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Derivative Focus

CROSS-ASSET

Modestly bearish trades ahead of the ECB

EUR 2y2y 1x2 payer spreads – short with carry

Global Markets Research

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Quantitative Strategies

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Because of the significantly overbought EUR curve ahead of the ECB meeting, we look to ways of being modestly short into the meeting, with significant downside buffers. In particular, we look at buying ATMF+0bp/+49bp 2y2y 1x2 payer ratios at zero cost. This trade is positive delta and carries well in various scenarios, making major gains in a sell-off, but carrying positively in a rally if not held until term. If managed properly the trade makes money in a wide variety of market conditions if sold when the carry turns negative. The largest risk to this trade is a sell-off with significantly rising volatility.

Trade idea: Buy EUR100mn 2y2y ATMF payers, and sell EUR200mn ATMF+49bp at zero cost (ref: 2y2y at 83.2bp). With a breakeven of ATMF+98bp, it offers decent upside protection, while benefiting from carry of 3cts if sold at its peak and much higher gains possible if dynamically managed.

The ECB could cut but still disappoints

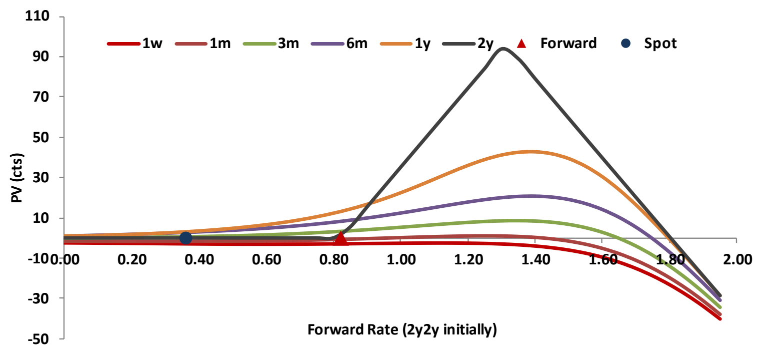
Although it is clear that the eurozone economy is under significant duress and the ECB is very likely to cut this Thursday (see ECB to deliver 10bp rate cut and credit easing via targeted LTRO programme (ECB Preview)) with the consensus view that the base lending rate will fall to 10bp, we think the bond market's reaction to this likely move is extreme. Swaps have rallied across the board with 2y swaps falling around 10bp since the previous meeting and 2y2y down some 18bp following an already impressive uninterrupted rally since the beginning of the year.

It is obvious to us that positioning is extremely long and it is all the more likely that irrespective of ECB policy, the market is going to be disappointed. With the view of a continuing sluggish eurozone economy and the risk of deflation, this disappointment may be fleeting. But we want to take advantage of any sell-off with a mildly bearish trade that nonetheless carries well.

Carry almost everywhere, even if we are (just modestly) short

Fig. 1: 2y2y 2x1 Payer Ratio PV Profile over time

Carry is decent (but if sold before term). Rates overshooting spot is the best outcome.



Source: Nomura Research

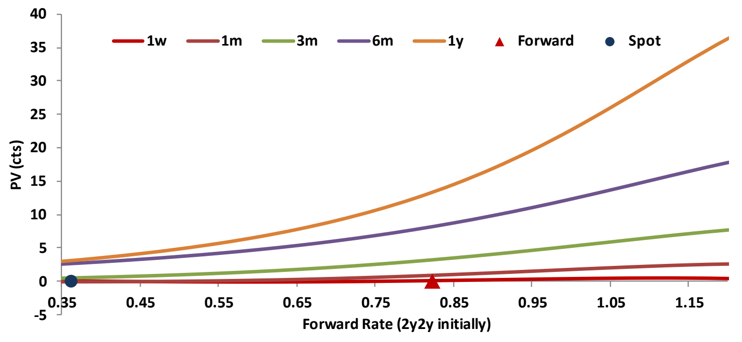
We propose doing 1x2 payer ratios, buying 100mn ATMF payers and selling 200mn ATMF+49bp payers at zero cost. Although relatively standard, the trade has many attractive and poorly understood features.

Figure 1 shows that the trade starts out with relatively low rate dependence. As the trade ages, for constant forward rates, its value tends to rise (i.e., it ages well) as long as the rates end below the upper breakeven. This is just positive theta as compensation for the negative gamma. This positive time value even occurs well below the ATMF strike, as the trade tends to carry positively for a few months, peak and then age negatively for a few months before ultimately expiring worthless.

We distinguish between carry (where forwards age and finally pull to spot with vol and vol skew ageing) and time value or ageing or theta, in which rates stay constant.

Fig. 2: Initially short

Decent carry but with better carry in a sell-off



Source: Nomura Research

As we see in Figure 2, the trade starts out just slightly short with the time value accelerating as the trade ages. In Figure 3 the delta is slightly positive (i.e., we are short at the start of the trade).

Fig. 3: Risks at trade start

Slightly short (positive delta)

Position	Strike	Strike %	Premium (cts)	Delta (cts/bp)	Gamma (cts/bp^2)	Vega (cts/bp)	Theta (cts/day)
Long 100mn Payer	ATMF	**0.82**	56.4	0.74	0.01	1.11	-0.05
Short 200mn Payer	ATMF+49bp	**1.31**	-56.4	-0.65	-0.01	-2.07	0.10
			0.0	0.09	0.00	-0.95	0.05

Source: Nomura Research

Conventional wisdom would state that trades always start long, but this is not necessarily the case. Our delta is not vol adjusted, so we feel it is more realistic than any volta-adjusted measure. Most would say that if you pay for the trade, it could be short, but if you were paid for it (or it was zero cost) it must be long.

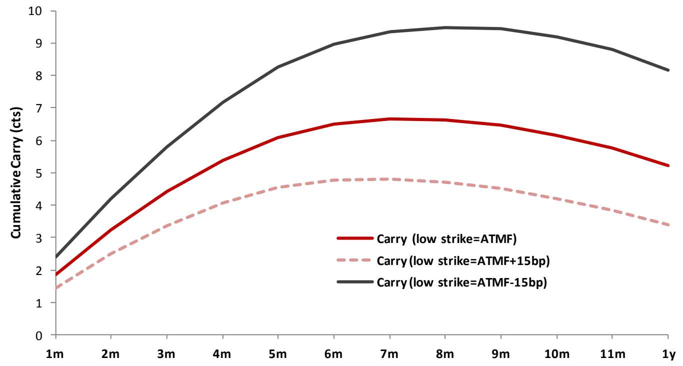
But we have found that depending on the shape of the vol skew and the time to expiry, the positions of the forward etc, the trade may also start out short (with PV crossing zero at the forwards and at the upper breakeven). We have chosen a trade that is short at the start of the trade.

Choosing between strikes - no simple method

Although we were not extremely thorough on analysis of relative strikes, we did look at the relative pros and cons of striking the lower payer 15bp ITM, ATMF or 15bp OTM as an example of how strike affects risk and expected returns.

Carry (as in pull to spot) is almost always better on lower strike trades (i.e., buying ITM payers), with the extreme being a 1x2 whose high strike is at spot. As Figure 3 shows, on the ATMF trade, the carry peaks after 7-8 months at around 6cts, while for higher strike trades the peak is sooner and lower and lower strike trades carry for longer with more returns.

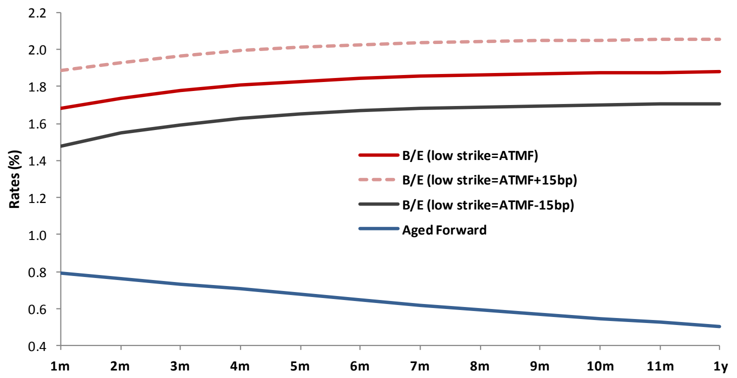
Fig. 4: Carry to term is always zero, but carry over shorter horizons is decent
Low strike ATMF, ATMF-15bp and ATMF+15bp



Source: Nomura Research

To compensate for the higher carry of low strikes, they also have relatively lower breakevens, where we measure the breakevens on a monthly basis, effectively being riskier. As the trade ages, the aged forwards converge to the current 2y spot, and the breakevens converge to the much more easily computed breakeven at maturity. If we move the strike 15bp lower, the upper breakeven loses between 17bp and 18bp (depending on the horizon), and meanwhile, if we move the strike 15bp higher, we gain a similar amount of protection.

Fig. 5: Breakevens over time and aged forwards
ATMF, ATMF+15bp, ATMF-15bp lower strikes. All offer decent buffer



Source: Nomura Research

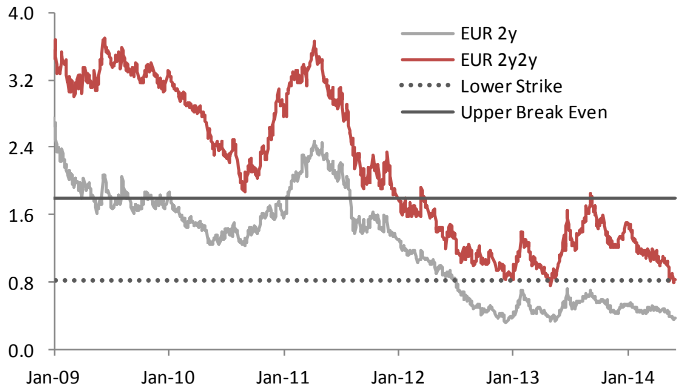
We opt to trade ATMF payers owing largely to their increased liquidity relative to buying an ITM payer swaption, although the risk-reward trade-off is quite subtle and there are many 1x2 structures that offer relative benefits.

Maximising returns dynamically

Because of the current level of rates, our ATMF+0/49bp trade offers comfortable protection against sell-offs as we show in Figure 6. The 2y spot swap has only exceeded the upper breakeven (at maturity) in mid-2011 for a few months. Previously, it was not since early 2010 that it hit the breakeven.

Fig. 6: Breakevens at maturity are comfortably high

2y rate has not been above current 2y2y+98bp since mid 2011, and then not since early 2010

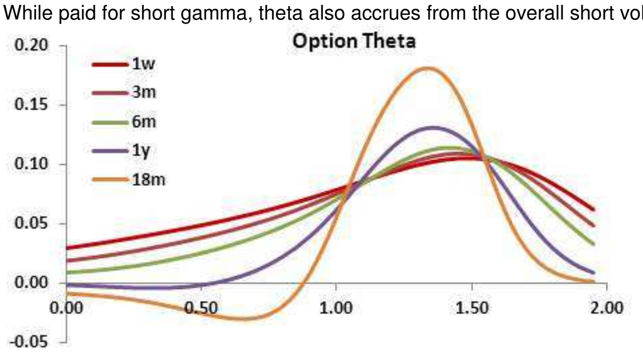


Source: Nomura Research

In fact it is extremely likely the trade expires worthless. But this does not mean that the trade itself isn't worth considering, since as we mentioned the positive time value compensates for the negative gamma.

Fig. 7: Theta profile over time

While paid for short gamma, theta also accrues from the overall short vol position

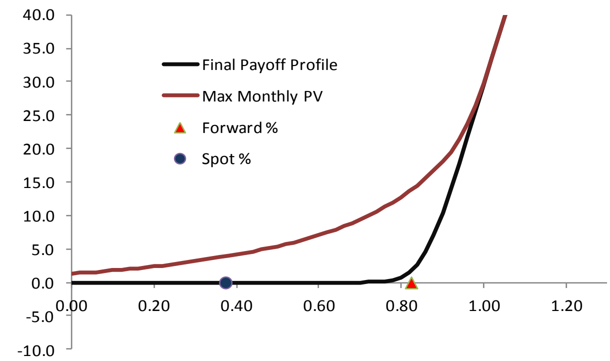


Source: Nomura Research

But the theta profile is different and more telling than gamma alone. For the most part, the trade horizon can be optimised by choosing to close out the trade as soon as the theta changes sign. We show the theta evolution in Figure 7, noting that for lower rates, the theta does turn sharply negative close to trade expiry.

Fig. 8: Max PV (for monthly holding horizons)

Considerably more carry possible if the trade is not held to term



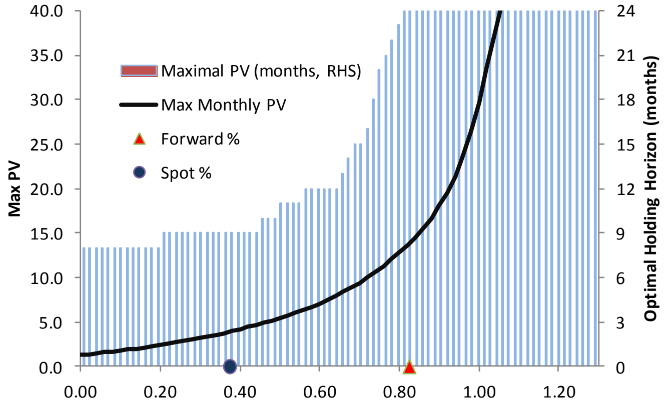
Source: Nomura Research

We see in Figure 8, in spite of the possibility of expiring with zero PV, the maximal gain is 13.6cts if forwards are realized. This rises sharply, exceeding the intrinsic value until the forwards hit 1.02%. So, although short, this (dynamic) trade makes comfortable gains even if rates fall, while profiting even further if rates rise (but do not exceed the final breakeven of course).

In Figure 9, we see that the optimal holding horizon changes based on the relative moneyness over time. If the (then aged) forwards are close to zero, the optimal horizon is eight months, rising to nine months at rates near 26bp, 10months at 58bp and rising sharply thereafter. Of course this profile can change based on prevailing market conditions.

Fig. 9: Maximal carry holding horizon

Only high rates lead to 2y horizons. Typical low rate horizon is around 8m

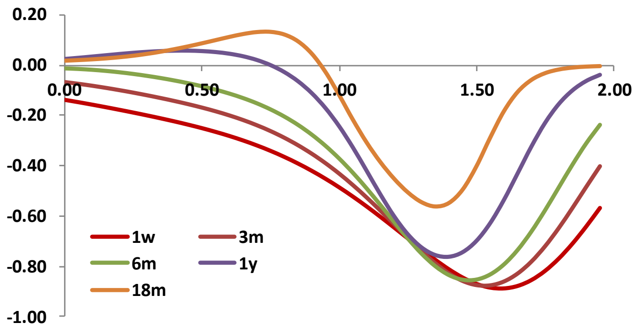


Source: Nomura Research

Finally, even though we believe this trade presents a very good risk-reward and decent carry opportunities while being modestly short, its main risk is being short vega. In Figure 10 we present the vega profile. We note that the largest vega risk comes in higher rate scenarios (decreasing in time). The vega does turn positive for lower rates.

Fig. 10: Risk to trade – vega through time

Peak risk for higher rates , decreasing risk in carry scenario



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Appendix A-1

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