EUR-USD – Rising risk of US intervention

- **Falling EUR-USD spot and rising volatility resemble the JPY intervention episodes of 2010-11**
- **Implied volatility exceeding realised by a wide and increasing margin is a leading intervention signal**
- **EUR-USD satisfies many but not all historical criteria for intervention**

Increasing intensity of intervention precursors

Steve Englander
+1 212 667 0564
Steve.Englander@sc.com
Head, Global G10 FX Research and North America Macro Strategy
Standard Chartered Bank NY Branch

Geoff Kendrick
+44 20 7885 6175
Geoffrey.Kendrick@sc.com
Global Head, Emerging Markets FX Research
Standard Chartered Bank

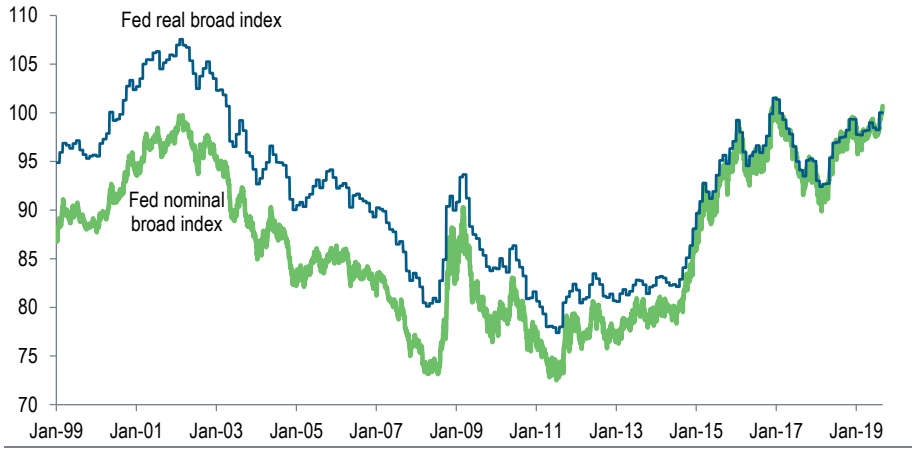
The breakdown in EUR-USD puts intervention back in play. We think recent spot and volatility moves ramp up the odds of intervention significantly, even if the conditions that triggered interventions in the past are not fully satisfied.

This note begins by developing a method of assessing the likelihood of intervention from market data on previous JPY interventions. It applies this approach to EUR-USD to see if there is much intervention worry now priced in. We conclude that currency market conditions increasingly match those that precipitated previous interventions, but probably more for EUR-USD than USD-CNH.

Intervention decisions are difficult to model because there is very little detailed data on intervention. We model four Bank of Japan (BoJ) interventions in 2010-11 in which it tried to limit JPY strength. We find characteristics that typically preceded those interventions: implied USD-JPY volatility was elevated relative to realised volatility; the gap between implied and realised volatility was increasing; and risk reversals pointed to an increased market expectation that JPY would appreciate. We develop a formula to indicate the likelihood of intervention based on these market factors.

When we apply this formula, and variations thereof, to the current situation with EUR-USD we find that intervention signals have ramped up sharply over the last week. The sudden drop in EUR below 1.10 was probably the trigger. Intervention is not guaranteed but a further sharp downward USD move would likely put intervention seriously on the table among US policy makers, despite the issues (see *US can intervene, but what would it buy?*; *The why and how of potential Fed FX intervention*).

Figure 1: USD approaching historically high levels
Index, 31-Jul 2019 =100



Source: Bloomberg, Standard Chartered Research

Setting aside the exact formula, what comes across is that the characteristics that pointed to elevated BoJ intervention risks are beginning to signal USD intervention risk, more on EUR than CNH. This was not true even last week. Investors are beginning to anticipate the volatility increase that we would see from intervention.

We start below by examining the Japanese interventions of 2010-11, looking for market factors that could be used to predict them. We then use those factors to analyse the probability of USD intervention in coming weeks.

Focus on EUR-USD intervention risk

EUR intervention makes more sense than CNH

We focus on EUR-USD because President Trump has cited the EUR more than the RMB recently. From a US point of view, EUR intervention is more straightforward, even if there is no certainty it will work.

Successful CNH intervention would have inflation spillover

By contrast, the weakness of the CNH is cushioning US consumers from the price effect of the tariffs. The US administration has tried to avoid actions that would push up inflation on consumer products, even if a stronger RMB would increase pressures on China's producers. And there is the possibility that the US accumulating CNH reserves would be seen as acknowledging its reserve status as a USD alternative.

Nor do we think that JPY is a very attractive target for intervention on its own. The US trade deficit with Japan is about USD 70bn versus USD 170bn with the euro area. The US might intervene against the EUR on its own or in conjunction with JPY intervention, but would not intervene against the JPY on its own.

Even the fed may worry about USD strength

Setting aside issues on whether trade wars are good or bad ideas, the Fed is looking at a trade-weighted USD that has spiked 3% since the beginning of July and is not far off all-time highs (Figure 1). USD strength when demand abroad is soft means both that the global trade pie is likely shrinking *and* the US may be getting a smaller share of it. From the US policy viewpoint, the case for intervention may be strengthening, even if it is not yet overwhelming.

Takeaways from the 2010-11 BoJ interventions

We extract lessons from Japan's experience

We analyse four well-publicised BoJ interventions over 2010-11 (Figure 2). In retrospect they do not look very effective in breaking USD-JPY's downward trend, but it is hard to assess what would have happened absent intervention. According to Reuters, the initial intervention was on 15 September 2010 in response to USD-JPY hitting a 15-year low, the second on 18 March 2011 in response to JPY strengthening after the Great East Japan Earthquake and further interventions on 04 August 2011 and 31 October 2011 in response to USD-JPY weakness. In 2012, the BoJ focused more on Abenomics and less on intervention.

Our first step is to identify market factors that were precursors to these JPY interventions. We find six such factors:

1. Rising short-term implied volatility
2. Rising short-term realised volatility
3. JPY strengthening sharply or close to a local peak
4. Unusually high short-term implied volatility versus realised volatility
5. Widening gap between short-term implied and realised volatility
6. Risk reversals becoming more skewed

Implied and realised volatility turn higher

The first three conditions are required almost by definition: intervention rarely takes place in an environment of stable currencies and low volatility. In the approach to the interventions, the JPY was either appreciating rapidly or very close to recent peaks. In addition, both implied and realised volatilities were picking up. It is fair to say that if a currency is near a local peak and volatility is picking up that strengthening momentum is building.

The last two conditions indicate that investors see more volatility coming in the future relative to the present. Risk reversals generally but not always become more skewed. What is not clear is whether the expected volatility is due to the market anticipating even more rapid appreciation or whether there is an intervention risk premium added to implied volatility.

Downward USD-JPY momentum and rising volatility were triggers for BoJ intervention

Our formula for predicting these interventions combines all these factors. We focus on the period between March 2010 and March 2012, when the JPY was appreciating and constantly threatening new lows. The intervention signal is triggered when the JPY is strengthening or hitting new highs, implied volatility is rising and implied volatility is rising relative to realised volatility (Figure 3).

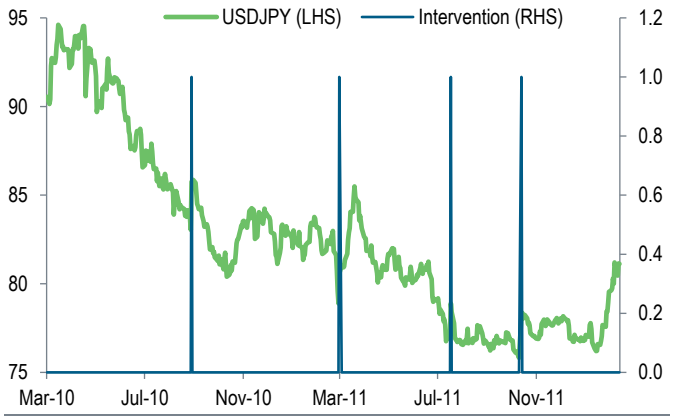
Over our calibration period of 2010-12 there were six episodes when the intervention signal was triggered, lasting a total of 20 days. In each case correct triggering of the intervention signal captured an upward move in USD-JPY, but in some cases the signal came a little early so USD-JPY fell further before rising after the intervention. We treat a single day or five days in a row of the signal being triggered as a single episode and compare USD-JPY on the first day the signal was triggered against USD-JPY the first day that it came off.

The JPY depreciated an average of 0.6% over the two episodes in which the signal gave a false signal. This suggests the possibility that the interventions were successful, however briefly, in reversing a market for JPY appreciation.

If we apply the intervention signal formula to the period since March 2012, we have 16 episodes and 59 days on which the signal was triggered versus six episodes and 20 days over the 2010-12 period during which we calibrated our signal. We find that USD-JPY rises about twice as often as it falls over the episodes of signal triggering. In these episodes, the interpretation would be that the signals reflected a stretched

Figure 2: BoJ interventions 2010-12

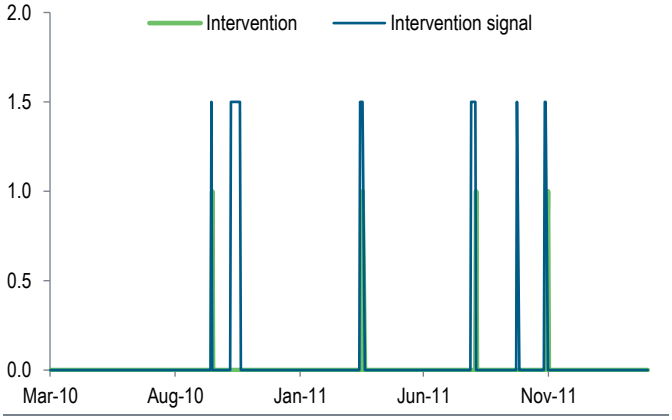
USD-JPY (LHS), intervention (RHS)



Source: Macrobond, Standard Chartered Research

Figure 3: Intervention signal

Intervention, intervention signal



Note: For ease of visualisation, actual intervention is indicated by the thick line with a value of 1, the intervention signal the thin line with a value of 1.5. Source: Macrobond, Standard Chartered Research

market that was primed for reversal. 1-month implied ATM volatility fell over 14 of these episodes, although the drop may simply reflect that high implied volatility in the very near term rolled off.

Generically, our signals may partly capture stretched spot and vol positions in markets that make them vulnerable to reversals. When intervention is in the air they may also capture some of the market factors that prompt the intervention decision.

EUR-USD pricing in more intervention risk

EUR market conditions begin to resemble pre-intervention JPY conditions

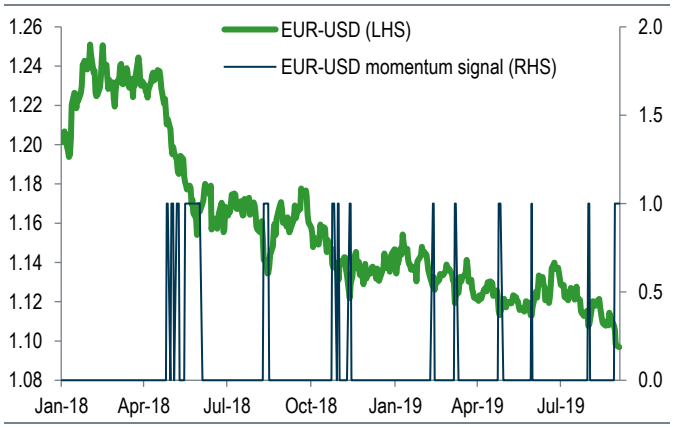
Below we apply the criteria that we derived for Japanese intervention to EUR-USD. There are obviously differences of time and location, but we want to see qualitatively whether the types of conditions that prompted Japanese intervention now are emerging with respect to EUR-USD. We are not wedded to the formula that we derived for Japanese intervention, but wish to see if the same factors that drove Japanese intervention are qualitatively emerging as drivers of EUR-USD.

The sudden downward move of EUR-USD to new lows resembles the type of USD-JPY spot moves that were associated with BoJ interventions over 2010-11. The speed of the decline and the persistent hitting of new local lows points to EUR weakness and USD strength that could tempt intervention (Figure 4). This is not a full intervention signal, but just the momentum component which is flashing.

The volatility components are not very stretched but the last week has shown a significant shift. EUR-USD 1M 10 delta risk reversals are more skewed to the downside, implied volatility is at the high of recent months and implied-minus-realised volatility is near the highs of the last year (Figure 5). Both levels and changes in these factors contributed to the Japanese intervention signal. Taken together these are not yet flashing red, but if the USD resumed its climb and volatility indicators rose sharply, US policy makers would seriously consider intervention. They may decide to hold off if there is a precipitating factor like a hard Brexit whose spillovers may be hard to contain. By contrast, if USD strength was driven by renewed pessimism on foreign growth, US policy-maker frustration could tilt the balance towards intervention.

Figure 4: EUR downward momentum

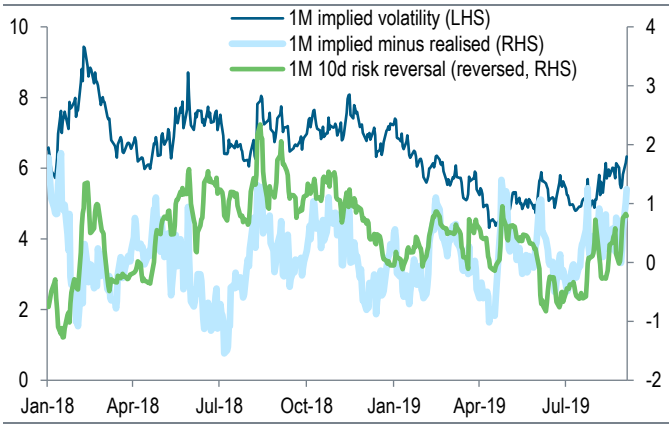
EUR-USD



Source: Macrobond, Standard Chartered Research

Figure 5: Implied volatility rising

Vol



Note: Risk reversals are reversed for charting. A value of 2 for the risk reversal in the figure equates to a EUR-USD risk reversal of -2. Source: Macrobond Standard Chartered Research

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Document approved by
Geoff Kendrick
Global Head, Emerging Markets FX Research

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