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Rate risk – theory vs. practice and the Yeti

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We dispense with anecdotal evidence and the theory of the nature of rate risk in HY and examine recent empirical evidence. The negative betas of OAS to Bund yields died with the onset of QE in Europe and we do not expect this to resurface anytime soon. Although recent OAS-Bund dynamics in longer-dated BBs reinforce our caution in that space, we consider positive spread-Bund betas to be like the Yeti: talked about, feared, but never seen.

Rate volatility, and ensuing concerns over retail demand, will remain with us in 2018; so with that, it makes sense to revisit rate risk in European HY. At a simple level, HY (and any other corporate bond) has two angles to rate risk: the direct impact from risk-free rates moving and the indirect impact from the beta (positive or negative) of credit spreads to risk-free rates. Expressed as an equation, we define the actual duration as:

$$Duration_{actual} = OAD + \beta_{spread} * OAD$$

or

$$Duration_{actual} = (1 + \beta_{spread}) * OAD$$

If the beta is negative, spreads generally tightening with rising risk-free yields, the actual interest rate duration is *lower* than the theoretical duration. Conversely, if the beta is positive, spreads widening with rising risk-free yields, the actual interest duration is *higher* than theoretical.

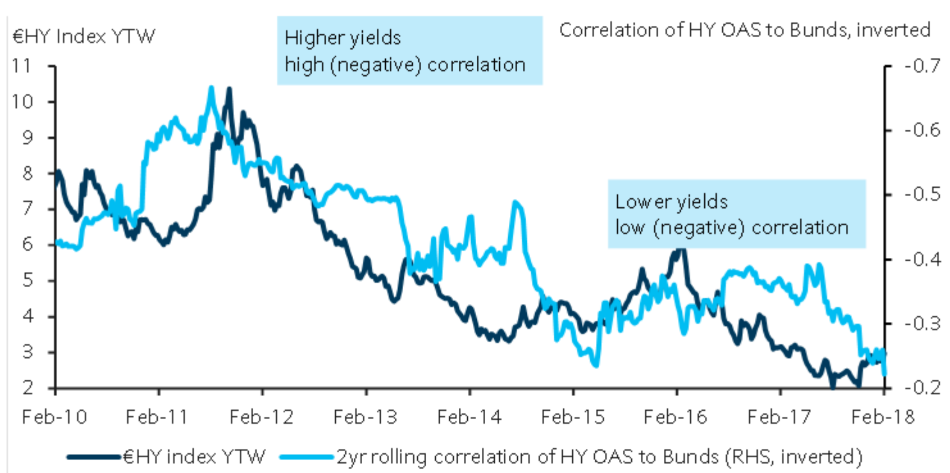
What has the correlation been between spreads and Bunds, what will it be – and what should the correlation be? There are many schools of thought and when thinking about the future relationship it is important to consider the different approaches.

The most commonly held assumption is that the beta is negative: when Bunds drop, spreads widen and vice versa, and there are mainly two reasons for thinking about it this way:

1. **Bunds as signalling.** Higher Bund yields (in the absence of surging inflation) signal an improving economy and, in turn, improving company fundamentals, lower default risk and therefore tighter spreads.

FIGURE 1

The negative correlation between HY OAS and Bund yield changes has dropped with lower yields



Source: Barclays Research.

2. **Price stickiness.** HY bonds tend to trade in price terms (in particular Bs), so when Bund yields rise, for effectively unchanged prices, spreads must tighten, inducing a negative correlation. This would arguably only prevail up until a point.

There are two principal approaches for considering a positive spread-Bund beta, at least in certain instances:

1. **Fund flows**. When Bund yields rise, this will cause a reversal of the hunt-for-yield behaviour in the last three years, HY funds will see outflows, bonds will be for sale, spreads will widen, enforcing a positive correlation.

2. **Late-cycle behaviour.** Just like we argued for rising Bund yields being a signalling mechanism for an improving economy, we could argue that, at some point at least, rising Bund yields could also signal a frothy economy, releveraging behaviour, deteriorating fundamentals and, as a consequence, widening spreads.

Hypotheses are all well and fine. But let us now dispense with thoughts about how the market *should* behave, to how it *actually* behaves and consider the evidence. For this, we consider rolling 2yr correlation of weekly changes of €HY ex-financial spreads and Bund yields. We consider correlations (and not betas) in the first instances, as correlations give both an impression of the size and the strength of the relationship of relative moves. The results, overlaid with the YTW of the €HY index (Figure 1), are revealing.

Overall, we find a negative correlation between spreads and Bund yields, consistent with previous studies, such as *Empirical Duration of Corporate Bonds and Credit Market Segmentation*, 25 January 2010, and *High yield duration, reassessed*, 27 January 2017 – ie the empirical duration is smaller than the 'sticker' duration.

The most important conclusion, however, is that although correlations may be negative, they have become much less negative in recent years – ie the rate sensitivity of HY bonds to Bund moves has risen, closer to the theoretical (full) duration. This pattern of less negative correlation follows fairly well overall yield levels and is in line with the conclusion from the US market (*Fuller Cushions in Low-Quality Short Duration*, 13 October 2017) showing that OAS-UST betas have been lower when spreads are lower.

This is a strong sign, to us, that the 'signalling' mechanism of changes in Bund yields has been much reduced in recent years, essentially with the introduction of QE.

To examine this further, we break down the last many years into five distinct periods and examine the spread betas of weekly changes of HY OAS and Bund yields for the index, maturity and rating buckets and subsets of rating and maturity buckets in Figure 2. Boxes highlighted in grey are instances where the R^2 of the regression is above 15%. The first thing to note is that the amount of grey boxes has been disappearing over time.

FIGURE 2

Slicing and dicing OAS-Bund betas into periods and sub indices: negative correlation prevalent before QE, rare post QE

				Maturity			Rating		BBs			Bs		Market environment		
Period	From	To	Index	0-2	2-5	5+	BB	B	0-2	2-5	5+	0-2	2-5	YTW	OAS	5yr Bund
After banking crisis	Jan-10	May-11	-1.3	-1.4	-1.4	-1.1	-1.1	-1.6	-1.3	-1.0	-1.0	-1.5	-1.7	6.91	486	1.95
Sovereign crisis	May-11	Jan-13	-1.2	-2.2	-1.5	-1.1	-1.1	-1.5	-2.8	-1.3	-1.0	-1.5	-1.9	7.56	638	0.97
Post sovereign Crisis	Jan-13	Apr-14	-0.6	-0.1	-0.8	-0.8	-0.5	-0.8	-0.1	-0.7	-0.8	0.1	-1.2	4.72	403	0.65
QE period	Apr-14	Jun-16	-1.1	-2.2	-1.2	-1.3	-1.0	-1.2	-1.5	-0.9	-1.2	-1.8	-1.5	4.30	396	0.04
CSPP period	Jun-16	Feb-18	-0.5	-1.3	-0.7	-0.7	-0.5	-0.2	-1.0	-0.7	-0.7	-1.6	-1.0	3.08	334	-0.38

Note: OAS-Bund betas (weekly changes on changes) in sub periods and sub indices, highlighting periods/instances where R^2 of regression above 15%. Representative Bund maturities chosen for individual sub indices. Market environment shows average €HY index YTW and OAS, and 5y Bund yields. Source: Barclays Research.

Discussing each period in turn:

- before the banking crisis, measured here as Jan-10 to May-11, the negative beta was both prevalent and meaningful across all but the shortest maturity buckets. With the sovereign crisis (May-11 to Jan-13), correlations went out the window and although the betas did remain negative, statistically they were not reliable at all;
- in the period after the sovereign crisis, but before QE began in Europe (Jan-14 to Apr-14), statistically meaningful negative betas began to reassert themselves again, mostly in the longer-duration bonds;
- in the QE period, before CSPP started (Apr-14 to Jun-16), correlations were again essentially non-existent – in any rating/maturity bucket; and
- in the more recent CSPP period (June 2016 to now), statically meaningful negative betas have remained scarce – ie spreads have had no meaningful correlation to Bunds – but they have reappeared for longer-dated BBs.

We draw two principal conclusions for the future from this which we discuss in turn:

1. negative betas of OAS to Bund yields died out with the onset of QE in Europe; and
2. positive spread-Bund betas are essentially like the Yeti.

Negative betas of OAS to Bund yields died out with the onset of QE in Europe

Since the onset of QE, there has been virtually no relationship between HY OAS and Bund yields. This has two implications: first, it illustrates that investors cannot hide from duration in HY – the old empirical 'facts' that empirical durations are lower than theoretical durations do not hold true – and secondly, investors who actively manage rate risk should hedge accordingly. There has been no benefit from negative spread-bund correlation for a while now and we do not expect negative correlation to resurface in the near or even medium term.

The current negative beta for longer-dated BBs is an indication, to us, of yield-targeting behaviour by investment grade funds who invest in HY. Most likely, these funds will be insurance companies who, faced with low all-in yields and guaranteed incomes offered to end-users, seek yield outside government bonds and, eventually into 'upper HY'. As and when BB bonds reach a specific yield target, these funds buy, and otherwise not, leading to a negative relationship between spreads and Bund yields.

While we could take a glass half-full approach and argue that BBs have a lower rate risk than it would appear because of this dynamic, as yields go higher and insurance companies can reach yield targets further down the curve and further up in rating, this is unlikely to last and it reinforces our caution on BBs.

Positive spread-Bund betas are essentially like the Yeti

We consider positive spread-Bund betas to be like the Yeti: people talk about it; people are afraid of it; but no-one has actually seen it in a meaningful, persistent way.

For only a single period, and for only a single subset, have we ever seen a positive beta (Bs, sub 2yr, post sovereign crisis), but as the R^2 was well below 15%, it was not even meaningful. Not even if we create another sub period for the Taper Tantrum in May 2013 are there any signs of positive correlations.

In the QE period, we did not see a measurable, sustained, positive correlation anywhere in the HY market, making us question why we should see a meaningful and sustained positive correlation once QE ends.

How could a positive correlation occur in the near term? The typical scenario would be: Bund yields go higher, total returns for HY retail funds turn negative on a two month horizon, say, and outflows occur. In turn, HY funds sell bonds, causing prices to drop and spreads to widen.

The reality is that although end-investors may have been bullish in the past (thereby causing inflows), anecdotal evidence suggests that the majority of HY PMs are rather conservatively positioned, maintaining large cash balances. This breaks the loop outlined above, as outflows do not necessarily cause selling as cash balances and coupon income and calls/maturing bonds can match this.

The only way, realistically, where we would see this loop in full swing would be if rates move violently higher potentially combined with an acceleration of negative idiosyncratic risk. Such a scenario remains a tail risk (to be monitored closely to be fair).

Barclays Premier Event

Global HY markets – risks and relative value

This was previously published on 5 February 2018.

Please note that space for all events is limited. Requesting an invitation does not guarantee you a place; we will be in touch once space is allocated.

Event details:

Wednesday, 28 February 2018
18:30 GMT
Mayfair, London

Click *here* to request an invitation*
*Request deadline: 16 February

Event description:

Please join **Soren Willemann**, Head of European Credit Strategy, and **Brad Rogoff**, Head of Global Credit Strategy, as they host senior members of Barclays trading, sales and syndicate for a roundtable discussion of the European and US HY markets. We will discuss supply and demand dynamics, idiosyncratic risk, region-specific developments such as the impact of US tax reform and ECB QE potentially ending in September, and relative value across ratings and regions.

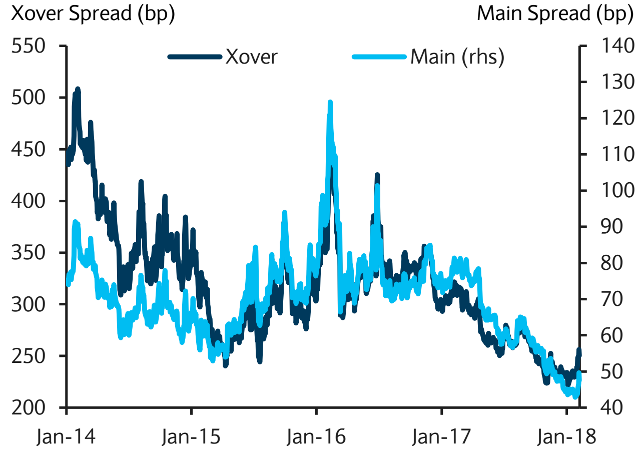
The format will feature interactive Q&A with anonymous electronic polling throughout the evening. We will be joined by **Mike Masters**, European Leveraged Syndicate, and **James Deighton**, Head of European Flow Credit Trading, and senior sales representatives. This will be a unique opportunity to interface with multiple areas of the Barclays trading, syndicate and strategy franchise.

*Please note that the Barclays Premier Event initiative and allocation process has changed effective 3 January 2018 for investors considered in scope under MiFID II. In order to ensure continued eligibility for Premier Events, please reach out to Barney Walters (*barney.walters@barclays.com*) or Will Moore (*william.moore@barclays.com*) for further information. .*

HY credit at a glance

FIGURE 3

iTraxx Crossover vs. iTraxx Main



Please click *here* to see on Barclays Live. Source: Markit, Barclays Research

FIGURE 4

Pan-European HY vs. US HY, both excluding Financials

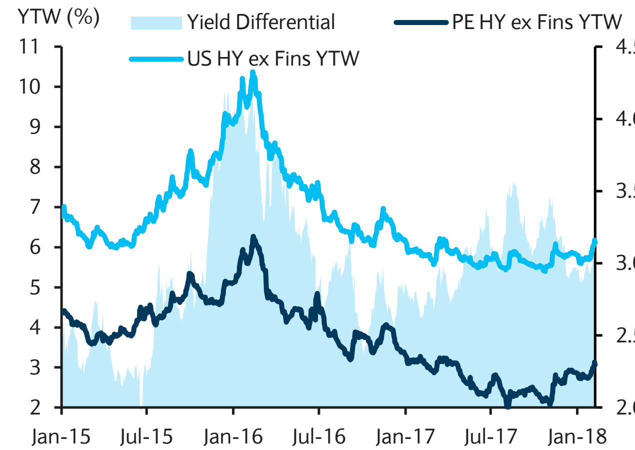


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FIGURE 5

Pan-European HY excluding Financials spread by rating

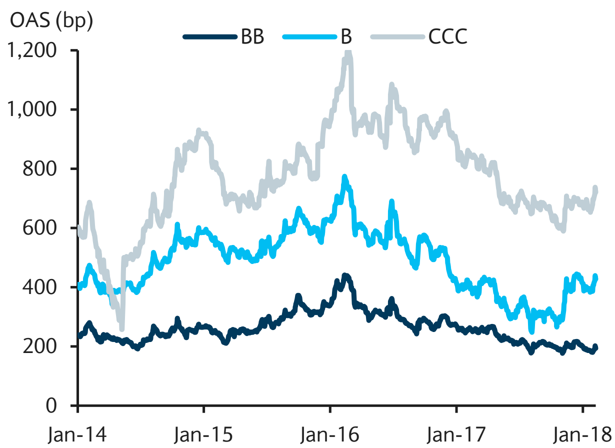

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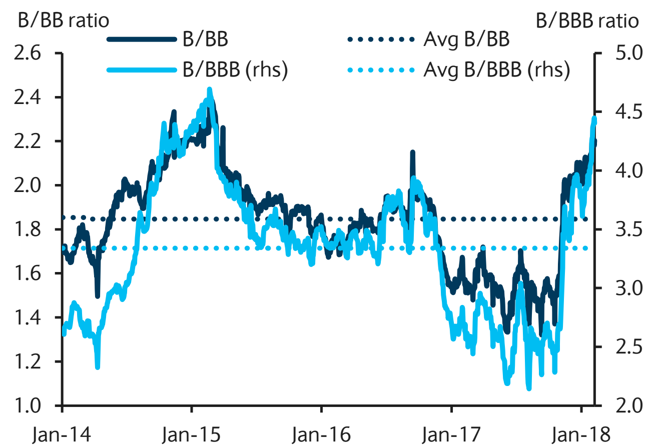
FIGURE 6

Pan-European B vs BB and BBB ratios



Please click *here* to see on Barclays Live. Source: Barclays Research
Note: HY spreads exclude Financials

FIGURE 7

European HY issuance

Issuers:	All firms, in any European currency		European firms
Market:	Pan-European High Yield		US High Yield
Crncy:	€	£, CHF, other	$
WTD	0.6	0.0	0.2
MTD	0.6	0.0	0.2
YTD	3.8	1.3	2.8
YoY	-23%	-54%	-
YTD '17	4.9	2.8	0.0

Supply in € bn.

Source: S&P LCD, Bloomberg, Barclays Research

FIGURE 8

European HY issuance monthly trends

Issuers:	All firms, in any European currency				European firms	
Market:	Pan-European High Yield				US High Yield	
Crncy:	€		£, CHF, other		$	
Year:	2017	2018	2017	2018	2017	2018
Jan	2.9	3.2	2.8	1.3		2.6
Feb	6.2	0.6	0.7		1.3	0.2
Mar	11.2		1.5		0.8	
Apr	6.1		1.2		0.6	
May	2.2		0.6		0.5	
Jun	7.2		2.1		0.4	
Jul	6.8		0.7		0.5	
Aug	-	-	-	-	-	-
Sep	9.1		1.8			
Oct	13.0		1.1		2.6	
Nov	7.5		0.5		1.1	
Dec	4.3		0.8		0.8	
Total	**76.4**	**3.8**	**13.9**	**1.3**	**8.6**	**2.8**

Supply in € bn. Source: S&P LCD, Bloomberg, Barclays Research

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