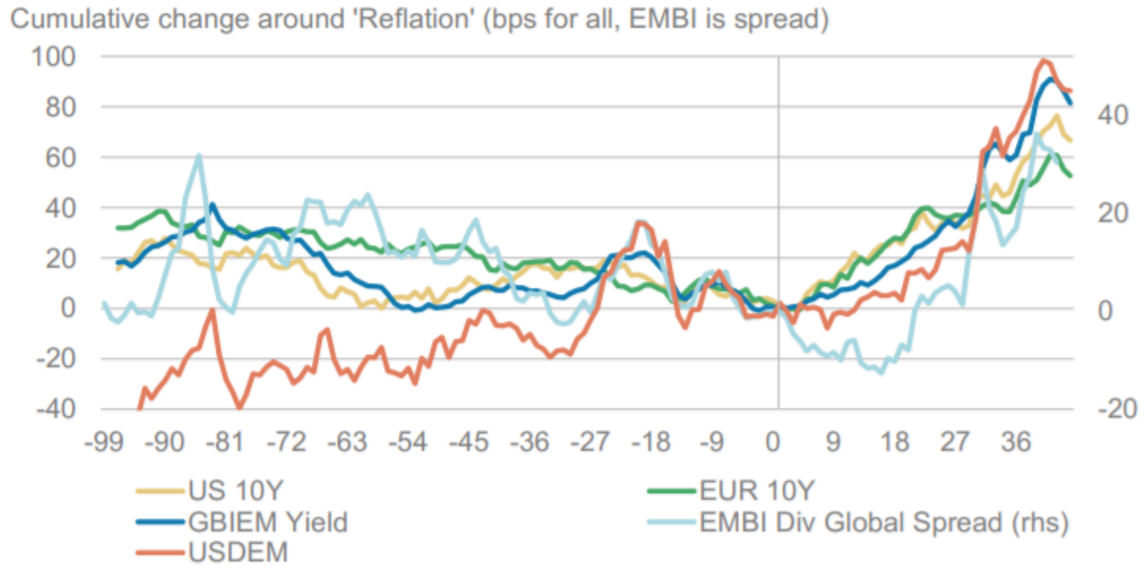


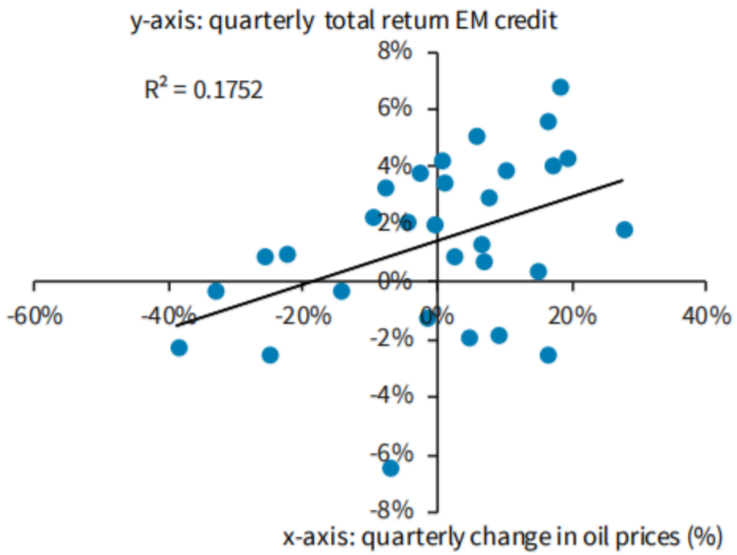
Exhibit 16: EM fixed income assets' performance around 'reflationary' episodes*



Source: Bloomberg, Morgan Stanley Research; *USDEM is shown as an index rather than % or bp performance.

FIGURE 10

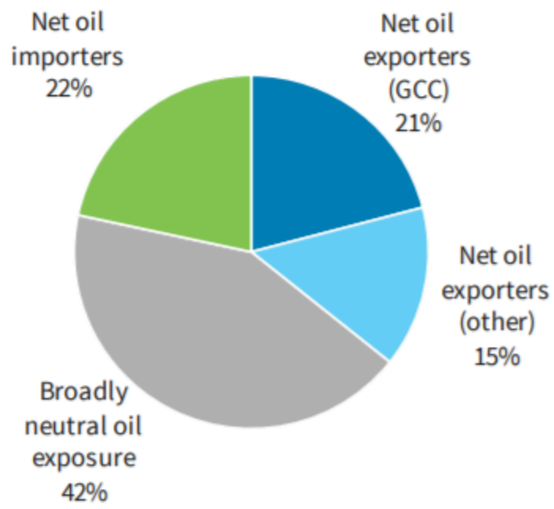
Higher oil prices are usually aligned with positive EM credit performance



Note: Based on Bloomberg Barclays USD EM Agg index, data since 2012.
Source: Bloomberg, Barclays Research

FIGURE 11

EM sovereign credit indices have a high share of oil exporters



Note: Bloomberg Barclays USD EM sovereign index shown. Oil exposure defined according to a country's net exports exceeding +/- 2% of GDP. Net oil exporters includes Qatar. Source: UNCTAD, IMF, Bloomberg, Barclays Research

months. Moreover, the effects of higher oil prices on EM assets are not uniform. Naturally, oil exporters stand to benefit and for EM credit, there is a well-established pattern of higher oil prices being aligned with positive performance even at the aggregate level (Figure 10). This can be easily explained by the fact that standard EM credit indices are relatively skewed towards oil exporting countries (Figure 11).

Technical variables

5) External valuation: Based on our recently published report, EM local markets vs external - how much is priced , we find that the USD, SPX, copper and oil largely drive EMFX, while the UST 10Y, SPX, copper and oil largely drive EMFI.

Intuitively, the USD is the level factor that determines the direction move in EMFX. The SPX more or less captures US growth, which tends to have a spillover effect on EMs. Copper is a reliable proxy for global demand/growth, which is EMFX positive. Oil captures the cost-push effect, particularly in EMFI. Lastly, local rates in most countries move in tandem with core rates, the UST 10Y in particular, to capture the liquidity and portfolio rebalancing effect. Next, we regress the total return indices on the drivers (over the last 12 months to capture the latest developments and thus the short-term dislocation) to find the dislocation in a valuation.

Figure 22: External valuations

currency	overall rank	dislocation
BRL	2	-3.9%
CLP	3	-3.4%
COP	13	0.7%
MXN	21	9.9%
PEN	14	1.2%
CZK	9	-1.1%
HUF	5	-2.9%
PLN	7	-1.6%
ILS	15	1.7%
RON	10	-0.6%
RUB	19	5.2%
TRY	22	17.0%
ZAR	11	-0.5%
KRW	1	-4.4%
IDR	17	3.5%
INR	6	-1.7%
THB	18	4.9%
TWD	8	-1.4%
SGD	12	0.5%
PHP	20	5.3%
CNY	4	-3.1%
MYR	16	2.8%
EM		
CEEMEA		0.88%
LatAm		2.15%
Asia		0.72%

Source : Deutsche Bank, Bloomberg Finance LP

QUASI VS SOVEREIGN DIFFERENTIALS: BEST AND WORST PERFORMERS, CHEAPEST AND RICHEST

FIGURE 1

Worst-performing quasis vs their sovereigns over the past month (z-score change)

ENTITY		OAS & 1M Δ				METRICS			
QUASI	SOV	QUASI		SOV		DIFF	Δ	Z	1Y RANGE
OCPMR 5.625 2024	MOROC 4.25 2022	161	-11	73	-57	87	46	0.8	42 104
YPFDAR 7 2047	ARGENT 6.875 2048	822	23	1404	137	-582	-114	-2.8	-642 -3
OTELOM 6.625 2028	OMAN 5.625 2028	473	-20	400	-44	72	24	1.6	13 82
YPFDAR 6.95 2027	ARGENT 5.875 2028	980	-19	1896	260	-915	-280	-3.2	-915 -10
EXCRTU 5.375 2021	TURKEY 5.625 2021	386	-72	208	-102	178	31	1.3	76 198
YANTZE 2.3 2021	CHINA 2.125 2022	80	0	42	-6	37	7	-1.0	30 56
PERTIJ 4.3 2023	INDON 3.375 2023	102	-32	70	-44	32	12	0.2	12 56
KZOKZ 4.75 2027	KAZAKS 5.125 2025	159	-35	81	-45	78	10	-0.2	64 102
JIANYI 3 2022	CHINA 2.125 2022	123	-2	42	-6	81	5	-0.4	76 92
DPW 1.75 2024	DUGB 3.875 2023	146	-5	75	-27	71	22	2.3	-14 73

Note: For changes, blue indicates tightening, red widening. Source: Barclays Research

FIGURE 2

Best-performing quasis vs their sovereigns over the past month (z-score change)

ENTITY		OAS & 1M Δ				METRICS			
QUASI	SOV	QUASI		SOV		DIFF	Δ	Z	1Y RANGE
PEMEX 5.375 2022	MEX 3.625 2022	32	-294	42	-39	-10	-256	-3.4	-10 267
PEMEX 4.875 2022	MEX 3.625 2022	20	-275	42	-39	-22	-237	-3.8	-22 261
PEMEX 3.5 2023	MEX 8 2022	94	-243	69	-36	25	-207	-3.8	25 276
AXIATA 3.466 2020	MALAYS 4.646 2021	75	-2	49	-6	26	4	-5.5	19 45
PEMEX 4.625 2023	MEX 4 2023	137	-211	75	-30	62	-181	-2.6	62 258
PEMEX 6.375 2021	MEX 3.625 2022	71	-184	42	-39	29	-146	-2.6	29 208
PEMEX 4.875 2024	MEX 4 2023	171	-199	75	-30	95	-169	-2.4	95 274
PEMEX 5.788 2022	MEX 3.625 2022	94	-243	42	-39	52	-204	-2.6	52 296
PEMEX 5.5 2021	MEX 3.625 2022	84	-156	42	-39	42	-117	-2.1	37 197
QNBK 2.125 2021	QATAR 2.375 2021	59	-39	27	-27	32	-12	-2.6	13 73

Note: For changes, blue indicates tightening, red widening. Source: Barclays Research

FIGURE 3

Cheapest quasi-sovereigns vs their sovereigns (1y z-score level)

ENTITY		OAS & 1M Δ				METRICS			
QUASI	SOV	QUASI		SOV		DIFF	Δ	Z	1Y RANGE
DPW 1.75 2024	DUGB 3.875 2023	146	-5	75	-27	71	22	2.3	-14 73
DIFCAE 4.325 2024	DUGB 3.875 2023	144	-27	75	-27	69	0	1.9	8 83
OTELOM 5.625 2023	OMAN 4.125 2023	303	-41	232	-51	71	10	1.8	-13 71
DPWDU 3.908 2023	DUGB 3.875 2023	123	-29	75	-27	48	-2	1.8	-21 53
CDEL 4.5 2047	CHILE 3.86 2047	159	-1	88	-1	71	0	1.7	38 82
OTELOM 6.625 2028	OMAN 5.625 2028	473	-20	400	-44	72	24	1.6	13 82
AUTOPA 4.95 2035	PANAMA 6.7 2036	179	-28	125	-19	54	-9	1.4	-19 77
BNDES 5.75 2023	BRAZIL 8.875 2024	139	-34	75	-24	64	-10	1.4	19 74
TSINGH 5.375 2023	CHINA 2.125 2022	657	-21	42	-6	615	-15	1.4	363 712
EXCRTU 5.375 2021	TURKEY 5.625 2021	386	-72	208	-102	178	31	1.3	76 198

Note: For changes, blue indicates tightening, red widening. Source: Barclays Research

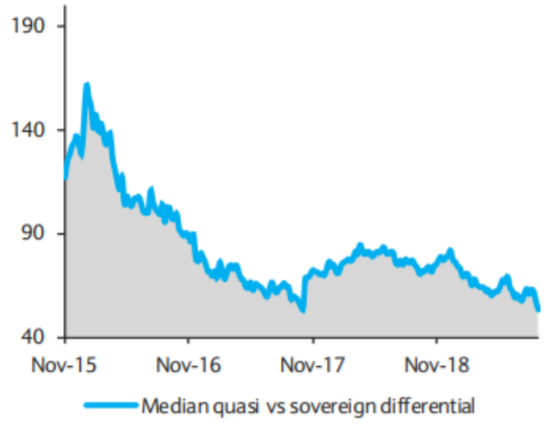
FIGURE 4

Richest quasi-sovereigns vs their sovereigns (1y z-score level)

ENTITY		OAS & 1M Δ				METRICS			
QUASI	SOV	QUASI		SOV		DIFF	Δ	Z	1Y RANGE
AXIATA 3.466 2020	MALAYS 4.646 2021	75	-2	49	-6	26	4	-5.5	19 45
PEMEX 3.5 2023	MEX 8 2022	94	-243	69	-36	25	-207	-3.8	25 276
PEMEX 4.875 2022	MEX 3.625 2022	20	-275	42	-39	-22	-237	-3.8	-22 261
EIBKOR 2.625 2026	KOREA 5.625 2025	62	-10	49	-4	13	-6	-3.5	13 43
PEMEX 5.375 2022	MEX 3.625 2022	32	-294	42	-39	-10	-256	-3.4	-10 267
YPFDAR 6.95 2027	ARGENT 5.875 2028	980	-19	1896	260	-915	-280	-3.2	-915 -10
JNXCCC 3.125 2021	CHINA 2.125 2022	231	-47	42	-6	188	-41	-3.2	188 311
KDB 3 2026	KOREA 5.625 2025	67	-9	49	-4	19	-5	-3.1	19 44
WHREST 5.7 2021	CHINA 2.125 2022	213	-55	42	-6	171	-49	-3.0	171 305
MUBAUH 5.5 2022	ADGB 2.5 2022	33	-35	41	-15	-8	-21	-3.0	-8 55

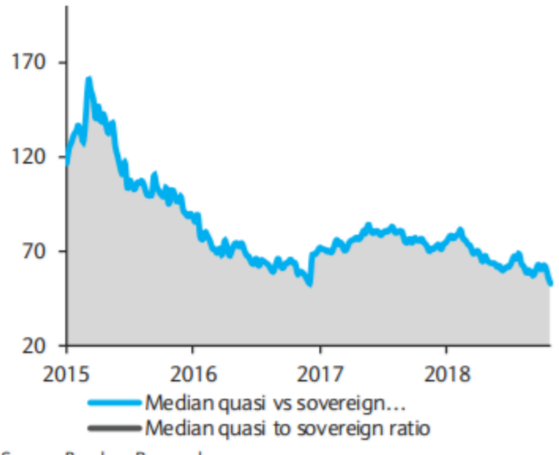
Note: For changes, blue indicates tightening, red widening. Source: Barclays Research

FIGURE 5
Quasi versus sovereign spread differential (bp)



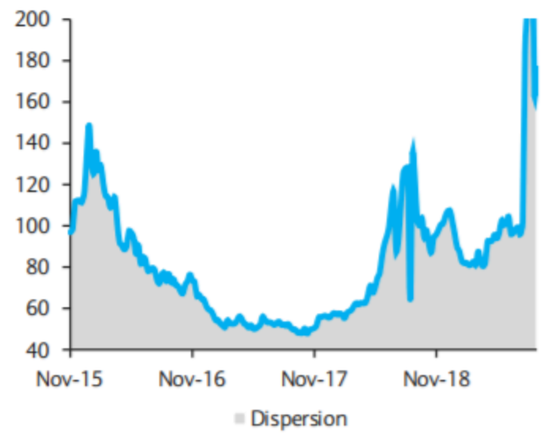
Source: Barclays Research

FIGURE 6
Quasis used in this report and their matching sovs



Source: Barclays Research

FIGURE 7
Standard deviation of quasi-sov differentials



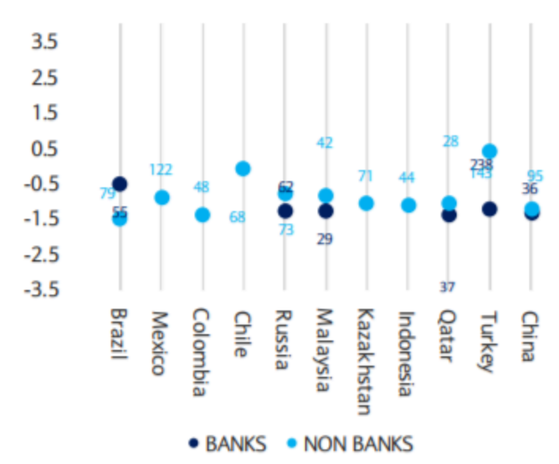
Note: 'Dispersion' refers to standard deviation of quasi sovereign vs sovereign spread differentials. Source: Barclays Research

FIGURE 8
Quasi-sovereign performance versus global credit

	1M	3M	6M	1Y	YTD
US IG	-0.6%	3.0%	8.4%	12.8%	12.7%
US HY	1.6%	1.6%	4.6%	6.9%	11.8%
EM USD SOV	0.5%	0.4%	5.5%	11.7%	11.4%
EM USD AGG	0.6%	1.5%	5.8%	11.8%	11.1%
EM USD CORP/QUASI	0.6%	2.2%	5.9%	11.6%	10.6%
→ **EM USD QUASIS**	**0.6%**	**2.6%**	**6.2%**	**11.5%**	**10.5%**
EUR HY	1.3%	2.0%	4.6%	5.5%	9.8%
EUR IG	-0.9%	1.1%	3.7%	5.8%	6.5%

Note: Asset classes ranked by YTD performance. Top (blue) and bottom (red) performers in each period highlighted. Source: Barclays Research

FIGURE 9
Quasi – Sov z-scores by country (labels = absolute diff)



Source: Barclays Research

FIGURE 10
Selected large issuers: Spread to sovereign and changes

	SPREAD TO SOV	4Y RANGE	1W	1M	3M	6M
PETBRA	74	74 419	-8	-33	-37	-36
BANBRA	59	41 174	1	-26	-11	-27
GAZPRU	49	31 225	10	-10	10	-13
SBERRU	47	28 199	2	-10	-19	-37
CDEL	52	39 200	-25	-18	-12	-5
PERTIJ	58	43 172	1	0	-19	-3
ECOPET	38	38 335	-1	-23	-24	-20
PEMEX	206	105 296	-34	-86	-65	8
TAQAUH	57	34 99	-6	-7	-32	-24
QTELQD	29	-1 57	-4	-13	-19	-5
VEBBNK	92	58 327	5	-19	-42	-61
ESKOM	231	149 549	-25	-3	74	2
MEXCAT	110	41 231	1	-5	12	-28

Note: Median for all bonds across the curve for each ticker. Top 2 (blue) and bottom 2 (red) in each column highlighted.
Source: Barclays Research

FIGURE 18

Global ranking of quasi-sovereigns: Cheapest to richest

RANK	ENTITY		OAS & 1M Δ		METRICS			
	QUASI	SOV	QUASI	SOV	DIFF	Δ	Z	1Y RANGE
1	DPW 1.75 2024	DUGB 3.875 2023	146 -5	75 -27	71	22	2.3	-14 73
2	DIFCAE 4.325 2024	DUGB 3.875 2023	144 -27	75 -27	69	0	1.9	8 83
3	OTELOM 5.625 2023	OMAN 4.125 2023	303 -41	232 -51	71	10	1.8	-13 71
4	DPWDU 3.908 2023	DUGB 3.875 2023	123 -29	75 -27	48	-2	1.8	-21 53
5	CDEL 4.5 2047	CHILE 3.86 2047	159 -1	88 -1	71	0	1.7	38 82
6	OTELOM 6.625 2028	OMAN 5.625 2028	473 -20	400 -44	72	24	1.6	13 82
7	AUTOPA 4.95 2035	PANAMA 6.7 2036	179 -28	125 -19	54	-9	1.4	-19 77
8	BNDES 5.75 2023	BRAZIL 8.875 2024	139 -34	75 -24	64	-10	1.4	19 74
9	TSINGH 5.375 2023	CHINA 2.125 2022	657 -21	42 -6	615	-15	1.4	363 712
10	EXCRTU 5 2021	TURKEY 5.625 2021	402 -89	208 -102	194	13	1.4	96 219
11	EXCRTU 5.375 2021	TURKEY 5.625 2021	386 -72	208 -102	178	31	1.3	76 198
12	ALHILA 4.375 2023	DUGB 3.875 2023	109 -28	75 -27	34	-1	1.3	-27 44
13	RURAIL 4.375 2024	RUSSIA 4.875 2023	134 -48	67 -51	68	2	1.1	32 74
14	FABUH 3.625 2023	DUGB 3.875 2023	66 -29	75 -27	-9	-2	1.1	-49 1
15	KORESC 4 2023	KOREA 3.875 2023	97 1	28 -3	69	4	1.0	49 77
16	NACF 2.875 2022	KOREA 3.875 2023	79 -6	28 -3	51	-4	0.9	30 56
17	PETRPE 5.625 2047	PERU 5.625 2050	232 -17	104 -9	128	-9	0.9	103 142
18	CDCOMM 4.75 2027	CHINA 2.625 2027	309 -36	42 -4	267	-32	0.9	185 305
19	SOIAZ 4.75 2023	AZERBJ 4.75 2024	172 -29	146 -33	26	3	0.9	-4 37
20	PEMEX 6.625 2035	MEX 6.75 2034	490 -73	186 -26	304	-47	0.8	175 351
21	CDEL 4.25 2042	CHILE 3.625 2042	164 1	92 7	72	-6	0.8	54 86
22	CAIXBR 3.5 2022	BRAZIL 2.625 2023	141 -30	88 -28	53	-2	0.8	1 74
23	OCPMR 5.625 2024	MOROC 4.25 2022	161 -11	73 -57	87	46	0.8	42 104
24	BMETR 5 2047	CHILE 3.86 2047	186 -31	88 -1	98	-30	0.7	56 130
25	KOROIL 3 2022	KOREA 3.875 2023	74 -6	28 -3	46	-3	0.7	30 55

Source: Barclays Research

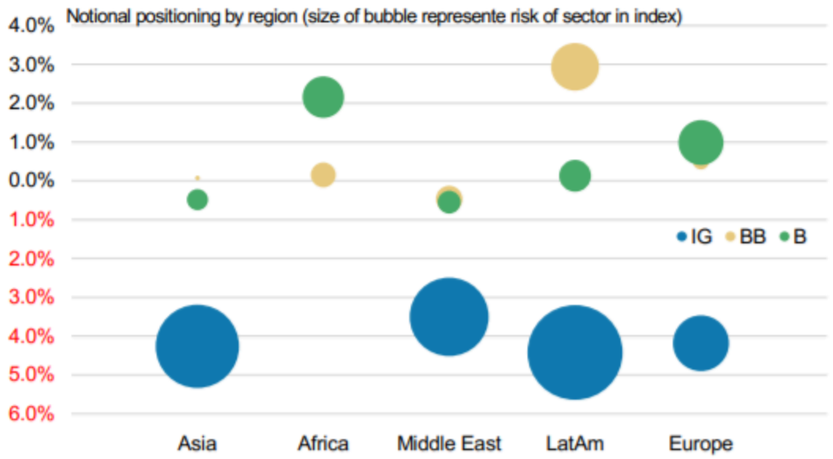
FIGURE 19

Global ranking of quasi-sovereigns: Cheapest to richest

RANK	ENTITY		OAS & 1M Δ		METRICS			
	QUASI	SOV	QUASI	SOV	DIFF	Δ	Z	1Y RANGE
26	CDEL 5.625 2043	CHILE 3.625 2042	168 3	92 7	76	-4	0.7	58 89
27	IBAZAZ 3.5 2024	AZERBJ 4.75 2024	513 -32	146 -33	367	1	0.7	68 489
28	MUBAUH 6.875 2041	ADGB 4.125 2047	119 2	95 -4	24	6	0.7	0 35
29	BJCONS 5.75 2021	CHINA 2.125 2022	385 -43	42 -6	342	-37	0.6	253 392
30	CDEL 4.875 2044	CHILE 3.625 2042	165 0	92 7	73	-6	0.6	56 86
31	TELMAL 7.875 2025	MALAYS 3.043 2025	138 -6	69 -6	70	0	0.6	43 78
32	PETRPE 4.75 2032	PERU 8.75 2033	186 -28	106 -13	80	-15	0.5	53 96
33	NAFIN 3.375 2020	MEX 3.625 2022	69 -44	42 -39	27	-6	0.5	-33 73
34	KOROIL 2.875 2022	KOREA 3.875 2023	67 -5	28 -3	39	-3	0.4	25 52
35	NACF 3.875 2023	KOREA 3.875 2023	83 -3	28 -3	55	0	0.4	39 65
36	KORGAS 2.75 2022	KOREA 3.875 2023	65 -5	28 -3	37	-2	0.4	25 49
37	TNBMK 7.5 2025	MALAYS 3.179 2026	130 1	73 -7	57	8	0.4	40 73
38	GULINT 3.5 2022	BHRAIN 6.125 2022	127 -32	199 -26	-72	-6	0.4	-179 -27
39	EXCRTU 4.25 2022	TURKEY 6.25 2022	479 -62	372 -65	106	3	0.4	48 163
40	KORESC 3 2022	KOREA 3.875 2023	88 -3	28 -3	60	-1	0.4	46 72
41	PEMEX 6.5 2041	MEX 6.05 2040	486 -80	220 -18	266	-62	0.3	174 328
42	ESKOM 7.125 2025	SOAF 5.875 2025	481 -6	225 -27	256	22	0.3	158 353
43	KORWAT 2.75 2022	KOREA 3.875 2023	65 -6	28 -3	37	-3	0.3	26 49
44	CFELEC 6.125 2045	MEX 5.55 2045	307 -18	218 -9	89	-10	0.3	49 116
45	CFELEC 5 2036	MEX 6.75 2034	260 -24	186 -26	75	2	0.3	7 100
46	PEMEX 6.75 2047	MEX 4.6 2048	508 -59	211 -11	297	-49	0.3	208 360
47	TCZIRA 5.125 2022	TURKEY 5.125 2022	513 -89	317 -85	196	-4	0.3	112 275
48	QTELQD 4.5 2043	QATAR 5.75 2042	146 -17	126 1	20	-17	0.3	0 49
49	QTELQD 3.25 2023	QATAR 3.241 2023	81 -23	31 -26	50	3	0.2	18 68
50	EBIUH 3.25 2022	DUGB 3.875 2023	75 -31	75 -27	0	-4	0.2	-37 37

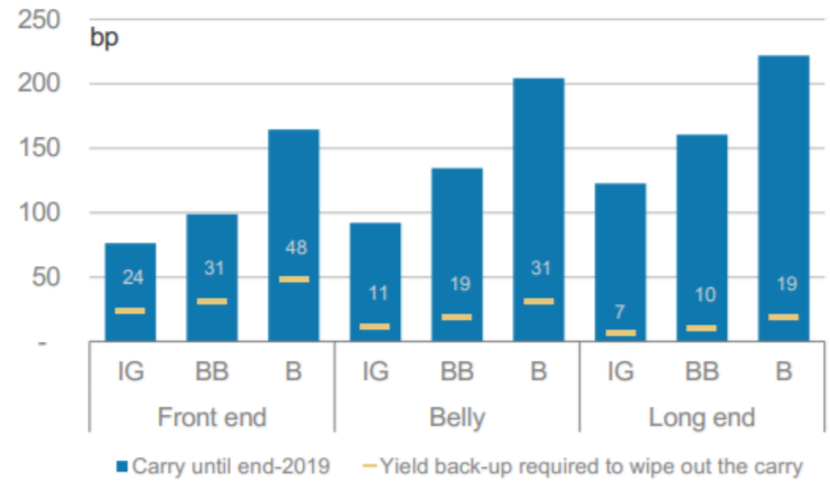
Source: Barclays Research

Exhibit 22: LatAm IG has the largest risk contribution to the index; investors are UW notional but likely to be OW duration (barbell)



Source: Bloomberg, Datastream, EPFR, Morgan Stanley Research

Exhibit 23: Low spread cushion especially in the long-end IG credits



Source: Bloomberg, Datastream, Morgan Stanley Research

Adding small risk to HY over IG, yet too soon to make a wholesale shift: While valuations and reduced sensitivity to UST yields suggest favouring HY over IG, this has to be put in the context of a still fragile external backdrop where total return of the EMBIG Diversified is already up 14% year-to-date and there have been significant fund inflows of around US$30 billion into EM debt-dedicated hard currency funds, where allocations are significantly OW HY. Shifting wholesale into HY thus doesn't make sense and we maintain our top-down preference for IG over HY, but we would make the following changes:

- **Get out of flat 10s30s:** We would want to avoid duration exposure in curves where the absolute spread level is low and the 10s30s is flat. With that view we would want to avoid the lower left quadrant of Exhibit 25. Accordingly, on the IG side, we remove our long-end preferences in **PHILIP, RUSSIA** and **PERU** and move it to the 10y sector instead. Similarly, on the HY side, we would avoid the long ends of **SOAF, SENEGL** and **NGERIA.**

- **Reduce allocation to high cash price bonds:** Using our weekly Sovereign Credit Rich and Cheap pack we scan for bonds that are rich and also have high cash prices: **MEX 2040** (better to hold MEX 2046, despite extending duration it's 20 points lower and 10bp higher spread/yield), **URUGUA 2055** (better to hold URUGUA 2045 10 points lower), **PANAMA** and **PERU 20y bonds** (better to cut duration to 10y sector in both), **BRAZIL 2041** (better to cut duration to BRAZIL 2028), **RUSSIA 2047** (better to cut duration to RUSSIA 2029), **QATAR 2030** (55 point higher cash price than QATAR 29 but trades only 3bp wider), **PERTIJ 2048** (trades 30 point higher but only 5bp wider than PERTIJ 49) and **GHANA 2030** (26 point higher cash price than GHANA 29 but trades 55bp tighter, meaning higher core yields should see GHANA 2030 underperform due to higher duration exposure despite the worse credit structure).

- **Shift some exposure into select HY credits:** We also think that investors should look to add some risk in **Sri Lanka, Angola** and **Ecuador** on valuation grounds. Angola is trading flat to Ghana and hence if there is any positive newsflow around the IMF disbursement we can see its spreads tighten. Adding some risk in low cash price bonds in idiosyncratic situations such as **Argentina** and **Lebanon** could also be a good hedge against rates volatility.

Exhibit 24: EMBI bonds having a cash price of 120+ have market value in excess of US$200 billion

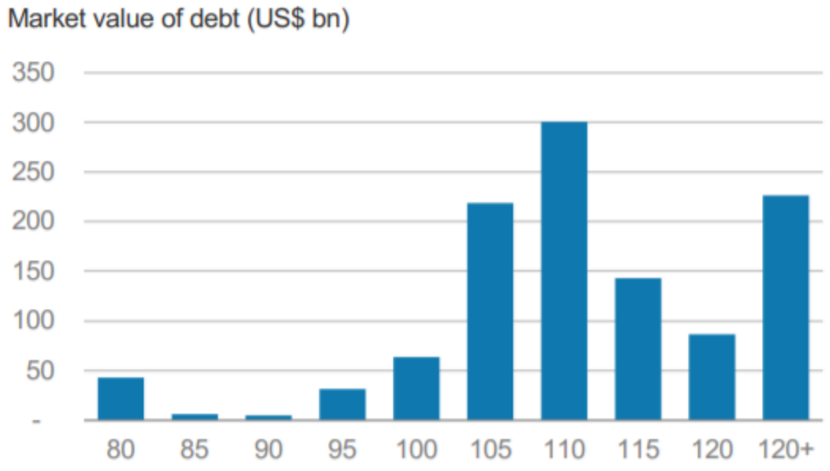
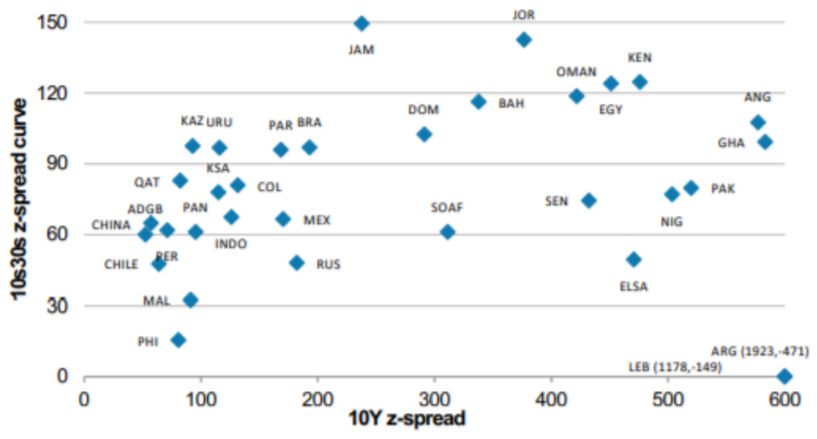


Exhibit 25: The lower bound will be more sensitive to the rise in core yields (10s30s curve versus 10y spread)



Source: Bloomberg, Morgan Stanley Research

FIGURE 30

Global ranking of quasi-sovereigns: Cheapest to richest

RANK	ENTITY		OAS & 1M Δ				METRICS				
	QUASI	SOV	QUASI		SOV		DIFF	Δ	Z	1Y RANGE	
301	EXIMCH 3.25 2027	CHINA 2.625 2027	86	-8	42	-4	44	-4	-1.5	42	80
302	KORGAS 3.5 2025	KOREA 5.625 2025	68	-6	49	-4	19	-2	-1.5	18	40
303	POWINV 3 2021	CHINA 2.125 2022	94	-8	42	-6	52	-1	-1.5	50	85
304	BCHINA 3 2022	CHINA 2.125 2022	81	-8	42	-6	39	-1	-1.6	39	59
305	OSCHAD 9.625 2025	UKRAIN 7.75 2025	437	-107	453	-92	-16	-15	-1.6	-25	209
306	PEMEX 4.25 2025	MEX 3.6 2025	244	-168	110	-26	133	-142	-1.6	110	286
307	CNPCCH 3.4 2023	CHINA 2.125 2022	93	-4	42	-6	50	2	-1.6	47	78
308	SDIC 3.625 2027	CHINA 2.625 2027	113	-6	42	-4	71	-2	-1.6	71	93
309	TRTHK 2.875 2021	CHINA 2.125 2022	182	-31	42	-6	140	-24	-1.6	140	254
310	PLNIJ 5.45 2028	INDON 4.1 2028	157	-24	116	-30	41	6	-1.6	35	96
311	KTZKZ 6.95 2042	KAZAKS 4.875 2044	248	-35	150	-25	98	-10	-1.6	87	176
312	CNOOC 3.875 2022	CHINA 2.125 2022	85	-8	42	-6	43	-1	-1.6	43	72
313	EIBKOR 2.875 2025	KOREA 5.625 2025	56	-10	49	-4	7	-5	-1.6	7	39
314	PETBRA 6.875 2040	BRAZIL 5.625 2041	360	-21	266	-2	94	-19	-1.6	94	139
315	PERTIJ 5.625 2043	INDON 4.625 2043	233	-20	170	-18	63	-2	-1.6	58	99
316	NJYZSO 3.625 2022	CHINA 2.125 2022	201	-17	42	-6	159	-11	-1.7	149	304
317	PLNIJ 5.25 2047	INDON 4.75 2047	224	-23	166	-18	58	-5	-1.7	57	93
318	PETBRA 5.299 2025	BRAZIL 8.75 2025	161	-65	99	-27	62	-38	-1.7	53	180
319	ETISLT 3.5 2024	ADGB 2.5 2022	62	-42	41	-15	20	-27	-1.7	20	83
320	EXIMCH 3.375 2027	CHINA 2.625 2027	88	-10	42	-4	45	-6	-1.7	42	81
321	CHCONS 3.5 2027	CHINA 2.625 2027	127	-4	42	-4	84	0	-1.7	83	116
322	KOHNPW 3.125 2027	KOREA 2.75 2027	87	-3	50	-3	37	0	-1.7	36	55
323	ICBCIL 3.625 2026	CHINA 2.625 2027	142	-3	42	-4	99	1	-1.7	97	128
324	FABUH 3 2022	DUGB 6.45 2022	33	-54	69	-28	-35	-26	-1.7	-38	7
325	POWINV 3.875 2026	CHINA 2.625 2027	111	-4	42	-4	68	0	-1.7	67	95

Source: Barclays Research

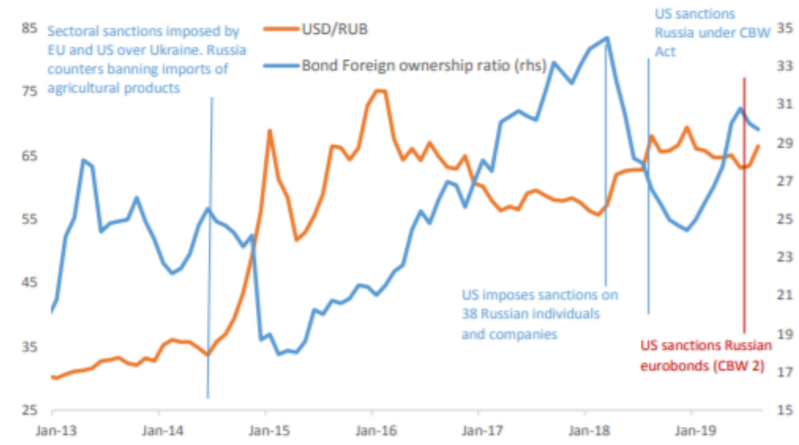
FIGURE 31

Global ranking of quasi-sovereigns: Cheapest to richest

RANK	ENTITY		OAS & 1M Δ				METRICS				
	QUASI	SOV	QUASI		SOV		DIFF	Δ	Z	1Y RANGE	
326	ICBCIL 3.108142 2021	CHINA 2.125 2022	97	-6	42	-6	54	0	-1.7	54	103
327	SMIND 2.125 2026	KOREA 2.75 2027	77	-5	50	-3	26	-2	-1.7	26	57
328	CNPCCH 3.95 2022	CHINA 2.125 2022	89	-12	42	-6	46	-6	-1.7	46	69
329	DUBAEE 4.5 2022	DUGB 6.45 2022	97	-101	69	-28	28	-73	-1.8	28	257
330	EIBKOR 3.178 2022	KOREA 3.875 2023	43	-6	28	-3	15	-3	-1.8	10	50
331	DPWDU 5.625 2048	DUGB 5.25 2043	238	-20	213	9	25	-28	-1.8	25	84
332	EXIMCH 2.875 2026	CHINA 2.625 2027	84	-6	42	-4	42	-2	-1.8	40	78
333	CDBALF 3 2023	CHINA 2.125 2022	131	-6	42	-6	89	1	-1.8	85	130
334	KZOKZ 4.75 2025	KAZAKS 5.125 2025	115	-46	81	-45	34	-1	-1.8	33	85
335	HALKBK 4.75 2021	TURKEY 5.625 2021	542	-258	208	-102	334	-156	-1.8	334	968
336	PLNIJ 5.25 2042	INDON 4.625 2043	225	-21	170	-18	54	-3	-1.8	48	98
337	RASGAS 5.838 2027	QATAR 4.5 2028	96	-39	83	-7	13	-32	-1.8	10	58
338	CHGRID 2.875 2026	CHINA 2.625 2027	94	-5	42	-4	52	-1	-1.8	52	73
339	PLNIJ 6.15 2048	INDON 4.35 2048	224	-28	151	-28	73	0	-1.8	63	126
340	PLBIIJ 5.375 2045	INDON 5.125 2045	236	-32	173	-18	63	-13	-1.8	58	107
341	KOROIL 2.5 2026	KOREA 2.75 2027	75	-5	50	-3	25	-2	-1.9	25	54
342	KORGAS 3.125 2027	KOREA 2.75 2027	74	-8	50	-3	24	-4	-1.9	24	56
343	CMIGBZ 9.25 2024	BRAZIL 4.25 2025	323	-28	128	-22	195	-6	-1.9	195	343
344	KDB 3.75 2024	KOREA 3.875 2023	46	-9	28	-3	18	-6	-1.9	14	43
345	DUBAEE 5 2024	DUGB 3.875 2023	113	-113	75	-27	38	-86	-1.9	38	223
346	KOROIL 3.375 2027	KOREA 2.75 2027	79	-7	50	-3	29	-3	-1.9	29	55
347	OCENSA 4 2021	COLOM 4.375 2021	66	-45	51	-30	14	-16	-1.9	14	94
348	CDBI 2.25 2021	CHINA 2.125 2022	121	-6	42	-6	79	0	-1.9	75	99
349	CHALUM 4 2021	CHINA 2.125 2022	182	-57	42	-6	140	-51	-1.9	140	272
350	XIANGY 4.5 2023	CHINA 2.125 2022	296	-53	42	-6	253	-47	-1.9	253	465

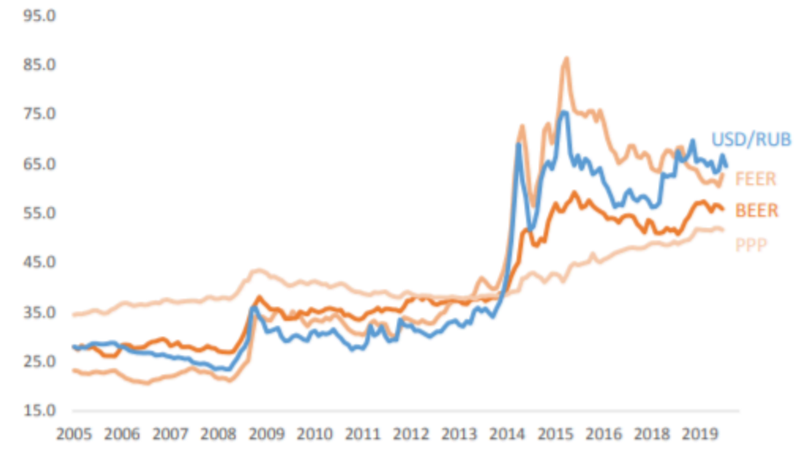
Source: Barclays Research

Figure 46: Foreign positioning in OFZs remains well below the 2018 peak



Source : Deutsche Bank, Haver

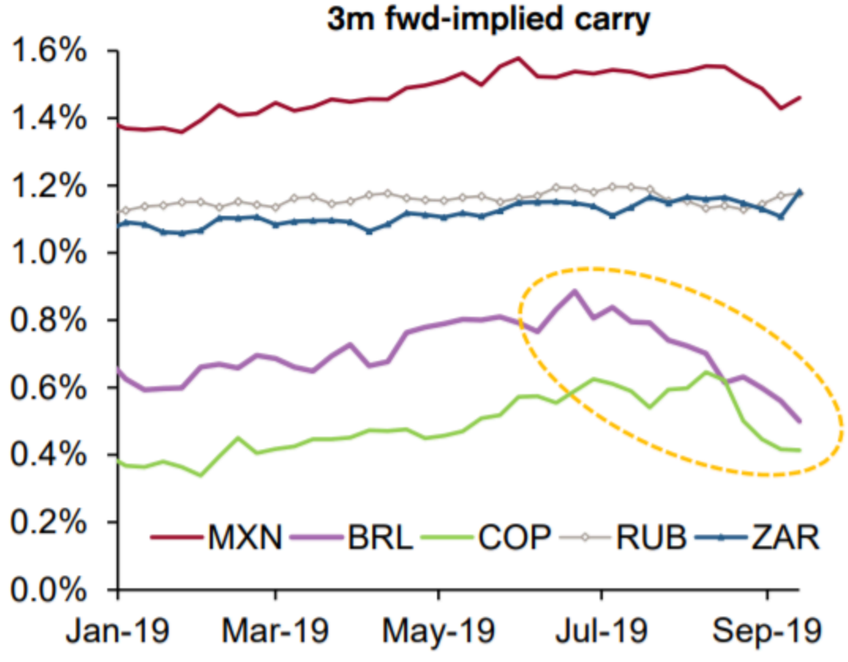
Figure 48: USD/RUB remains above our three long-term valuation models

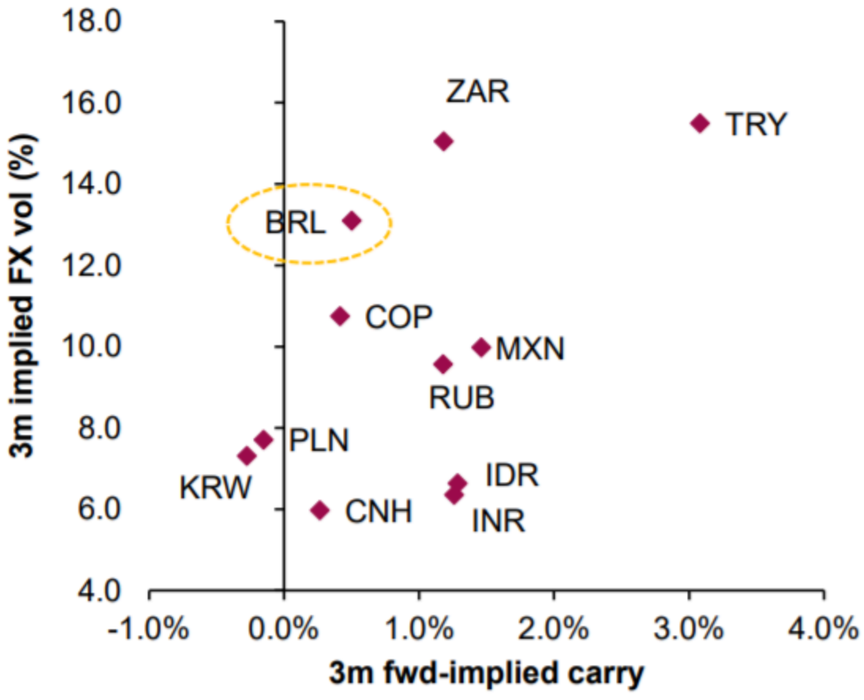


Source : Deutsche Bank, Haver

BRL: We think USDBRL can outperform the forwards…

- The decline in carry, exposure to Argentina and FX hedging likely account for the bulk of BRL underperformance since August vs most other high yielding FX.
- The recent dovish shift in BCB stance suggests that the carry element is unlikely to turn supportive again soon.
- We think USDBRL can continue to outperform the forwards (3m outright fwd ~4.1850), and see potential for a re-test of the all-highs at 4.2478.

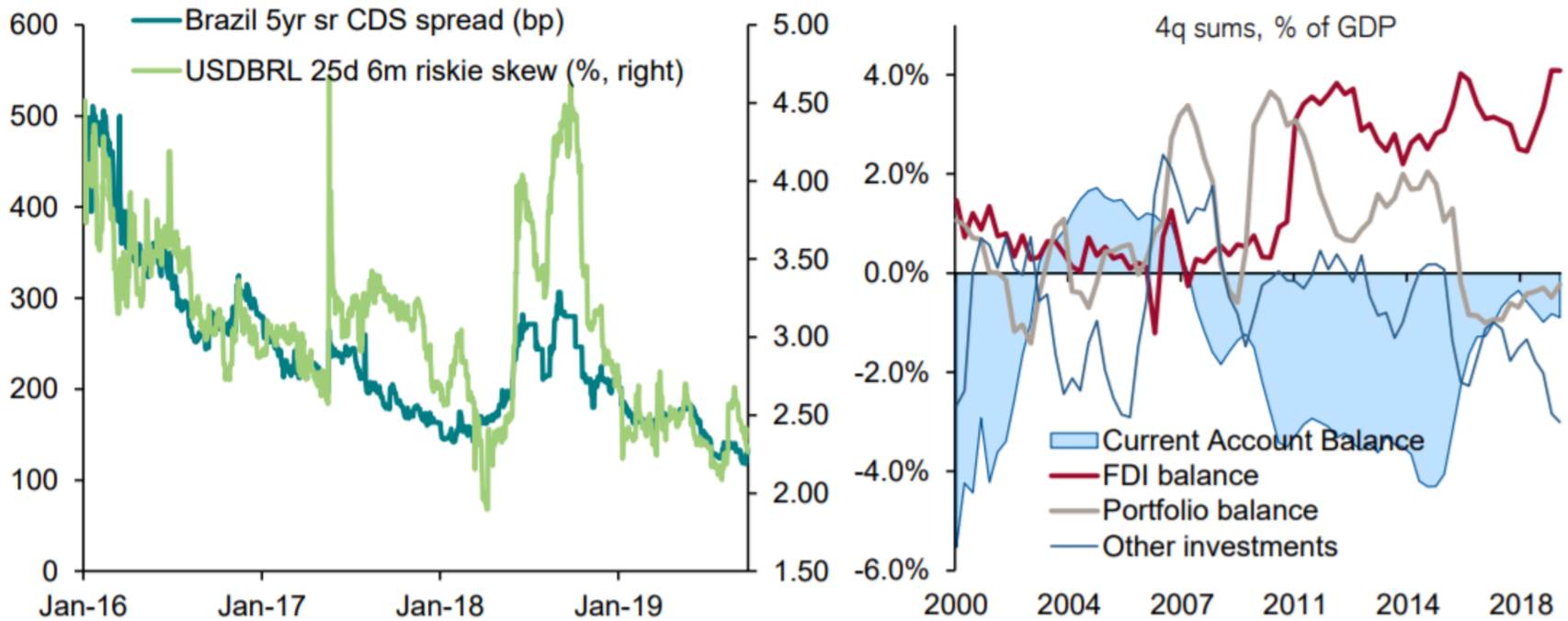




Sources: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

BRL: …but intervention limits USDBRL topside potential

- The BCB added new FX intervention avenues to supply the market with USD in August.
- This is unlikely to prevent USDBRL from retesting all-time highs…
  - ….as does not offset impact of lower carry and increased FX hedging activity.
- It does however create potential for BRL underperformance vs other EM to ease.
  - The domestic macro picture remains supportive, political outlook is noisy but so far successful on the reform front and the outlook for FDI inflows remains strong, with oil auctions expected in Q4.



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

Market Closing Rates/Prices for FMDQ Fixed Income & Currency Markets — 2019-09-25

Benchmark T.bills

Description	Rate (%)	Yield	Change (%)
3-Oct-2019	12.20	12.23	0.00
14-Nov-2019	12.89	13.12	0.34
5-Dec-2019	12.12	12.41	-0.01
2-Jan-2020	12.27	12.70	-0.23
6-Feb-2020	12.70	13.32	0.12
19-Mar-2020	12.20	12.96	0.00
2-Apr-2020	12.50	13.37	-0.09
14-May-2020	12.97	14.14	0.00
4-Jun-2020	13.03	14.32	-0.31
2-Jul-2020	13.21	14.71	0.04
13-Aug-2020	13.27	15.04	0.05
3-Sep-2020	13.22	15.10	-0.11

Money Market

	Rate (%)	Change (%)
Open Buy Back (OBB)	3.71	-0.14
Overnight (O/N)	4.50	-0.07

Benchmark Bonds

Description	Price	Yield	Change (%)
14.50 15-JUL-2021	99.88	14.54	-0.03
16.39 27-JAN-2022	104.26	14.15	-0.11
12.75 27-APR-2023	95.37	14.44	0.04
14.20 14-MAR-2024	100.41	14.07	-0.22
13.53 23-MAR-2025	97.18	14.29	0.00
12.50 22-JAN-2026	92.50	14.33	0.03
16.2884 17-MAR-2027	108.77	14.34	0.03
13.98 23-FEB-2028	98.26	14.34	0.00
10.00 23-JUL-2030	76.17	14.40	0.00
12.1493 18-JUL-2034	86.69	14.33	0.00
12.40 18-MAR-2036	86.60	14.56	0.00
16.2499 18-APR-2037	112.05	14.35	0.00
14.80 26-APR-2049	101.13	14.63	0.18

Foreign Exchange - Spot ($/₦)

Market	Rate	Change (%)
I&E FX Window	362.29	0.00
CBN SMIS Window	358.04	0.00
CBN Official Window	306.95	0.00

Market Intraday Prices for FMDQ — 25/Sep/19

Benchmark T.bills

Description	Rate (%)	Yield	Change (%)
3-Oct-2019	12.53	12.57	0.33
14-Nov-2019	12.55	12.77	0.00
5-Dec-2019	12.50	12.81	0.39
2-Jan-2020	12.45	12.88	-0.04
6-Feb-2020	12.87	13.51	0.31
19-Mar-2020	12.82	13.66	0.69
2-Apr-2020	12.74	13.65	0.19
14-May-2020	13.05	14.23	0.09
04-Jun-2020	13.08	14.38	-0.25
02-Jul-2020	13.20	14.70	0.03
13-Aug-2020	13.21	14.96	-0.03
3-Sep-2020	13.27	15.16	-0.05

Benchmark Bonds

Description	Price	Yield	Change (%)
12.75 27-APR-2023	99.96	14.49	-0.08
14.20 14-MAR-2024	104.23	14.17	-0.09
12.75 27-APR-2023	95.43	14.42	0.03
13.53 23-MAR-2025	99.87	14.24	-0.05
13.53 23-MAR-2025	97.20	14.28	-0.01
12.50 22-JAN-2026	92.69	14.28	-0.02
16.2884 17-MAR-2027	107.13	14.68	0.37
13.98 23-FEB-2028	98.21	14.35	0.01
10.00 23-JUL-2030	76.18	14.40	0.00
12.1493 18-JUL-2034	85.82	14.49	0.16
12.40 18-MAR-2036	86.82	14.52	-0.04
16.2499 18-APR-2037	111.16	14.48	0.13
14.80 26-APR-2049	100.98	14.65	0.20

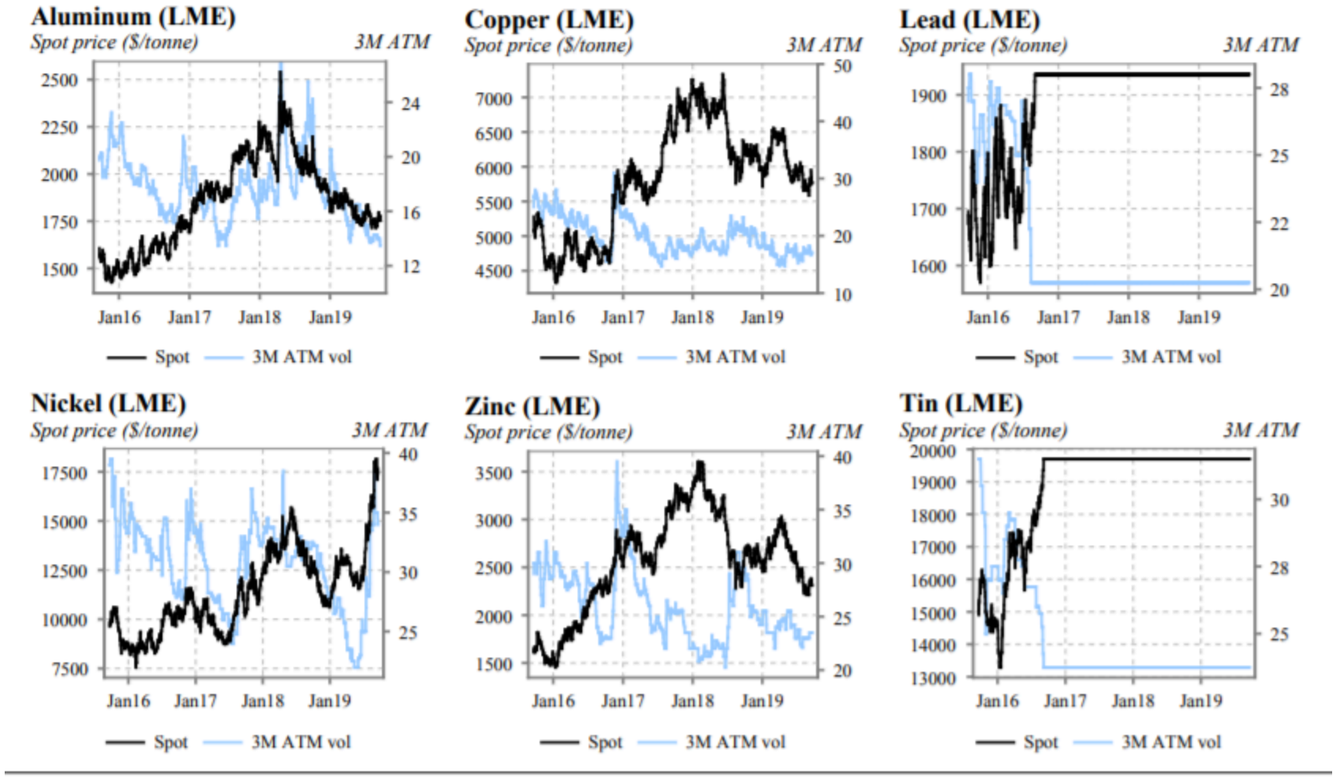
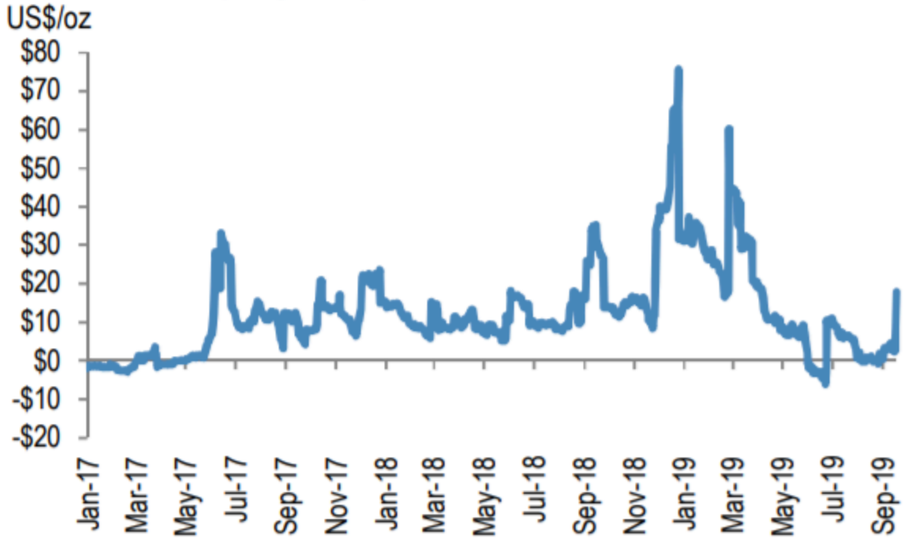


Exhibit 8: Prompt Nymex palladium minus 3M



Source: NYMEX

10) Liquidity: We use this measure to identify the resilience of local markets in periods of extreme stress. Liquidity is calculated as 90th percentile over the past one year of the bid-ask spread (in bp) of the current 5y benchmark bond. We then rank the EM local markets based of increasing order of the spread.

Figure 43: Liquidity in EM local markets

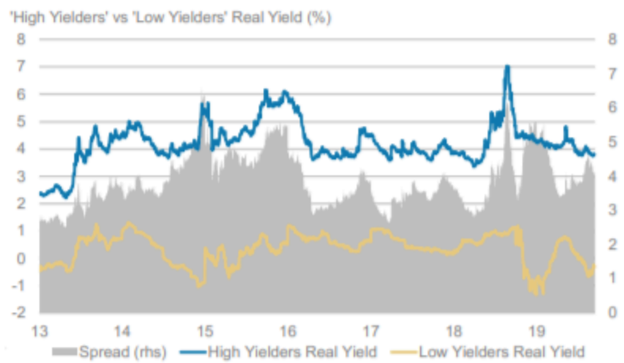
Country	spread	ranking
Indonesia	14.4	16
India	3.2	4
South Korea	3.3	6
Malaysia	3.7	8
Czech Republic	12.3	15
Hungary	8.2	14
Thailand	2.9	2
Israel	3.0	3
Poland	3.2	5
Romania	15.8	17
Russia	5.0	11
Turkey	20.0	18
South Africa	2.3	1
Brazil	5.6	13
Colombia	4.2	10
Chile	5.3	12
Peru	3.6	7
Mexico	4.0	9

Source : Deutsche Bank, Bloomberg Finance LP

Cheapening high yield valuations… There has been a widening of interest rate differentials between high yield and low yield local currency EM bonds over the past six months. Exhibit 26 shows the interest rate differential between an average of the three highest yielders (measured in ex ante real terms) and an average of the three lowest yielders over time. The chart clearly shows an increase in the spread in recent months, even if not quite to the extreme levels at the end of 2014 and in the middle of 2018. The events that led to those widening periods were quite idiosyncratic. However, if we exclude Russia and Turkey from those periods due to their idiosyncratic issues at the time, then the recent increase in the high yield versus low yield rate differential places the spread near the upper end of the range (Exhibit 27). This suggests investors have preferred quality during this recent hunt for duration exposure, and not necessarily grabbing the highest-yielding assets around. This is likely because slowing global growth has left investors a bit more wary of increasing their exposure to lower-quality credits.

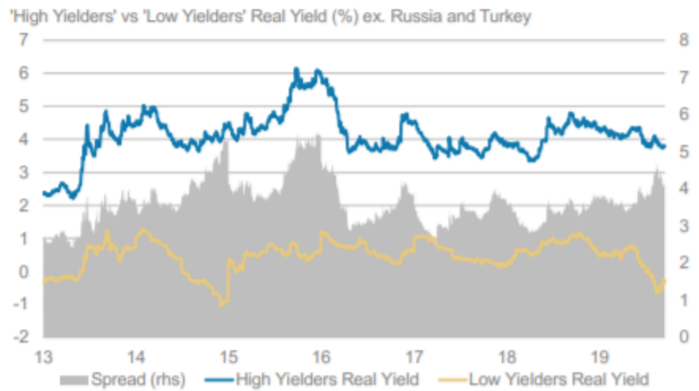
…suggest adding exposure to high yielders versus paying rates within low yielders: Cheaper valuations and lower sensitivity to higher core yields suggest adding some exposure to the higher-yielding countries. The fact that EM local markets have not experienced any significant inflows this year, unlike credit, should also provide a bit of protection against the risk of outflows on the back of rising core yields. As outlined below for each region, we therefore recommend positioning for higher yields by paying rates outright or via curve steepeners in low-yielding EMs (CEE, CLP) while adding some selective longs within the high yielders (10y IGBs).

Exhibit 26: High yield local rates look cheap compared to low yielders...



Source: Bloomberg, Morgan Stanley Research

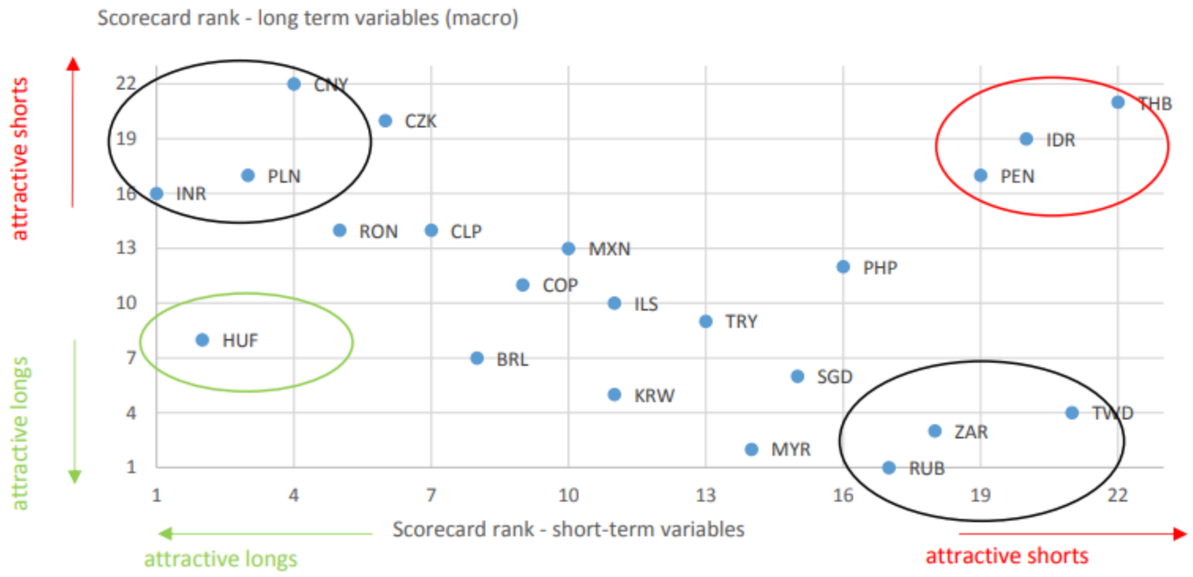
Exhibit 27: ...even when excluding Russia and Turkey



Source: Bloomberg, Morgan Stanley Research

In the spotlight: Both rankings are aligned for HUF (both strong rankings), PEN, IDR and THB (both weak rankings). However, they show opposite signals for RUB, ZAR and TWD (weak short-term and strong long-term) as well as INR, PLN, CNY, CZK and RON (strong short-term but weak long-term).

Figure 2: Long-term (fundamental) vs short-term (technical) valuations



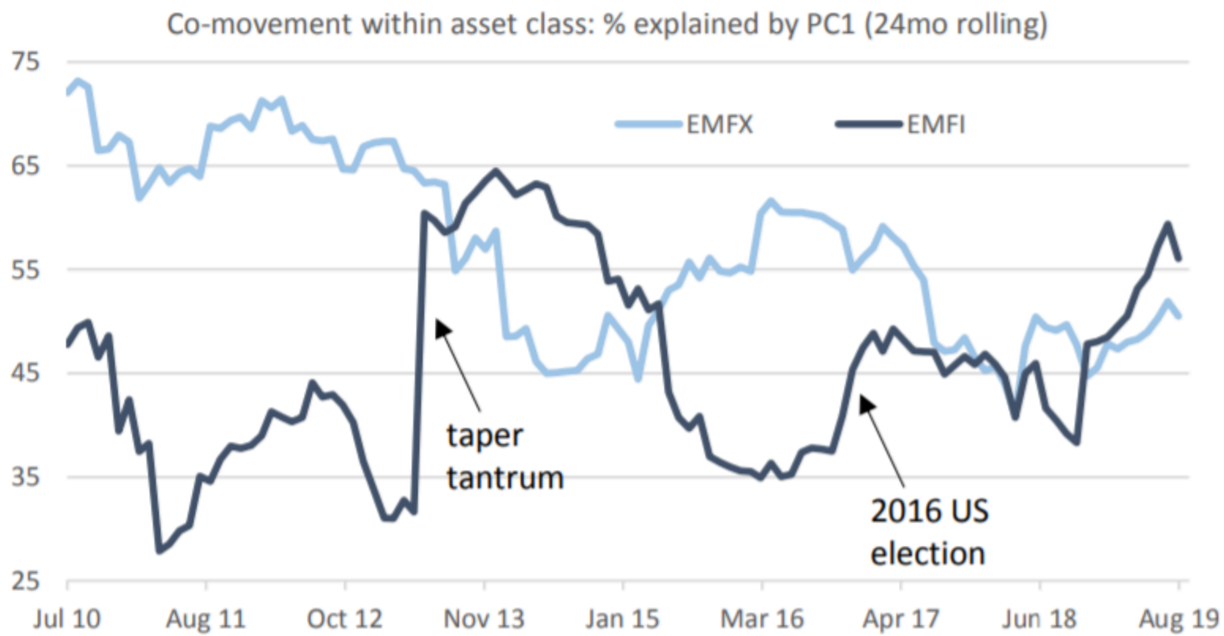
Source : Deutsche Bank, Bloomberg Finance LP

Figure 4: EMFI Scorecard: Countries ranked from best long (rank 1) to best short (rank 18)

Countries	Final Rank	Technicals/Financials						Valuation/Dynamics					
		Positioning	Liquidity	Credit Risk	Real Rates	External valuation	Overall Technicals	Term Premium	Monetary Policy Impulse	Inflation impulse	Bond valuation	Expected return	Overall Valuation
India	1	3	4	6	4	13	1	5	9	13	2	1	3
South Africa	2	11	1	17	2	7	4	1	14	3	3	11	5
Indonesia	3	15	16	10	4	1	9	5	2	13	1	3	1
Russia	4	8	11	13	3	3	4	11	11	8	6	4	6
Malaysia	5	6	8	2	4	12	3	15	6	5	15	8	10
Turkey	6	1	18	18	8	8	12	10	1	9	8	2	3
South Korea	7	10	6	2	11	16	7	17	4	5	9	5	6
Brazil	8	12	13	15	8	11	16	2	6	1	14	6	2
Israel	9	2	3	7	13	6	2	13	14	2	16	14	14
Colombia	10	13	10	14	7	9	12	5	11	10	7	9	8
Thailand	11	9	2	1	10	17	6	18	5	12	11	10	13
Mexico	12	14	9	16	1	15	15	16	3	18	4	7	9
Hungary	13	7	14	9	16	2	10	8	18	4	12	17	14
Romania	14	5	17	12	15	4	12	3	8	17	13	13	12
Peru	15	17	7	5	13	10	11	8	16	11	10	15	16
Poland	16	4	5	4	18	14	7	13	10	15	17	18	18
Chile	17		12	11	12	18	18	4	11	7	18	12	11
Czech Republic	18	16	15	8	16	5	17	11	16	16	5	16	17

Source : Deutsche Bank

Figure 40: EM local rates have co-moved more tightly with core rates, while DXY still shapes EM FX largely



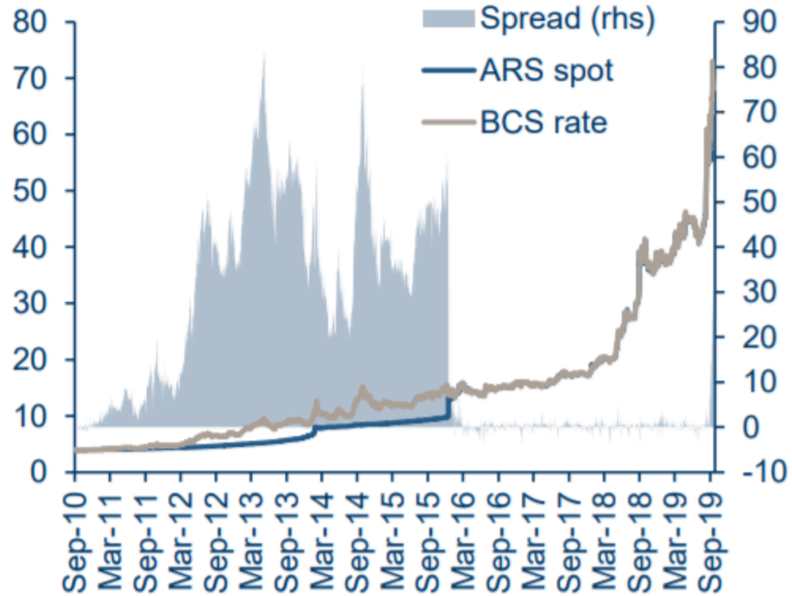
Source : Deutsche Bank, Bloomberg Finance LP

ARS: We expect the Blue Chip Swap to keep widening

- The spread between the Blue Chip Swap (BCS) and the official foreign exchange rate started to widen again after the imposition of capital controls.
- Currently, the spread between the BCS and the official FX is at 20%; Prior to the PASO both rates were trading flat, but during the capital controls period of 2013-14 the gap widened to as much as 80%.

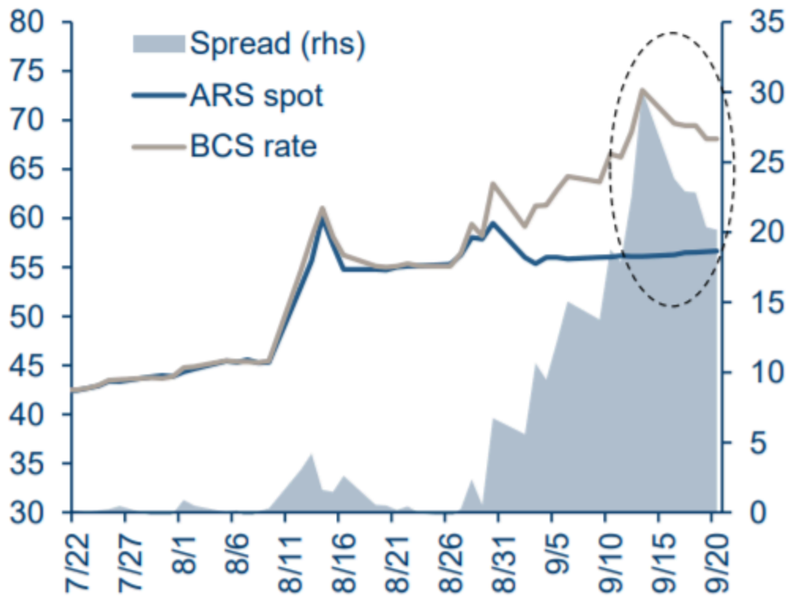
Historical BCS-official FX spread

ARS and BCS in levels; BCS-spot spread in % (rhs)



Recent BCS-official FX spread

ARS and BCS in levels; BCS-spot spread in % (rhs)



Source: the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

As for co-movement, individual names within EMFI-hedged have co-moved much more tightly over the past year and the magnitude of the co-movement has reached historical highs (measured by the rolling R^2 of PC1 across EM). As we know, PC1 of all EM local rates, the level factor, is highly correlated with core rates. **The greater co-movement implies EMFI-hedged has become more of a single-factor-driven asset class.** Combined with the analysis for the two regimes (easing and trade wars), we stress that the repricing of core rates, among other external drivers, is the most relevant factor we need to weigh carefully.

PC1 of EM currencies points to 50% of the variance. In this regard, DXY still matters qualitatively and quantitatively, especially during easing cycles compounded with trade war tension in which DXY tends to face upward pressure.

To sum up, during the combo regime, EMFI-hedged, as an asset class, should be most favored, while the pro-growth EM FX, which tends to be vulnerable in such environments, should underperform. This has been our view for most of this year. In EMFI-hedged, the countries with a high beta to core rates, such as Indonesia, Hungary, Thailand, India, Philippines, Peru, Mexico and Czech Republic, tend to benefit the most from a repricing of DM central banks. As for EM FX, the currencies with a high beta to copper and DXY, such as CEE4, KRW, ZAR, COP, BRL and CLP, tend to become vulnerable during easing cycles with the lingering trade tensions. On the other hand, most Asian currencies and PEN tend to be resilient.

Going forward, if the regime switches to a recovery and expansion cycle and the trade tension eases, relatively pro-growth EMBI will likely become more attractive than the more defensive EMFI-hedged. EM FX, while even more pro-growth than EMBI, will likely continue to face structural headwinds from stagnant or even declining productivity - unless a stronger recovery than we expect settles in.

1,517 and 3-mo static carry of 26%

Nickel vols hit 2014 supply shock level and are ripe for paring

On the back of the nickel supply shock, nickel vols shot up to the 38 handle at the end of August pushing the base metals vol average to 23 vols. Our base metals analysts expect nickel to average 17,000 by the end of the year before heading to a bearish territory in 2020. Such a limited range could see a significant downside pressure on very elevated nickel vols. **Our low frequency supply/demand based fair value framework (Exhibit 8) suggests that the current average BM vol (simple average of the three components) is fairly priced. The differences among the individual base metals vols remain a fertile area that can be well exploited via RVs.**

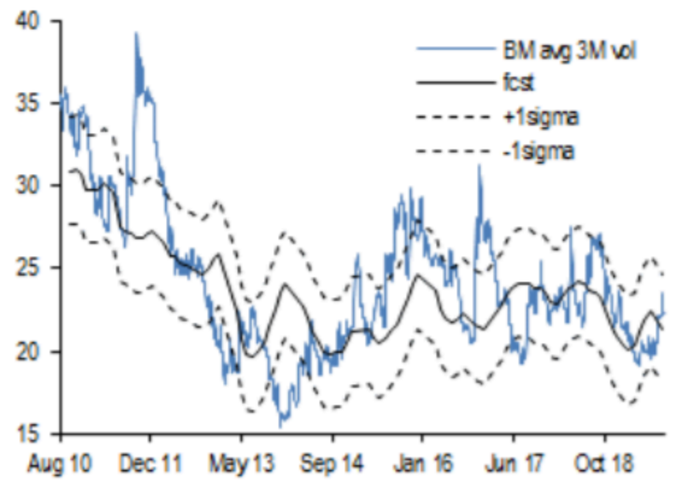
Last quarter we recommended long nickel vol vs short copper vol RV at the time when Nickel vols hit five year low and soft copper realized vol provided ~4vols of carry. The trade was well supported by the historical backtest which has found very tight correlation between vol returns and the Ni-Cu vol spread.

The setup ran so far that now a reverse trade looks attractive. The nickel vols are at the 32 handle and the backdrop mirrors the one from 2014 when a similar supply shock lifted nickel spot and vols, only to see the vols mean-revert once the spot price stabilized about two months after the vols peaked (Exhibit 9). In light of those extended nickel vols and the performing zinc vols we now see value in taking advantage of the tactical dislocation between nickel and zinc.

An historical backtest for 3M Zn - Ni ATMF vol spread (Exhibit 10) shows that the performance has started to turn around as nickel vols started to revert lower from

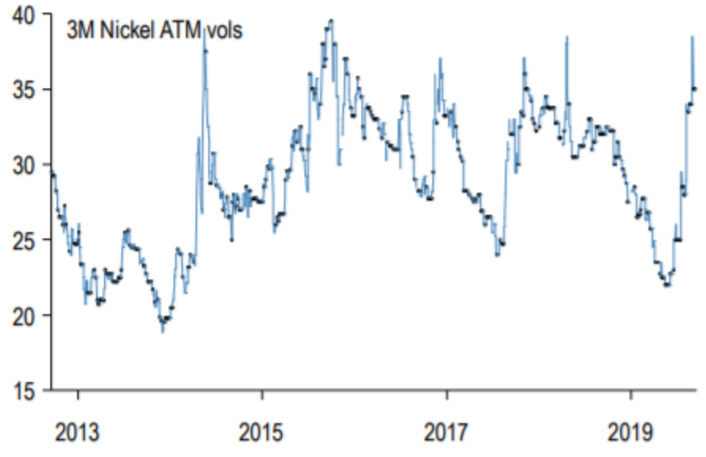
Exhibit 8: Average base metal vols (aluminum, copper, nickel and zinc) remain at fair

Average 3M base metals ATM volatility regressed against demand-side variables proxied by China PMI and rolling 12-mo std. deviations of China IP, and supply-side factors proxied by the rolling 12-mo std. deviation of aluminum, nickel and copper inventories. Monthly data since 2010.



Source: J.P. Morgan

Exhibit 9: 3M Nickel vol shoot up mirroring the 2014 supply shock episode.



Source: J.P. Morgan

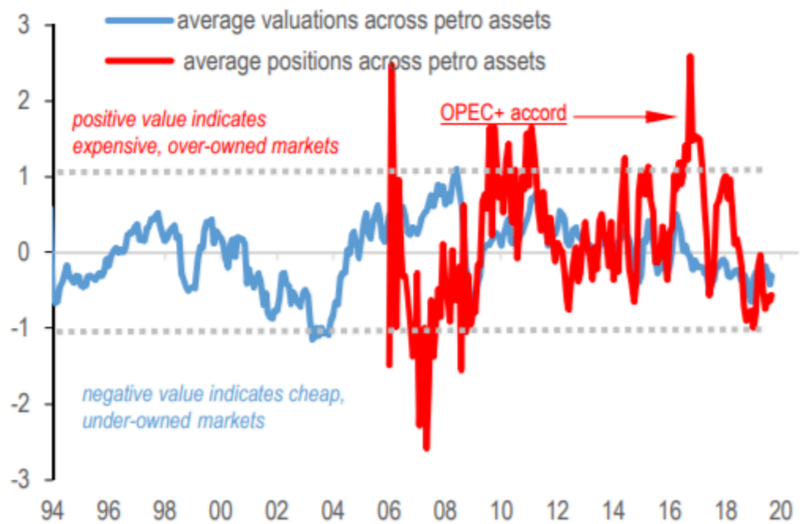
Exhibit 3: Asset class performance vs. average after large daily spikes in **tighter supply** environments

	Returns vs Avg Before Spike in Oil Price				Returns vs Avg After Spike in Oil Price			
Asset	6m	3m	1m	5d	5d	1m	3m	6m
EQUITIES								
S&P 500	-8.0%	-5.1%	-4.1%	-1.2%	0.5%	2.2%	3.5%	5.0%
Eurostoxx 50	-14.1%	-8.7%	-4.8%	-1.8%	-0.5%	0.5%	-0.1%	-0.6%
TOPIX	-17.0%	-8.8%	-4.0%	-0.2%	-1.0%	-0.6%	0.0%	-0.1%
FTSE 100	-8.4%	-5.0%	-3.4%	-1.1%	-0.1%	1.1%	3.1%	5.4%
MSCI EM	-1.7%	1.6%	-1.4%	0.0%	0.1%	-0.1%	-0.2%	-8.2%
US EQUITY SECTORS								
Cons Disc vs Mkt	-3.2%	-0.4%	-1.4%	-0.3%	-0.5%	0.4%	2.1%	0.1%
Cons Staples vs Mkt	-0.2%	-0.4%	0.8%	-1.0%	-0.3%	1.2%	5.6%	10.1%
Energy vs Mkt	2.6%	2.4%	3.9%	2.3%	-0.7%	-0.2%	1.4%	1.6%
Financial vs Mkt	-1.3%	-1.3%	-2.2%	-0.6%	-0.4%	2.4%	5.6%	7.9%
Healthcare vs Mkt	0.7%	-1.0%	1.1%	-0.3%	1.1%	1.7%	1.8%	3.6%
Industrials vs Mkt	-0.5%	1.0%	0.6%	-0.4%	-0.6%	0.4%	0.5%	2.4%
IT vs Mkt	3.6%	2.5%	-0.7%	0.3%	-0.1%	-3.2%	-6.9%	-10.5%
Materials vs Mkt	-2.4%	-1.1%	0.1%	1.2%	-0.4%	0.6%	2.3%	3.3%
Utilities vs Mkt	0.7%	5.3%	1.4%	0.3%	0.2%	-0.3%	1.1%	4.3%
Value vs Growth	-2.4%	0.3%	-0.1%	0.6%	-0.7%	0.9%	4.6%	6.4%
FX								
DXY	-6.4%	-2.8%	-0.9%	-0.4%	0.0%	-1.2%	-1.0%	1.3%
EURUSD	6.6%	2.7%	0.8%	0.5%	0.0%	0.9%	0.7%	-2.5%
JPYUSD	7.1%	3.5%	1.2%	0.3%	0.3%	3.3%	3.1%	3.4%
AUDUSD	5.4%	3.0%	0.5%	0.8%	0.3%	0.1%	-0.7%	-1.1%
CHFUSD	9.9%	3.5%	1.3%	0.8%	-0.2%	0.2%	-0.5%	-4.6%
ZARUSD	3.2%	1.6%	0.0%	0.0%	0.5%	1.8%	1.6%	0.4%
BRLUSD	6.1%	5.2%	2.2%	0.6%	0.3%	2.3%	1.6%	-4.7%
RUBUSD	0.7%	-1.0%	0.5%	0.5%	-0.1%	0.9%	1.6%	2.3%
KRWUSD	0.1%	-0.5%	-0.2%	0.4%	0.0%	0.1%	-0.5%	-0.7%
RATES								
UST 10Y	0.8%	0.2%	-0.4%	-0.2%	0.1%	0.7%	2.1%	3.4%
Bunds 10Y	-1.0%	-0.4%	-0.7%	-0.2%	0.1%	0.8%	1.5%	3.1%
JGB 10Y	-0.2%	-0.8%	-0.5%	-0.1%	-0.2%	0.9%	2.9%	3.9%
UST vs Bunds 10Y	1.9%	0.6%	0.3%	0.0%	0.0%	-0.1%	0.6%	0.3%
UST 2s10s	-1.2%	-0.7%	-0.6%	-0.2%	0.1%	0.4%	1.1%	1.3%
US Breakevens 10Y (Abs Δ)	-2	1	-2	0	1	1	5	-23
CREDIT								
US IG	-0.1%	-0.1%	-0.2%	0.0%	0.0%	0.1%	0.0%	-2.4%
US HY	-1.3%	1.2%	-0.6%	-0.2%	0.0%	-0.4%	-0.3%	-7.2%
EU IG	-0.2%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.3%	-0.8%
EU HY	-1.0%	2.1%	-1.3%	-0.3%	-0.3%	-1.5%	-1.4%	-7.1%
COMMODITIES								
S&P GSCI	15.5%	10.5%	6.0%	4.3%	-1.4%	-0.2%	-0.9%	-5.8%
Brent	40.0%	31.5%	15.2%	10.0%	-3.8%	-2.9%	-2.8%	-14.8%
Natural Gas	-6.9%	-4.4%	-2.0%	1.9%	-2.8%	-2.6%	-0.3%	-19.8%
Gold	0.0%	2.2%	1.3%	1.3%	-0.7%	-3.1%	-3.8%	-6.7%
Copper	6.6%	3.3%	0.5%	-0.6%	-0.4%	-0.8%	-2.9%	-9.8%

Source: Bloomberg, Morgan Stanley Research; Note: We use 50 largest 1-day oil price spikes since 1988. We show US breakeven absolute change in bp.

Chart 3: Most petro assets not priced nor positioned for supply stress

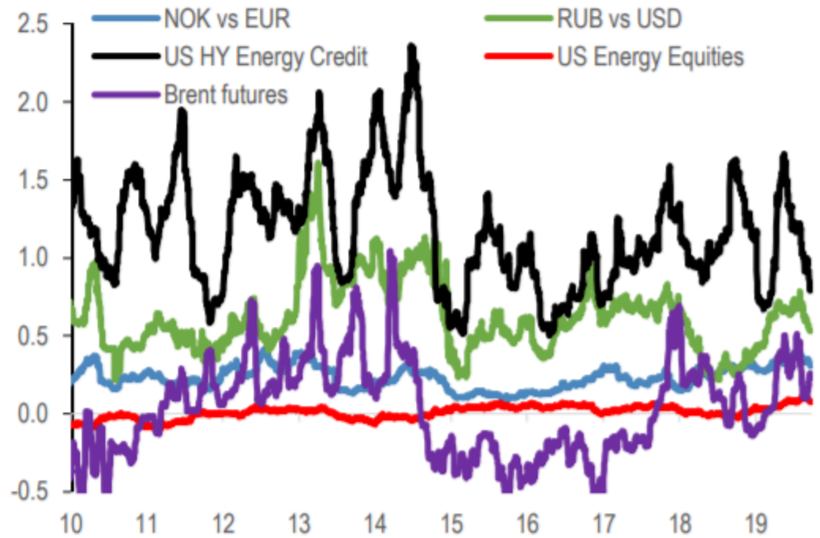
Average valuation and positioning of petro assets in standardized terms, where negative (positive) values indicates cheap, under-owned (expensive, over-owned) markets. Valuations based on real crude prices, forward P/E of S&P Energy Equities, US HY Energy Credit and RUB real exchange rate. Positions based on CFTC futures in WTI, Brent and RUB, and ETF flows into Energy Equities.



Source: J.P. Morgan

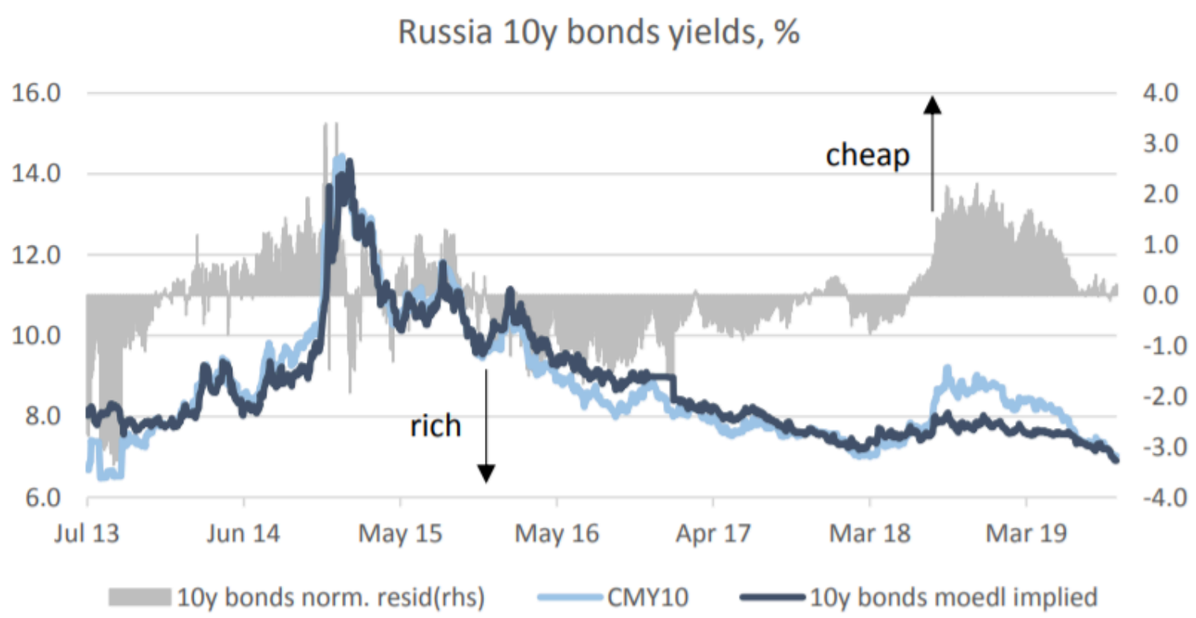
Chart 4: Amongst petro assets, risk-adjusted carry is much higher on HY Energy Credit and RUB than on NOK, Oil futures and US Energy Equities

Annualized carry vs realized 3M return volatility for S&P Energy Equities (dividend yield vs 10Y yields), US HY Energy Credit, RUB vs USD and NOK vs EUR.



Source: J.P. Morgan

Figure 56: 10y bond yields - model vs actual



Source : Deutsche Bank

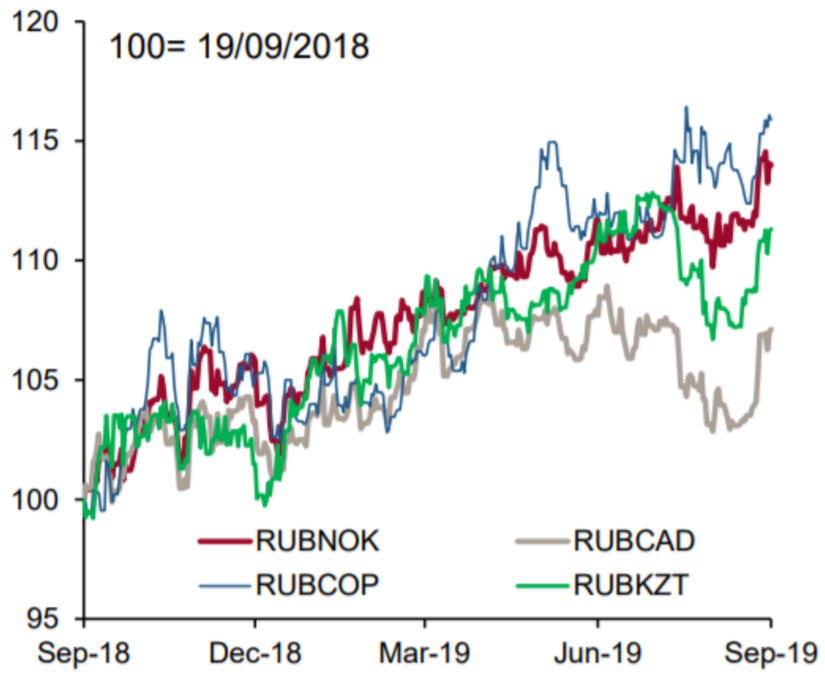
Figure 57: Term premium - bonds vs swaps

Source : Deutsche Bank

RUB: Back into pre-August range

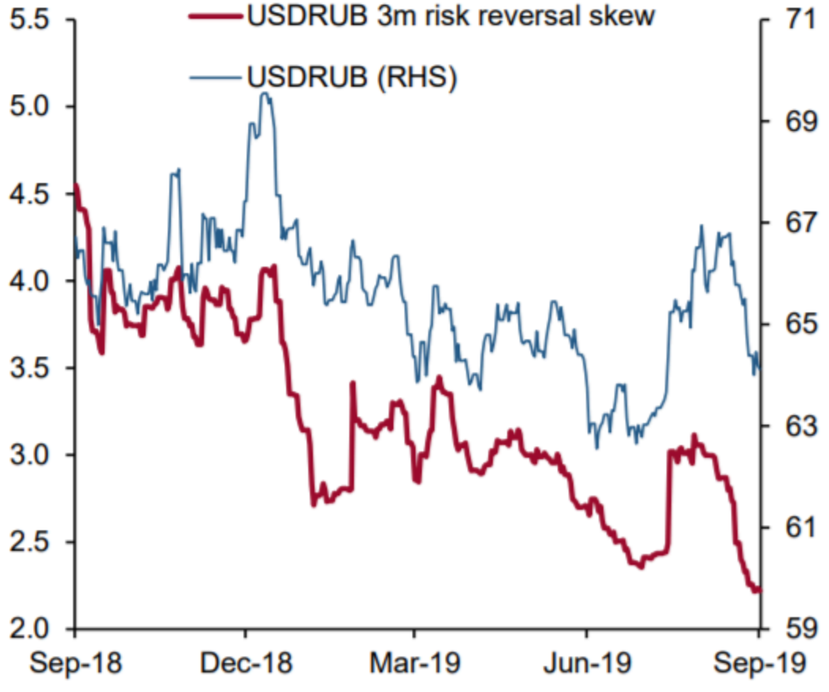
- The balance between sanction risks and rouble-supportive policies has not changed much despite recent volatility in USDRUB and upside risks to oil prices.
- We are inclined to trade USDRUB within its April-July range – i.e. selling USDRUB above 65.85 and buying USDRUB below 62.50.

The rouble notably outperformed other oil currencies in September



USDRUB risk reversal skew fell to multi-month lows

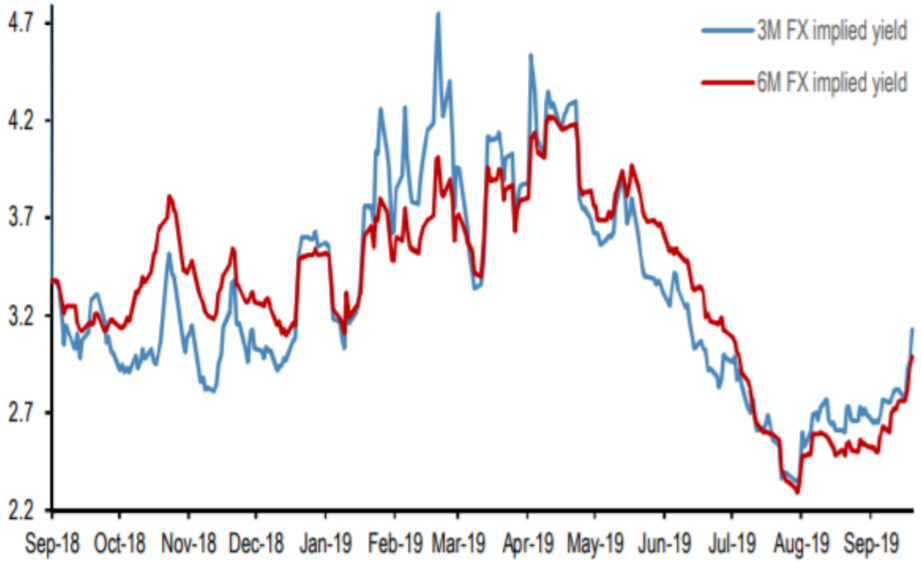
Percentage points



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

We also see scope for forward points to widen from current levels. Although the central bank is likely to ease the aggressiveness of FX intervention, in our view, it will stay present in the market, which means some of the pressure on RON will transpire in forward points. Current 6m FX implied yield is 3% annualized. At the peak of the pressure on RON at the start of the year, 6m FX implied yields rose to 4.2% and 3m FX implied yields to 4.75%. Arguably global easing could make FX implied yields peak out at lower levels this time, but we still expect a rise.

Exhibit 5: Carry levels now relatively low compared to recent history



Source: J.P. Morgan, Bloomberg

Shouldn't the curve steepen from here as Banxico keeps easing?

In principle, yes, but:

a) There is a scenario in which the deterioration of growth and lower risk premia (including stable fiscal and chances of re-initiation of Pemex farm-outs) pushes the longer-end lower, while the front-end is constrained by a reactive Banxico; and

b) The negative carry at the front-end of TIIE (28bps 3M carry / roll for the 1Y) is very high at this point, and we prefer not to incur it now that the vast majority of the easing cycle is already incorporated into the curve. Remember that the curve is already pricing in roughly 200bps of additional cuts from this point over the next 2 years.

That is, we see a scenario in which the bond curve flattening extends as the local growth dynamics deteriorate, and the global search for yield continues. In addition, the basis between the bond and the swaps has also made bonds more attractive (see Chart 1 below). This is why we have preferred to move from front-end receivers and play it has a fixed income FX unhedged carry trade at the long-end of Mbono (2038s, as described in this piece).

Mexican swap curve is flatter than bond curve; and long-end bond yields are more attractive: Yield curves vs maturity

Source: NWM Strategy and Bloomberg

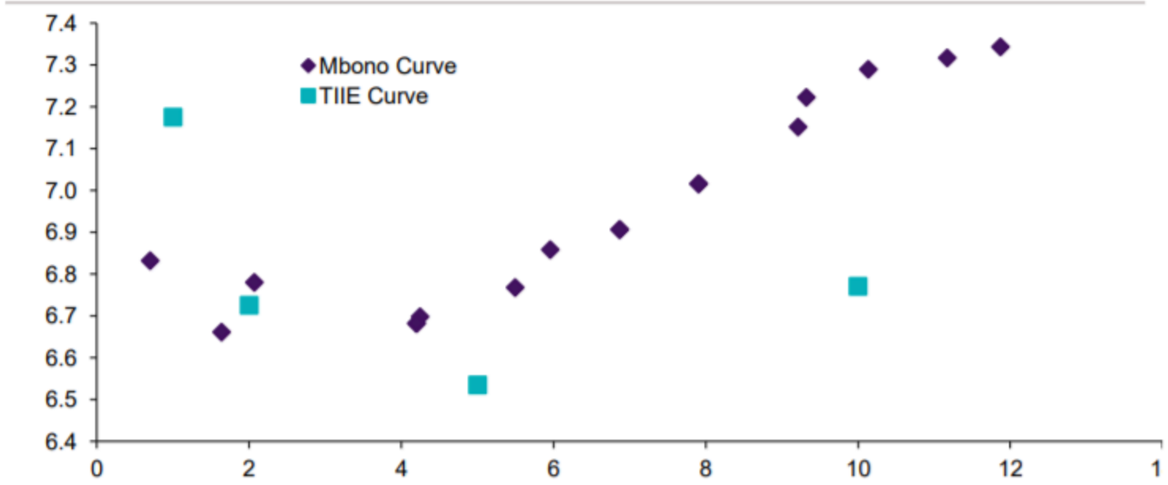
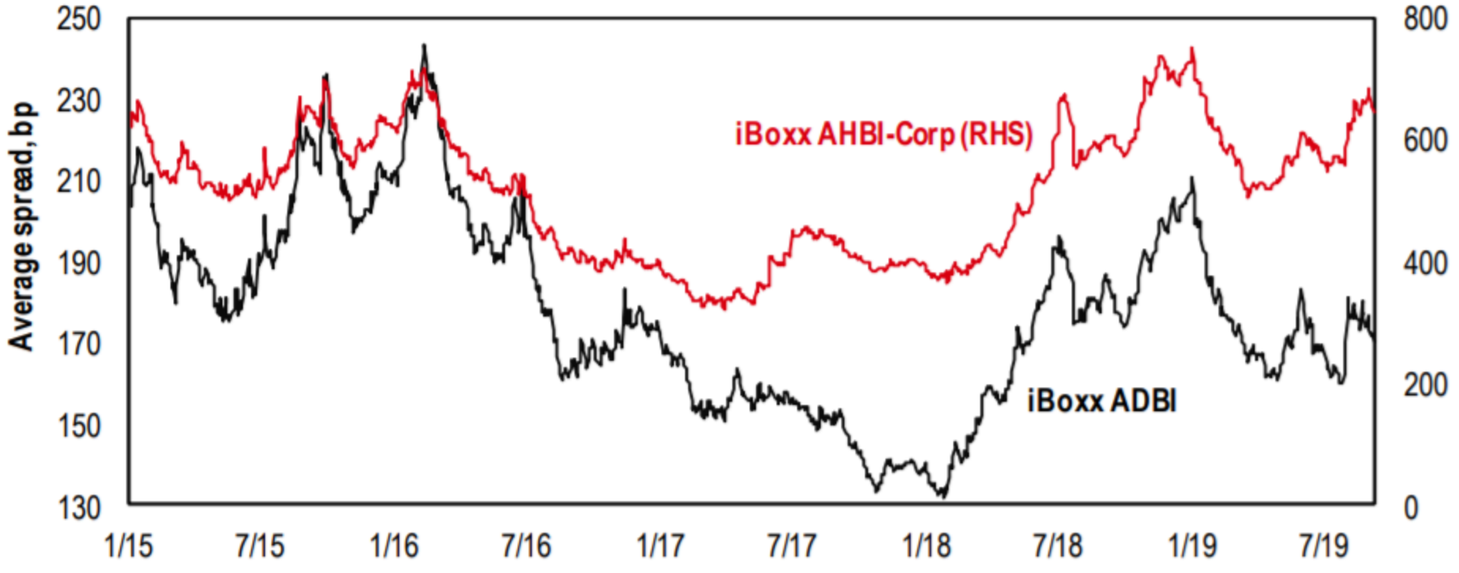


Figure 22. Asian credit spreads are attractive at these levels



Source: IHS Markit, HSBC

But determining the new geopolitical premium comes with a host of challenges. We define risk premium as the difference between the spot traded price and the theoretical fundamental equilibrium price of oil based on supply, demand and stocks. In the past, the level of oil inventories in the OECD was used as a proxy for the fundamental state of the market.

These were related in a fairly consistent way to the level of the flat price of oil and the direction as well as the magnitude of time spreads of the futures curve. In the case of the former, this relation is no longer systematic nor is it reliable, as the financialisation of oil futures in the near-dated traded tenors has introduced non fundamental factors that affect the spot price, while storage has grown in non-OECD countries for which there is little reliable public data. Even if we estimate the fundamental equilibrium oil price, the risk premium, as derived by the difference to where oil is trading, is a composite of risks; macro-financial as well as geopolitical.

Before the attacks, front-month Brent had settled on 13 September at USD60.22/bbl. Assuming non-geopolitical risk factors were discounted in the price at the time and have not changed, Brent kicked off trading on 23 September around USD65/bbl, suggesting a geopolitical risk premium of USD5/bbl.

There were wide swings in the price of oil in the aftermath of attacks, first upwards on 16 September with the reporting that recovery of Saudi output would take longer than expected.

Fig. 2: Brent front month price (11-24 September)

Source: Bloomberg (intraday 5 minute increments), BNP Paribas
11 to 24 September to 8:45 am London

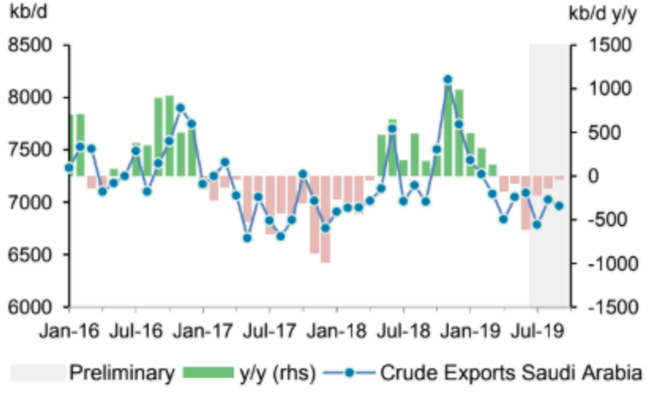
We continue to expect these factors to exert strong downward pressure on oil prices. In addition, we think the hesitancy in going long oil in light of the above factors will make it challenging for the market to absorb producer hedging flows.

If the new risk premium in oil price remains stable (a big if), the fundamental component will weaken, in our view. In other words, the direction of travel of oil prices in our forecast will remain the same, although we would expect the average price level to realise at a higher level than assumed in the latest Global Outlook.

Under the risk scenarios envisaged on pages 1 and 2, we think the front end of our oil forecast is less vulnerable to revision than the longer-dated 2020 view. As long as the market sees Saudi Arabia as a reliable supplier, capable of weathering and recovering swiftly from future drone attacks, we would expect the risk premium in oil prices to remain contained. This view is further reinforced by the fact that any sustained supply disruption of oil output in the kingdom would invite in our opinion a strategic stock release from the OECD member countries of the International Energy Agency. OECD government-controlled stocks were reported by the IEA at 1230 mb of crude oil at the end of July 2019.

Outside the OECD, in recent years, large consumers such as India and China have built strategic storage and could also opt to use them. The release of strategic stocks would act to revert oil prices back to pre-disruption levels.

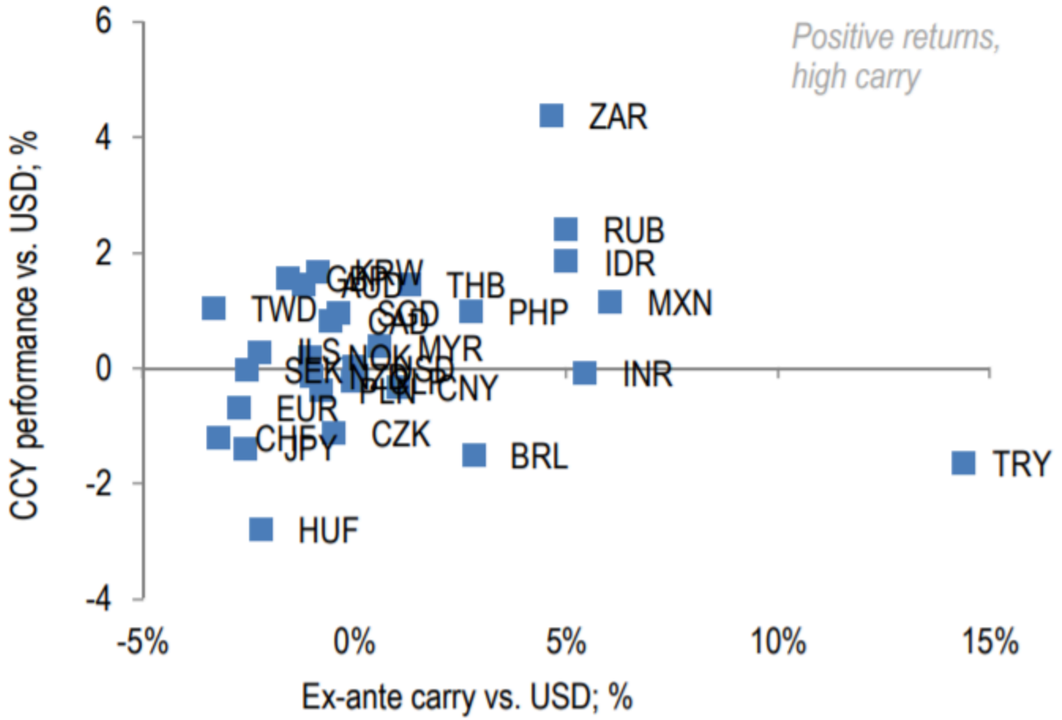
Fig. 3: Saudi crude oil exports



Source: Petro-logistics SA (monthly to August 2019, average of first two weeks of September 2019), BNP Paribas

Exhibit 1: High yielders ex-TRY led the way higher over the past month

CCY performance vs. USD (%) vs. 1m carry vs. USD a month ago (%)

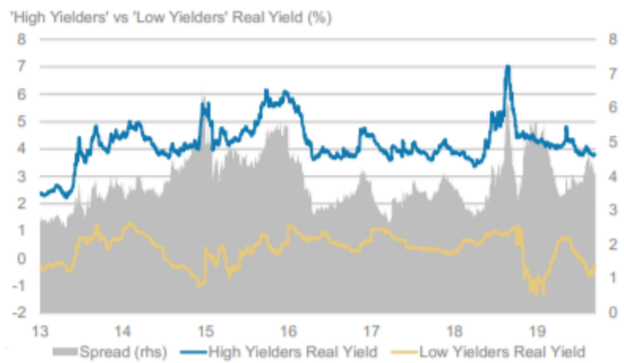


Source: J.P. Morgan

Cheapening high yield valuations... There has been a widening of interest rate differentials between high yield and low yield local currency EM bonds over the past six months. Exhibit 26 shows the interest rate differential between an average of the three highest yielders (measured in ex ante real terms) and an average of the three lowest yielders over time. The chart clearly shows an increase in the spread in recent months, even if not quite to the extreme levels at the end of 2014 and in the middle of 2018. The events that led to those widening periods were quite idiosyncratic. However, if we exclude Russia and Turkey from those periods due to their idiosyncratic issues at the time, then the recent increase in the high yield versus low yield rate differential places the spread near the upper end of the range (Exhibit 27). This suggests investors have preferred quality during this recent hunt for duration exposure, and not necessarily grabbing the highest-yielding assets around. This is likely because slowing global growth has left investors a bit more wary of increasing their exposure to lower-quality credits.

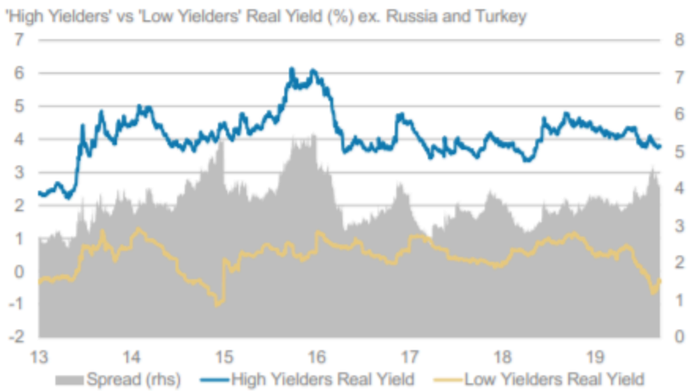
...suggest adding exposure to high yielders versus paying rates within low yielders: Cheaper valuations and lower sensitivity to higher core yields suggest adding some exposure to the higher-yielding countries. The fact that EM local markets have not experienced any significant inflows this year, unlike credit, should also provide a bit of protection against the risk of outflows on the back of rising core yields. As outlined below for each region, we therefore recommend positioning for higher yields by paying rates outright or via curve steepeners in low-yielding EMs (CEE, CLP) while adding some selective longs within the high yielders (10y IGBs).

Exhibit 26: High yield local rates look cheap compared to low yielders...



Source: Bloomberg, Morgan Stanley Research

Exhibit 27: ...even when excluding Russia and Turkey



Source: Bloomberg, Morgan Stanley Research

Carry and position unwinds have been driving FX returns

What has been driving returns in FX markets? **The search for carry and positioning unwinds have been two primary factors over the past month.** Our single-factor FX frameworks show that the two signals that delivered the best returns over the past month were EM carry and (contrarian) positioning (exhibit 2[1]). **The outperformance from FX carry represents an extension of positive returns** that we have seen all year. By contrast, **positive returns from positioning is a newer phenomenon**. Crowded positioning has not been a problem for markets all year.

Strategy view: still defensive but with reduced risk

Our strategy recommendations in recent months have leaned defensive given late-stage risks to the expansion, which were only compounded by escalating US-China trade conflict and the resulting growth downgrades. Central banks were expected to provide only intermittent relief by easing given that trade talks have been driving growth expectations. **Our defensive views haven't changed—we are still recommending underweights in vulnerable high beta G10 FX (AUD, NZD), long a basket of defensive currencies (CHF, USD, JPY) and underweights in EM FX—but these are expressed with reduced risk** in both DM and EM given an active event calendar (central bank meetings, trade talks).

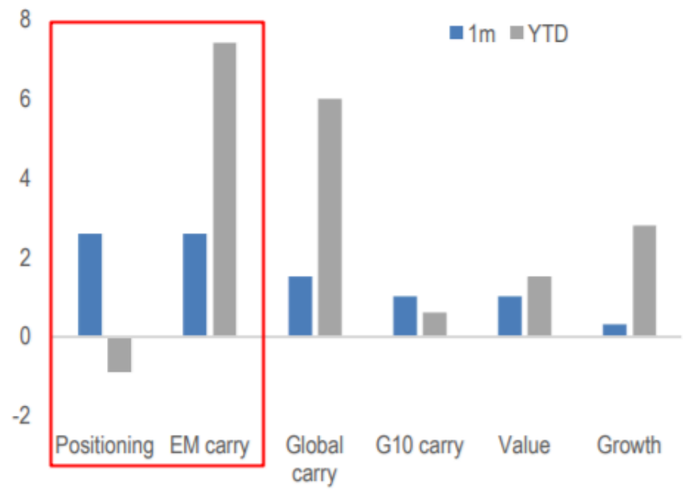
Moreover, **two benign developments** for markets have been—a **stabilization in global growth momentum** and **more favorable news on US-China trade talks**. These are discussed in more detail below, but the bottom line is that while this could provide the markets with some relief, **both factors are fragile** and inter-related issues. Hence, we

[1] Page 1 of *Daily FX Alpha chartpack*

Source: J.P. Morgan

Exhibit 2: The search for carry and positioning unwinds drove returns over the past month; carry has performed well all year

Retuns by single-factor FX strategy; %



Source: J.P. Morgan

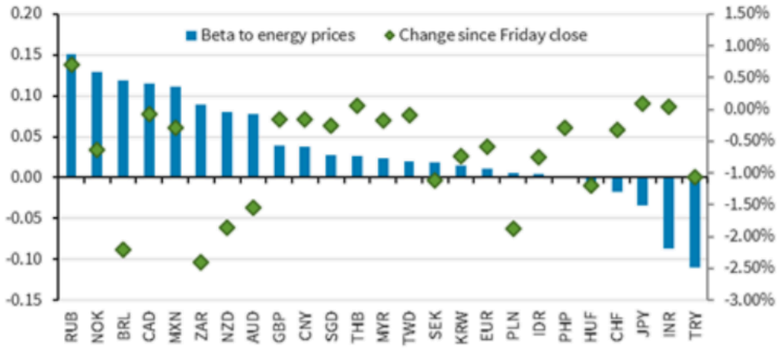
remain skeptical and are cautious on chasing the high beta rally in FX markets.

Growth momentum has stabilized but vulnerabilities remain…

Growth momentum has encouragingly stabilized on several metrics. Exhibit 3 shows that **our EM and DM EASIs have neutralized after being persistently in negative territory since May**. While this has admittedly been a global and broad-based phenomenon—nearly 65% of EASIs now positive, up from a low of 22% in July—**it is still early days to qualify as a decisive shift.** Empirically, six weeks of a persistent trend in EASIs has tended to be relevant for markets so the coming weeks will provide a key test of whether the stabilization can be maintained. It is also notable that our **growth framework based on our**

- **Trades for the Week Ahead:** Long USDPHP via 3m NDF and receive Mexico 10y TIIE

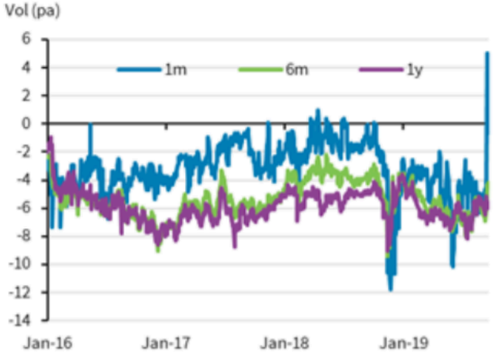
Figure 1: RUB, NOK, CAD, and MXN benefit the most from higher prices; TRY and INR the most negatively affected



Note: Beta calculated using change in weekly spot prices over last year; only looking at weeks where the difference between change in energy and non-energy prices exceeds 1 standard deviation. Source: Bloomberg, Barclays Research

EM is particularly affected by higher oil prices, with Asia negatively impacted while LatAm net exporters will likely benefit. Persistently higher oil prices (due to a lasting geopolitical risk premium) could be particularly problematic for large net oil importers, especially those with current account deficits. We note that EM Asia economies – Singapore, Thailand, Taiwan, Korea, and the Philippines – stand out as countries whose oil imports represent more than 3% of GDP. PHP may be particularly vulnerable here due to the Philippines' current account deficit. We estimate that a USD10 barrel increase in oil would worsen this deficit by 0.4pp, compounding our expectations of a back-loaded worsening in the trade balance as the government resumes infrastructure expenditure. We initiate a trade to be long USDPHP via 3m forwards (entry 52.17, target 53.21, stop-loss 51.65; see Trades for the Week Ahead section, Philippines: Nascent signs of infrastructure spending picking up, 11 September 2019 and Emerging Asia: Keep an eye on the oil gauge, 17 September 2019). In LatAm, higher oil prices benefit Colombia the most, as it would contribute to reducing the current account deficit and would increase fiscal revenues through dividends from the national oil company. The correlation of COP to oil prices remains high, although it has weakened somewhat in previous months, given the market was placing more emphasis on the external balance (see Colombia: Mitigating external risks, 4 September 2019). According to our analysis, BRL and MXN also could benefit (Figure 1), although to a minor extent, given that their oil trade balance is more neutral.

Figure 2: 1m risk-reversals have skewed in favour of calls



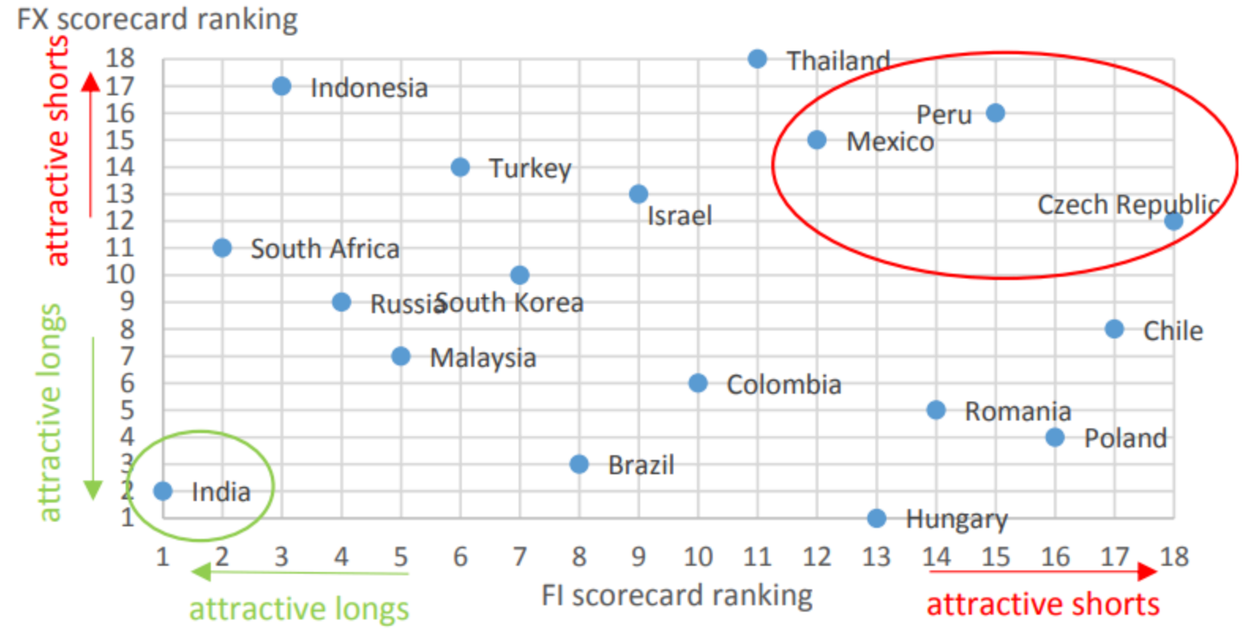
Source: Bloomberg, Barclays Research

Figure 3: Impact of risk-reversal skew, in favour of calls, on FX

	1m	3m	6m	1y
JPY	-0.03	-0.16	-0.07	-0.09
EUR	0.05	-0.01	0.00	0.01
CAD	0.16	0.19	0.15	0.14
NOK	0.20	0.21	0.15	0.18
CNY	0.04	0.08	0.00	-0.01
INR	-0.03	0.00	-0.01	0.00
SGD	0.09	0.03	0.08	0.08
MYR	0.05	0.05	0.05	0.06
IDR	0.06	0.13	0.03	0.04
KRW	0.06	0.21	0.08	0.08
BRL	0.03	-0.15	0.06	0.04
MXN	0.20	0.15	0.31	0.32
RUB	0.25	1.24	0.34	0.36

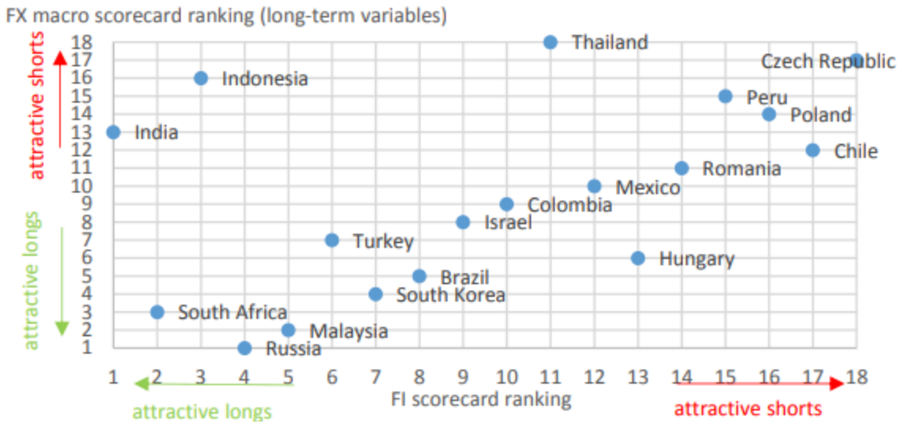
Note: shows average % daily change in FX spot since September 2014 on days when the risk-reversal increased by 1 or more; using risk-reversals of 1m, 3m, 6m, 1y tenors. Source: Bloomberg, Barclays Research

Figure 7: EMFI vs EMFX scorecards – where is the value?



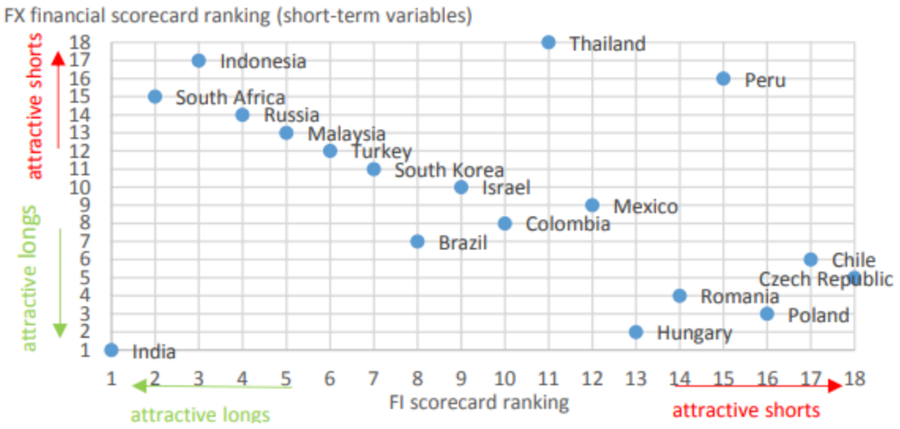
Source : Deutsche Bank, FX rankings adjusted to exclude CNY, TWD, SGD and PHP

Figure 8:EMFI vs EMFX macro rankings



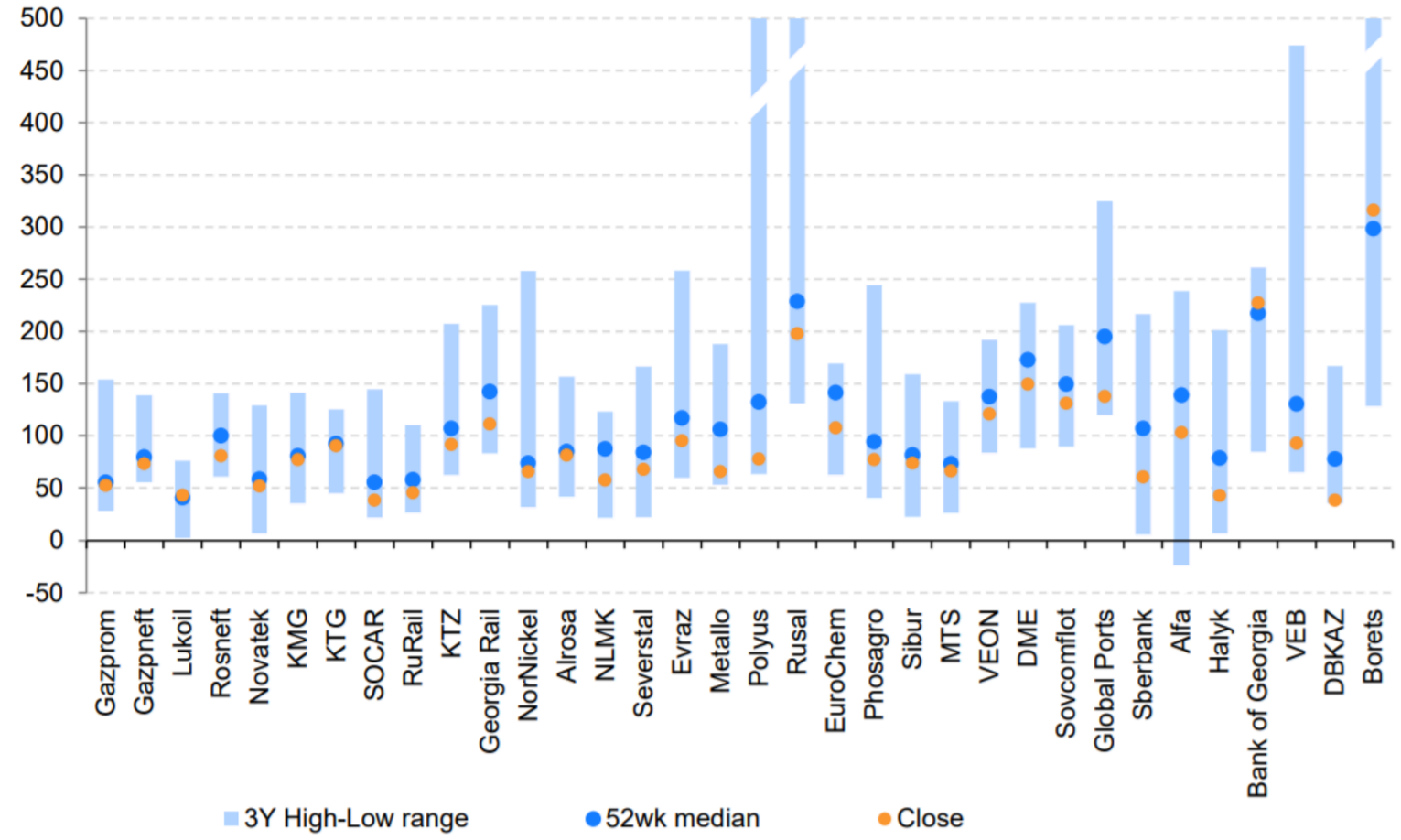
Source :Deutsche Bank

Figure 9:EMFI vs EMFX financial rankings



Source :Deutsche Bank

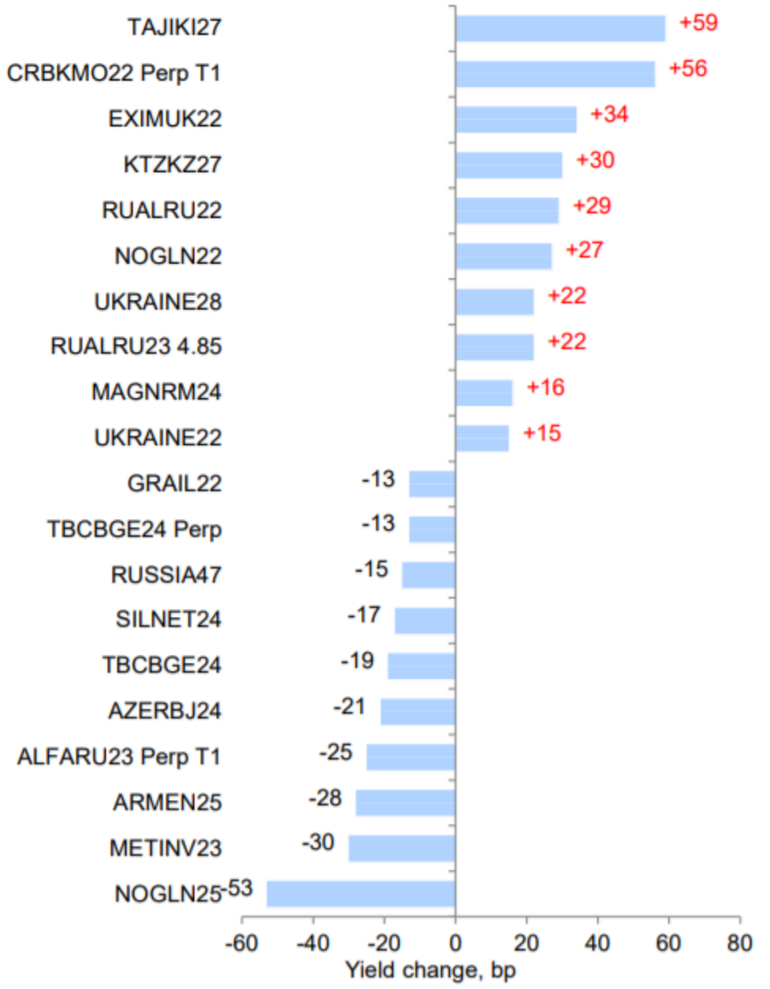
Figure 3: Spread vs. sovereign curve, bp



Source: Bloomberg, VTB Capital Research

23 September 2019

Daily top movers



Source: Bloomberg, VTB Capital Research

How have EM assets contributed to global portfolios since GFC?

EM assets have barely expanded the efficient frontier post-GFC

A risky asset class yet with high carry and risk premium, EM tends to show greater prominence in global portfolios over a longer period of time. First, a longer horizon includes the pre-GFC period - EM's golden age; second, a longer period allows for mean reversion and carry accrual. The latter becomes more relevant in a context where credit events are infrequent and inflations are subdued, conducive for local rates and credit to recover the lost ground.

Figure 28: Performance of major asset classes in recent periods

recent periods	post-GFC Jul '09 - present		post-taper tantrum Jul '13 - present		since trade war Mar '18 - present	
asset class	Return	Sharpe	Return	Sharpe	Return	Sharpe
SPX	11.7%	1.2	9.8%	1.2	5.1%	0.5
Stoxx	4.1%	0.3	4.4%	0.4	-0.9%	-0.1
UST	3.3%	1.1	2.7%	0.9	7.0%	2.3
G7_hg	4.0%	1.7	4.1%	1.7	7.4%	3.0
G7_uhg	2.5%	0.5	1.8%	0.4	3.8%	0.9
DXY	2.1%	0.4	3.0%	0.6	6.0%	1.8
Gold	5.3%	0.4	2.4%	0.2	8.6%	0.9
Copper	2.6%	0.2	-2.4%	-0.2	-13.0%	-1.0
Oil	1.8%	0.1	-4.7%	-0.2	-3.2%	-0.1
HY	8.9%	1.8	5.5%	1.3	5.4%	1.6
IG	6.4%	1.8	4.6%	1.4	7.7%	2.2
EMFI_hg	3.9%	1.6	3.3%	1.4	6.7%	2.7
EMFI_uhg	4.3%	0.6	1.6%	0.2	0.2%	0.0
EMBI	7.4%	1.4	5.3%	1.1	5.9%	1.3
EM_eq	3.4%	0.2	1.4%	0.1	-12.8%	-1.1
EMFX	1.5%	0.3	0.1%	0.0	-2.6%	-0.5

Source : Deutsche Bank, Bloomberg Finance LP.
Note: Returns are the average monthly returns (annualized).

1,517 and 3-mo static carry of 26%

Nickel vols hit 2014 supply shock level and are ripe for paring

On the back of the nickel supply shock, nickel vols shot up to the 38 handle at the end of August pushing the base metals vol average to 23 vols. Our base metals analysts expect nickel to average 17,000 by the end of the year before heading to a bearish territory in 2020. Such a limited range could see a significant downside pressure on very elevated nickel vols. **Our low frequency supply/demand based fair value framework (Exhibit 8) suggests that the current average BM vol (simple average of the three components) is fairly priced. The differences among the individual base metals vols remain a fertile area that can be well exploited via RVs.**

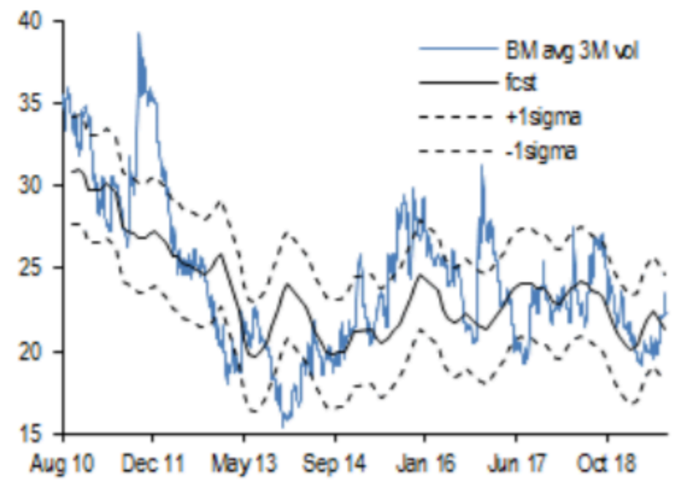
Last quarter we recommended long nickel vol vs short copper vol RV at the time when Nickel vols hit five year low and soft copper realized vol provided ~4vols of carry. The trade was well supported by the historical backtest which has found very tight correlation between vol returns and the Ni-Cu vol spread.

The setup ran so far that now a reverse trade looks attractive. The nickel vols are at the 32 handle and the backdrop mirrors the one from 2014 when a similar supply shock lifted nickel spot and vols, only to see the vols mean-revert once the spot price stabilized about two months after the vols peaked (Exhibit 9). In light of those extended nickel vols and the performing zinc vols we now see value in taking advantage of the tactical dislocation between nickel and zinc.

An historical backtest for 3M Zn - Ni ATMF vol spread (Exhibit 10) shows that the performance has started to turn around as nickel vols started to revert lower from

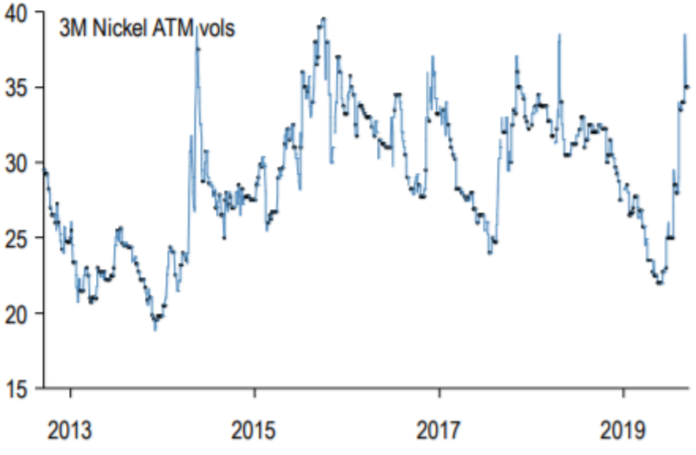
Exhibit 8: Average base metal vols (aluminum, copper, nickel and zinc) remain at fair

Average 3M base metals ATM volatility regressed against demand-side variables proxied by China PMI and rolling 12-mo std. deviations of China IP, and supply-side factors proxied by the rolling 12-mo std. deviation of aluminum, nickel and copper inventories. Monthly data since 2010.



Source: J.P. Morgan

Exhibit 9: 3M Nickel vol shoot up mirroring the 2014 supply shock episode.



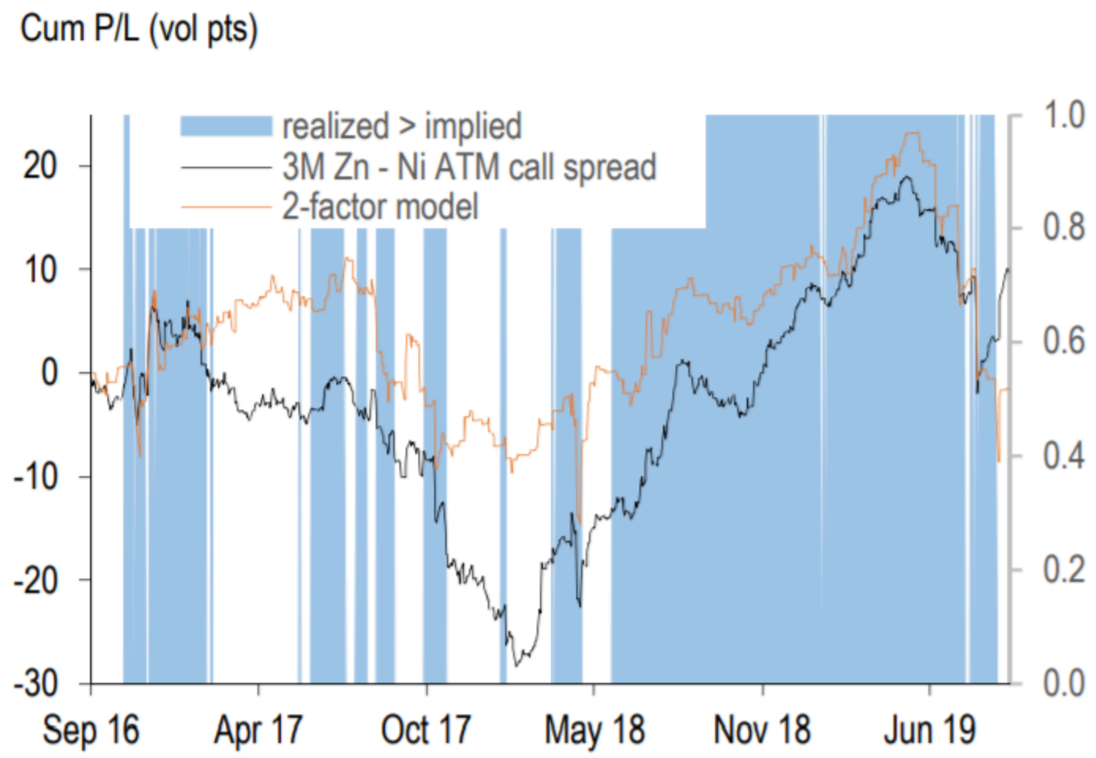
Source: J.P. Morgan

the recent multiyear peak and zinc realized vol started to perform. There is a notably tight correlation between vol returns and the Ni-Cu vol spread (2-factor model based on the implied vols is tracking historical cumulative P/L well). With the nickel vol still near the recent high, zinc vols spread near the YTD low, and zinc realized vol performing, the downside should be limited. With the supply shock in nickel having ran its course already (according to our base metals analysts) and the pain trade for producers being typically on the downside, we are more comfortable selling Ni call vols (delta-hedged) which, in case of a rapid decline, should lose greeks sensitivity. Consider:

Buy Jan 2020 ATMF call in zinc @22/24% vs sell Jan 2020 ATMF nickel call @31/33%, in equal vega notionals, delta hedged.

Exhibit 10: Zinc vs. Nickel vol spread performance started to turn around as Nickel vols started to revert lower

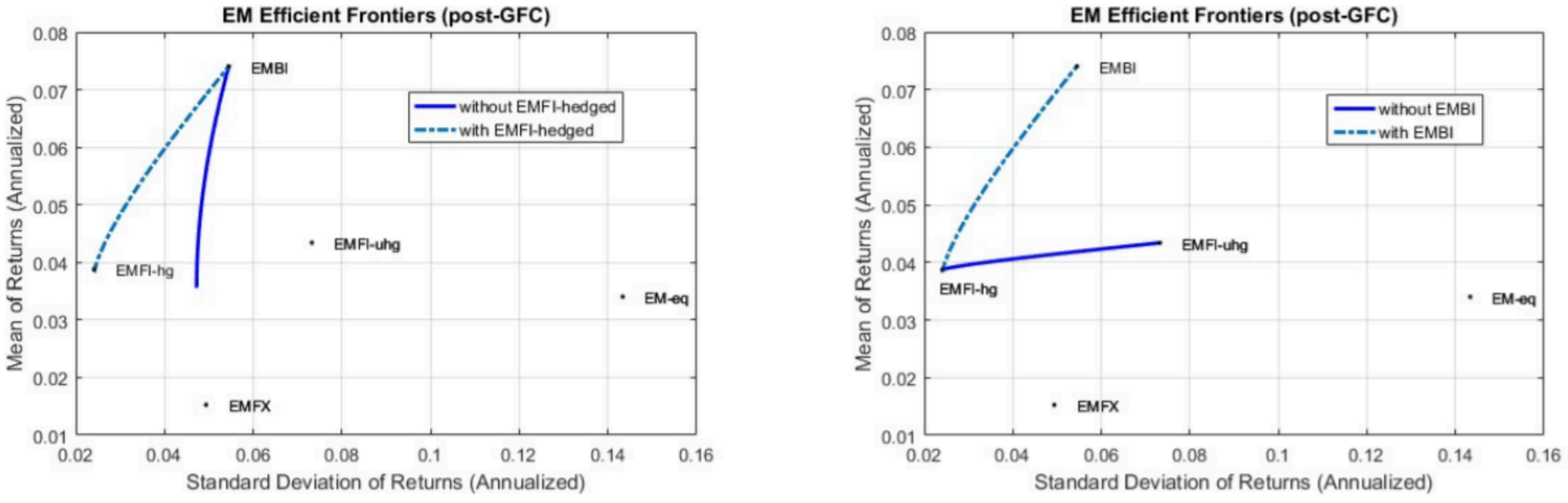
3M structures, delta-hedged daily and rolled into fresh strikes monthly. No transaction cost.



Source: J.P. Morgan

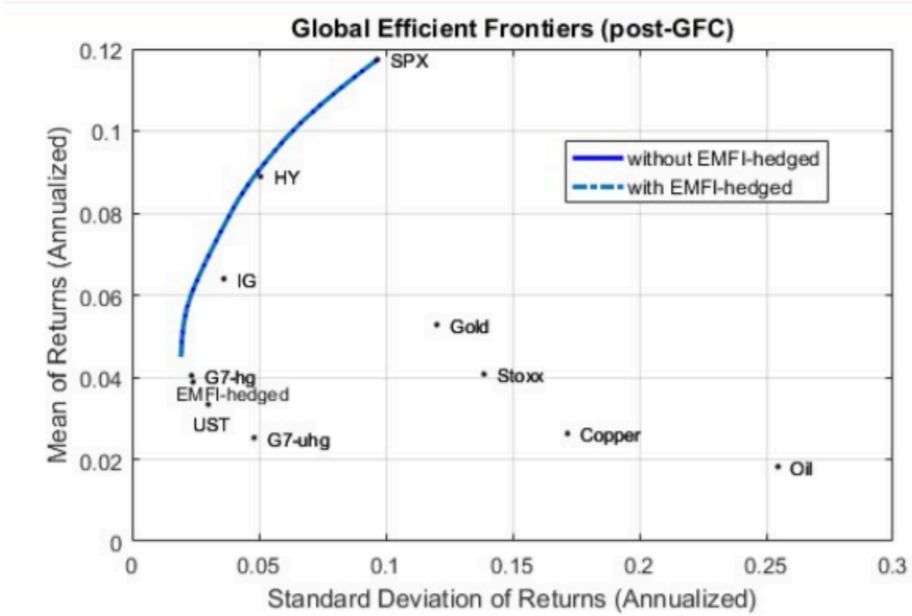
Since the GFC, however, EM's contribution to global portfolios has weakened. Not only have EM assets hardly expanded the efficient frontier of global portfolios [2] (even though EMFI-hedged and EMBI are pretty much on the frontier), but also they have often times come short of amplifying bullish swings via typical growth-sensitive assets such as equities and FX. Since the GFC, while EM credit has been a consistent contributor to global portfolios, local fixed income has performed well only with FX-hedged. In fact, on a risk-adjusted basis, EMFI-hedged has been one of the best asset classes in our sample[3] .

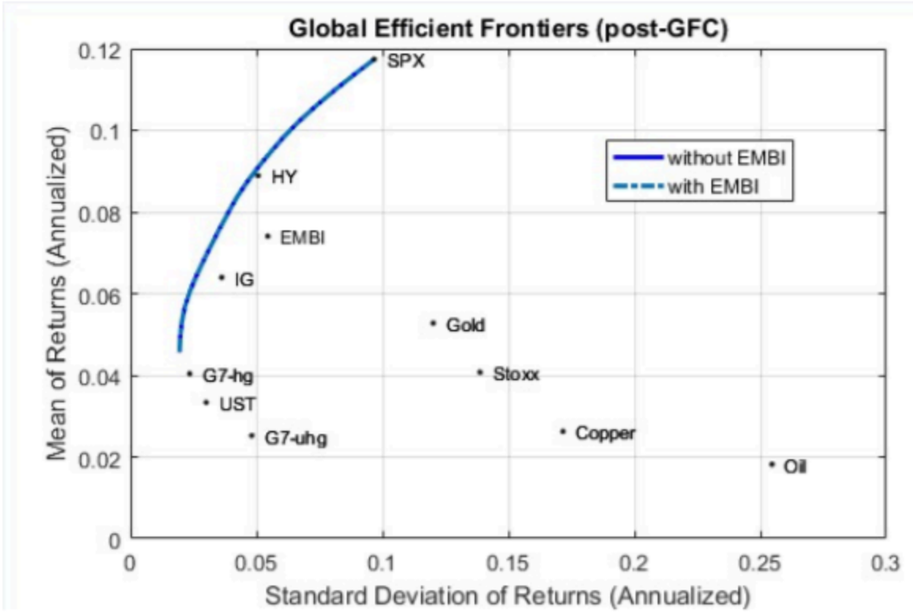
Figure 29: EMFI-hedged and EMBI have constituted the EM efficient frontier since the GFC



Source : Deutsche Bank, Bloomberg Finance LP

Figure 30: As two best-performing EM asset classes, EMFI-hedged and EMBI have barely expanded the global efficient frontier since the GFC, even though they are largely on the frontier





Source :Deutsche Bank, Bloomberg Finance LP

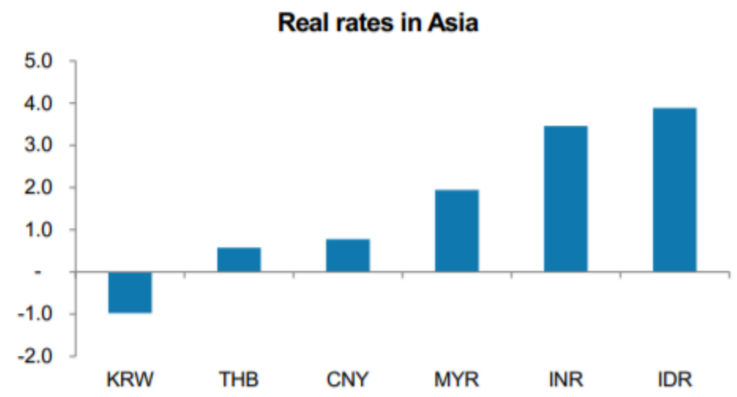
2 The global portfolios include SPX, Stoxx, US treasuries, G7 government bonds (FX-hedged and unhedged), gold, copper, oil, US HY, DM IG, EM local fixed income (hedged and unhedged), EM credit, EMFX total return (spot + carry) and EM equites. We focus on post-GFC period and specific regimes.

3 When it comes to the efficient frontier of an optimal portfolio, covariances matter as much as each individual asset class's returns and volatilities because of the benefit of diversification. We discuss the covariance matrices in detail in Appendix A

Among low yielders, we stick to our bullish view on China duration and express the view via the **10yr China Development Bank note without FX hedge,** given the relatively wide spread over government bonds, which should provide some cushion against a further pick-up in global bond yields. The PBOC might not be in a rush to cut interest rates but its stance to keep abundant liquidity with slowing growth should push bond yields lower. Moreover, foreign inflows from the Global Aggregate Index and GBI-EM could be a good technical support (see EM Strategy Update: The GBI-EM Investors' Special Lowdown: Are You Ready for GBI-EM China Inclusion (2)? September 5, 2019).

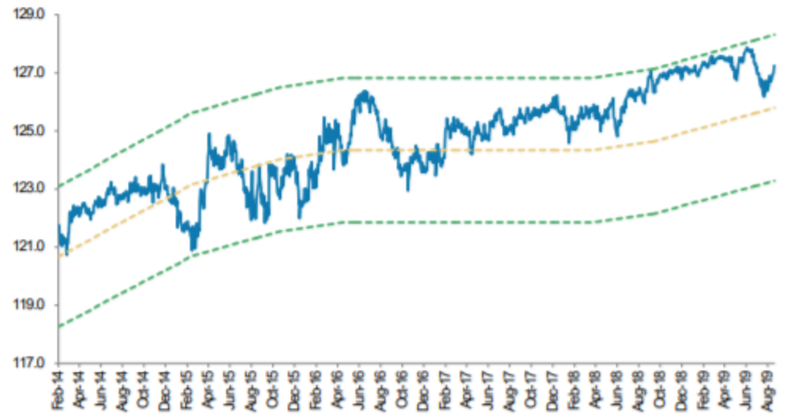
Meanwhile, we keep our cautious view on **KRW and SGD** given that both countries are still suffering from the economic slowdown and lower exports. We are waiting for a better entry level in KRW and stick to our short SGD NEER trade into the MAS's October meeting.

Exhibit 28: Real rates in India are high



Source: Bloomberg, Morgan Stanley Research

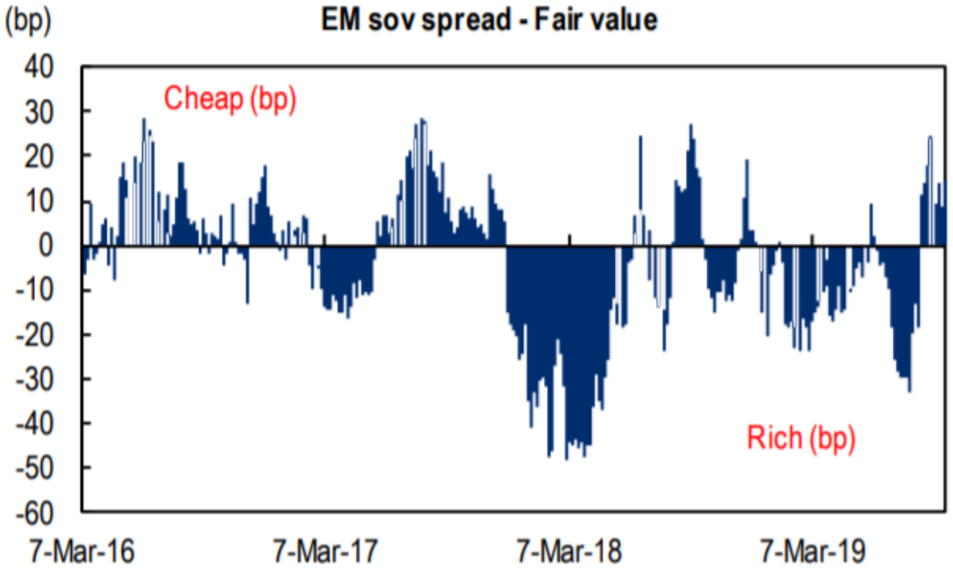
Exhibit 29: Fade higher SGD NEER



Source: Bloomberg, Morgan Stanley Research

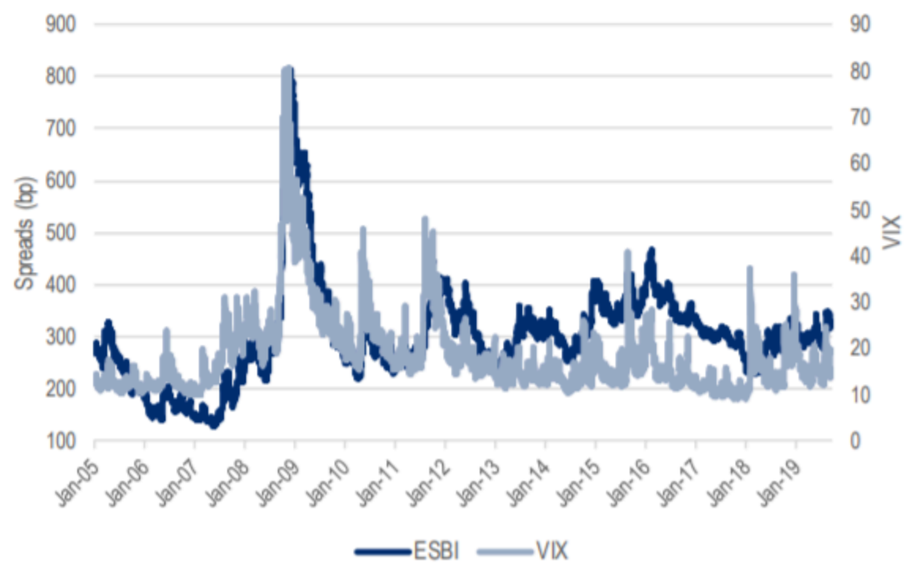
We expect local rates to tighten 12bp. The FTSE Russell EM Government Bond Index Capped (EMGBI-Capped) is up 5.2% since June, with EM rates, on average, 81bp lower. In this period, 5y US Treasuries fell by 42bp, while ESBI total returns increased by 13.1% and EMFX was slightly weaker. Over the next year, we expect EMGBI yields to tighten to around 5.1%, amid a slightly stronger USD, tighter EM credit spreads and flat oil prices. We see the local bond returns coming almost entirely from carry, with duration returns coming mostly from LatAm and Asia. This results in a 4.5% FX hedged return for the Citi local market bond index and a 5.7% unhedged total return. We see the most upside in LatAm and Asia in both hedged and unhedged returns, particularly Brazil and Indonesia. When considering unhedged returns, we also favor Mexico and Peru.

Figure 34. EM credit screens marginally cheap relative to fair value



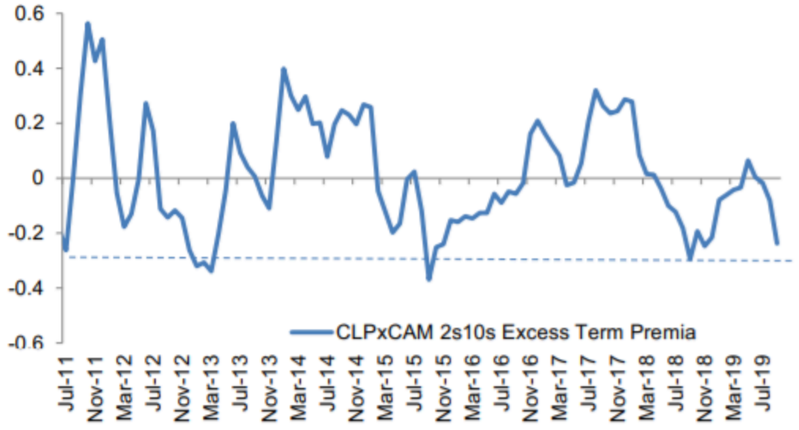
Source: Citi Research and Citi Velocity

Figure 35. Lower volatility should support EM spreads



Source: Citi Research and Citi Velocity

Exhibit 30: 2s10s CLPxCAM steepeners near historically low excess term premia

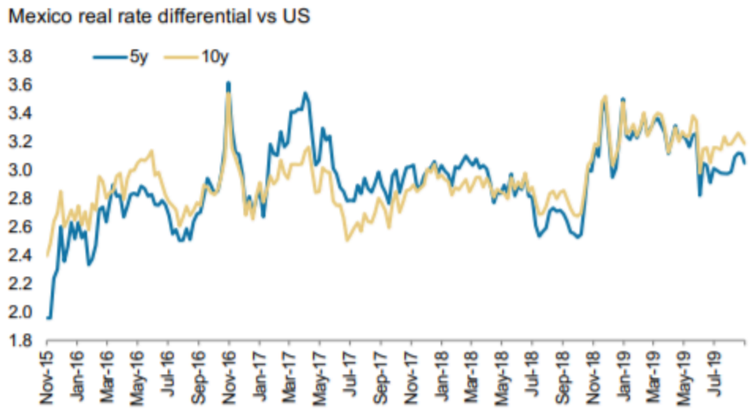


Source: Bloomberg, Haver Analytics, Morgan Stanley Research

Hence, a trade with attractive risk/reward that would withstand a back-up yields is a **2s10s steepener in CLPxCAM** that we therefore recommend entering, targeting 108bp with a stop-loss of 74bp. The Chilean CLPxCAM swap curve 2s10s valuation is currently at -23bp of excess term premia, after accounting for inflation variance, US term premia and the domestic monetary policy cycle. On a standardised basis, it represents the country with the third-lowest excess term premia in EM and the lowest among LatAm peers (excluding Argentina, see Exhibit 10). Adding to this Chile's extremely open economy and a reliance on global trade and copper prices along with already depressed growth expectations and monetary policy pricing, we expect Chile to be heavily connected to increases in core yields and we expect steepeners to provide favourable risk/reward.

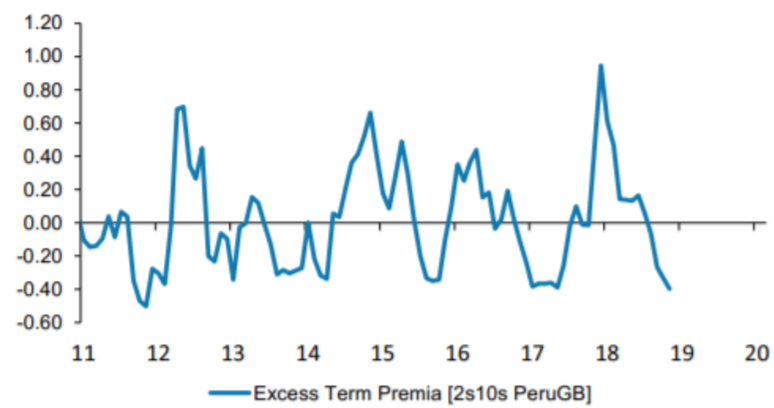
Trades that could come under pressure would be our long Mbono 2029 (100% FX-hedged) and PeruGB 2024. However, in Peru the central bank has maintained a dovish bias and the local curve tends to be more anchored through the five-year point as the curve lacks liquidity on a relative basis in shorter-maturity points as a result of the country's debt-management operations that aim to refinance short maturities into longer ones. A potential hedge would be to underweight or if possible short (via Euroclear) longer-dated maturities in the Soberanos curve such as the 29s or 32s. Also, in Mexico, its higher domestic real rates and positive excess term premia may provide some defence from a valuation standpoint, but a potential hedge may be to switch over to a 2s5s steepener which would provide a hedge against higher long-end yields while keeping exposure to the cutting cycle from Banxico via the 2yr swap. In addition, 5yr real rate differentials to the US are narrower than the 10yr point, suggesting less valuation cushion for 5yr local rates in Mexico (Exhibit 31).

Exhibit 31: 10yr Mexico real rates versus the US remain elevated



Source: Bloomberg, Morgan Stanley Research

Exhibit 32: PeruGB 2s10s excess term premia near historical lows

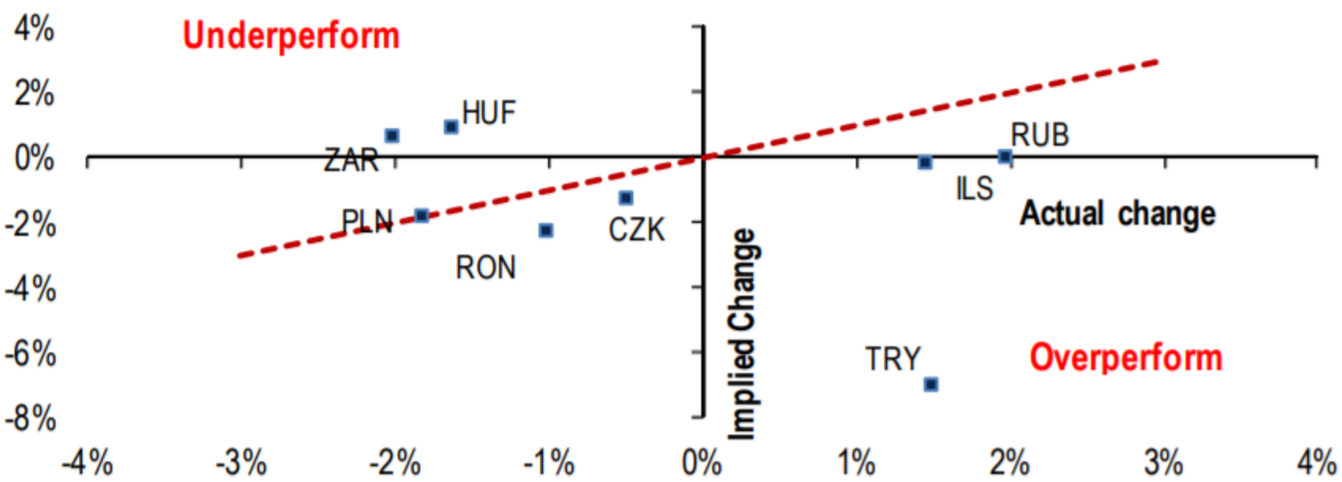


Source: Bloomberg, Haver Analytics, Morgan Stanley Research

Everyone likes carry: resilient RON & TRY

TRY and RON have been the two most resilient currencies in the HY and LY space versus peers. The short-term resilience is due to relatively high FX implied yields.

Chart 1: PCA results: TRY & RUB overperformed most; HUF & ZAR weaknesses due to local stories

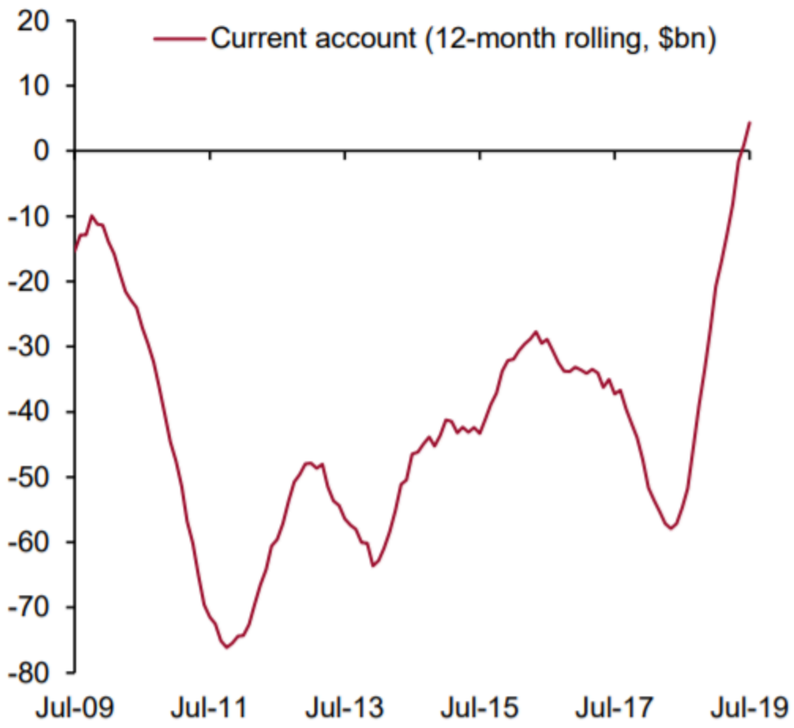


Source: BofA Merrill Lynch Global Research, Bloomberg

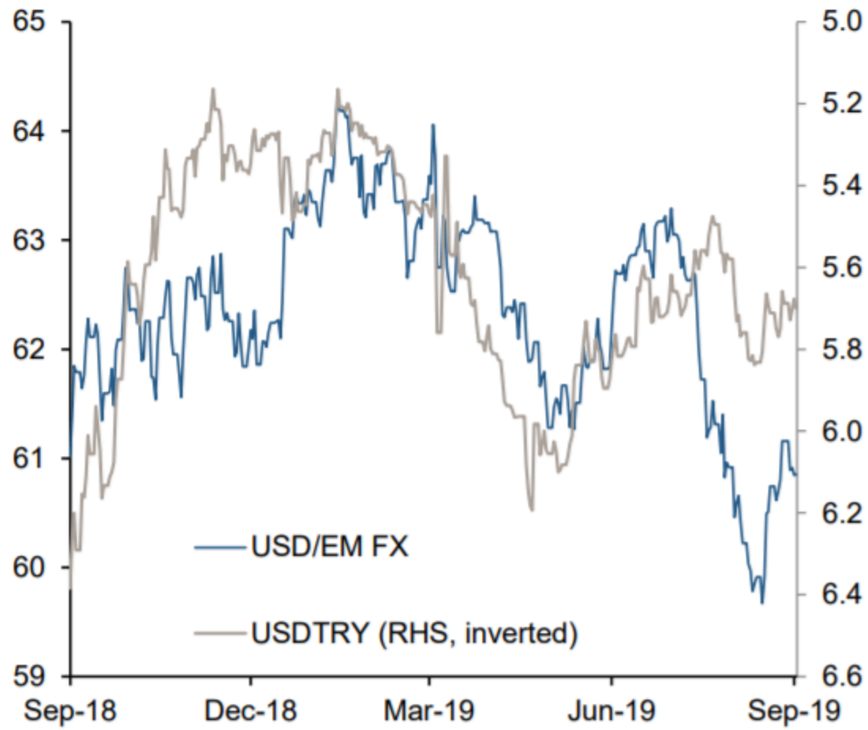
TRY: The macro picture is still supportive

- A combination of global appetite for carry, the prospect of a decline in inflation in the coming months, and a largely balanced current account will keep USDTRY in check for now.

The current account turned into a small surplus



The selloff in the lira in August was less aggressive than in previous episodes relative to the EM FX complex

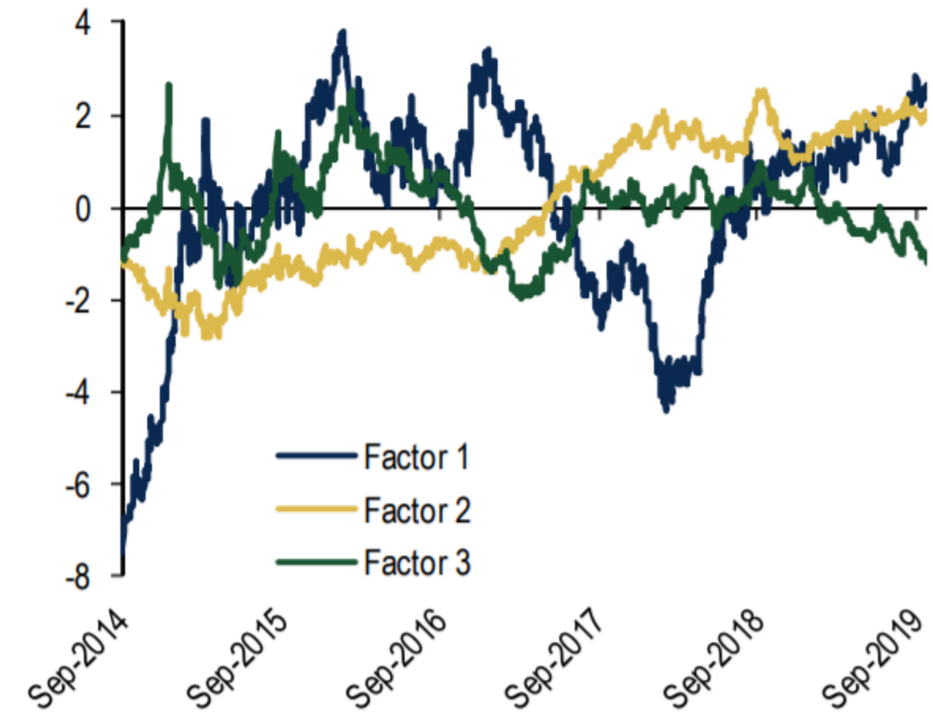


Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service

Drivers of EEMEA FX

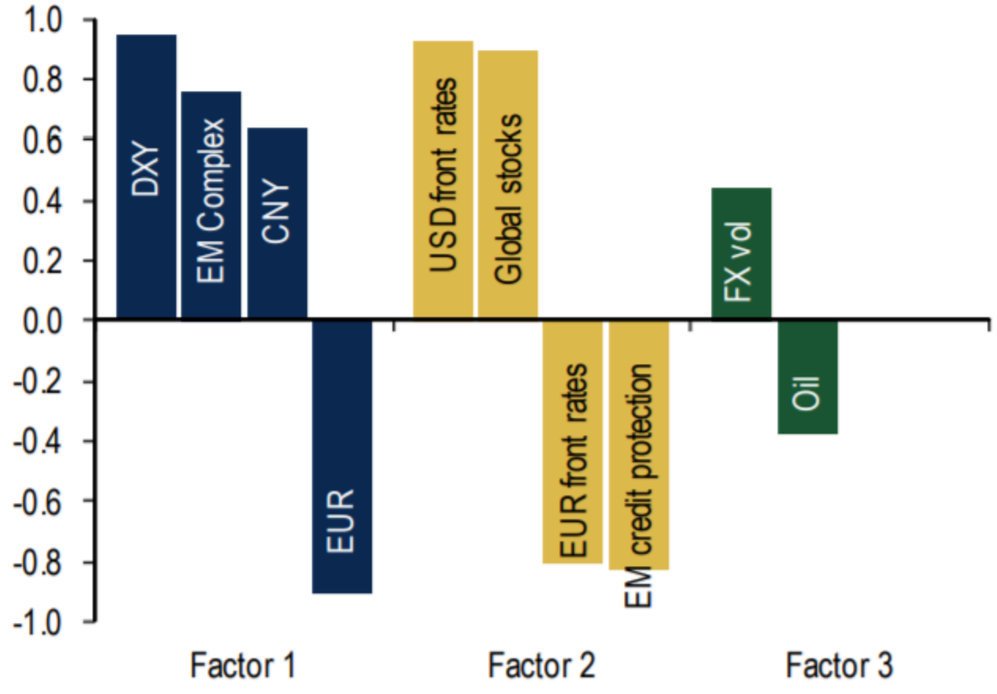
We run PCAs on eight USD/EEMEA pairs (HY: RUB/ZAR/TRY and LY: PLN, CZK, HUF, RON, ILS). Three components extracted from the PCA explain 93% of the co-movement between the exchange rates. We exclude frontier currencies as they are quasi-pegged to USD and/or have recently experienced a large devaluation, which ultimately diminishes the explanatory power of the PCAs. To identify fundamental drivers behind components, we look at correlations with market prices (Chart 2 and Chart 3).

Chart 2: 3 principal components of USD/EEMEA FX (HY + LY) ...



Source: BofA Merrill Lynch Global Research, Bloomberg

Chart 3: ... and correlations with market prices (HY + LY)



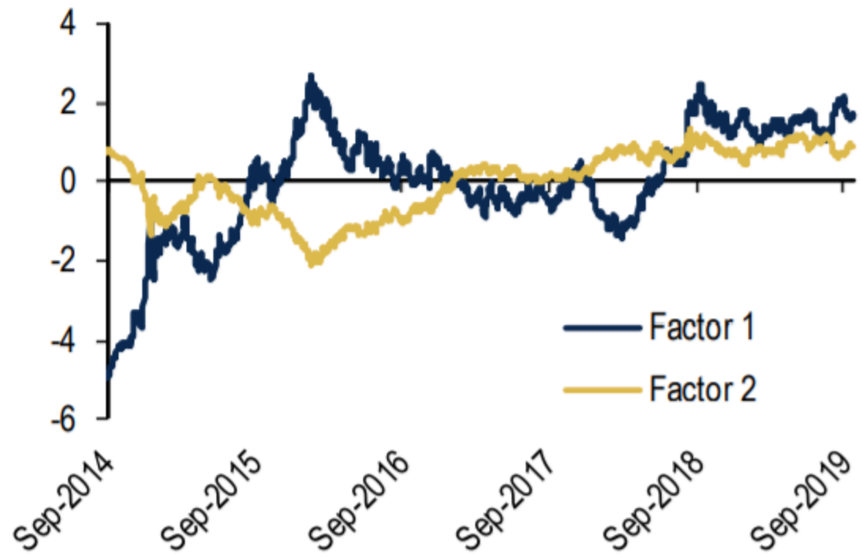
Source: BofA Merrill Lynch Global Research, Bloomberg

EEMEA diversity: HY vs LY

Given the diversity of EEMEA currencies, we also run two more PCAs based on smaller subsets of currencies: HY (Chart 4 & 5) and LY (Chart 6 & 7). We extract two components from each PCA, which explain 93% (HY) and 95% (LY) of the co-movement. The first component of both PCAs (with explanatory power of 70-72%) is fairly predictable: highly correlated with dollar index, euro, and EM complex, while only HY is correlated to CNY.

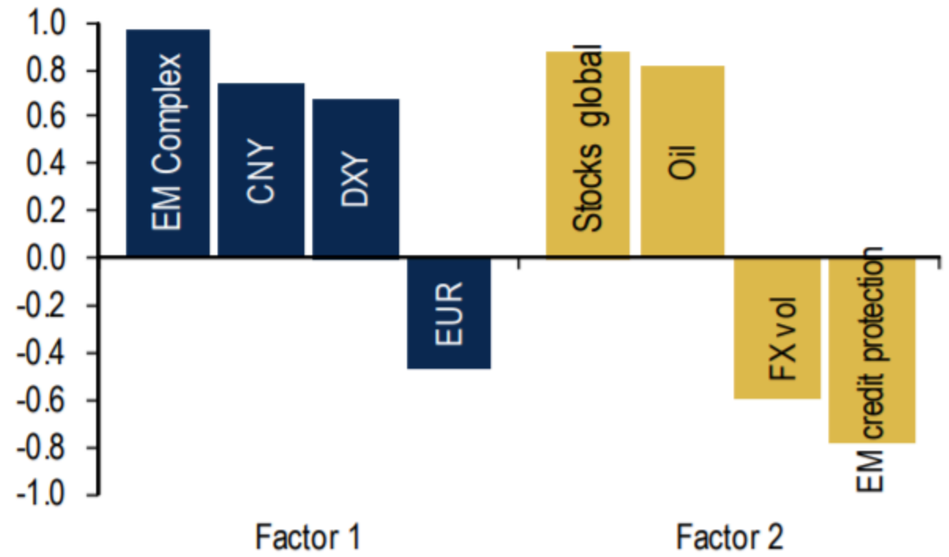
The second component is more relevant as it sheds additional light on the HYLY PCA findings. HY currencies are highly correlated to risk assets (global stocks/ EM credit) and the extent of geopolitical risk (oil/FX vol). On the other hand, LY currencies are more correlated to front-end core rates (almost 90%), which suggests a relationship with primarily ECB policies / Euro area dynamics and to a lesser extent USD liquidity.

Chart 4: HY principal components



Source: BofA Merrill Lynch Global Research, Bloomberg

Chart 5: more correlated with risk-on assets and geopolitical risks

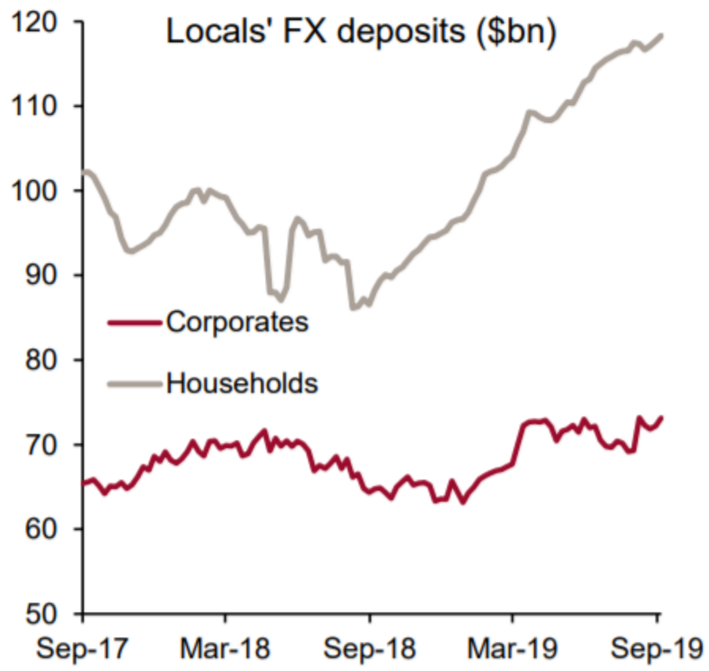


Source: BofA Merrill Lynch Global Research, Bloomberg

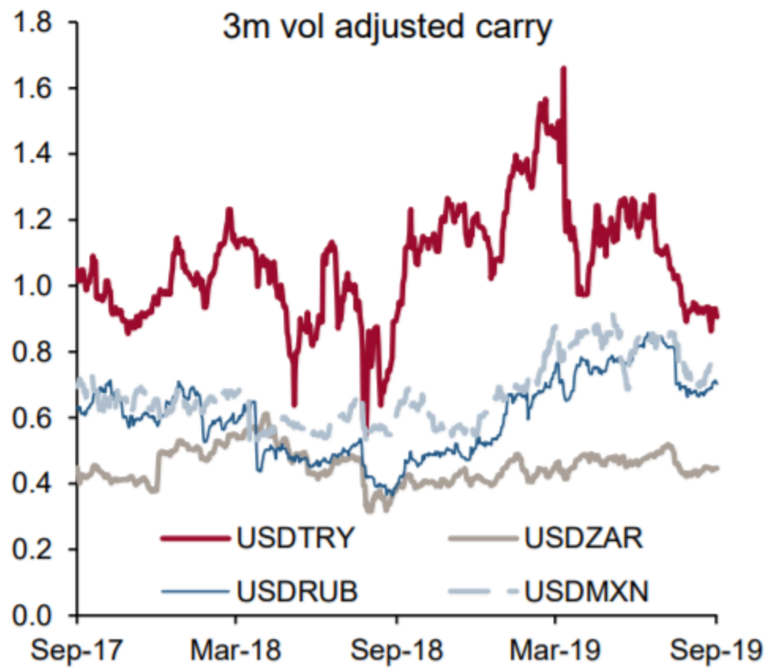
TRY: USDTRY to underperform forwards

- We generally expect USDTRY to continue to underperform forwards, but we do not see a compelling case or obvious catalysts for a decline to August lows (5.451).
- Main risks to our constructive views come from complications on the political front and/or a quick shift to much looser policy mix.

Households have been buying dollars steadily since the shock in the lira in the summer of 2018

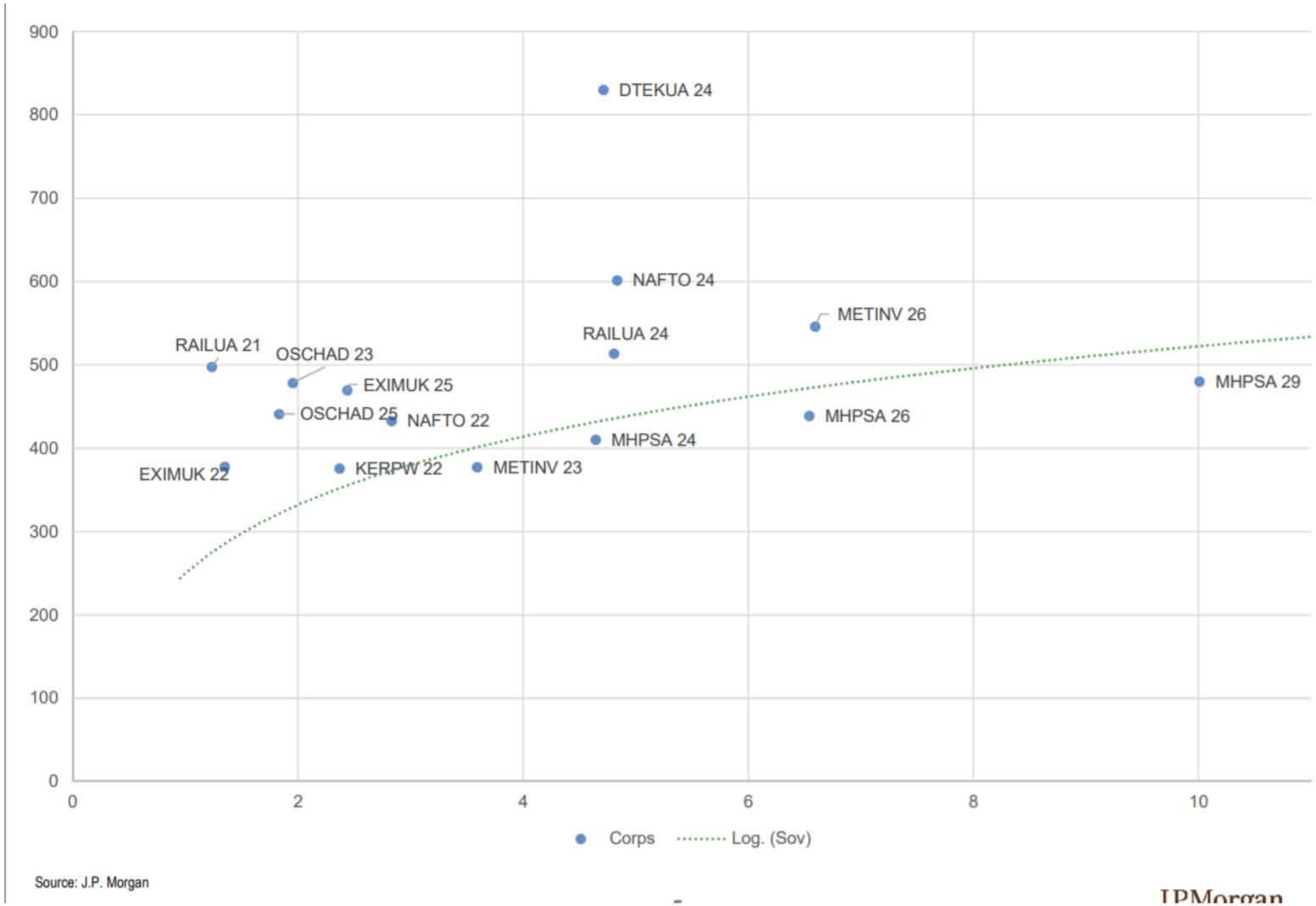


Vol adjusted carry has fallen as the central bank cut rates but it is still elevated



Source: Credit Suisse, the BLOOMBERG PROFESSIONAL™ service, Central bank

Ukraine corporate issuers spreads



Source: J.P. Morgan

CHINA

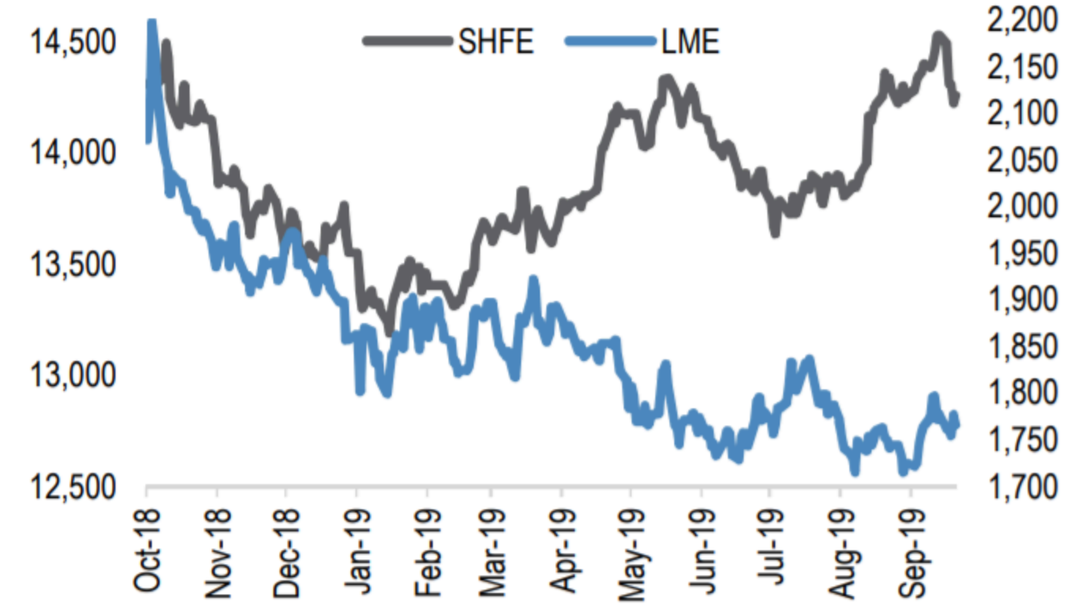
Chart 5: The China complex looks under-owned, but not cheap

Average valuation and positioning of China assets in standardized terms. Valuations based on forward P/E of MSCI China and MSCI Metals & Mining, real copper prices, CNY and AUD real effective exchange rate. Positions based on CFTC futures in MSCI EM, AUD and Copper, and ETF flows for Materials Equities

Source: J.P. Morgan

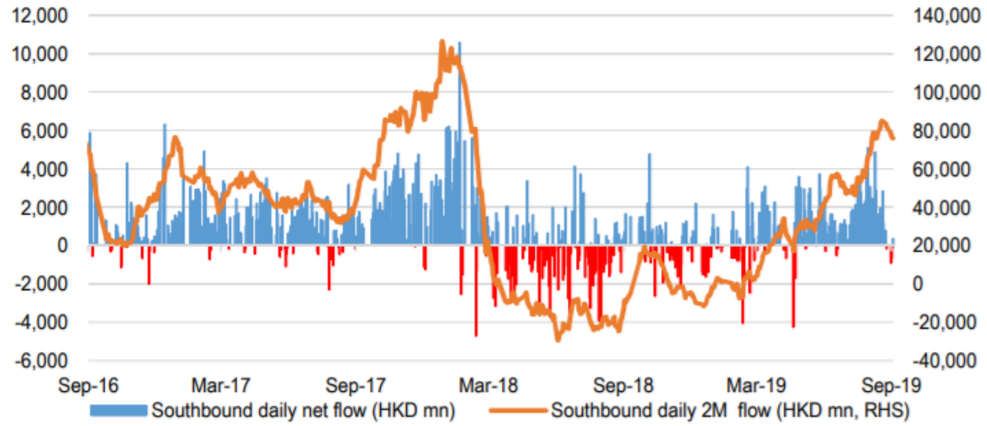
Exhibit 1: LME and SHFE aluminum prices

LHS: RMB/t; RHS: US$/t



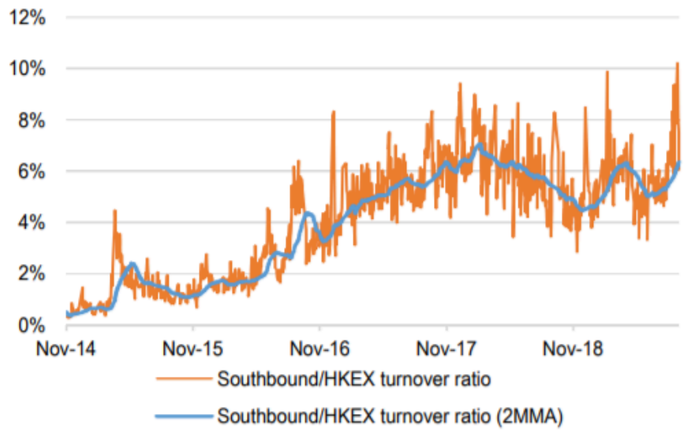
Source: LME, SHFE

Figure 1: The recent pause in southbound flows raises questions about if mainland investors' interest in HK listed shares is declining



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

Figure 2: Southbound trading activities recently accounted for a more signification portion of HKEX turnover



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg. Note: Connect turnover is divided by 2 to avoid double counting.

Figure 3: Mainland investors bought HK listed shares as HSI fell off Mar19 highs, contrasting the flow dynamics in 2017

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

J.P.Morgan

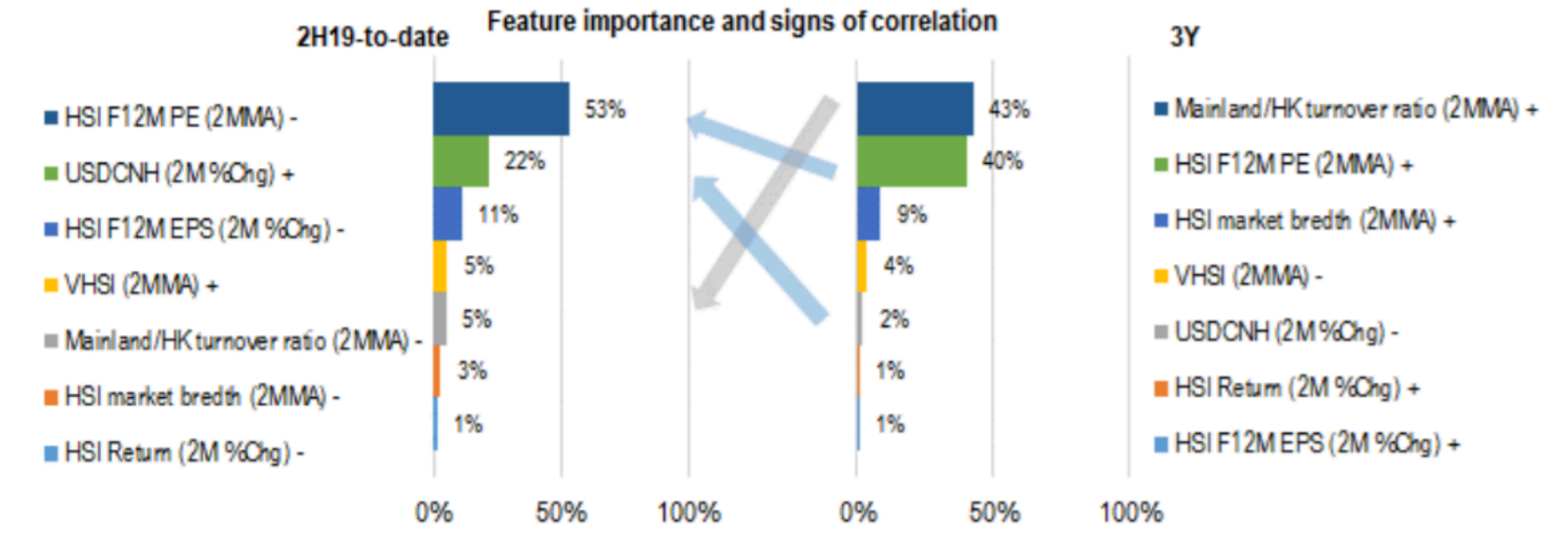
Identifying southbound flow drivers by Random-Forest-based feature importance ranking

Our colleagues previously illustrated applications of machine learning algorithms to select important features for modelling the relationship between variables (see note). Following a similar design, we apply Random Forest to a group of style and macro variables to gauge how much each feature contributes to **explain the sum of southbound flows over a rolling 2-month period**.

Random Forest is an ensemble learning method that operates on a collection of simple decision trees and makes final predictions based on the mean prediction of individual trees. When we split a node with a variable, we can measure the expected improvement (i.e. decrease in the impurity in the node) due to this particular split. **Feature importance** can be computed as the decrease in node impurity weighted by the probability of reaching that node. **The higher the value the more important the feature.** To further assist the interpretation of results**,** we separately calculate the correlation between southbound flows and our independent variables. The signs of correlation provide a rough sense about the direction of influence that our independent variables have on the modelling of southbound flows.

The value of feature importance is affected by tuning of the hyper-parameters as well as the combination of features fed into the model. Due to the relative small size of our sample (Connect was launched in November 2014 and it was in the last 3Y that its turnover rose to ~5% of the HKEX turnover, Figure 2), we have kept the fine turning to major parameters only, i.e. the number of trees for Random Forest. In our framework, we created 100 different decision tress to model the levels of southbound flows. For the list of features, we choose to include major style and macro variables that may explain the behaviour of southbound flows while highly-correlated variables are removed from our features universe at the pre-screening stage.

Figure 4: Applying Random Forest to a list of style and macro variables to model the sum of southbound flows over a rolling 2-month period. The analysis intends to reveal southbound flow drivers by ranking feature importance. Separately, we calculate the correlation between southbound flows and our independent variables to assist the interpretation of results.



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

We can make the following observations from the results as outlined in Figure 4:

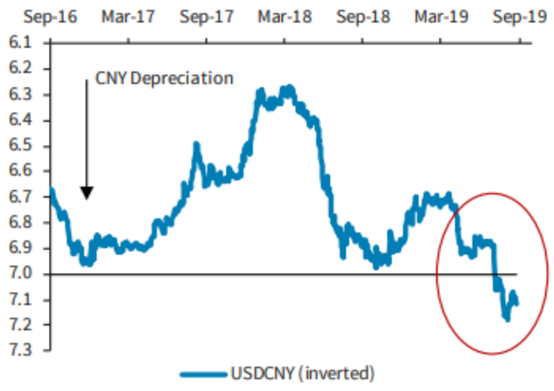
- **Southbound investors have turned bargain hunters in 2H19 to-date:** We find southbound flows put greater emphasis on the valuation factor in recent

- **USDCNH move is a driver second to valuation for buying Hong Kong listed stocks.** In recent months, USDCNH moves and southbound flows are positively correlated, suggesting southbound investors increased their shareholding while CNH was depreciating. This is likely a result of mainland investors' buying Hong Kong listed stocks with high revenue exposure to foreign currencies for portfolio diversification purpose. For instance, Hong Kong property names, AIA and Galaxy Entertainment are among the stocks with the highest increase in Connect shareholding since end-June 2019 (Figure 6).

Looking forward, we think southbound buying flows are likely to weaken if the recent rebound in Hong Kong equities resumes. Our analysis shows southbound flows in recent months are best characterised as bargain hunters as HSI forward 12M P/E appears to be the most important feature in modelling southbound flows. **Further rebound of Hong Kong equity market would reduce its valuation attractions hence likely dampening buying interests of mainland investors.** On the impact of further CNH depreciation, while our model suggests a weaker CNH may invite more southbound buying flows, we think **the demand that is attributable to portfolio diversification will likely diminish in magnitude**. The main reason for that is because the peak pace of CNH depreciation is probably behind us (it takes current USDCNY spot to rise ~3.4% to hit our Dec19 target of 7.35 compared with a move of ~4.7% from end-June to end-August 2019). Besides, further CNH depreciation faster than what is implied by our Dec19 FX target could trigger risk aversion of equity investors.

FIGURE 28

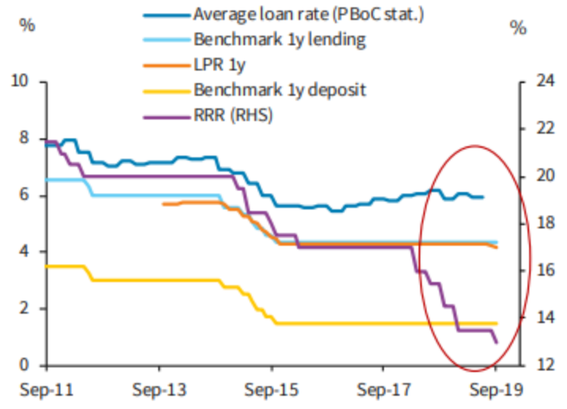
The CNY depreciated beyond 7.0 against USD, owing to trade escalations with the US



Source: Bloomberg, Barclays Research

FIGURE 29

China cut the RRRs to maintain its strategy of modest and targeted easing



Source: Wind, Barclays Research.

[1] For details, see *Japan Economic Focus: BoJ forecast change: Toward a 'precautionary' rate cutting phase*, 20 September 2019.

PBoC: A weaker currency and targeted liquidity and rates easing

The CNY breached the 7.0 threshold and more depreciation is likely

In the aftermath of the escalation of tensions with the US over trade at the G20 meetings, the PBoC finally crossed the Rubicon of allowing the CNY to depreciate beyond 7.0 against the USD, where it has stayed since. Indications are that the move has not created notable capital outflow pressures from residents or other disturbances, which should make the PBoC confident that it can allow it gradually to weaken further over time. This has now made the exchange rate an additional policy tool against a backdrop of slowing growth and the risk of further tariff increases in the ongoing trade war with the US.

Additional RRR cuts likely to support domestic bond issues

Beyond the easing via the exchange rate, China's policymakers are likely to maintain their strategy of only modest and targeted easing, as concerns over high leverage and excesses in the housing market remain. Following the RRR cuts earlier in the year, the PBoC cut RRRs again in September and we expect another 50bp to follow in Q4, in coordination with fiscal policy easing. Coming just after the government's decision to frontload special bonds' quota to Q4 in support of infrastructure projects, the September RRR cuts will release liquidity and, thus, facilitate the issuance of the additional LG bonds in Q4.

Saving some policy easing space for rainier days ahead

In addition to leaving MLF and reverse repo rates unchanged, the long-term liquidity injected through the 50bp blanket RRR cut, which the PBoC estimates at RMB800bn, was partly drained by maturing MLF (in total RMB241.5bn) in recent weeks. This implies a net long-term liquidity injection from the 50bp RRR cut (after de facto replacing some matured MLF) of RMB558.5bn (=RMB800bn – RMB241.5bn) in September. In our view, these recent developments signal the PBoC would like to preserve policy easing space for rainier days ahead and pressure contributor banks into lowering the premia charged in LPR quotations before any MLF rate cuts, given an RRR cut was just made effective on 16 September and policy room is more limited than in previous easing cycles.

1yr LPR cut was driven by lower premia charged by contributor banks

Under the revamped mechanism, the LPR is calculated as the simple average of quotes from the 18 contributor banks, excluding the highest and lowest quotations, and is set at its nearest multiple of 0.05%. According to the PBoC, the LPR quotations should follow the following equation:

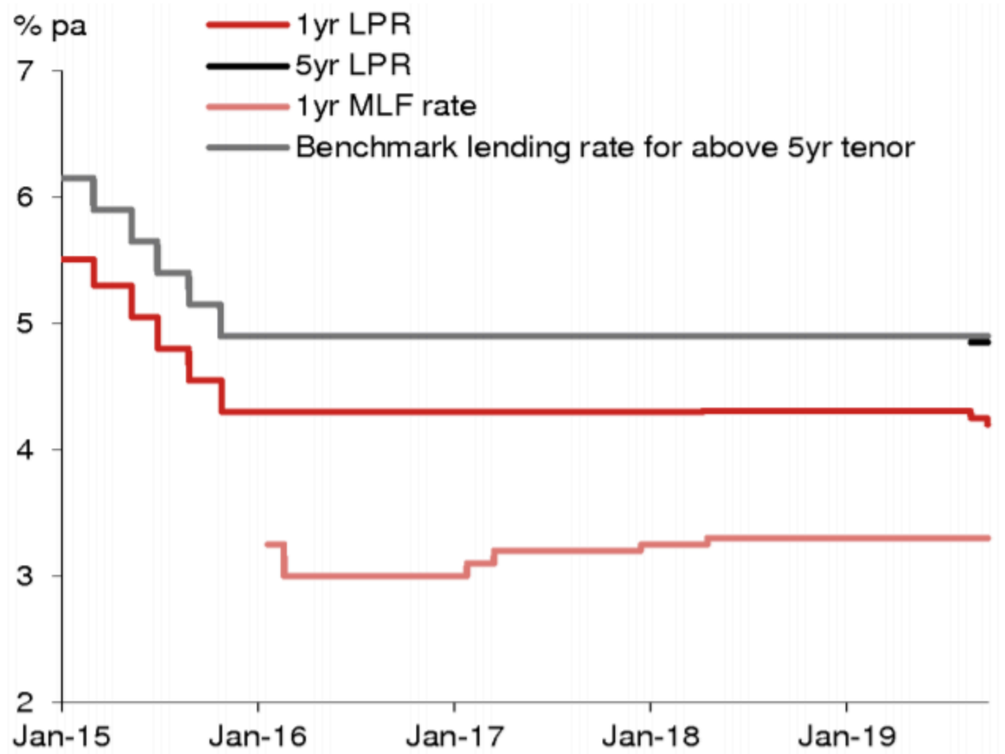
LPR = MLF rate + premium

where “premium” refers to the number of basis points above the MLF rate, based on each contributor banks’ funding costs, market credit demand, risk premia and other factors. As the MLF rate remained unchanged, the 5bp moderation in 1yr LPR implies the premia charged by contributor banks have been lowered by a similar degree, the average of which after rounding to its nearest multiple of 5bp, is 5bp.

Liquidity conditions have improved marginally in September, as suggested by a recent moderation of interbank interest rates – the monthly average R007 and DR007 (interbank

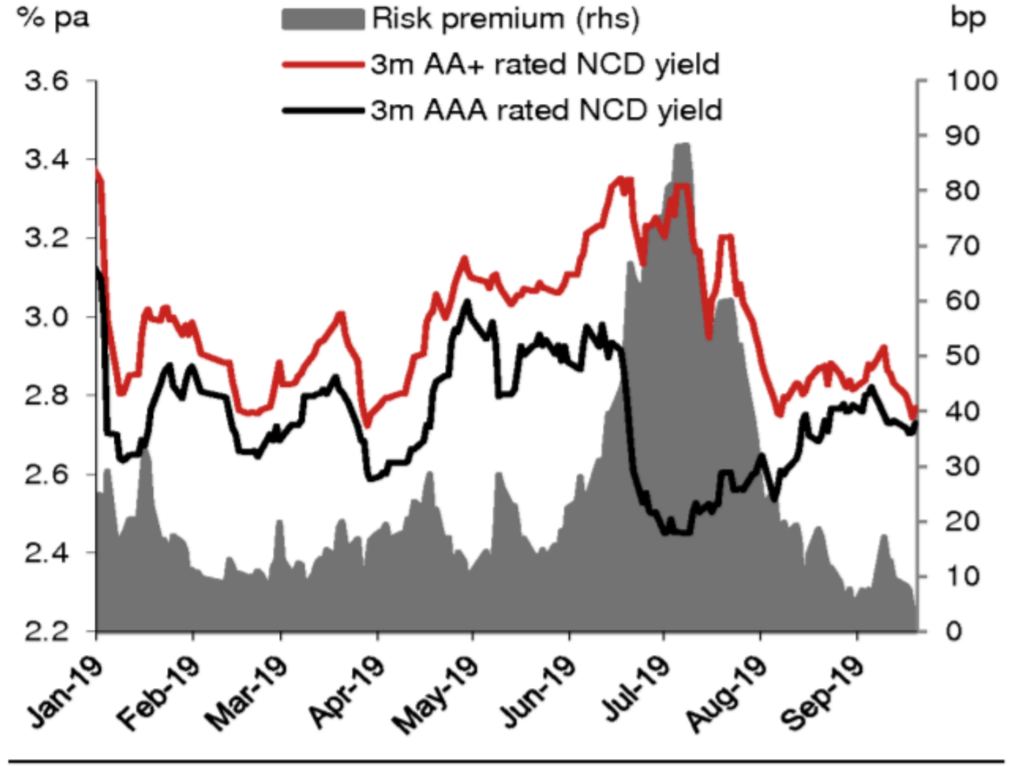
repo rate between financial institutions and between banks only, respectively, for the 7-day tenor) edges down to 2.76% pa and 2.63% in month-to-date September from 2.78% pa and 2.64% in August – mainly due to the RRR cut and the mitigation of spill-over effects from the Baoshang Bank takeover (see *China: Bank regulators took over Baoshang Bank on credit risk concerns*, 28 May 2019). Note the differential between yields of high- and low-rated negotiable certificates of deposit (NCD) have narrowed significantly in recent months (Figure 2). The improvement in liquidity conditions, especially for small and medium-sized banks, may have encouraged contributor banks to submit slightly lower LPR quotations.

Fig. 1: LPR, MLF rate and benchmark lending rate



Source:WIND and Nomura Global Economics.

Fig. 2: AAA and AA+ rated NCD yields and their differential



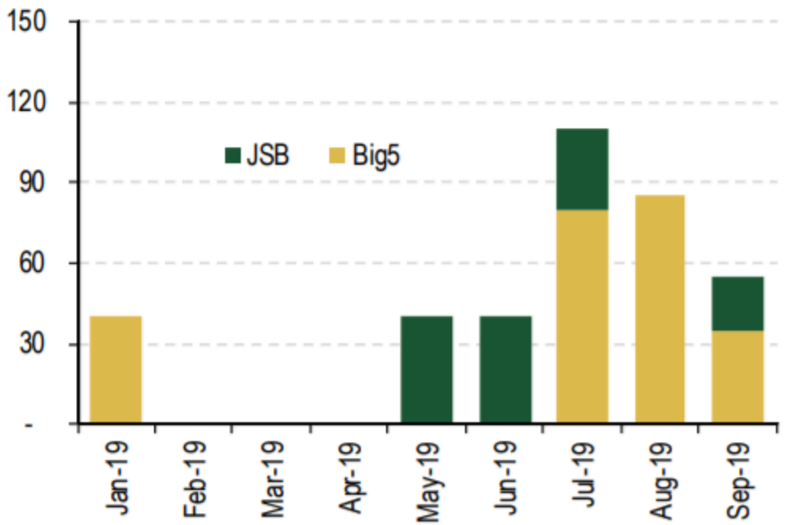
Source:Bloomberg and Nomura Global Economics.

CoCos

Prior to the approval of perpetual bond issuance, Chinese banks used to rely on preferred shares to replenish AT1 capital (Chart 2). Alongside the strong banks' perp issuance, banks' preferred share issuance was also robust at Rmb165bn YTD, only marginally below the previous peak of Rmb166bn in 2015. Note that for YTD onshore AT1 capital replenishment, Chinese banks have been relying more on perpetual bonds (accounting for 70% of YTD AT1 capital raised onshore) than preference shares (30%).

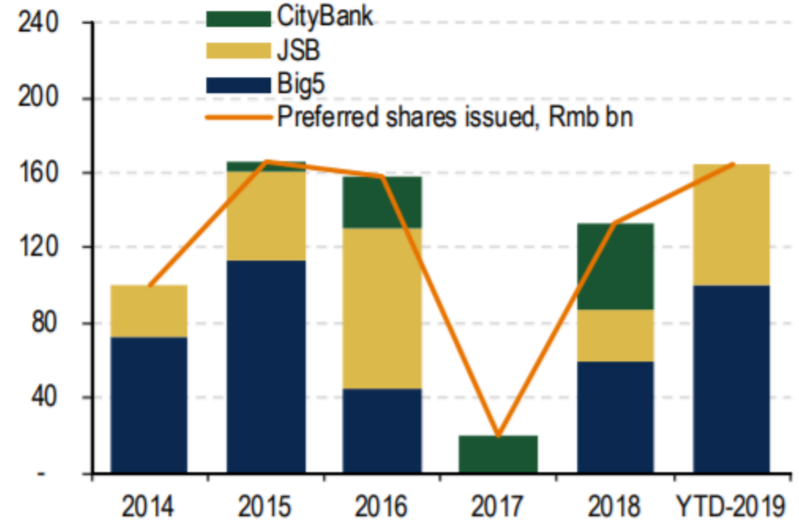
In terms of onshore funding costs, there is not much differentiation between banks' perpetual bonds and banks' preferred shares issued YTD (Tables 2-3).

Chart 1: Onshore banks' perpetual bonds issuance, Rmb bn



Source: WIND

Chart 2: Onshore banks' preferred shares issuance, Rmb bn



Source: WIND

Onshore banks' perps vs preferred shares

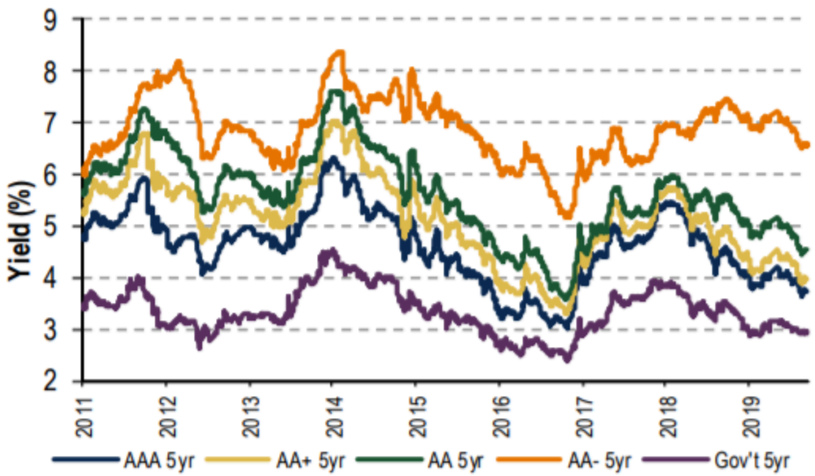
The key difference between China banks' onshore perps vs. preferred shares are: 1) perps could be classified as a fixed income product and thus enjoy a larger investor base, including the banks' treasury book, wealth management products (WMPs) focusing on bond investments, insurance companies' fixed income portfolio, etc.; 2) to support its nature of fixed income products, the loss-absorption features of banks' perps will not

Yields and spreads

Credit spreads tightened across the board in August

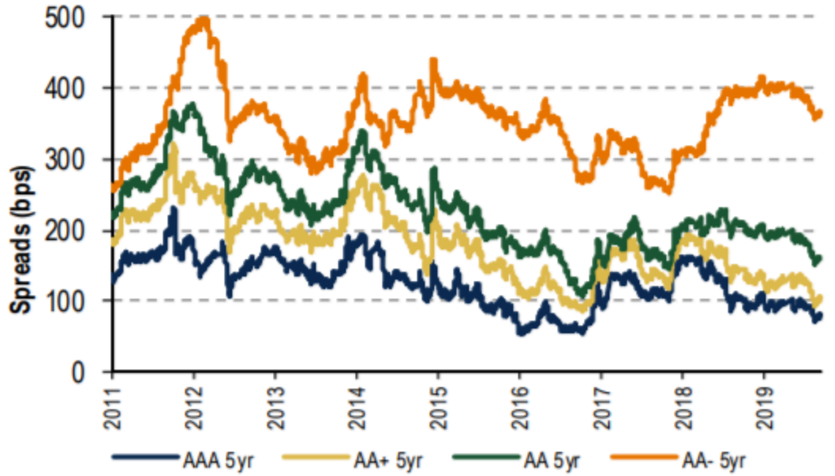
CGB and credit bonds all showed further yield declines in August, though on a sequential basis, the decline was more evident in the higher rating bonds (AAA, AA- and AA+). Given the bigger declines in credit bonds yield than in CGB yields, credit spreads broadly tightened in August. In terms of credit spread MoM change magnitude, spread tightening was more substantial for higher quality bonds.

Chart 20: Five-year government and enterprise bond yields



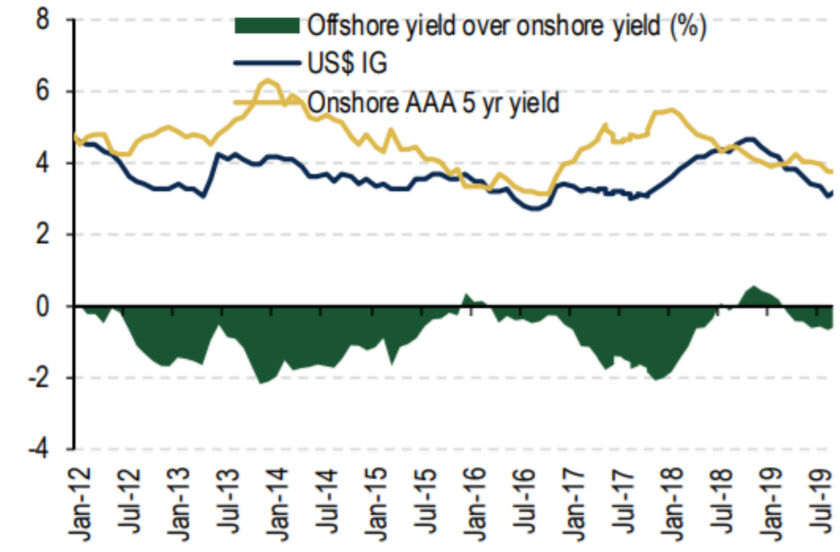
Source: WIND

Chart 21: Five-year enterprise bond spread



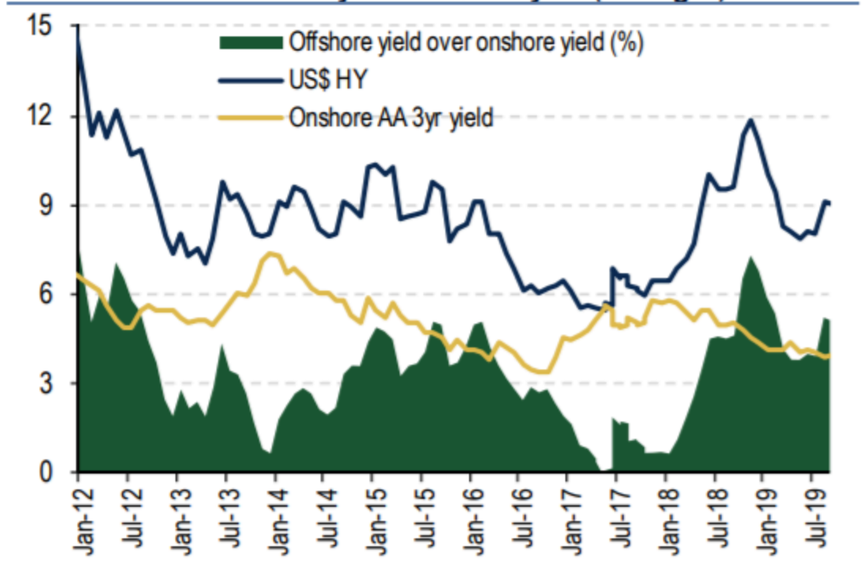
Source: WIND

Chart 24: China onshore AAA yield vs. USD IG yield (unhedged)



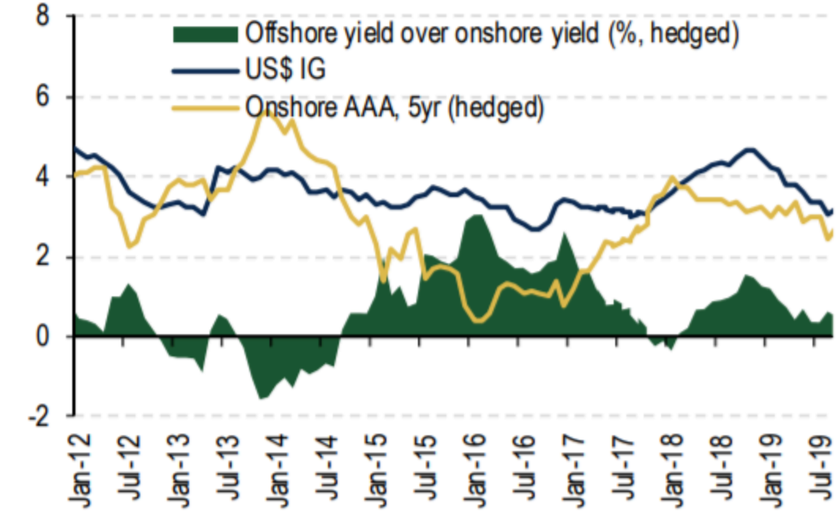
Source: BofA Merrill Lynch Global Research , Bloomberg, WIND

Chart 25: China onshore AA yield vs. USD HY yield (unhedged)



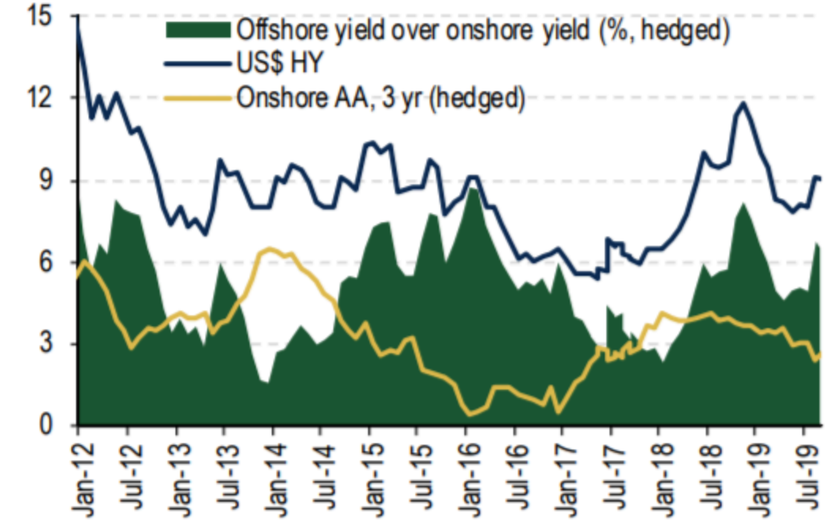
Source: BofA Merrill Lynch Global Research , Bloomberg, WIND

Chart 26: China onshore AAA yield vs. USD IG yield (hedged)



Source: BofA Merrill Lynch Global Research , Bloomberg, WIND

Chart 27: China onshore AA yield vs. USD HY yield (hedged)



Source: BofA Merrill Lynch Global Research , Bloomberg, WIND

Appendix: Relative value analysis

We calculate the relative value of CNY bonds vs. USD bonds by converting the CNY yield to the USD equivalent yield and comparing the yield pickup.

Rules of thumb for converting CNY bonds to USD and back

- USD equivalent coupon = CNY-linked coupon + $IRS rate – (ND) CCS rate
- CNY linked coupon = USD coupon - $IRS rate + (ND) CCS rate

Table 9: Relative values of CNY vs. USD bonds for China SOE sector

CNY Bond	USD Bond	Price (CNY bond)	Price (USD bond)	Yield (CNY)	Yield (USD)	adjusted yield + IRS - ND CCS USD equivalent yield	adjusted yield Assume 10 bps per year *Adj Yield (USD)	CNY over USD Yield difference
CHGRID 5.14 12/08/21	CHGRID 2 1/8 05/18/21	103.97	99.76	3.25	2.27	1.63	2.33	-0.70
CHGRID 5.24 12/08/26	CHGRID 2 7/8 05/18/26	107.08	102.88	4.09	2.41	1.57	2.47	-0.89
CHGRID 4.99 04/17/22	CHGRID 2 3/4 05/04/22	104.09	101.12	3.30	2.31	1.78	2.31	-0.53
CNPCCH 3.45 05/12/21	CNPCCH 4 1/2 04/28/21	100.33	103.49	3.23	2.28	1.61	2.28	-0.67
CNPCCH 4.9 11/22/22	CNPCCH 3.95 04/19/22	103.61	103.83	3.67	2.41	2.14	2.47	-0.33
HAOHUA 5 04/12/21	HAOHUA 4 1/8 03/14/21	102.52	101.99	3.31	2.75	1.68	2.76	-1.07
HAOHUA 3.89 03/25/22	HAOHUA 3 1/2 07/19/22	100.81	101.53	3.54	2.93	2.02	2.90	-0.88
SDIC 3.68 07/11/26	SDIC 3 5/8 05/04/27	98.04	106.86	4.01	2.63	1.50	2.55	-1.05
SINOPC 4.9 06/01/22	SINOPC 3 1/8 04/24/23	103.60	102.82	3.47	2.30	1.95	2.21	-0.27
SINOPE 3.3 09/23/26	SINOPE 3 1/2 05/03/26	91.55	106.26	4.74	2.47	2.23	2.51	-0.28
YANTZE 3.2 03/25/21	YANTZE 2.3 06/02/21	99.73	99.93	3.37	2.34	1.75	2.32	-0.57
YANTZE 4.15 05/11/26	YANTZE 3.15 06/02/26	100.32	104.35	4.09	2.44	1.58	2.43	-0.86
							Average	**-0.67**

Source: BofA Merrill Lynch Global Research, Bloomberg, Wind **Price based on 31-Aug- 2019
