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Derivative Focus

CROSS-ASSET

Turbo carry zooms ahead, part 2

Performance review and new trade ideas

In this report, we review the performance of recently expired turbo-carry trades. Then we recommended two more 3-month trades – the USD 3m3y2y ATMF-20bp and the EUR 3m4y1y ATMF-10bp turbo-carry packages with annualised carry of 173% and 121% respectively.

Three turbo-carry trades expired in February (see Portfolio Performance Update 7-Mar-2014). Of these three trades, two 3-month turbo-carry trades for USD and EUR were initiated last November:

> ***USD 3m1y2y ATMF-20bp** — sell 3m1y2y ATMF-20bp, buy 15m2y ATMF-20bp, equal notional. Entry price of 29cts, expired at 39.7cts on 10 February for a 239% annualised return.*
>
> ***EUR 3m1y2y ATMF-10bp** — sell 3m1y2y ATMF-10bp, buy 15m2y ATMF-10bp, equal notional. Entry price of 23cts, expired at 29.6cts on 10 February for a 167% annualised return.*

The remaining turbo-carry trade that expired in February was USD 1m1y2y ATMF-5bp, which we recommended in January and expired with a modest loss:

> ***USD 1m1y2y ATMF-5bp** — sell 1m1y2y ATMF-5bp, buy 13m2y ATMF-5bp, equal notional. Entry price of 48.5cts, expired at 46cts on 21 February, for a loss of a 47% annualised return.*

After the recent moves in the rates curve, we refocus on the upper-left corner of USD and EUR vol surfaces. We have found two three-month trades in our scanning of over 2,000 trades that stand out as relatively strong:

- **USD 3m2y3y ATMF-20bp**: Upfront premium of 114ct (39.6bp) and rolldown of 49.4ct (17.1bp) for a 173% annualised carry. With spot at 2.56% and the forward at 2.75%, this trade has a B/E range of 2.21% - 3.00% or 79bp wide.
- **EUR 3m4y1y ATMF-10bp**: Upfront premium of 48cts (49.6bp) and rolldown of 14.6cts (15.1bp) and an annualised carry of 121%. With spot at 1.85% and the forward at 1.95%, the B/E range is very wide at 1.62%-2.23% or 62bp wide.

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Performance analysis of recently expired trades

The two 3-month turbo-carry trades we initiated last November have realised decent profits. As Figure 1 shows, the USD trade gained 10.7cts on a 29ct entry price, or a 239% annualised return, and the EUR trade gained 6.6cts on a 23ct entry price, or a 167% annualised return. Note, we reported offer-side entry prices to make our P&L estimates more conservative.

The P&L breakdowns show, as we expected, carry has made a major contribution to the final P&L (see Figure 1).

Fig. 1: Realised P&L on the two 3-month turbo-carry trades initiated last November

Trade P&Ls from entry at offer price on 8 November 2013, together with P&L breakdown

		Price and P&L (ct)			P&L Breakdown (ct)			
Trade	Status	Entry	Exit	P&L	Delta	Vega	Carry	Ann. Return
USD 3m1y2y AMTF-20	Expired on Feb 10th	29	39.7	10.7	6.3	0.9	3.5	239%
EUR 3m1y2y ATMF-10	Expired on Feb 10th	23	29.6	6.6	-5.6	4.1	8.1	167%

Source: Nomura Research

The USD 1m1y2y trade we initiated in January has ended up with a small loss of 2.5cts on a 48.5ct entry price, or a -47% annualised return. As Figure 2 shows the package value has suffered mainly from the loss on delta and vega. Since the trade's inception on 21 January, the front end of the curve and gamma have both been grinding lower amid weak US economic data. At the expiry, the underlying 1y2y forward is10bp lower since its inception on 21 January, while 1y2y bpvol fell by 7bp. The 1y2y forward penetrated the lower breakeven rate of 1.14%, and caused a total loss of -7.7cts on delta and vega. However, we noticed the positive carry largely offset the adverse market moves.

Fig. 2: Realised P&L on the USD 1m1y2y AMTF-5bp initiated in January

Trade P&L from trade entry at offer price on 21 Jan 2014, together with P&L breakdown

		Price and P&L (ct)			P&L Breakdown (ct)			
Trade	Status	Entry	Exit	P&L	Delta	Vega	Carry	Ann. Return
USD 1m1y2y AMTF-5	Expired on Feb 21st	48.5	46.0	-2.5	-3.4	-4.2	5.1	-47%

Source: Nomura Research

Two new trades: 3-month USD turbo-carry trade

In the US, extreme weather conditions appear to have caused the economy to hit a soft patch at the start of 2014. However, recent data releases, for example, last Friday's nonfarm payrolls data, are suggesting that economic fundamentals are still supportive to growth. QE tapering continues at a modest pace, but our economists believe the first rate hike remains far off. Although the front end will likely bear the brunt of any bond market repricing, we expect the moves to be relatively modest in the coming months.

We look at annualised carry on USD trades, focusing on those with higher-adjusted return. In Figure 3 we show trades of a range of strikes, where we show the premium in cents and in bp, the rolldown (i.e., gain on aging) in cts and bp, the carry (percentage gain) annualised, and the upper and lower breakevens.

Fig. 3: USD 3m2y3y packages by strike (spot 2y3y = 2.56%, forward 27m3y = 2.75%)

ATMF-20bp offers the most carry among its peers

Relative Strike (bp)	Upfront Premium (ct)	Rolldown (ct)	Premium (bp)	Rolldown (bp)	Ann Carry (%)	ImpliedVol (bp)	Low B/E Forward (%)	High B/E Forward (%)	B/E Width (bp)	Adjusted Ann Carry
-20	**114.0**	**49.4**	**39.6**	**17.1**	**173%**	**92.6**	**2.21**	**3.00**	**79**	**296%**
-10	117.0	35.1	40.6	12.2	120%	95.0	2.31	3.11	80	202%
0	118.3	22.7	41.1	7.9	77%	97.6	2.39	3.23	84	132%
10	118.0	12.6	41.0	4.4	43%	100.2	2.46	3.37	91	78%
20	116.4	4.6	40.4	1.6	16%	103.0	2.52	3.53	101	31%

Source: Nomura Research

To compare the width of the breakevens and the possible gain, we normalise the breakeven width with implied volatility to get the following measure of expected value:

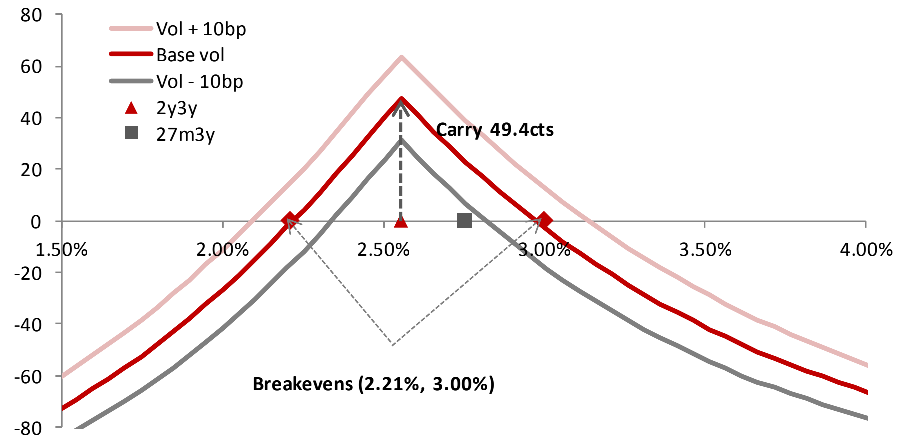
Adjusted Annualised Carry = Annualised Carry*(High B/E – Low B/E)/(Vol*T½)

Our favoured trade is the ATMF-20bp structure, which is struck around spot.

In Figure 4 we plot the payoff profiles for current vol and up/down vol scenarios, noting that the long vega position means that the payoff profile shifts up in a rising vol environment and correspondingly shifts down in a falling vol environment. We calculate the vol-adjusted breakevens as being 2.21% - 3.00%, at a full 79bp wide, giving some protection against the rally, while maintaining a decent margin for sell-offs.

Fig. 4: Net payoff profile in 3 months' time for USD 3m2y3y AMTF-20bp

Long vega exposure and wide breakeven range (lower B/E 2.21%, higher B/E 3.00%)

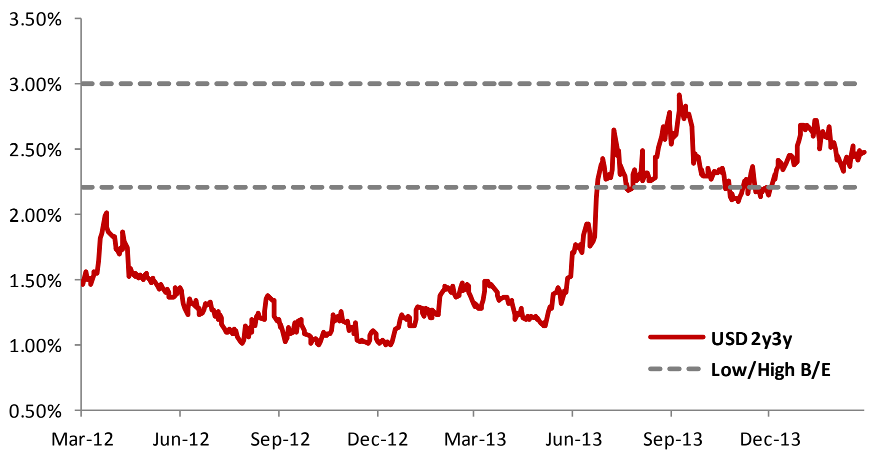


Source: Nomura Research

In Figure 5 we show USD 2y3y forward performance for the past two years, together with the breakevens. We note that our breakeven band has covered most of the extremes since Fed tapering expectations began in May 2013, and should provide decent protection against either a sell-off or rally. Although trade MTMs may vary based on a number of factors, the terminal payoffs are simple and we believe it should have decent positive P&L if forwards expire within these bands in three months time. Back-tested for the past year (entering into the 3m2y3y ATMF-20bp package daily), the trade made on average 14.1cts when held to term.

Fig. 5: Historical USD 2y3y vs low/high breakevens

Wide breakeven range gives the trade a large margin against market moves



Source: Nomura Research

Finally, in Figure 6 we note the risks to the trade, where we highlight in particular the risk to vega, where a 10bp increase in vol underlying 2y3y forward will raise the package price by 10.4cts. The trade gains approximately 0.23cts per day in terms of time value alone.

Fig. 6: USD 3m2y3y ATMF-20bp risks

Package Name	Fwd (%)	Spot (%)	Relative Strike (bp)	Delta (ct/bp)	Gamma (ct/bp2)	Vega (ct/bp)	Theta (ct/day)
USD 3m2y3y AMTF-20	2.75	2.56	-20	-0.43	-0.16	1.04	0.23

Source: Nomura Research

3-month EUR turbo-carry trades

Although all key interest rates were left unchanged at the recent ECB meeting, the ECB retains an easing bias via its forward guidance and the two constraints to further action remain (unwanted tightening of monetary policy from the short-term markets propagating to long-term and/or a worsening of the medium-term inflation outlook). Our house view is that, barring any major adverse shocks (particularly on the geopolitical side) the ECB will unlikely make much in the way of market-moving changes to policy before June at the earliest (see ECB raises the bar to further action, 7-Mar-2014). Given this backdrop, we expect a range-bound market for EUR in the near term, which is an ideal setting for short-dated mid-curve calendar spread trades, a.k.a. "flip-flops". We proceed with a similar analysis of EUR turbo-carry trades.

Fig. 7: EUR 3m4y1y packages by strike (spot 4y1y = 1.85%, forward 51m1y = 1.95%)

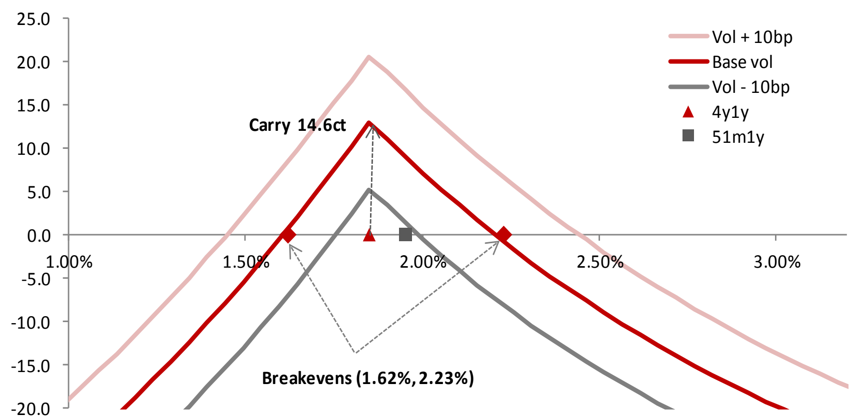
Relative Strike (bp)	Upfront Premium (ct)	Rolldown (ct)	Premium (bp)	Rolldown (bp)	Ann Carry (%)	ImpliedVol (bp)	Low B/E Forward %	High B/E Forward %	B/E Width (bp)	Adjusted Ann Carry
-20	46.2	10.8	47.8	11.2	94%	78.4	1.52	2.12	60	145%
-10	**48.0**	**14.6**	**49.6**	**15.1**	**121%**	**80.2**	**1.62**	**2.23**	**62**	**187%**
0	49.0	9.9	50.7	10.3	81%	82.3	1.70	2.37	67	132%
10	49.3	6.3	50.9	6.5	51%	84.8	1.76	2.53	77	92%
20	48.8	3.5	50.5	3.6	29%	87.5	1.81	2.71	90	58%

Source: Nomura Research

In Figure 7 we show a range of strikes and we note that the ATMF-10bp 3m4y1y package, which is struck around spot, has the highest carry and highest expected gain. We analyse this trade.

Fig. 8: Net payoff profile in 3 months' time for EUR 3m4y1y AMTF-10bp

Long vega exposure and wide breakeven range (lower B/E 1.62 %, higher B/E 2.23 %)

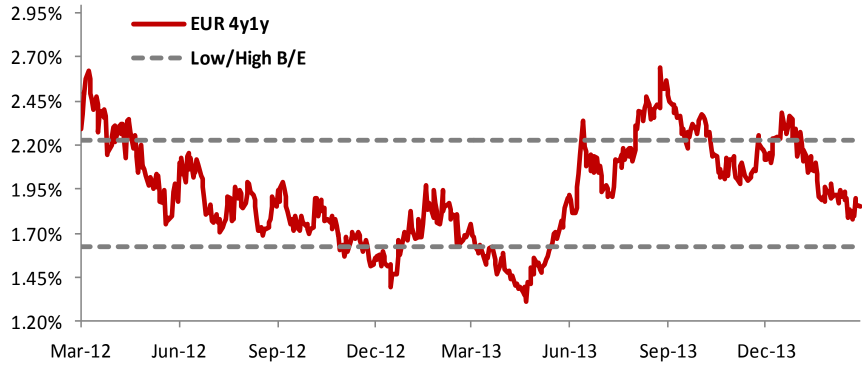


Source: Nomura Research

We plot in Figure 8 the payoff profiles for current vol and up/down vol scenarios, noting that the long vega position means that the payoff profile shifts up in a rising vol environment and correspondingly shifts down in a falling vol environment. We calculate the vol-adjusted breakevens as being 1.62% - 2.23%, a range of 62bp, giving some protection against a rally, while maintaining a decent margin for sell-offs.

Fig. 9: Historical EUR 4y1y vs low/high breakevens

Wide breakeven range gives the trade a large margin against market moves



Source: Nomura Research

Figure 9 shows a two-year history of EUR 4y1y forwards overlaid with breakevens. Our breakeven band has largely covered most of the extremes for the past two years, and should provide a decent buffer against either a sell-off or rally. Back-tested for the past year (entering into the 3m4y1y ATMF-10bp package daily), the trade has made on average 6.7cts when held to term.

Finally, in Figure 10, we note the risks to the trade, where again we highlight the risk to vega, where a 10bp increase in vol underlying the 4y1y forward will raise the package price by 5.5cts. The trade gains approximately 0.09cts per day in terms of time value alone.

Fig. 10: EUR 3m4y1y AMTF-10bp risks

Package Name	Fwd (%)	Spot (%)	Relative Strike (bp)	Delta (ct/bp)	Gamma (ct/bp2)	Vega (ct/bp)	Theta (ct/day)
EUR 3m4y1y AMTF-10	1.95	1.85	-10	-0.17	-0.08	0.55	0.09

Source: Nomura Research

On trade risks, these turbo-carry trades have limited downside, and will tend to lose money if:

- Forwards move outside the range (specified in terms of breakevens in the previous discussion).
- Volatility decreases significantly.

These risks are not completely independent. Typically, large bearish moves have been associated with rising volatility (providing a further buffer against losses when rates rise). By contrast, large bullish moves have often coincided with falling volatility (decreasing the buffer against losses). This consequently has given the trades a more bearish bias. Nonetheless, we believe that the two highlighted trades more than adequately offset these risks, where we believe the breakevens are relatively wide and the vega is sufficiently high to help balance risk and return, especially in the light of the market action in the past 12 months. In any event, the maximum downside is losing the initial premium.

Trade ideas:

Sell $100mn USD 3m2y3y AMTF-20bp, Buy $100mn USD 27m3y ATMF-20bp for a package price of 114cts for an annualised carry of 173%.

Sell €100mn EUR 3m4y1y AMTF-10bp, Buy €100mn EUR 51m1y ATMF-10bp for a package price of 48cts for an annualised carry of 121%.

Appendix A-1

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