

JPM FX - Derivatives Chartpack Notes

Market filters for FX Vol RV - what offers value now?

- A previous piece of research investigated how the combination of dislocations signals supplemented by additional market filters delivers the best long-term results when applied to a set of liquid FX vol spreads, for pair trading purposes. Three of these filters (a measure of short-term dislocations, a proxy of vol carry and of curve roll-down), together with the main indication of pricing dislocation (longer-term dislocations), are now available on J.P. Morgan website, and updated on a weekly basis.
- At present, vol dislocation opportunities, wherever present, are not supported by the Carry and term structure indicators. For those who believe Brexit risk premium to be fully, or even excessively, priced in, the short GBP/USD vs. long USD/JPY vol spread ticks several boxes from a technical perspective. Similarly, long CEMEA vols vs. USD/NOK trades are supported.

Back in February this year, we introduced a [vol mean reversion framework](#), by outlining a FX vol pair-trading strategy that benefits from the well-known, and statistically sound, observation that volatility variables tend to oscillate around long-term reference values. We did so by proposing a rule-based approach to benefit from such patterns. The resulting strategy, applied to a wide number of vol spreads, historically delivers a steady source of PnL, over time and different market environments. Since the spike in FX vol levels that followed the outburst of the COVID-19 crisis this March, the analysis correctly captured several opportunities that materialized over the next few weeks/months: we can mention the richness of Scandies and Antipodeans since March, the cheapness of JPY vol on mid-June, and the short MXN / long BRL vols opportunity which corrected by late April.

Exhibit 1. Current dislocations for G10 and EM USD-vols (2yr z-score; spreads are defined as long the row vol and short the column vol)

z-scores	EUR-USD	GBP-USD	USD-JPY	USD-CHF	USD-CAD	USD-NOK	USD-SEK	AUD-USD	NZD-USD	USD-BRL	USD-MXN	USD-TRY	USD-ZAR	USD-PLN	USD-HUF	USD-SGD	USD-KRW	USD-CNH
EUR-USD	0.50	-1.01	0.68	0.46	-0.14	-1.07	-0.44	-0.86	-0.84	-1.86	-0.47	0.00	-0.21	-0.59	-1.68	-0.14	0.65	0.28
GBP-USD	1.01	1.04	1.24	1.14	1.10	-0.34	0.76	0.05	0.14	-1.24	0.00	0.29	0.87	0.77	0.46	0.87	1.20	1.09
USD-JPY	-0.68	-1.24	0.24	-0.37	-0.69	-1.16	-0.76	-0.98	-0.98	-1.80	-0.57	-0.09	-0.54	-0.79	-1.33	-0.67	0.28	-0.10
USD-CHF	-0.46	-1.14	0.37	0.43	-0.42	-1.09	-0.59	-0.87	-0.87	-1.76	-0.49	-0.05	-0.37	-0.64	-1.18	-0.53	0.42	0.09
USD-CAD	0.14	-1.10	0.69	0.42	0.53	-0.97	-0.22	-0.80	-0.78	-1.85	-0.45	0.02	-0.15	-0.52	-0.96	-0.03	0.67	0.34
USD-NOK	1.07	0.34	1.16	1.09	0.97	0.99	1.21	0.88	0.96	-1.27	0.40	0.44	0.75	0.74	0.77	0.98	2.04	0.91
USD-SEK	0.44	-0.76	0.76	0.59	0.22	-1.21	0.56	-0.89	-0.87	-1.87	-0.42	0.06	0.02	-0.15	-0.73	0.17	1.12	0.39
AUD-USD	0.86	-0.05	0.98	0.87	0.80	-0.88	0.89	0.76	0.59	-1.87	-0.05	0.27	0.53	0.49	0.40	0.68	2.05	0.69
NZD-USD	0.84	-0.14	0.98	0.87	0.78	-0.96	0.87	-0.59	0.75	-1.86	-0.12	0.23	0.47	0.43	0.31	0.65	2.16	0.67
USD-BRL	1.86	1.24	1.80	1.76	1.85	1.27	1.87	1.87	1.86	1.60	1.73	1.11	1.68	1.72	1.74	1.75	2.23	1.65
USD-MXN	0.47	0.00	0.57	0.49	0.45	-0.40	0.42	0.05	0.12	-1.73	0.51	0.28	0.38	0.32	0.24	0.39	0.88	0.46
USD-TRY	0.00	-0.29	0.09	0.05	-0.02	-0.44	-0.06	-0.27	-0.23	-1.11	-0.28	0.15	-0.05	-0.09	-0.16	-0.02	0.17	0.06
USD-ZAR	0.21	-0.87	0.54	0.37	0.15	-0.75	-0.02	-0.53	-0.47	-1.68	-0.38	0.05	0.54	-0.26	-0.53	0.10	0.61	0.42
USD-PLN	0.59	-0.77	0.79	0.64	0.52	-0.74	0.15	-0.49	-0.43	-1.72	-0.32	0.09	0.26	0.66	-0.46	0.29	0.78	0.59
USD-HUF	1.68	-0.46	1.33	1.18	0.96	-0.77	0.73	-0.40	-0.31	-1.74	-0.24	0.16	0.53	0.46	0.87	0.79	1.29	0.82
USD-SGD	0.14	-0.87	0.67	0.53	0.03	-0.98	-0.17	-0.68	-0.65	-1.75	-0.39	0.02	-0.10	-0.29	-0.79	0.81	0.67	0.52
USD-KRW	-0.65	-1.20	-0.28	-0.42	-0.67	-2.04	-1.12	-2.05	-2.16	-2.23	-0.88	-0.17	-0.61	-0.78	-1.29	-0.67	-0.03	-0.27
USD-CNH	-0.28	-1.09	0.10	-0.09	-0.34	-0.91	-0.39	-0.69	-0.67	-1.65	-0.46	-0.06	-0.42	-0.59	-0.82	-0.52	0.27	0.48

Source: J.P.Morgan

The benchmark mean reversion model consists in entering an FX vol spread if the corresponding 2-yr z-score exceeds a pre-determined 1.5 threshold, by focusing on 1y maturities (held 3m) in order to isolate pure vol (i.e.,

Vega) sensitivity over other Greeks. Plain vanillas and vol swaps were amongst the instruments delivering the most promising results, with the latter offering the additional advantage of not requiring intensive risk-management requirements (e.g., delta-hedging) throughout the life of the trades. Latest snapshot of FX vol dislocations is summarized in Exhibit 1: greener (redder) areas refer to spreads that are good value to buy (sell). At present, we see opportunities on the richness of BRL vol vs. other G10 and EM vols. Scandies and Antipodeans look rich vs. G4 and Asian vols. After flagging as being cheap just about two weeks ago ([Don't you forget about Brexit risk](#), 3 September), after the latest repricing of Brexit risk, now cable vol is approaching overvalued territory.

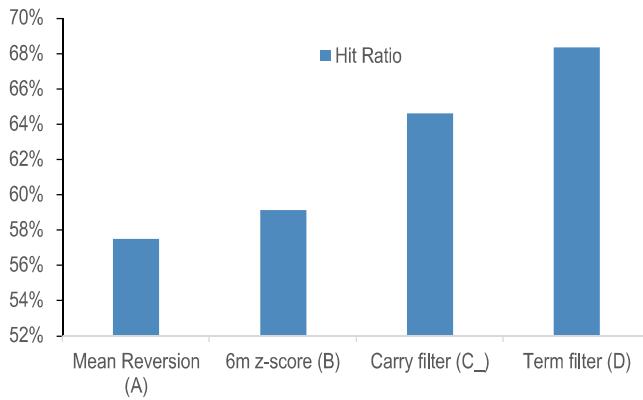
Beyond market dislocations, in the final section of the technical piece, we also discussed how the potential displayed by the mean-reversion theme could be boosted by using additional market intelligence, considering four extra filters for controlling the dislocation trades. Such combined use of filters on top of the benchmark model allows reducing the drawdown occasionally experienced by the benchmark strategy and significantly improving target PnL in terms of vol points per trade (see hit ratios in Exhibit 3). Three out of those four filters (short-Z filter, carry filter and the term filter) are now monitored on a weekly basis as part of our set of [technical RV tools for FX vols](#). The fourth filter (based on recent PnL time series) is not included for ease of calculation. Exhibit 2 shows which filters would be activated for each spread (defined as long the row vol and short the column vol of 1y ATM vols for off-diagonal elements, and as long the row vol for diagonal elements). For each spread in the matrix above, details on the activation of the filters are as follows. Benchmark model (A) is activated if the 2yr z-score is below -1.5. Short-term z-score filter (B) is activated if the 6m z-score is above -1.5. Carry filter (C) gets activated in case of a positive vol carry, defined as 1-year implied ATM vol minus the 3 month realized vol. Term filter (D) gets activated in case a positive roll-down, for the 9m-12m segment of vol curves. The hit ratios of the strategy when each of the filters is activated individually can be seen in Exhibit 3.

Exhibit 2. Filters activated for a given spread: A) mean-reversion; B) short-term dislocation; C) Vol Carry; D) Term structure

active filters	EUR-USD	GBP-USD	USD-JPY	USD-CHF	USD-CAD	USD-NOK	USD-SEK	AUD-USD	NZD-USD	USD-BRL	USD-MXN	USD-TRY	USD-ZAR	USD-PLN	USD-HUF	USD-SGD	USD-KRW	USD-CNH
EUR-USD	BD	C	BC	BCD	BCD	B	BC	BCD	BCD	AB	BC	BCD	BCD	B	AB	BCD	BCD	BCD
GBP-USD	BD	BD	BD	BD	BD	B	BD	BD	BD	B	BD	BCD	BD	BD	BD	BD	BD	BCD
USD-JPY	BD	BC	BD	BD	BD	B	B	BD	BD	AB	B	BCD	BCD	B	B	BCD	BCD	BCD
USD-CHF	B	BC	BC	BD	BCD	B	BC	BC	BC	AB	BC	BCD	BCD	B	B	BCD	BCD	BCD
USD-CAD	B	C	BC	B	B	B	BC	BC	BC	AB	BC	BCD	BCD	B	B	BC	BCD	BC
USD-NOK	BCD	CD	BCD	B	BCD	BCD	BCD	BD	BD	BCD	BCD	BCD						
USD-SEK	BD	C	BCD	BD	BD	B	BD	BCD	BD	AB	B	BCD	BCD	B	B	BCD	BCD	BCD
AUD-USD	B	C	BC	BD	BD	B	B	BD	BD	AB	B	BCD	BCD	B	B	BCD	BCD	BCD
NZD-USD	B	C	BC	BD	BD	B	BC	BC	BD	AB	BC	BCD	BCD	B	B	BCD	BCD	BCD
USD-BRL	BCD																	
USD-MXN	BD	C	BCD	BD	BD	B	BCD	BCD	BD	AB	BD	BCD	BCD	BD	BD	BCD	BCD	BCD
USD-TRY	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
USD-ZAR	B	BC	B	B	B	B	B	B	B	AB	B	BCD	B	B	B	BCD	BC	BC
USD-PLN	BCD	BC	BCD	BCD	BC	BCD	BCD	BCD	BCD	AB	BC	BCD	BCD	BCD	B	BCD	BCD	BCD
USD-HUF	BCD	BC	BCD	BCD	BC	BCD	BCD	BCD	BCD	AB	BC	BCD						
USD-SGD	B	C	B	B	BD	B	B	B	B	AB	B	BCD	BCD	B	B	B	BCD	BC
USD-KRW	B	O	B	B	B	AB	B	AB	AB	AB	B	BCD	B	B	B	B	B	B
USD-CNH	B	B	B	B	BD	B	B	B	B	AB	B	BCD	BD	B	B	BD	BCD	BD

Source: J.P.Morgan

Exhibit 3. Hit Ratio of the mean reversion strategy when each filter is activated individually

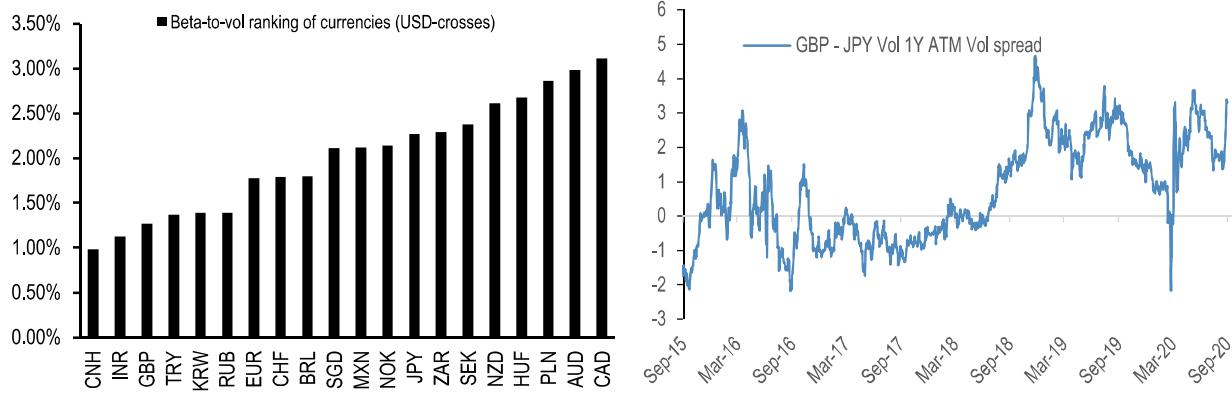


Source: J.P.Morgan

Conditional on the activation of the mean-reversion signal, the greener the color, the more filters are activated. From the table, we see that selling BRL vol is not currently supported from vol carry and term-structures perspectives. More generally, we see that spreads where pricing appears as attractive (i.e., where filter A is activated) are currently not supported by vol carry and term structure filters. This can be understood via the elevated estimate of realized vol and inverted shape of vol curve in the cases (BRL, HUF) where dislocation model would support selling a given vol. In the reference piece, we discuss how, by conditioning trades on the activation of a number of filters, candidate opportunities are reduced in numbers, while stressing the value of a systematic implementation. From a more discretionary standpoint, a regular monitoring of which filters (and why) are activated at any point in time can shed light on appealing trade opportunities.

Given the lack of no-brainer RV trades in the FX Vol space, we look at the beta-to-vol indicators (Exhibit 4 LHS) in order to get additional guidance. Antipodeans, CEEMEA are buy vs. Asia, GBP and TRY from this angle.

Exhibit 4. Beta-to-vol ratios as an additional indicator for choosing RV vol trades (left); Time-series of the GBP-JPY 1y ATM vol spread (right)



Source: J.P.Morgan

Regarding GBP, after calling two weeks ago and again last week ([GBP puts as Brexit hedges – what works and what does not](#)) for the lack of an adequate pricing of Brexit risk, cable vol is now one case where dislocation signal points to a certain richness. Further, the long USD/JPY / short GBP/USD vol trade is also associated with

a positive vol carry, the RV is supported by the beta-to-vol analysis, and the spread shows good mean-reversion properties (See [FX option trading screeners](#), Exhibits 17 and 18). In fact, with the GBP/USD – USD/JPY 1Y ATM spread at 3.3 vol points, it is sitting almost at a post-2016 referendum high (Exhibit 4 RHS) – it has closed above this value only on 40 days since June 2016. Thus, for those who believe that UK/EU no-deal on trade risk is not that likely a scenario, or that it is fully or excessively priced in, trading the spread above could make sense. In fact, if the impasse does not finish in catastrophe, even on a bare-bones FTA deal [our team sees](#) a 2-3% GBP relief rally, and thus likely a narrowing of the said spread. Alternatively, for those who believe there is further room for GBP vol to rise, the RV above can be monitored for a better entry point – maybe triggered by further Brexit talks noise or the likely scenario that the BoE would go negative and upscale QE. On the other side of the trade, buying JPY vol would make sense given the proximity of the U.S. elections and the sensitivity this currency displays to such events; the fact that yen vol election pricing has been in sync with Biden's performance in polls, the behavior the vol displayed on the 2016 election cycle when USD/JPY overnights jumped to the mid-40s cycle high, and the Yen spot moves in the aftermath of the election - when it made a few sizeable daily ~2% moves (see [here](#)).

A second group of trades that pop up are those buying HUF or PLN and selling NZD or NOK vols. Z-score indicators of Exhibit 1 are modestly in favour of the spreads, although not reaching the 1.5 threshold at which the dislocation signal is “officially” flagged. Interestingly, such RV get support from both a vol carry and term structure perspectives, as per Exhibit 2. Long EM / short G10 vol RVs, when carry is supportive, grant the “positive skew” feature of offering large potential gains in case of risk-off / vol repricing occurrences: as such, beta-to-vol indicator is supportive of the trade, in particular against NOK where more of an idiosyncratic dynamics are priced in. Needless to say, taking a short-vol position on NOK involves having a clear view on Oil price dynamics. In recent notes, the commodities research team ([Broken promises, missed expectations](#), 11 September) does not buy into the theory that global oil demand is weakening or stalling, following the early September drop of prices, but rather that the market is just trimming its (optimistic) expectations; as such, while acknowledging that risks are skewed to the downside, they keep their forecasts unchanged for Q3 and Q4 – this should provide some stability and support to the NOK spot market, which is one of the reasons why our current risk bias near-term is cautiously bullish (we see EUR/NOK 1-year forecast at 10.30, versus spot at 10.70) (see our latest [Key Currency Views](#)). On HUF on the other side, we maintain a short view - our long-held bias has been for forint depreciation (we see EUR/HUF 1-year forecast at 375, versus spot at 358) given negative real yields, current account deterioration, and the potential for shorts to be reinstated after a sharp positioning clean out ([Key Currency Views](#)). On PLN, not only we have a short-bias (we see EUR/PLN 1-year forecast at 4.55, versus spot at 4.46) but we are also UW it in the GBI-EM portfolio, expecting large negative real rates to continue weighing on the currency, our EM Client Survey showing PLN longs at their highest level since Dec-09 thus increasing risks of a positioning clear out ([Key Currency Views](#)).

Consider:

- Buy 1y vol swap on USD/JPY at 8.1 ch. vs. sell 1y vol swap on GBP/USD at 10.6/11.3
- Buy 1y straddle on USD/PLN at 8.7/10.45 indic, sell 1y straddle on USD/NOK at 11.15/11.9 indic, keep both legs delta-hedged

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