JPM FX - Derivatives Chartpack Notes

Beta-over-vol ratios - a bottom-up approach for spotting RV vol trades

- We introduce a novel methodology for assessing the appeal of entering long-vol trades, based on the expected sensitivity to moves on a set of global risk-factors.
- Two opportunities that currently stand are long CAD/short NOK vol spread and, in CEEMEA, long HUF vol/short RUB vol, which we consider in both pure vol and directional formats.

Beta-over-vol ratios for spotting RV vol trades. The steady decline in FX volatility levels (see for instance *Timing FX short-vol strategies*, Ravagli et al, 5 March), which started at the beginning of January, came to a halt at the end of last week, when Equity markets dropped sharply following the global growth concerns. FX vol levels might remain depressed, despite the latest move higher, with the expectations that G3 Central Banks will stay on hold over the medium term acting as a drag on the former's repricing potential (*The J.P. Morgan view – The rolling bear market in volatility,* Normand, 15 March). J.P. Morgan's central view remains supportive of a recovery of equity markets during the spring (*Market and Volatility Commentary, Liquidity holds the answers, Addressing current fears, the Fed and Risky Assets*, Kolanovic, 21 March). Still, given the brutal selloff experienced at the end of last week, especially in EMFX, it is appealing to look for blatantly undervalued long FX vol opportunities in case global markets conditions were to turn for the worse.

In this note, we introduce a novel screening approach for identifying opportunities for buying or selling vols based on the relative appeal of pricing vs each currency's sensitivities to a set of global risk factors. We arbitrarily focus on four risk factors: S&P, USD JP Morgan trade weighted Index, VIX and VXY G7 Index. For each currency, we measure the beta against the risk factors by using 20 years of data; such betas are then adjusted as to express the percentage move in the currency corresponding to a1-sigma (estimated daily) move in the factors. Then, we simply take the average of the absolute value of these betas across the four risk-factors, and scale that average beta by the value of 1y ATM volatility. In a nutshell, the aim of the methodology is to highlight whether the level of the volatility for each currency is well commensurate with the expected reactions to changes in the global factor considered. Results for a set of liquid G10 and EM USD-crosses are reported in Exhibit 1.

Exhibit 1. Screening for opportunities in the beta over vol space across G10 and EM currencies

	Betas (absolute values)						
	SPX	USD TWI	VIX	VXYG7	Average beta	1y vol	Average beta/vol
EUR	0.05%	0.39%	0.04%	0.08%	0.14%	6.5%	2.14%
JPY	0.18%	0.19%	0.16%	0.18%	0.18%	7.2%	2.46%
GBP	0.08%	0.30%	0.06%	0.11%	0.14%	9.4%	1.47%
AUD	0.33%	0.44%	0.25%	0.24%	0.31%	8.6%	3.62%
NZD	0.29%	0.41%	0.22%	0.21%	0.28%	8.8%	3.21%
CAD	0.23%	0.31%	0.19%	0.14%	0.22%	6.5%	3.34%
CHF	0.07%	0.35%	0.06%	0.04%	0.13%	6.3%	2.03%
NOK	0.16%	0.46%	0.13%	0.16%	0.23%	8.7%	2.58%
SEK	0.19%	0.44%	0.13%	0.14%	0.22%	8.6%	2.60%
BRL	0.38%	0.34%	0.32%	0.24%	0.32%	14.0%	2.29%
MXN	0.33%	0.26%	0.28%	0.23%	0.28%	11.3%	2.45%
TRY	0.28%	0.36%	0.24%	0.26%	0.29%	22.5%	1.27%
ZAR	0.39%	0.49%	0.34%	0.30%	0.38%	16.1%	2.36%
HUF	0.24%	0.52%	0.19%	0.22%	0.29%	8.9%	3.30%
PLN	0.26%	0.49%	0.20%	0.22%	0.29%	9.2%	3.20%
RUB	0.16%	0.26%	0.18%	0.14%	0.18%	12.4%	1.48%
KRW	0.07%	0.23%	0.06%	0.08%	0.11%	7.3%	1.50%
SGD	0.09%	0.20%	0.07%	0.07%	0.11%	4.2%	2.52%

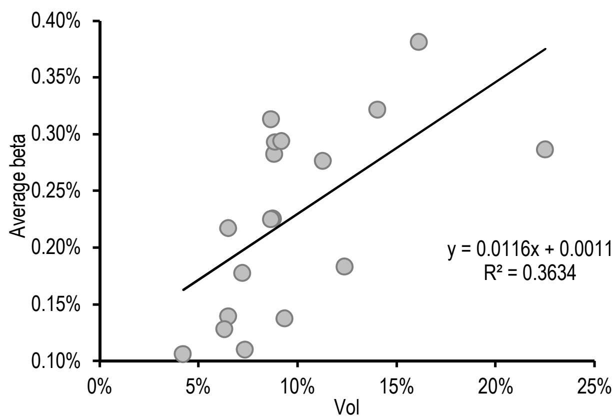
Source: J.P.Morgan

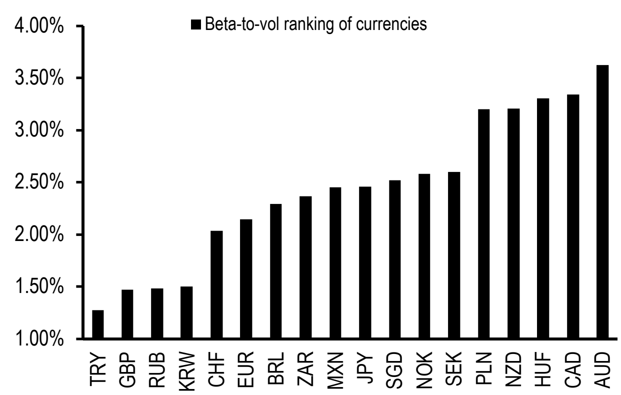
A few aspects from the table deserve additional explanations. First, we consider the absolute values of the betas, regardless of the sign, as a proxy of the exposure of each currency to the risk factor considered: the generalization to a broader set of cross-asset variables would be straightforward. The larger trade weight for EUR than for other currencies might artificially increase the sensitivity to moves in the USD TWI as used above. Also, we decide to focus on longer-dated instruments (here 1-yr) for maximising the directional sensitivity on the vol levels, rather than on the vol carry. CNH is not included given the shorter time interval of data available.

The main oversimplification of the screening methodology relates to the latter's focus on global risk factors only. The idiosyncratic factors which are (and for good reasons) lifting higher GBP and TRY vols at the moment are simply not taken into account. In other words, if we believe that global risk-factors are going to be the dominant drivers for the volatility experienced in the currency space, the methodology can be helpful for screening vol trading opportunities based on a bottom-up approach, especially if expressed in an RV format. The methodology appears naturally well poised for pre-screening candidate trade ideas to be selected by ultimately adding a discretionary element (*cum grano salis*, following a Latin saying); we will mimic this trade-selection process by filtering out trades that are not consistent with our strategists colleagues view.

A scatter plot analysis across the currencies investigated (Exhibit 2, left-hand chart) confirms the good relationship between betas and vol levels: assets which are above the regression line are those for which the betas is well valued compared to the vol levels, which might suggest a good long-vol opportunity from this perspective. The reasonable value of the R2 (36%) suggests that sensitivities to global markets risk drivers can explain a reasonable proportion of FX volatilities on a cross-sectional basis. Interestingly, EUR/USD appears as roughly fairly valued based on the analysis (i.e., the actual average beta lies on the regression line).

Exhibit 2. A linear regression finds a decent relationship between vol levels and average betas across a set of USD-crosses. AUD, CAD, HUF stand out as the most attractive vole-buys based on the analysis (USD-crosses are displayed in the chart).





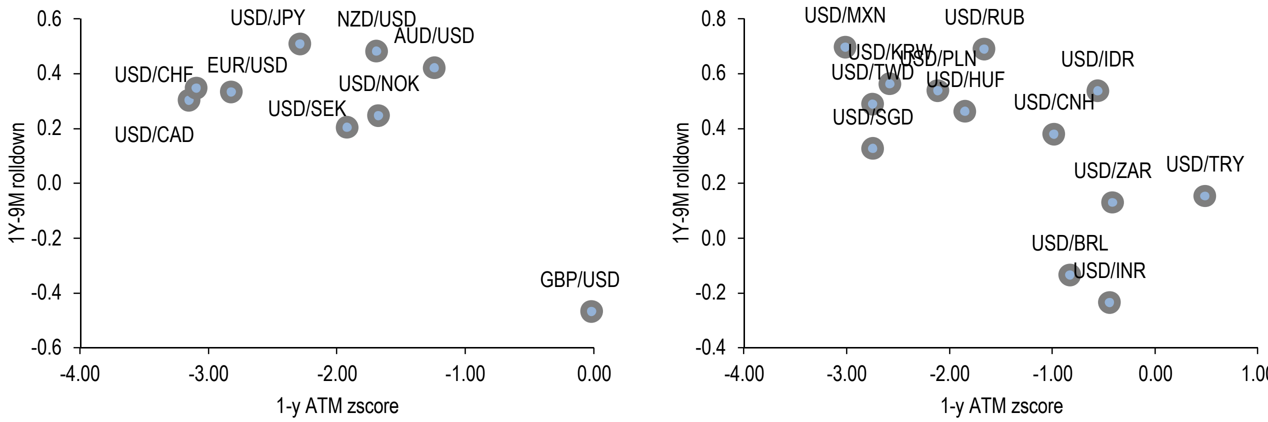
Source: J.P.Morgan

The linear relationship as investigated in the left-hand chart above opens the way for screening directly the beta-to-vol ratios (acknowledging that the value of the intercept in the regression above is small): currencies with high beta to vol ratios are those where the level of volatility is low compared to the expected moves in the currencies based on the global factors identified above, and therefore good vol buys. At the moment, the model identifies the following opportunities (right-hand chart above): a) top five vol buys are AUD, CAD, HUF, NZD and PLN; b) top five vol sells are TRY, GBP, RUB, KRW and CHF. As discussed, we would discount selling vol on GBP and TRY just based on this RV analysis.

In order to come up with a more precise assessment of RV opportunities in the FX vol space, additional factors, like volatility carry, roll-down on the curve, choice of strikes/products depending on level of the skews, need to be taken into account. Also, in order to reduce the sensitivity to the idiosyncratic factors neglected in the study above, we would suggest looking for possible RV plays on currencies belonging to the same regional group.

Current RV opportunities in the FX Vega space. We summarize the signals above into a couple of better defined vol trades, sharing additional insight on the implementation of the trades as well. Roll-down effects are not very marked at the moment, at least for the currencies overviewed here (Exhibit 3): if ever, for RUB and MXN the steeper curves would support shorting vol.

Exhibit 3. Pricing vs roll-down for 1y G10 and EM vols



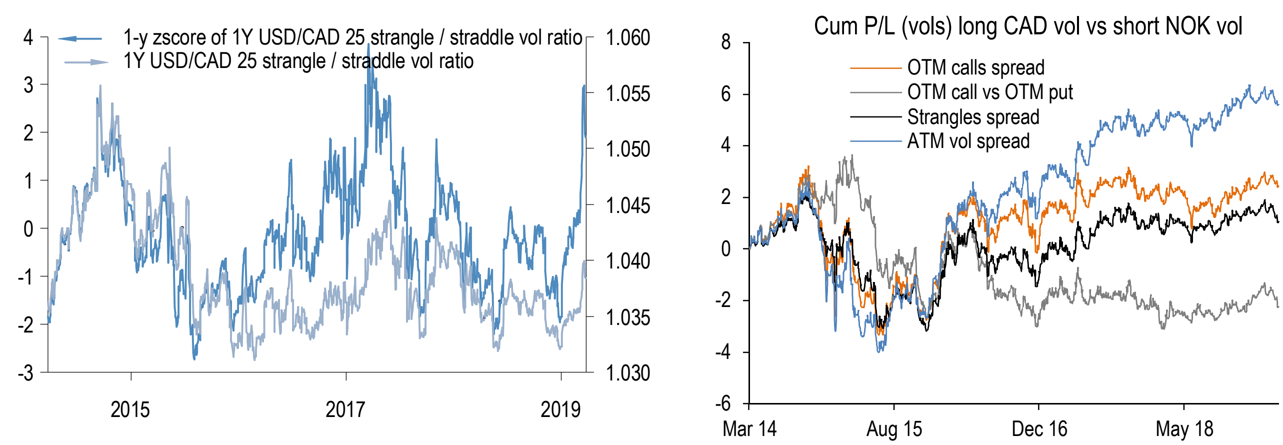
Source: J.P.Morgan

Long USD/CAD vol / short USD/NOK vol

Within high-beta G10 currencies belonging to similar groups, the potential of long AUD vol/short NZD vol trades appear modest based solely on this analysis, given the similar pricing and exposures to the risk-factors considered. A CAD vs NOK RV vol play screens more favourable, given the lower vol of CAD despite a similar exposure to the global factors above (and to Oil). Also amid the upcoming NAFTA/USMCA negotiations, our analysts see CAD vulnerable (*Renewed NAFTA risks mean CAD weaker for longer*, Hui et al, Jan 15). They expect the NAFTA/USMCA ratification process to likely involve bouts of delivered fear of NAFTA crash-out as a credible threat and negotiation strategy and they've pinned the likely escalation of the USMCA ratification showdown to be more in the middle part of this year. If looking to implement the RV trade via delta-hedged vanillas, straddles currently appear as a better candidate than strangles, given the latest correction (higher) on the pricing of CAD wings (Exhibit 4, left-hand side chart) and amid the systematically stronger historical performance of straddles (right-hand chart).The carry of the vol spread above (by measuring realised vols over 1M) would currently be negative and around 1 vol point wide, however the choice of 1-yr tenor would reduce the sensitivity to the implied-realised vol spreads; also, realised vol on CAD has fluctuated in a rather wide range (4 vol points) over the past year, and is now near the bottom of that range.

Exhibit 4. The recent repricing higher of CAD OTM options suggest implementing the RV trade via straddles rather than strangles. USD/CAD – USD/NOK ATM vol spread outperformed strangles and OTM structures over the 5 year period.

Structures delta hedged daily with smile forwards. Rolled into fresh strikes every 3 months. OTM strikes set to 25 delta. No transaction costs.



Source: J.P.Morgan

Consider:

Buy 1Y USD/CAD ATM straddles @6.35/6.55 vols vs. sell 1Y USD/NOK ATM straddle @8.55/8.95 vols, Vega-neutral, delta-hedged.

Long HUF vol/short RUB vol & directional long USD/HUF topside/short USD/RUB downside

More candidate RV plays show up in the CEEMEA space, where PLN and HUF vols stand as buys based on the screeners. Given a note by the EM strategy team supporting long vol trades on HUF (*CE3 underpricing external risks*, Christovova, 25 February), we favour the latter as a long vol candidate (however, we stress that for the USD-crosses, PLN offers better liquidity). For selecting a viable short, we avoid focusing on TRY, given the elevated implied vol which reflects exposure to local, rather than global, market factors. Between ZAR and RUB, the latter appears as a safer short-vol candidate, given the lower exposure to global risk-factors. Furthermore, a long USD/HUF vol vs USD/RUB vol trade allows a defensive positioning in case of a downturn of economic activity in the EUR-area: see for instance the higher (twice as much) beta of HUF vs RUB to the Dollar Trade Weighted Index (where EUR/USD has a 17% weight, second only to China).

The USD/HUF vs USD/RUB vol spread offers a positive Carry (of around 2.5 vols, by measuring realised vol over 1M) mostly thanks to the short USD/RUB vol leg. This extra margin, coupled with cheap pricing of HUF riskies, allows implementing the trade via USD/HUF upside vs USD/RUB downside, limiting the downside risk in case where USD/RUB spot and vols were to spike higher.

Consider:

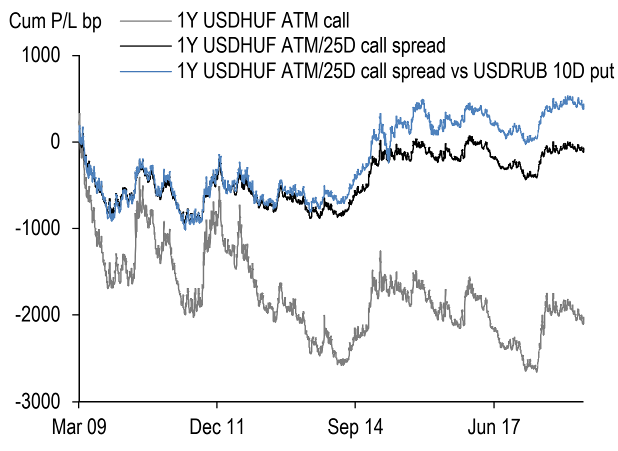
Buy 1Y 25delta USD call/HUF put @10.2 /10.9 vols vs. sell 1Y 25delta USD put/RUB call @10.8/11.5 vols change, Vega-neutral, delta-hedged.

A directional alternative that utilizes the same beta/vol pricing is to consider downside HUF structures financed with selling RUB options. A historical backtest in Exhibit 5 shows that over long time periods selling USD/HUF OTM strikes is worth the reduced P/L on upticks. The performance is further boosted by safely financing the HUF downside by selling low delta downside USD/RUB strikes. Consider:

Buy 1Y USD/HUF 275.0/295.0 (~ATM/25D) call spread @196/21 bp USD vs. sell 1Y USDRUB 61.50 (~20D) put @101/133bo USD, ref spot 282.5 and 64.364 respectively.

Exhibit 5. Selling OTM strikes is worth it in USDHUF topside option structures especially when safely financed with low delta downside USDRUB strikes.

Not delta-hedged. Rolled into fresh strikes every 3 months. No transaction costs.



Source: J.P.Morgan

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