How low can we go?

07 May 2019

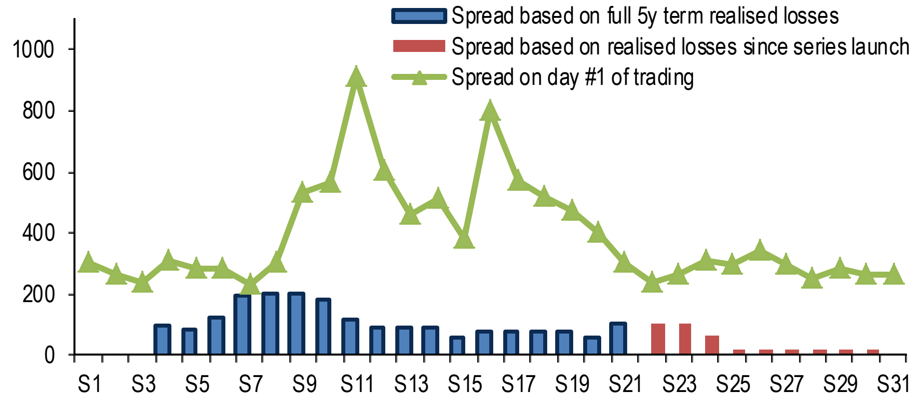
The "lower bound" for spreads

We see many tailwinds supporting credit markets still, as they did back in 2016-17. A low inflation, low default and improving macro backdrop is leading risk assets higher and spreads lower. Inflows into credit funds are accelerating as bond investors are embracing the last pocket of high-grade risk with "quality" positive yield.

How tight can spreads go? Our work shows that the theoretical lower bound for spreads in Europe is around 10bp for IG and ~150-200bp for HY credit, simply by looking default risk over the following 5y and adjusting for recovery (currently 109bp and 376bp, respectively). Put that on top of an improving macro-economic backdrop and spreads can still move tighter from current levels, we think.

Chart 1: Just sell CDS protection and go away

Comparing the starting spread of 5y XO CDS post the roll day for a new series vs. realized losses (adjusting for actual recovery) over the life of the respective 5y CDS contract



Source: BofA Merrill Lynch Global Research, Bloomberg, Creditex

"Implied" vs. "Realised" default risk

The need to hedge comes with a hefty price. Typically investors "overpay" to hedge against default risks as the spread paid by the buyer of protection is higher than the potential probability weighted loss upon default. Ultimately a credit long exposure is a binary one. Either an investor sees his/her investment pulling to par (or zero in case of a long risk via CDS) or suffering a credit event/default and puling to recovery (thus losing par minus recovery). A long-term investor who does not have to sell when market volatility hits is effectively capturing the difference between "implied" defaults (as it is priced in credit spreads) and "realised" defaults.

Macro data have troughed – Credit positive

We update our European Credit Macro Indicator for May and we find that it has improved notably after a marginal drop in April. The trend is now consistent with a stabilising macroeconomic trend, where data that have been deteriorating for months are now bouncing higher. Note that the May print for our indicator is the highest we have seen since October last year. The May print cements an improving trend, albeit we acknowledge China trade tensions remain a risk to the speed of the economic recovery.

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How low can we go?

It feels that the goldilocks backdrop that markets enjoyed in 2016-17 is back. A low inflation, low default and improving macro backdrop is leading risk assets higher and spreads lower. Inflows into credit funds are accelerating as bond investors are embracing the last pocket of high-grade risk with "quality" positive yield (*more in our latest Follow the Flow*).

The natural question for us in credit is how tight can spreads head to? Our work shows that the theoretical low bound for spreads in Europe is around 10bp for high-grade and 150bp for high-yield credit simply by looking default risk over the following 5y and recovery rates of 40%.

Put that on top of an improving macro-economic backdrop and spreads can still move tighter from current levels, we think. Our Credit Marco Indicator has bounced higher over the past month and the May print cements a trend of improving macroeconomic environment.

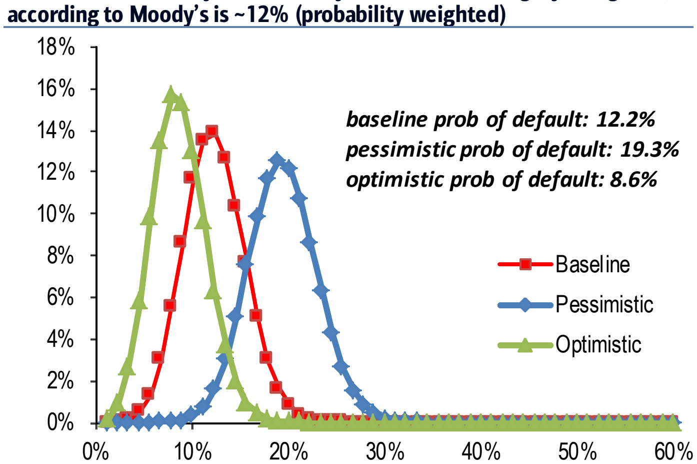
Even though we think spreads can still move tighter from here we do not think that spreads can go to these "theoretical" levels as liquidity risk along with potential risks of low-growth and rising idiosyncratic risks still pose significant headwind for the market. Trade wars are not over either, but this does not change the macro and - more importantly for credit – the default outlook.

Credit is a binary product

Looking to price "insurance" premia and identify the very essence of credit as an asset class we need to delve into the very basics of the nature of the CDS and the bond market. A credit investor (either the owner/holder of a bond or equally the seller of CDS protection) is exposed to the default risk of the entity that has issued the bond or the CDS contract is referenced to. An investor that has a long risk position (long bond or short CDS protection) is receiving credit spread based on market levels.

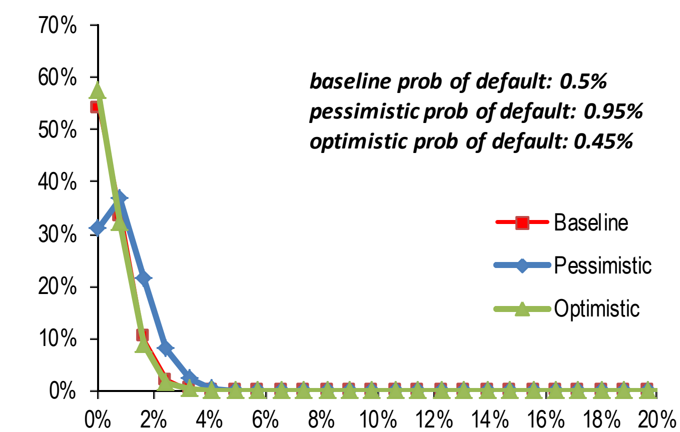
However, the key point here is to lay out the balance between risk (receiving "only" recovery – and not full par - upon a credit event occurring) and reward (receiving the premium/spread to sell protection/own the bond) in the event of a default (or more generally a credit event) occurring for the referenced entity.

Chart 2: The currently forecasted 5y default rate for high-yield (global) according to Moody's is ~12% (probability weighted)



Source: Moody's , baseline scenario

Chart 3: The currently forecasted 5y default rate for high-grade (global) according to Moody's is ~0.5% (probability weighted)



Source: Moody's , baseline scenario

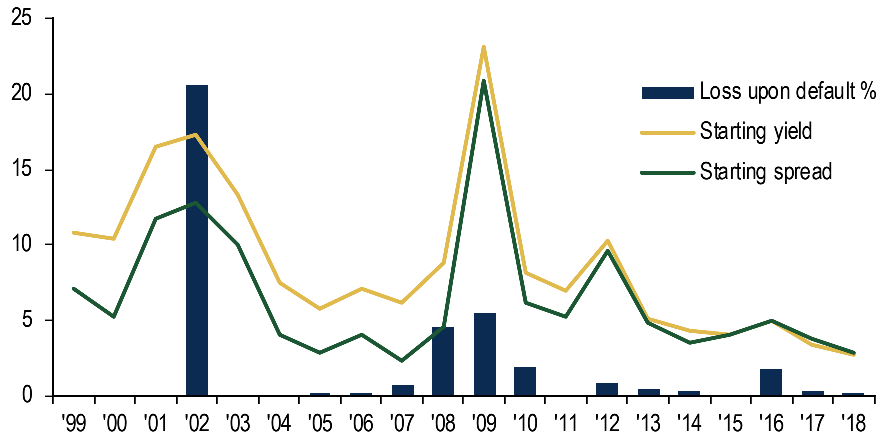
Charts 2 and 3, depict the default probability distributions (for the following five years as per Moody's calculations; but do not reflect potential recovery level), for high-yield and high-grade credit portfolios, respectively. Assuming different levels of recoveries this would imply spread levels of 6bp to 8bp (for 40% and 20% recovery assumption respectively) for the IG market and 145bp to 195bp for the HY market. We assume duration of five years[1].

Default impact in bond market portfolios

Based on the above, one could assess what is the default probability distribution for credit portfolios in the sub-investment grade space vs. what is implied by the market spread. Effectively we can examine what was the gap between the implied default rate based on the market spread/yield and the realised default rate. In chart 4 below we present the gap between realised and implied defaults since late 90s based on the ICE HE00 index.

Chart 4: Risk vs. reward being long HY bonds

Loss upon default vs. starting year yield and OAS spreads for HE00 index



Source: BofA Merrill Lynch Global Research, ICE Data Indices, LLC

Loss upon default is the product of default notion times the 1 minus recovery

Our key findings can be summarised in the following:

- Based on realised default rates in the HE00 index historically and the recovery rates one can see that only during the 2002 period a high-yield investor (benchmarked) would have suffered "hard" (we do <u>not</u> focus on mark-to-market) losses on the back of defaults during that year.
- During the global financial crisis (GFC) a total return (based on yields) and even an excess return (based on spreads) investor would have more than broke-even vs. realised default losses.
- Every year thereafter a high-yield portfolio would have been receiving higher spread/yield than the losses realised by defaults.

Sell CDS and go away?

The CDS (credit default swap) market has been developed and used as a tool to hedge default risks. An investor that buys protection via a CDS contract (either on a single-name format or index format) is (i) looking to protect against adverse market moves (hedge Mark-to-Market (MtM) fluctuations) but (ii) most importantly to hedge against defaults (or more generally a credit event).

[1] Note this is not a rating distribution matched forecast based on the constituents of the credit bond market or the CDS market. It is just a ballpark calculation based on IG/HY default rate expectations and assuming five years of duration.

Credit default swaps (CDS) are over-the-counter (OTC) instruments designed to transfer credit risk between two parties by way of bilateral agreements. One party (the protection Buyer) agrees to pay another party (the protection Seller) periodic fixed payments, in exchange for receiving a payment should a third party (the Reference Entity) or its obligations suffer one or more pre-agreed Credit Events.

Investment in bonds can subject investors to either undesired interest rate risk or additional expense in hedging out this risk. These cash market limitations are more accentuated when investors seek to express a bearish view. In this instance, investors' ability to short cash instruments is constrained by their ability to borrow the cash instruments and by the rollover risk inherent in short-term repos.

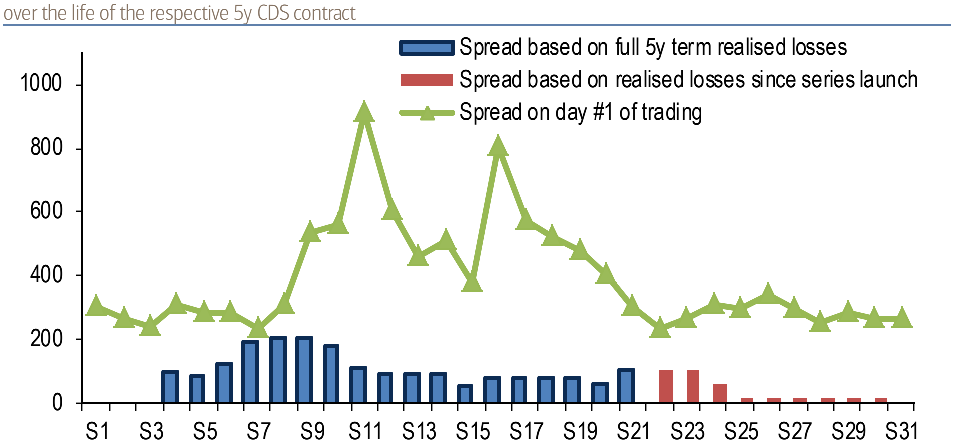
By contrast, as a CDS contract is an agreement between two parties - on a third entity - provides more flexibility for expressing investment views on credit risk.

Therefore there is value, in our opinion, examining if a seller of protection has historically overpaid or underpaid to sell protection for the level of defaults realised over the following five years' time frame. We look over the historical defaults across the past 31 series/portfolios of the Crossover index in Europe.

We find that there has been no series where the spread at inception (first day of trading post Roll) has not been enough to compensate for the credit events and the subsequent loss (adjusting also for auction recovery) realised by the portfolios. In simple terms, a seller of Crossover 5y CDS protection of a new series would have been more than compensated by the spread captured vs. the risk and losses suffered by the occurrence of credit events across the respective portfolios.

Chart 5: Just sell CDS protection and go away

Comparing the starting spread of 5y XO CDS post the roll day for a new series vs. realized losses (adjusting for recovery) over the life of the respective 5y CDS contract



Source: BofA Merrill Lynch Global Research,

Needless to say that selling protection on iTraxx Main would also have been a successful strategy over time. MtM risk aside selling protection on iTraxx Main would have only given away a marginal part of the spread captured at roll day on the back of only one credit event (during a 5y cycle) in the history of the European IG CDS index (more in the Appendix).

This default cycle should be even shallower

We think that this default cycle will be a benign one as European rates remain at record low levels and the macro cycle has now troughed. Low default rates should be another reason why credit spreads can head lower.

The default cycle is linked to two key factors, we think. Firstly the prevailing rates backdrop and secondly the macroeconomic cycle.

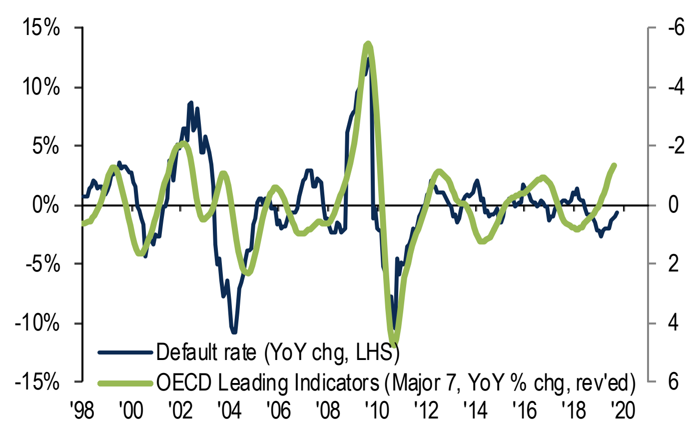
- The **rates cycle** is directly linked to central banks' actions and monetary policies affecting the depo rate. The higher the prevailing rates environment the higher the funding cost for issuers and the higher the coupon they need to pay to bring new bonds in the market.
- The **macroeconomic cycle** is linked to the health of the economy and the potential to generate higher earnings, thus reducing the risk of default. When the cycle deteriorates credit spreads tend to move wider and thus defaults head higher on the back of increasing funding costs for issuers.

Where do we stand?

On the rates front, central banks remain on the dovish side. Not only the ECB is struggling to hike rates, but over the last few weeks, the ECB, BoJ and SNB have all hinted that cutting rates remains an option if more stimulus is needed down the line. How this could affect default rates for European credit? We think that default cycles will be shallower than before and this will be on the back of a dovish ECB and record low level of rates in Europe.

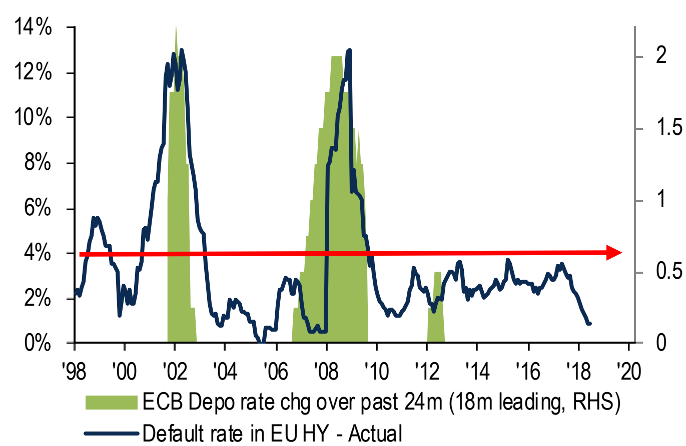
For default rates to materially deteriorate and move above the recent highs of ~3.5% would require a faster-than-anticipated hiking cycle by the ECB. In periods when the ECB has hiked materially (over a period of 24 months), defaults have picked up significantly to levels above 4%. According to our analysis presented in Chart 7, we find that the ECB would need to hike ~65bp (or even more) over a course of 24 months to start pushing default rates higher than 4%. We would need a significant hawkish shift from the ECB that would incorporate a relatively fast hiking cycle to experience deterioration of the default cycle, in our opinion.

Chart 6: A shallow cycle upon us



Source: BofA Merrill Lynch Global Research, Moody's, Bloomberg; Default rate (trailing 12-Month Issuer-Weighted) lags by 6 months using monthly data.. OEG7KLAC Index

Chart 7: In a rising rates environment, default trends have deteriorated materially when the ECB has hiked more than 70bp over a 24m period



Source: BofA Merrill Lynch Global Research, Moody's, Bloomberg; the ECB depo rate backdrop is defined as the change in depo rate over the past 24 months

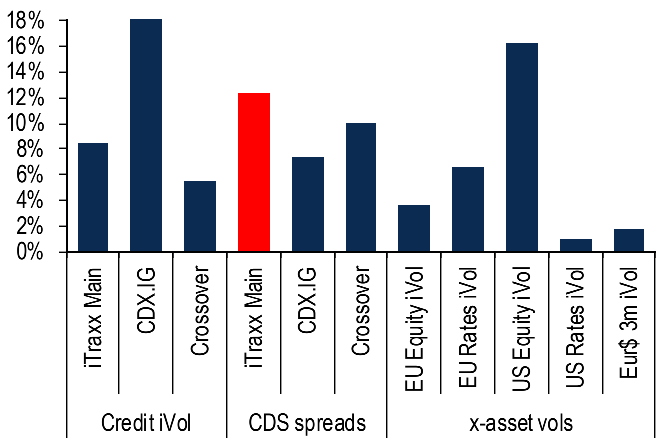
This should also be accompanied by a global economy slowdown that would drive spreads wider. We say so as default rates in Europe follow closely the trends seen in the macro cycle. Chart 6 highlights that the OECD leading indicators provide strong insight on default rate changes in the following six months. **As macro data are now bottoming we think that this will keep credit spreads from widening materially.**

Credit spreads are wide vs. other risk gauges

So far we have approached the topic of realised vs. implied default rates (as depicted in credit spreads) from a fundamental point of view. We think that there is value looking also other asset classes that reflect the same principles of implied risk in their respective market. We have highlighted in the past that credit spreads behave like a vol product and thus there is value to see where credit spreads are vs. x-asset vols on a relative value basis.

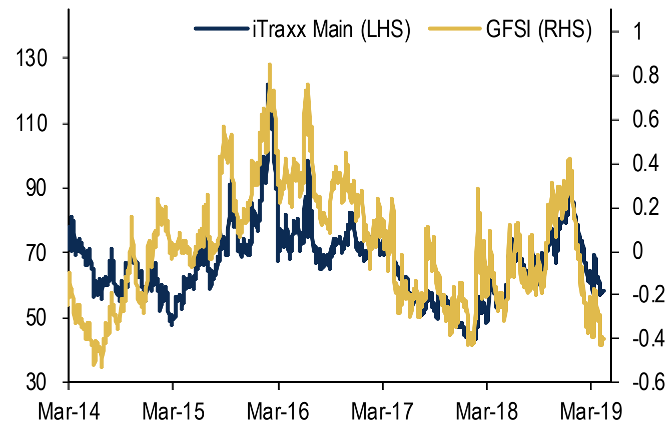
As charts 8 and 9 show, **European CDS indices – and iTraxx Main in particular - seem to be trading at wider levels than what we see in credit implied vol but also in equity, rates and FX vol space.** CDS in Europe also look to be on the wide side vs. our GFSI risk gauge. This should be another reason why credit spreads could edge another leg tighter from here especially when these are compared to other risk gauges that are currently at much more depressed levels vs. history.

Chart 8: European CDS indices look wide vs. their implied and other cross asset vols



Source: BofA Merrill Lynch Global Research, Bloomberg, percentiles since Nov-2008

Chart 9: iTraxx Main screens wide vs. GFSI



Source: BofA Merrill Lynch Global Research, matching peak and troughs since 2016

Macro data have troughed – Credit positive

2018 was characterised by weak macro data driving spreads wider. **Early this year macroeconomic data trends have stabilised on this cycle lows and have now started to bounce higher as per our European Credit Macro Indicator.** Macro weakness has bottomed out (more here) and thus we think that as data start to improve this will continue serving as tailwind for European risk-assets and credit spreads in particular.

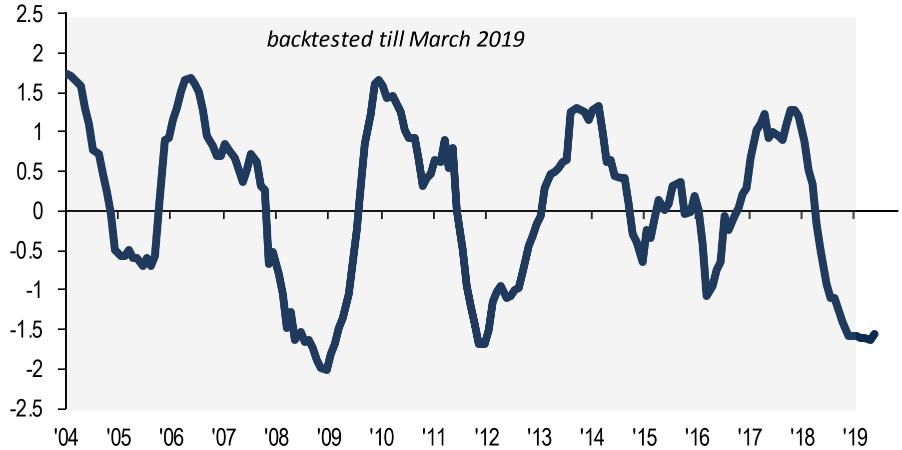
We update our European Credit Macro Indicator for May (based on data available at the end of April for our 14 sub-components) and we find that it has improved notably after a marginal drop in April. The trend is now consistent with a stabilising macroeconomic trend, where data that have been deteriorating for months are now bouncing higher from depressed levels. Note that the May print for our indicator is the highest we have seen since October last year.

Looking into the drivers of this month's improvement, we find that:

- Trends for the majority of the sub-components of our indicator have continued to improve. Ten of the sub-components have seen their z-scores moving higher. German PMI employment and output data have shown signs of improvement.
- Only a small subset has seen marginal deterioration (four sub-components).

- The most notable deterioration has been the ECB survey data for demand for Loans over the past three months.

Chart 10: The European Credit Macro Indicator edged slightly lower in April



Source: BofA Merrill Lynch Global Research, Bloomberg, ICE Data Indices, LLC; Note that a negative (positive) reading reflects deteriorating (improving) trends. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. The shaded area represents backtested results from January 2004 – March 2014. The un-shaded area represents actual performance since March 2019. Backtesting is hypothetical in nature and reflects application of the screen prior to its introduction; it is not intended to be indicative of future performance. The indicator identified as European Credit Macro Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Merrill Lynch Global Research. This indicator was not created to act as a benchmark..

Where this move leaves us?

We think that this improvement for our indicator is another bullish signal for credit spreads going forward. Our work has shown that historically the 12-month forward credit market performance was negatively correlated to the level of our European Credit Macro Indicator. A negative reading of our indicator tended to be associated with a positive return over the following 12 months. The more negative the level of our indicator the stronger the 12m forward credit bull market is (more here).

Table 1: Majority of the sub-components of our Indicator have edged higher in May, pushing our European Credit Macro indicator at the highest level since October 2018

Rank	Indicator sub-components	May'19	April'19	MoM chg
1	DE Manuf. PMI Employment SA	-1.801	-2.587	0.786
2	DE Manuf. PMI Output SA	-1.396	-1.943	0.547
3	EZ Manuf. PMI New Export Orders SA	-1.506	-1.858	0.352
4	USA OECD LI	-1.721	-1.970	0.249
5	UK OECD LI	-1.540	-1.721	0.181
6	China OECD LI	-1.095	-1.221	0.125
7	France OECD LI	-1.163	-1.251	0.087
8	Spain OECD LI	-1.034	-1.110	0.077
9	EZ Manuf. PMI Suppliers' Delivery Times	-1.749	-1.775	0.026
10	DE Manuf. PMI Suppliers' Delivery Times	-1.750	-1.769	0.019
11	BofAML Earning Revision Ratio Germany	-1.323	-1.278	-0.045
12	Italy OECD LI	-1.429	-1.383	-0.046
13	Germany OECD LI	-1.880	-1.722	-0.158
14	ECB Survey Chg in Demand for Loans	-2.488	-1.319	-1.170
	European Credit Macro Indicator	**-1.563**	**-1.636**	**0.074**

Source: BofA Merrill Lynch Global Research, Bloomberg
Presenting the z-score levels of the 14 sub-components of our indicator based on levels available at the end of April

Risks to the view? China…China…China!

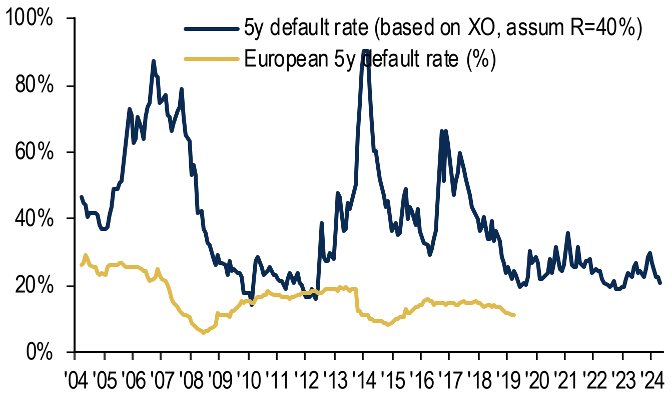
We think the big risk to our bullish outlook remains a slow end to US-China trade wars (as we saw over the past couple of days), and a potential pivot by President Trump to escalating trade issues with Europe. A slow recovery in the China PMIs would imply a slower-than-consensus recovery in Eurozone manufacturing data, especially for Germany. That said David Woo expects that we could get a US-China Trade deal very soon.

Elsewhere, the risk is that higher than expected inflation could bring central banks back into hawkish territory. In Europe, inflation upside risks remain low according to Ruben Segura-Cayuela. Thus, ECB will likely remain on the dovish side for some time.

Appendix

Chart 11: Implied vs. Realised defaults in Crossover

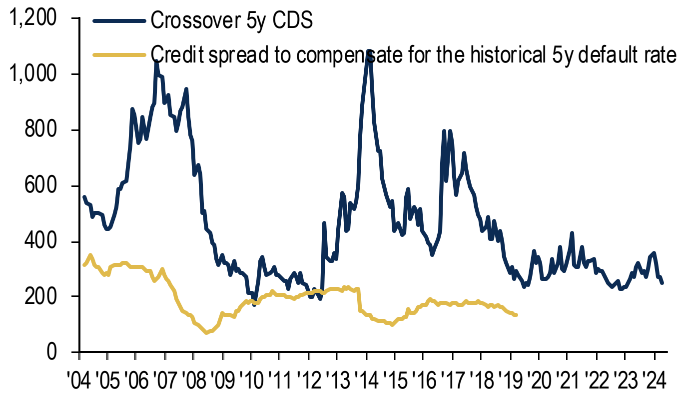
Continuous time series of implied defaults as priced in the XO 5y CDS level vs. the 5y default trailing according to Moody's



Source: BofA Merrill Lynch Global Research, Moody's

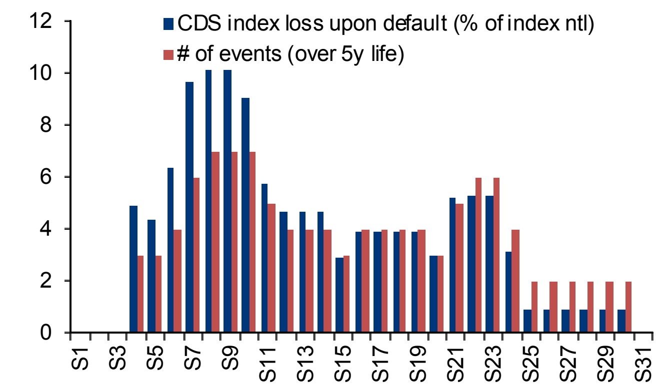
Chart 12: Implied vs. Realised spread for Crossover index

We compare the XO 5y CDS level vs the spread that would compensate against the defaults in the HY space (Moody's data) over the past five years assuming 40% recovery



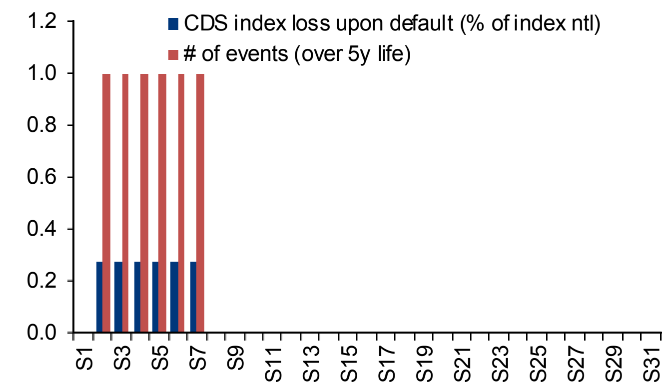
Source: BofA Merrill Lynch Global Research, Moody's

Chart 13: XO 5y CDS index loss-upon-default and # of events over 5yrs



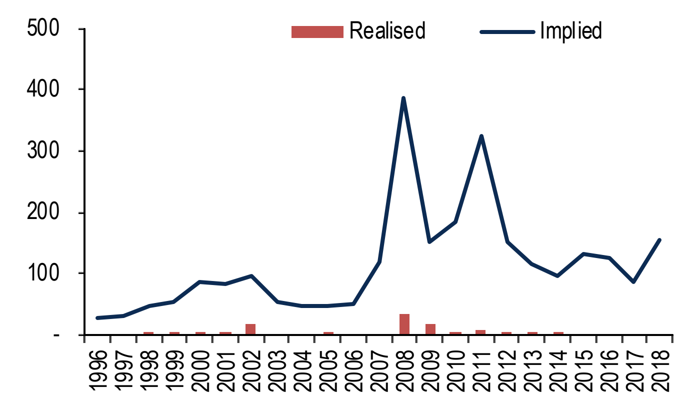
Source: BofA Merrill Lynch Global Research, Bloomberg

Chart 14: Only 1 credit event during the life of a 5y iTraxx Main contract



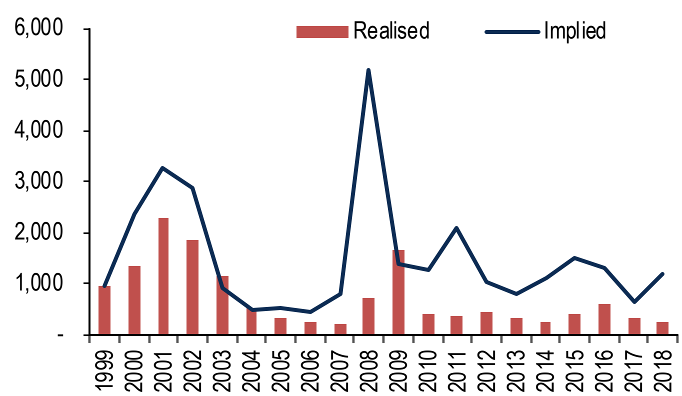
Source: BofA Merrill Lynch Global Research, Bloomberg

Chart 15: IG market OAS vs. spread to compensate against realized losses upon default per annum (ER00)



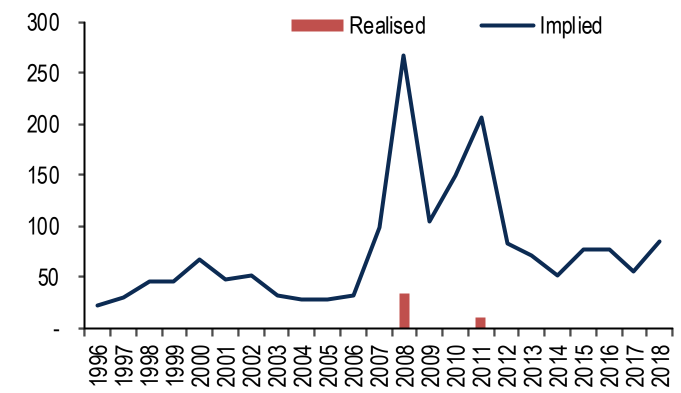
Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 16: HY market OAS vs. spread to compensate against realized losses upon default per annum (HE00)



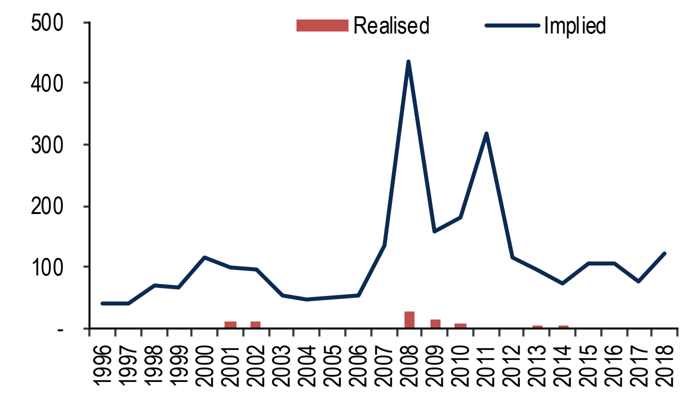
Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 17: AA OAS spread vs. spread to compensate against realized losses upon default per annum (ER20)



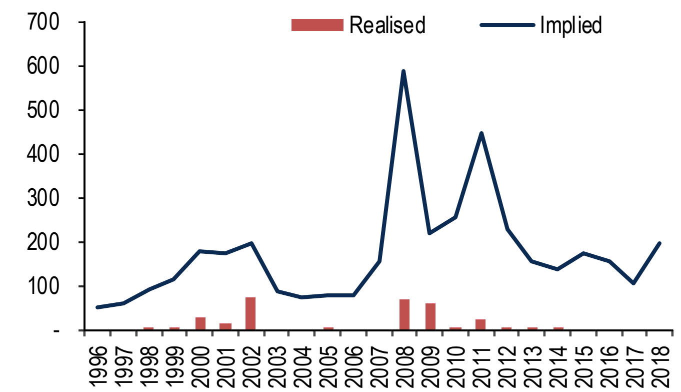
Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 18: A OAS spread vs. spread to compensate against realized losses upon default per annum (ER30)



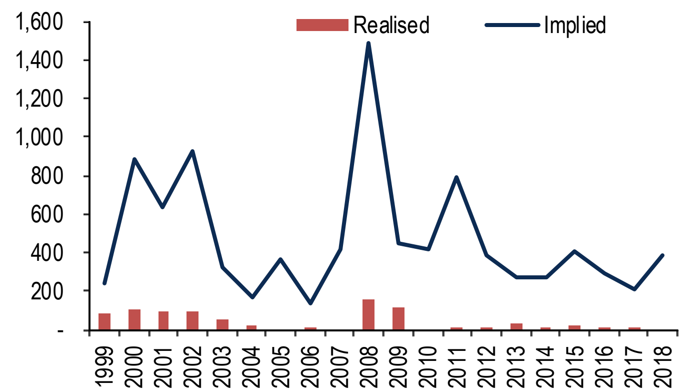
Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 19: BBB OAS spread vs. spread to compensate against realized losses upon default per annum (ER40)



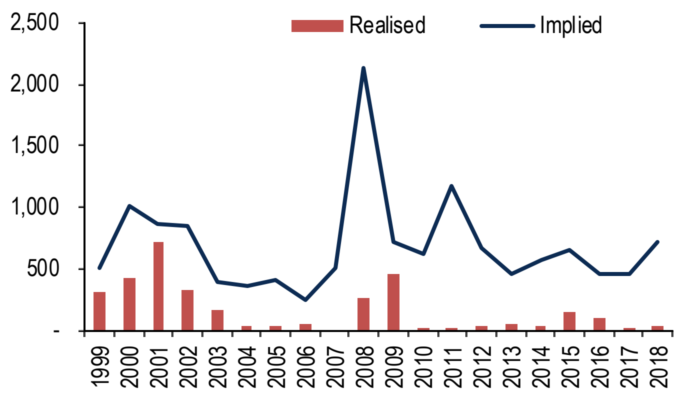
Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 20: BB OAS spread vs. spread to compensate against realized losses upon default per annum (HE10)



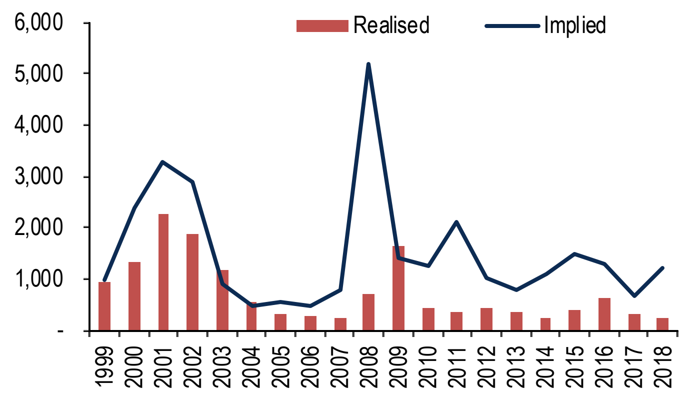
Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 21: B OAS spread vs. spread to compensate against realized losses upon default per annum (HE20)



Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

Chart 22: CCC and below OAS spread vs. spread to compensate against realized losses upon default per annum (HE30)



Source: Moody's Investors Service, ICE Data Indices, LLC, BofA Merrill Lynch Global Research calculations; Based on Annual Credit Loss Rates in 1983-2018. Based on issuer-weighted annual default rates and senior unsecured bond recoveries measured on issuer-weighted basis.

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