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Corporate Bond Life Below Zero and Valuable Zero-Coupon Perpetuities

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The negative tail of corporate bond yield distributions and how large it can grow

While many investors are still reluctant to buy corporate bonds with negative yields, the reality should eventually sink in that it is simply preferable to bleed less. With yields falling deeper below zero, duration extension has been one way to reach for non-negative yield, leading to flattening of corporate yield (and spread) curves. Also, some IG accounts have been driven into front-end BB risk. Still, one can run but one cannot hide. A third of EUR IG and a third of 1-2y EUR BBs now yield less than zero.

This report addresses the following points:

- Is aversion to negative yields in the corporate bond market putting a floor on spreads?
- How much negative-yielding EUR IG has there been over time and how does it compare to lower-yielding CHF IG? And with all the talk about Japanification, what about JPY IG?
- Finally, why are zero-coupon perpetuities not worthless?

How deep below zero can IG bond yields go?

The German government seems to be getting closer to having the power to issue a zero-coupon perpetuity in this market. (More on that at the end of the report.) Last week, the 100y bond of the Austrian government traded with the ask yield of 1.05%. Given the Austria-Germany yield differential at the 30y point is about 35bp, Germany would likely be able to issue a 100y bond with the *nominal* yield around 0.7%. As we wrote last week, if one believes that inflation over the next 100 years is going to average close to the ECB target of 2%, Germany could in *real* terms *be paid* some 1.3% p.a. for borrowing hundred-year money.

In short, markets are pricing a central bank policy failure. The Bund yield nose dived hand in hand with 5y5y inflation breakevens (Fig. 10 in Appendix) and the German government's nominal yield curve is submerged below zero for more than the first 15 years. Yet, when compared to Swiss govies, the curve could easily move down some 20-30bp with potential ECB cuts (Fig. 11). As we have been stressing recently, the IG market is also increasingly pricing in a CSPP comeback (Fig. 12-13).

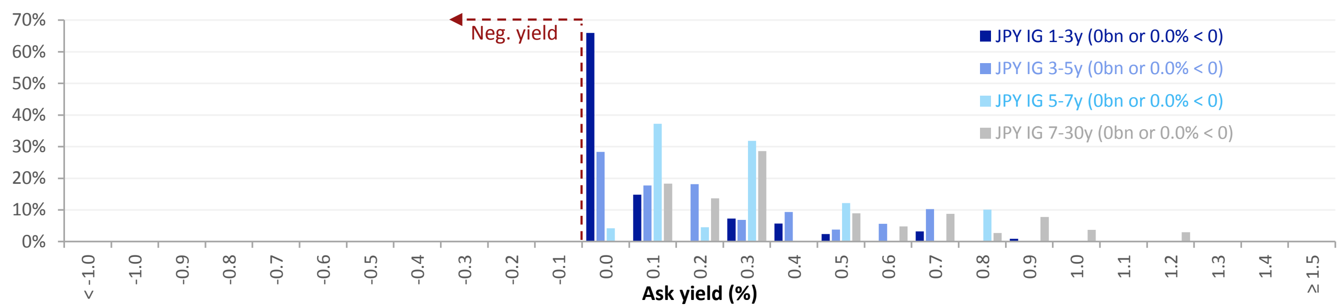
With spreads off their tights but coming down recently, falling rates have dragged EUR IG corporate bond yields towards all-time lows, some well below zero. *Duration extension has been one way to reach for non-negative yield, leading to flattening of corporate yield (and spread) curves. Also, some IG accounts have been driven into front-end BB risk.* Still, one can run but one cannot hide. As we show later, **a third of EUR IG and a third of 1-2y EUR BBs now yield less than zero**. While many investors are still reluctant to buy corporate bonds with negative yields, the reality should eventually sink in that **it is simply preferable to bleed less**.

We have written extensively about "Japanification" of Europe and its implications for credit. Therefore, it is instructive to look at the distribution of yields in the JPY IG corporate bond market. As shown in Figure 1, **Japan's local-currency corporate bonds do not trade with negative yields**, even if most are clustered closely above zero. The caveat is that within Japan's bank-based economy, this is a relatively small market (¥11tn) with little yield dispersion (80% of the market is single-A rated). More importantly, **JGB yields are way above Bund yields** (Fig. 11 in Appendix).

The yield dispersions at the front and belly of the EUR IG curve are greater, with the left tails reaching through zero meaningfully, as Figure 2 shows. In a sense, the corporate bond market is more "Japanified" in Europe than in Japan. Clearly, the **psychological threshold of nominal zero is relatively "soft"** and investors have come to terms with the fact that EUR IG at the front end is simply there to lessen the pain rather than grow the investment. In other words, while we know that some IG investors eschew negative-yielding debt and take on more duration or credit risk instead, others do not. This may slow down but not stop the squeeze in spreads. In fact, we suspect that once investors realize that the rate environment is unlikely to change anytime soon, more will start **focusing on relatives rather than absolutes**.

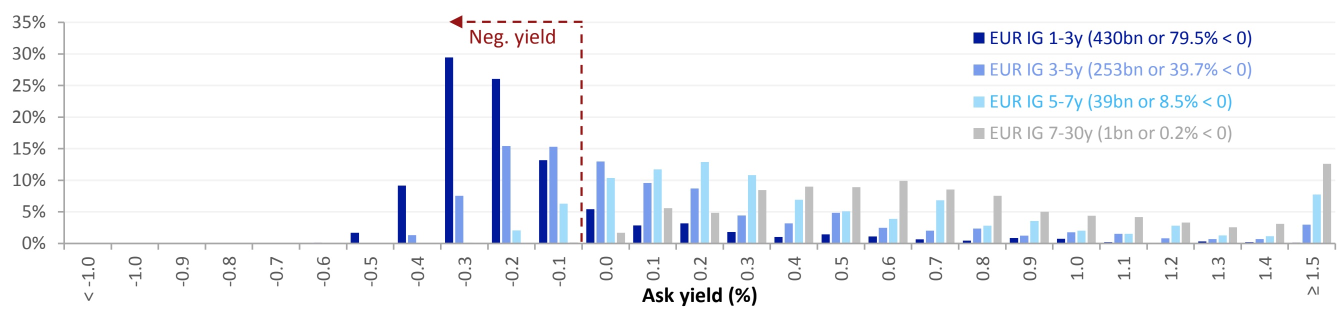
Could EUR IG yields slide further? Absolutely, in our view. If Eurozone's outlook forces the ECB to go down the SNB rate-cutting route, we could see the Bund below -0.5% and spreads supported by the expectation of the CSPP, which would drag corporate bond yields deeper into the negative territory, possibly by more than a quarter percentage point. The CHF IG market provides a good illustration of such a scenario, as Figure 3 shows. In fact, *positive-yielding bonds in that market are an exception* and one needs to extend duration meaningfully to have a good chance of finding securities that preserve capital.

Figure 1: Distribution of **JPY IG** corporate bond yields and the share of the JPY **11.1tn** market with yields below zero



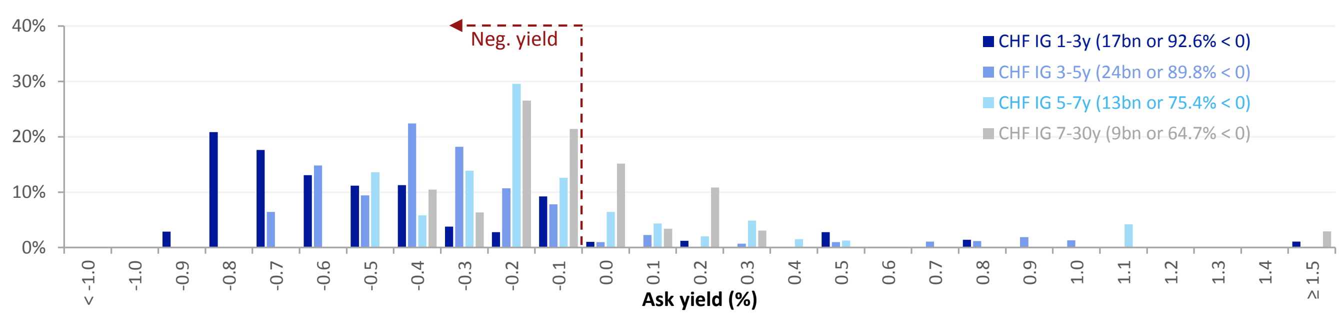
Source : Deutsche Bank, Bloomberg Finance LP

Figure 2: Distribution of **EUR IG** corporate bond yields and the share of the EUR **2.2tn** market with yields below zero



Source : Deutsche Bank, Bloomberg Finance LP

Figure 3: Distribution of **CHF IG** corporate bond yields and the share of the CHF **75bn** market with yields below zero



Source : Deutsche Bank, Bloomberg Finance LP

We provide more granular estimates of negative-yielding EUR and CHF corporate bonds by rating and maturity buckets in Figures 4-5. What stands out in the EUR table is that 2/3 of AAs, over 1/3 of single As, over 1/5 of BBBs and nearly a tenth of BBs yield less than zero at the moment. Our calculations indicate that the higher-rated front end is essentially all under water and 33% of the €2.2tn market, or some €700bn of EUR IG corporate bonds, have a negative yield.

However, that still pales in comparison with the 75bn CHF IG market, of which 83% yields less than zero. The red colour on the heatmap only underscores the contrast, indicating that there is more room for EUR IG yields to fall if need be.

Figure 4: Share of **EUR** corporate bonds with **yield < 0%**

	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-20	20-30	1-30
AAA	--	100%	--	100%	--	--	0%	--	0%	0%	--	38%
AA	100%	100%	98%	77%	67%	44%	0%	0%	0%	0%	--	67%
A	92%	85%	70%	35%	13%	2%	1%	2%	0%	0%	--	37%
BBB	77%	56%	25%	14%	4%	0%	0%	0%	0%	0%	0%	22%
BB	32%	3%	2%	0%	0%	0%	0%	0%	0%	0%	--	9%
B	15%	0%	0%	0%	0%	0%	0%	--	--	--	--	6%
IG	86%	74%	51%	28%	11%	5%	0%	1%	0%	0%	0%	33%
											EUR IG 1-30y market value	2.2tn

Source : Deutsche Bank, Bloomberg Finance LP

Figure 5: Share of **CHF** corporate bonds with **yield < 0%**

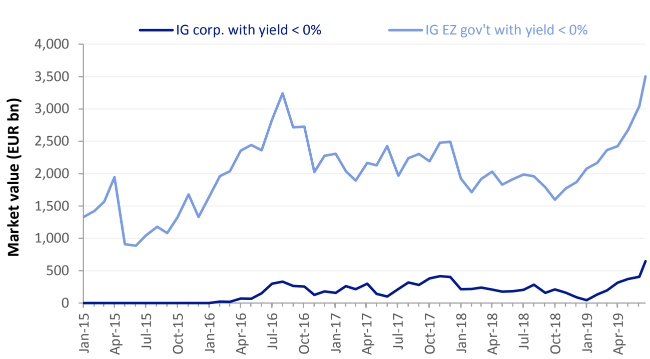
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-20	20-30	1-30
AAA	--	100%	--	--	--	--	--	100%	--	--	--	100%
AA	100%	100%	100%	100%	100%	100%	100%	86%	100%	40%	--	94%
A	95%	86%	87%	100%	69%	63%	65%	42%	57%	54%	--	81%
BBB	100%	83%	75%	32%	74%	32%	0%	0%	--	--	--	68%
IG	98%	89%	86%	93%	80%	67%	71%	63%	77%	43%	--	83%
											CHF IG 1-30y market value	75bn

Source : Deutsche Bank, Bloomberg Finance LP

There are now $13.4tn of negatively-yielding IG bonds globally, which is 24.5% of the universe that consists of $54.6tn of government, corporate and securitised IG bonds across currencies. The evolution of these oft-cited global statistics can be seen in Figure 14 in the Appendix. We have made more granular calculations for the subsets of EUR IG corporate bonds and Eurozone sovereign bonds.

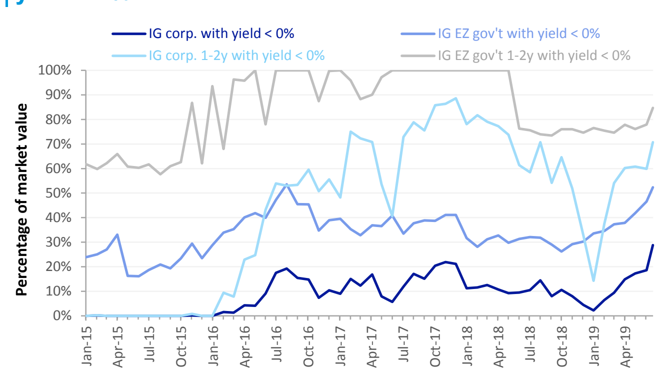
As can be seen in Figure 6, the value of negatively-yielding bonds is at an all-time high in the corporate and sovereign space alike. There are some €3.5tn of Eurozone sovereign bonds eligible for iBoxx indices that yield less than zero and, as mentioned above, some €700bn of negatively-yielding IG corporate bonds. Likewise, even though the markets have grown in size over time, the percentage shares with negative yields are at record levels too, as shown in Figure 7. These percentages refer to the share of the index members across maturities. Further, the same chart also shows the percentages for restricted 1-2y maturity buckets.

Figure 6: **Market value** of IG bond index members (subset of full bond universe) with a **negative yield** (ask side)...



Source : Deutsche Bank, Markit (calculations based only on bonds included in iBoxx indices)

Figure 7: ...and **proportion** of IG bond index members with **yield < 0%**

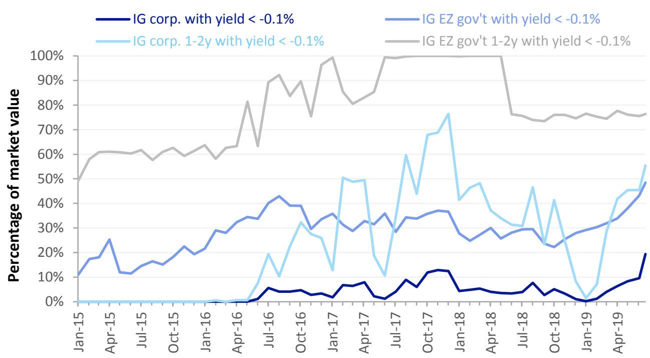


Source : Deutsche Bank, Markit (calculations based only on bonds included in iBoxx indices)

This reminds us that at the front end, the fraction with yield below zero is actually not at a record level in the EUR space. Firstly, while the (10y) Bund yield has hit all-time lows this year, this was not the case for the front end of the German government yield curve which was more negative in 2017. Rate curves are a lot flatter this time around. Secondly, corporate bond spreads were tighter in the second half of 2017 than they are today. These two factors combined mean that front-end corporate bond yields were actually lower in late 2017. Similarly, Figures 8 & 9 show proportions of the same bond universes with yields below -0.1% and -0.2%, respectively. Again, we are at a record overall but the front end was deeper below zero in 2017.

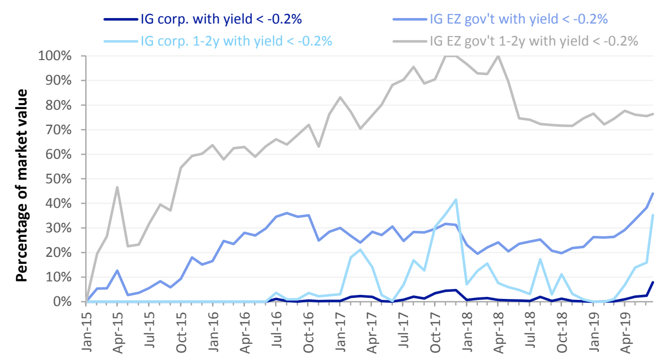
This is another sign that there is **no magical psychological threshold** that keeps current IG yields from falling further if need be, i.e. we **do not think that a potential further fall in rates should necessarily widen spreads**.

Figure 8: ...and **proportion** of IG bond index members with **yield < -0.1%**



Source : Deutsche Bank, Markit (calculations based only on bonds included in iBoxx indices)

Figure 9: ...and **proportion** of IG bond index members with **yield < -0.2%**



Source : Deutsche Bank, Markit (calculations based only on bonds included in iBoxx indices)

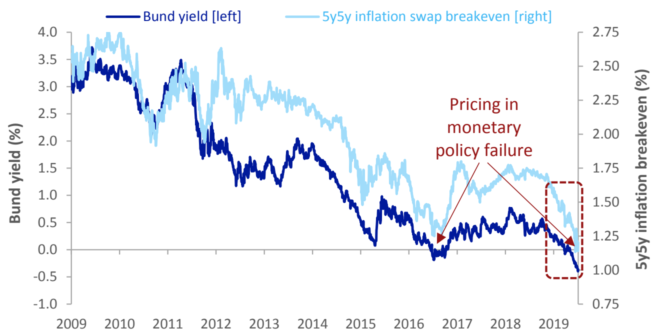
Over my career, I have heard a lot of jokes by colleagues and clients involving zero-coupon perpetuities. The pun always implied that such seemingly ridiculous securities would be worthless. While it is not exactly true, I never had the heart to spoil the moment by nitpicking. In fact, with my opening sentence in this report, I am guilty of the same. However, if we were to **analyse the valuation of zero-coupon perpetuities**, we would find that such securities are generally *not* worthless.

Why would a zero-coupon perpetuity not be worth exactly zero? Because its nominal value adds to the stock of debt of the issuer and so it is an **option on recovery value** (all pari passu claims get accelerated in default).[1] Paradoxically, the value would rise with default risk, all else equal. So within the Eurozone, an Italian or Greek government zero-coupon perp would be worth more than a German one! On the other hand, Japan's might be less valuable than Germany's despite the mountain of their debt. Japan fully controls the printing press and is thus much more likely to resort to the "soft default" option of inflating debt away rather than ever incur the disruption costs of a "hard" restructuring. Of course, this is an exploration of an abstract concept, we are unlikely to see anyone issuing such structures. Just imagine what the roadshow brochure would have to say!

1 Banks have the option to turn off discretionary coupons on AT1s and never call them. Thus, if they never needed bond investors again, they could easily turn outstanding AT1s into zero-coupon perps. If their features include complete write-down upon trigger/non-viability, the expected recovery would be zero and so they would indeed be worthless in this special case. Our commentary is *general*.

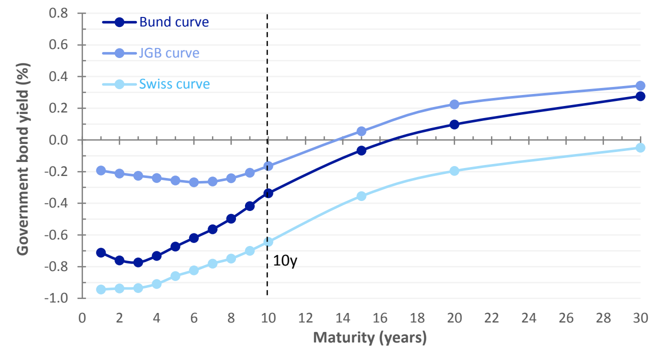
Appendix

Figure 10: **Bund yield** and **5y5y inflation** breakevens



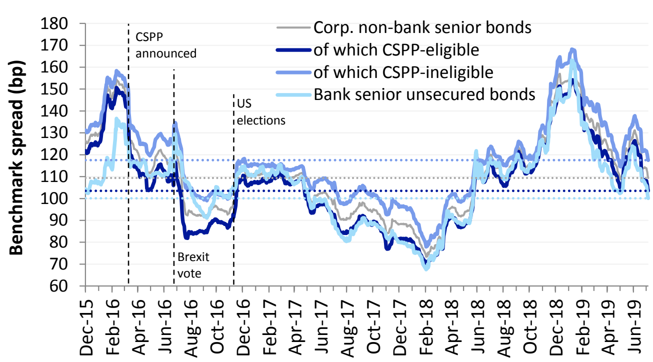
Source : Deutsche Bank, Bloomberg Finance LP

Figure 11: German, Japanese and Swiss **gov't** bond **yields**



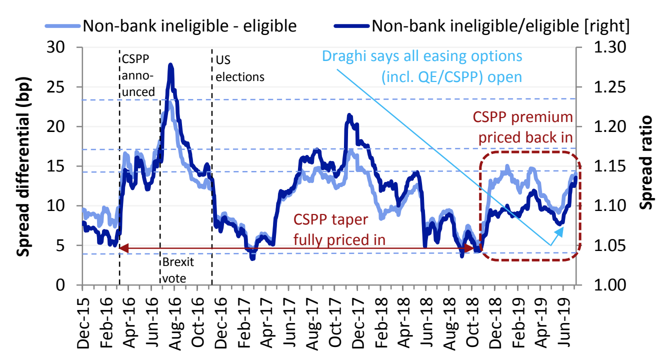
Source : Deutsche Bank, Bloomberg Finance LP

Figure 12: **EUR IG** bonds - **CSPP eligible vs. ineligible**...



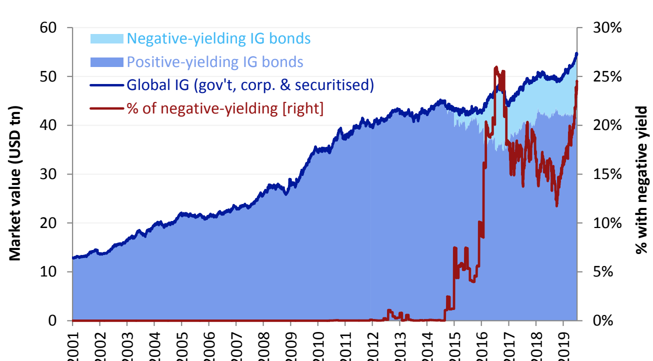
Source : Deutsche Bank, Markit

Figure 13: ...and their **spread differentials and ratios**



Source : Deutsche Bank, Markit

Figure 14: **$13.4tn of global IG** bonds have a **negative yield** (**24.5%** of the $54.6tn total)



Source : Deutsche Bank, Bloomberg Finance LP
Data series used: Bloomberg Barclays Global Aggregate Bond Index

Appendix 1

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