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Derivative Focus

CROSS-ASSET

Trading distortion in the EUR long-end

EUR 10y10y-15y30y vega bear steepener

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Quantitative Strategies

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We recommend a bear steepener trade in the EUR long end – buy 15y30y ATMF payer vs10y10y ATMF+31bp payer, delta-neutral and at a zero initial cost. This trade has considerable pickups over both forwards and spot, and can also benefit from renewed regulatory-driven asset-liability hedging flows. It is long vega, and earns decent carry from curve/vol roll-down and time decay. Because of the recent flattening of the curve, the current entry level is attractive in our opinion.

Trade recommendation:

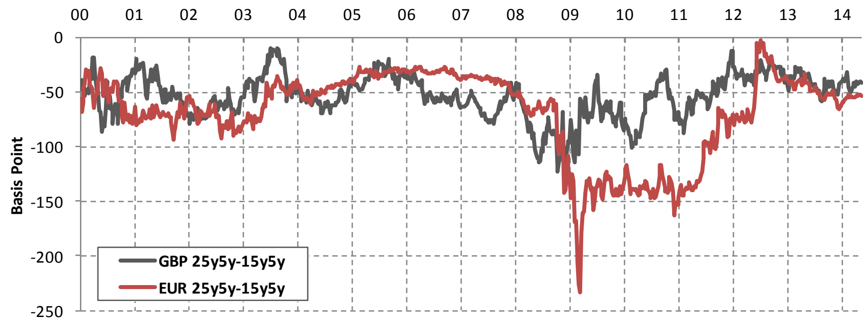
EUR 15y30y *vs.* 10y10y vega bear steepener: Buy €100mn ATMF 15y30y payer, and sell €209mn ATMF+31bp 10y10y payer for an zero initial cost.

Distortions in the long-end EUR market

During the 2008 financial crisis and the following European sovereign crisis, markets experienced severe downturns accompanied by significant "distortion" in EUR long-dated yield. Prior to the crisis, forwards in the long end had a negative slope – i.e. the 25y5y rate was approximately 50bp below the 15y5y rate. The effect was most noticeable in GBP and EUR, where insurers hedged their liabilities in large size in the 2001-07 period. During the crisis, inversion between EUR 25y5y and 15y5y forwards increased to as much as -230bp at the height of the crisis in spring 2009, and then settled down at around -150bp (see Figure 1).

Fig. 1: Distortions in the EUR long end (Fulcher 2013)

The EUR long end was significantly distorted during the financial crisis and in 2011-12 with the adoption of the Ultimate Forward Rate (UFR).



Source: Nomura Research

A large part of the distortion was caused by increasing liability-hedging activity (against a falling long yield) by insurers and pension funds in countries with weakening solvency – notably Denmark, the Netherlands and Sweden. However, the effect was much less noticeable in GBP. UK life insurers were already closely hedged, and UK pension funds were not subject to a strict solvency regime, which enabled them to take a more pragmatic view on hedging.

Suggestions for adopting the Ultimate Forward Rate (UFR) began in H2 2011 and reached a peak in June 2012 with announcements in the Netherlands, Denmark and

Sweden. The proposed UFR of 4.2% increases the discount curve and reduces liability-side valuations compared with a fully market-consistent approach. Because of improving regulatory solvency under the UFR framework, there is a fading demand for 25y5y hedges, but excess hedging pressures 15y5y. This change had a dramatic effect on EUR rates markets – the 25y5y – the 15y5y difference narrowed almost to zero in June 2012.

Nevertheless, in a classic case of "buy the rumour, sell the fact", the expected changes to hedging flows, such as shortening hedges to the 20y tenor, did not largely materialise. The slope of the EUR curve has settled back below its pre-crisis level and below the GBP level. This move might suggest the market is treating the UFR as a temporary device, designed to deal with a temporary market effect, rather than a permanent feature. But at the same time, the adoption of the UFR in both Solvency I.V and Solvency II regulation is becoming increasingly fixed. In particular, the revised wording of Omnibus II suggests Smith-Wilson, with a 20-year cut-off and 40-year extrapolation, will apply across the eurozone (including Denmark) starting from 1 January 2016[1].

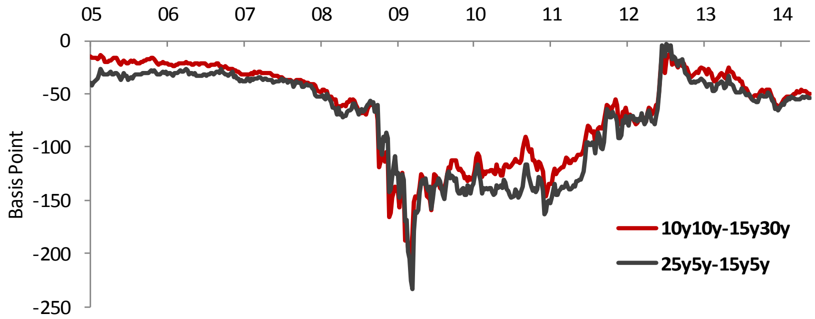
With the above factors in mind, we present a bear steepener 10y10y-15y30y trade, particularly because of its pickups to other correspondingly long-end steepening trades (i.e. 25y5y-15y5y) and pickups to overall carry. Meanwhile, the curve flattening since the UFR announcement in 2012 could give any steepening move real legs.

EUR 10y10y – 15y30y bear steepener

Buy €100mn ATMF 15y30y payer, and sell €209mn ATMF+31bp 10y10y payer for an **zero initial cost.**

Fig. 2: EUR 10y10y-15y30y closely mirrors 15y5y-25y5y

But 10y10y-15y30y bear steepeners carry significantly more than15y5y-25y5y trades



Source: Nomura Research

Historically, the EUR 10y10y-15y30y has been highly correlated with the 15y5y-25y5y (see Figure 2). However, the 10y10y-15y30y stands out with significant carry embedded in the bear-steepening package, i.e. +151bp carry vs -7bp for 15y5y-25y5y on a 2-year horizon. It means the trade should easily withstand much more curve flattening than is likely to happen over the next few years.

Fig. 3: Decent pickups by long 15y30y ATMF+31bp payer *vs* 10y10y ATMF payer

	10y10y	15y30y	Spread (bp)
Aged Rate in 10y	1.61%	2.68%	**107**
Forward	3.02%	2.54%	**-48**
Strike	3.33%	2.54%	**-79**
Pickup (bp)			
Fwd to Aged	141	14	**155**
Vol	31	-	**31**
Total	172	14	**186**

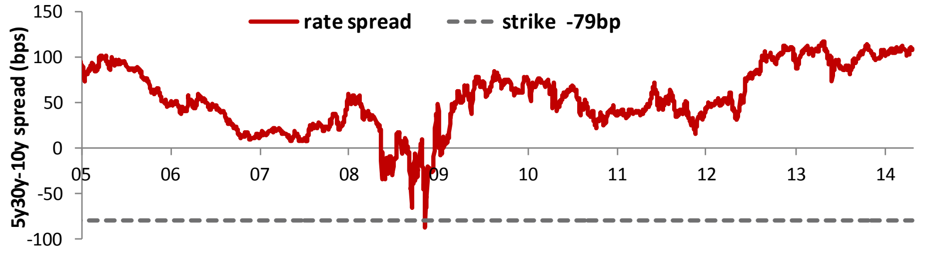
Source: Nomura Research

[1] See Fulcher, Paul. "A fixed UFR – a costly mistake?" Solvency II Wire, October 16, 2013 (see link).

As Figure 3 shows, the short 10y10y payer leg is struck at 3.33%, 31bp higher than the current forward at 3.02%, and a full 172bp above the 10y spot 1.61%. On the other side, the long 15y30y ATMF payer leg carries 14bp to the aged forward (5y30y) in 10 years. Combined, these two legs make for a total pickup of 186bp.

Fig. 4: Historical level of EUR 10y-5y30y spread vs the strike

The 10y-5y30y spread seldom goes between the strike level



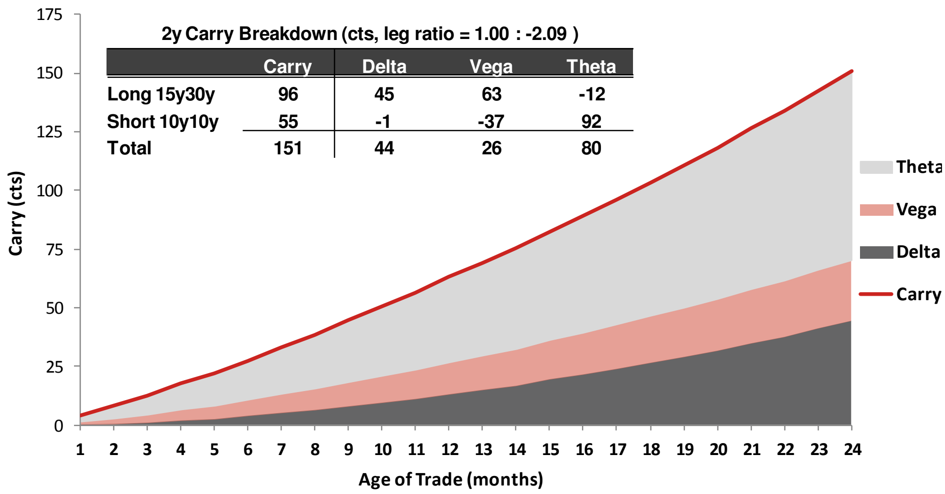
Source: Nomura Research

The significant pickups also reflect the ultra-low strike level, which provides a large buffer for adverse curve moves. As Figure 4 shows, in the past 10 years the 10y-5y30y spread went below -79bp only briefly during the crisis. If we consider a 10y horizon when the short leg 10y10y expires, this trade will lose money only if the 10y-5y30y spread fall belows -79bp.

Going into further detail, we break down the carry over a two-year horizon, into each relevant carry bucket, with carry stated in terms of the 15y30y notional (see Figure 5). The majority of carry comes from positive theta, owing to shorting a shorter-dated option (10y10y) while going long a longer-dated option with less time decay. The remainder is well balanced between delta and vega, while delta contributes a bit more.

Fig. 5: 10y10y-15y30y carry profile along a 2-year timeframe

The package carries well with 151cts for a 2-year horizon, and the carry attributes are well balanced across curve/vol and time decay.

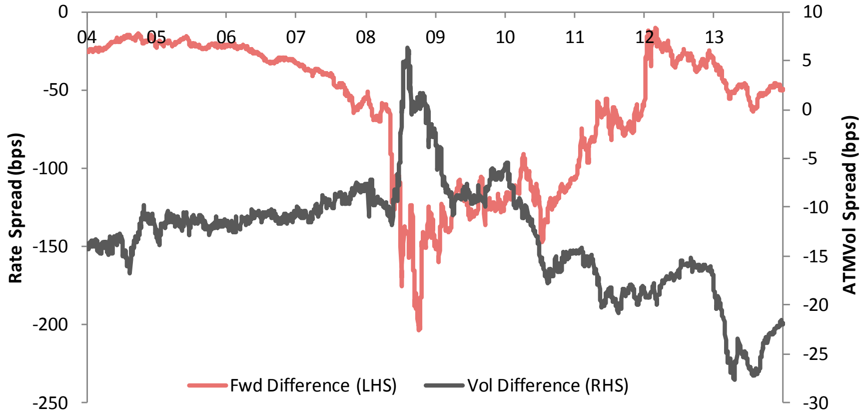


Source: Nomura Research

Though the holding horizon we considered in the above example is two years, the trade carries well for longer horizons as well (with a carry of 585cts when held to a 5y horizon). We would consider a much longer holding horizon (e.g. to 5y) too long owing to the fact that the return would be predominantly from time decay of the shorter-dated payer.

Fig. 6: 10y10y-15y30y forward spread and vol spread

On the rate front, the forwards spread has fallen below the pre-crisis level from its 2012 peak. Although the ATM vol spread (15y30y vol -10y10y vol) has been recently grinding higher, it is still nearing its historical lows.



Source: Nomura Research

Aside from carry, one of the other reasons we think this trade is particularly attractive is the relatively good entry point. As Figure 6 shows, the 10y10y-15y30y spread has fallen well below its pre-crisis level from its 2012 peak. Meanwhile, 15y30y vol is still near historical lows relative to 10y10y vol.

Finally, the risks to the trade are presented in Figure 7. The trade starts with DV01 neutral on the forwards between the two legs. It is long vega and slightly short gamma.

Fig. 7: The risks to the EUR 10y10y-15y30y bear steepener

Trade	Notional (€, mn)	Spot (%)	Forward (%)	Strike (%)	Delta (€/bp)	Vega (€/bp)	Gamma (€/bp^2)
15y30y Payer	100	2.30	2.54	2.54	39,012	243,458	181
10y10y Payer	-209	1.61	3.02	3.33	-44,800	-200,207	-265
Package					-5,788	43,251	-84

Source: Nomura Research

Trade recommendation:

EUR 15y30y vs. 10y10y vega bear steepener: Buy €100mn ATMF 15y30y payer, and sell €209mn ATMF+31bp 10y10y payer for an zero initial cost.

Appendix A-1

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