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A framework for cross-credit comparison

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A significant part of cross-credit returns can be explained simply by their beta to the broad market, in particular in periods when spreads are relatively volatile. We present a unified framework for consistently comparing the amount of carry available across different parts of European credit markets compared to their empirical beta. HY cash screens as compensating well for beta risk, but the framework also supports our preference for AT1s over both HY and LT2s. Although Main is tight versus cash bonds, Main has a meaningfully higher compensation for beta risk.

We develop a number of relative-value concepts to compare different credit products. For completeness, we summarise the current RV indicators in Figure 1, with details discussed throughout this report.

FIGURE 1
Key metrics developed: roll-down contribution to return, carry per unit of beta, downside/upside for a fixed carry income target

	Carry	Roll-down	Total expected return	Roll % of return	Carry / Beta*Dur	D/S 1yr	U/S 1yr
Cash bond indices							
€ Corp	64	36	100	36%	12	375	59
€ IG Fin	69	29	98	29%	14	402	23
£ IG XF	113	33	146	23%	26	481	22
£ IG Fin	95	38	132	28%	23	256	8
€ HY XF	318	74	392	19%	33	144	85
CDS indices							
Main	51	54	106	51%	22	455	15
SenFin	59	48	107	45%	18	549	24
Cross	237	184	421	44%	28	300	85
Hybrid indices							
AT1	382	49	431	11%	28	238	22
LT2	186	44	230	19%	23	249	3
Corp Hybrid	197	76	274	28%	23	327	10
Inco Hybrid	222	82	304	27%	22	330	12

Note: Numbers in bp of notional, expect for D-U/S (Downside/Upside) which are in €k for €100k of carry. Expected return is 1yr horizon excess returns over swaps, assuming unchanged spreads and curves. Beta used is 3mth week-on-week changes-on-changes beta and current duration. Source: Barclays Research

Understanding cross-credit returns

As a starting point, we define the universe of European credit we will analyse (Figure 2), split into three sections:

- Benchmark cash indices split in €/£, IG/HY and Fin/Non-Fins
- Major iTraxx CDS indices, 5yr maturity
- Hybrid bond indices: AT1/LT2, corporate and insurance hybrids

This represents a large portion of the investable European credit universe. Throughout this study, we focus on spread over swaps/CDS spreads for ease of comparison.

FIGURE 2

Credit indices used in study

Short name	Description
Cash bond indices	
€ Corp	Bloomberg Barclays €IG non-financial index
€ IG Fin	Bloomberg Barclays €IG financial index
£ IG XF	Bloomberg Barclays £IG non-financial index
£ IG Fin	Bloomberg Barclays £IG financial index
€ HY XF	Bloomberg Barclays €HY non-financial index
CDS indices	
Main	iTraxx Main 5yr
SenFin	iTraxx SenFin 5yr
Cross	iTraxx Cross 5yr
Hybrid indices	
AT1	Custom index of AT1 CoCos, >1yr to call, all currencies
LT2	Custom index of LT2, >1yr to call or bullet, all currencies
Corp Hybrid	Custom index of corporate hybrids, >1yr to call, all currencies
Inco Hybrid	Custom index of insurance LT2 hybrids, >1yr to call, all currencies

Source: Barclays Research

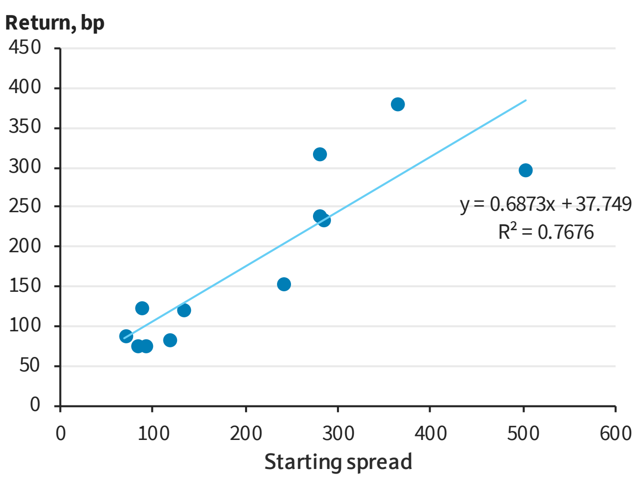
How can we explain returns (net of carry) in the different parts of credit over a one-month period? At a simple level, the returns generated can be thought of in a simple CAPM framework: Either the returns are generated via 'beta' (proxy as relative starting spread) or as 'alpha', ie unrelated to broad market moves.

In one such period (Figure 3), the return generated over the period (purely due to spread changes, not including the carry earned) has a strong correlation to starting spreads: performance is "all beta". The starting spread alone can explain 76% of the variation of 1mth returns. In such a period, 'sector selection' did not matter as much – all that mattered what which kind of beta you as investor wanted to have.

In a different period (Figure 4), there is a poorer relationship between starting spreads and 1mth excess returns. There are some parts of the market which seems to follow a straight line, of sorts, but there is significant dispersion around this: performance is 'more alpha'.

FIGURE 3

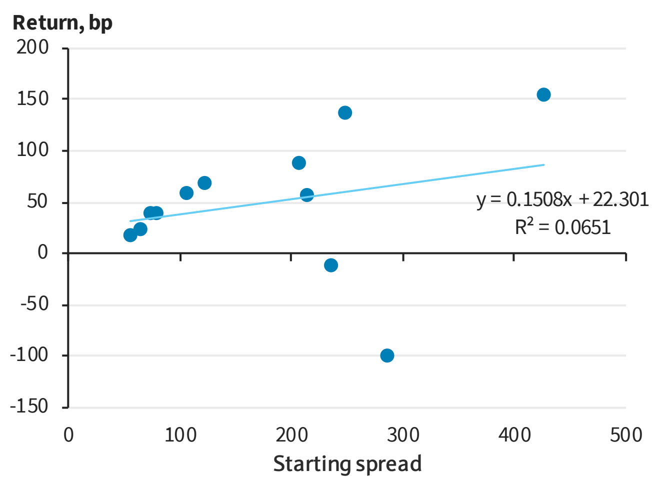
In some periods, returns across credit are highly correlated to starting spreads (4-Jun to 3-Jul '19)…



Note: Returns exclude carry earned. Source: Barclays Research

FIGURE 4

… whereas in other periods, the relationship is poor (1-Oct to 30-Oct '19)



Note: Returns exclude carry earned. Source: Barclays Research

The question then is: in which environments is there a lot of beta (strong relationship between starting levels and returns) or a lot of alpha (weak relationship between starting levels and returns)?

To answer this, we do sequential non-overlapping regression as in Figure 3 and Figure 4 from 2010 to now. We then record the R-squareds from these regressions and consider rolling 6mth average R-squareds, and we seek to relate this to the market environment.

Looking at the pure rolling R-squareds first (dark-blue line in Figure 5), the degree of ‘beta’ has varied significantly over time, but has been on average 40%. In some periods, it has been as high as 70% whereas a few months ago it was 60% on average before dropping towards 40% recently.

Comparing the rolling R-squareds to the average €Corp spread over the period (light-blue line in Figure 5), we see that in the very weak markets in 2011-12, where spreads were wide, beta was high: ie when markets were weak/spreads wide a significant amount of excess returns were dependent on general move in spreads. More recently, however, although spreads are much tighter now, a significant amount of excess returns can be explained by broad market moves. This means that spread levels themselves are not necessarily a good indicator of the amount of beta.

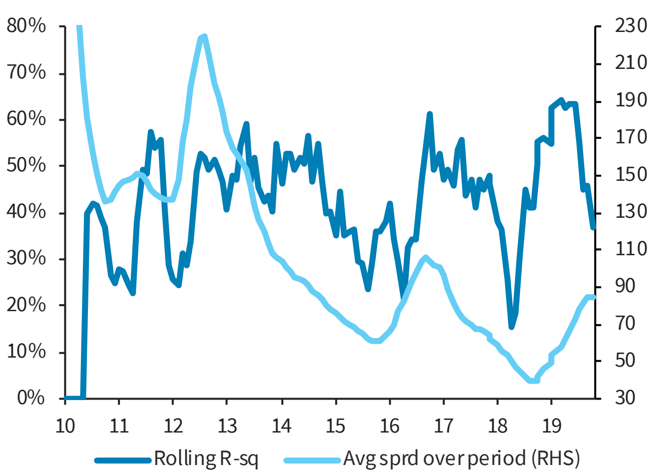
If we instead look at a measure of volatility observed in credit markets, defined as the range of spreads over a given period, as a percentage of initial spreads, this has a much stronger correlation to the amount of beta (Figure 6). This suggests another conclusion: beta is important when volatility is high, even if spreads may be low.

This explains why beta is high currently: although spreads are relatively tight, spreads are fairly volatile, leading more of the cross-sectional returns to be explained by starting spreads.

The current environment is characterised by the ‘battle of the lows’: low growth and low rates. With the ongoing trade war concerns as a driver of negative economic sentiment, we believe that volatility could remain high compared to spread levels, which means that ‘beta’ is likely to remain important. This forms the basis of our analysis of the next section, where we consider how to optimise the kind of beta to earn.

FIGURE 5

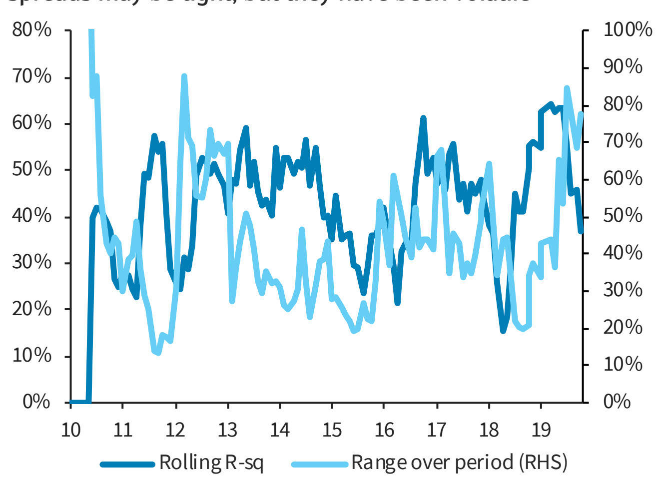
‘Beta’ used to be high when spreads were high, but has risen recently in spite of spreads being low



Note: Rolling 6mth R-sq for monthly regressions. Source: Barclays Research

FIGURE 6

‘’Beta’ has an even stronger correlation to range of spreads over the period – and shows why ‘beta’ is high currently: spreads may be tight, but they have been volatile



Note: Rolling 6mth R-sq for monthly regressions. Range of period is Max-Min spread as a percent of starting spread. Source: Barclays Research

Compensation for taking beta risk

As we showed in the previous section, a significant amount of returns can be explained by starting spreads, and is effectively a 'beta' return, and we expect this environment to prevail going forward. As such it is important to consider which parts of the market has the best compensation for taking 'beta risk'. Below we discuss a number of concepts for this.

Returns – of carry and roll

What kind of returns matter? Returns are generated from three principal sources: carry, roll-down and spread moves. Focussing, on the first two, carry is a 'sure thing' in the sense that assuming no defaults, the carry is very likely to be earned. Roll-down (profit from steep curves) is a bit more tenuous: some of it is without a doubt realised, but is hostage to the market environment. As such, expected returns relying on roll-down should be taken with a pinch of salt, and caution is warranted if the roll-down is a significant part of the total expected return.

How can we systematically gauge roll-down? We derive this from two principal sources:

- For CDS indices, we have good visibility of intrinsic curves of the on-the-run indices and can calculate expected 1yr P&L from rolling down the curves.
- For cash bond indices, this is not as simple. To gauge roll-down in these markets, we rely in the significant effort we have put into developing factor models for essentially all cash bond markets (see *HY model refined - the rules*, 26 January 2018 for the example of European HY). These models specifically seek to explain stylised curves. Equipped with knowledge of the current duration of the market, this parametrisation can be used to calculate the expected roll-down P&L, assuming the relationships are stable over time.

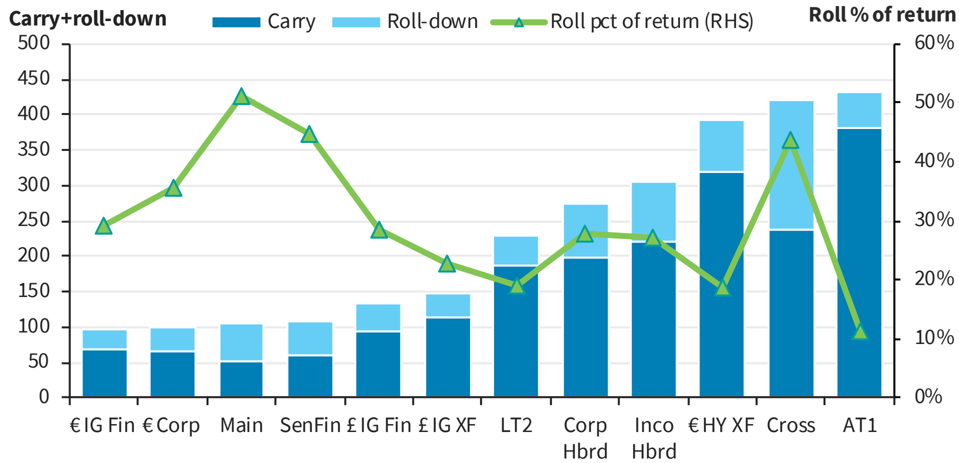
Combining the current carry with our expectations for roll-down, we show expected 1yr carry+roll-down returns in Figure 7, and show also the percentage of the expected return attributable to roll-down.

Unsurprisingly, perceived higher-beta parts of the market have larger expected returns, with €HY ex-financials, iTraxx Cross and AT1 CoCos having similar expected returns. However, the composition of that expected return differs significantly: whereas only about 10% of the expected return for AT1s is due to roll-down (CoCo curves are fairly flat compared to other markets), almost 50% of the expected return for Cross is due to roll-down, whereas for HY cash, the number is just shy of 20%. This means that almost half of the expected return for Cross relies on curves being realised, whereas very little of the CoCo returns rely on this: CoCo returns are more certain in that sense.

Similarly, for lower-beta credit, the expected return of €IG financials and corps in both cash and CDS are about similar at 100bp, but the composition of this return is very different: for cash, 30-35% of the return is to roll-down expectations, whereas for CDS, 45-50% of the expected return is attributable to roll-down.

FIGURE 7

1yr carry and expected roll-down (excess returns), percent of return attributable to roll-down



Note: Expected return assuming roll-down of current curves, sourced from spread models or CDS curve intrinsics, assuming unchanged spreads. Source: Barclays Research

Betas – 3yr horizon is a balanced choice between stability and relevance

For gauging the riskiness of each pocket of credit, we rely on betas from weekly change-on-change regressions of each part of credit on the €Corp index, providing a reference point.

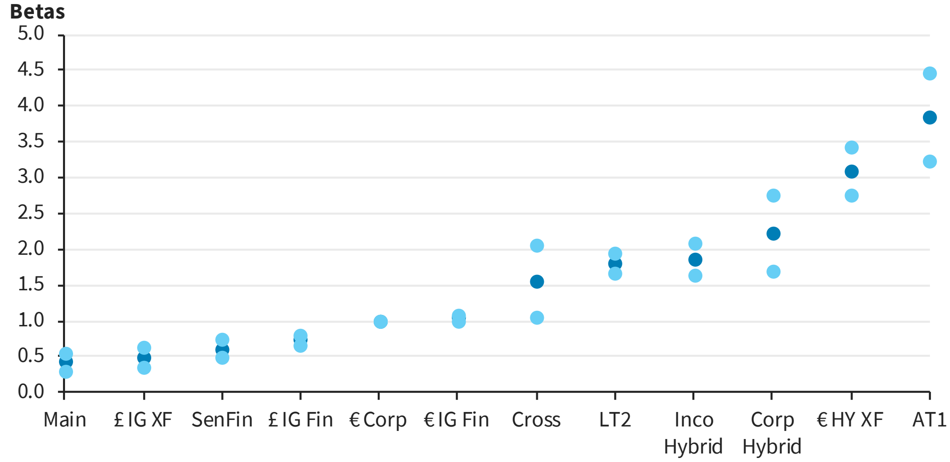
The view is often that 'data is good, more data is more good', but in our view this is only valid up to a point. We prefer to choose historic periods which are likely to reflect better the kind of market environment we expect in the near future. As such, although we could use betas covering the banking and sovereign crises, we do not consider this particularly reflective of what the near future will bring, likely a continued 'battle of the lows' – low growth and low rates.

We consider 3yr betas to be a sensible time period, trading off stability of the estimation (roughly 150 weekly observations) for a period covering an environment with QE/low rates and increasing economic concerns.

To get a sense of the stability of our choice of betas, we show in Figure 8 the estimated 3yr betas, together with a range of betas implied by estimating 1/5yr betas as well. In some segments, the beta is relatively steady over different periods, whereas for example the beta of Cross and AT1 CoCos stand out as having more uncertainty. For Cross, this is more likely because going further back than three years, Cross had different risk characteristics. For CoCos, this is related to the significant volatility around CoCos caused by the Deutsche Bank uncertainty in 2016, which the 5yr beta will capture, but the 3yr beta would not.

FIGURE 8

3yr weekly change-on-change beta vs €Corps and variation around these



Note: 3yr betas in dark-blue with light-blue dots showing +/- 1x standard deviation based on 1/5yr betas. Source: Barclays Research

Putting it together: Return per beta

With the two inputs in place, we define our key 'return per beta' metric as:

$$Return\ per\ beta = {}^{1yr\ expected\ return}/_{Beta\ \cdot Duration}$$

With 'beta' defined here as the beta to the €Corp index, and 'duration' the current sensitivity to spread moves, the ratio measures the size of the expected return if markets do not move, scaled by the amount of money lost/gained for a 1bp move equivalent in €Corps, given the empirical relationship.

As discussed above, expected returns can be expressed with and without expected roll-down, we discuss the effect of varying this below.

Carry per unit of mark-to-market risk

Focussing first in terms of carry compensation per unit of risk (Figure 9), We include an instructive example in the blue box below. Sorting from low to high there is considerable variation between different parts of credit.

Calculated example: Corporate hybrids

Current spread: 197bp

3yr beta to €Corps: 2.24x

Current duration: 3.75

Spread per unit of beta: 197 / (2.24 * 3.75) = 23bp

Interpretation: corporate hybrids have an annual carry which is 23bp per unit of loss for a 1bp move in €Corps

At the high end of spread/beta is iTraxx Cross and €HY ex-financials, with levels between 28-33bp: these have the highest compensation for taking beta risk. At the other end of the scale are €IG Corps are €IG Fins, around 12-14bp. In a sense, the rewards in terms of outright market sensitivity in HY is twice that of IG credit. In a steady state, this would mean that HY is significantly more attractive than IG credit. Another interpretation is that HY spreads compensate for other risks than pure market risk (defaults mainly), but as we discussed in *Default risk: the party keeps going, for now*, 25 October 2019, we believe HY default rates will remain relatively low in 2020.

In the context of ECB QE (and CSPP) restarting, amid meaningful concerns around economic growth, it makes sense that HY should compensate more for mark-to-market risk than IG at recent betas. That said, for investors who have a more sanguine view on the economic trajectory, this speaks to HY/IG compression trades.

Among hybrid bonds, AT1s screen as marginally better than LT2s (fitting with our discussion in this week's Hybrid Capital section), whereas insurance hybrids, corporate hybrids and LT2s are very similar.

As we also discuss in the Hybrid Capital section this week, we prefer €CoCos over €HY, and our analysis supports this: in terms of compensation for taking beta risk, CoCos and HY rank similarly, but given political headlines have receded (positive for CoCos) but economic downside risk remains a focus (negative for HY), this makes us prefer CoCos over €HY.

Another interesting aspect is that within IG, Main has a meaningfully higher compensation for mark-to-market volatility than does €IG cash, in spite of the often-discussed topic that CDS is tight versus cash. Our methodology shows that, although CDS may be tight versus cash, given their relative betas the past three years, Main still compensates better for taking mark-to-market volatility.

Carry+roll per unit of mark-to-market risk

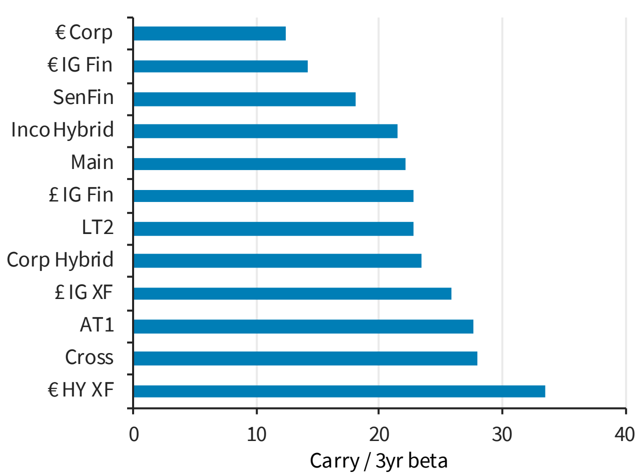
Turning to the calculation of carry+roll-down per unit of mark-to-market risk (Figure 10), away from all numbers being higher than in Figure 9 (as roll-down is positive), there has been a meaningful re-ranking, fitting with the conclusion from Figure 7 that the contribution of expected roll-down to total expected return varies significantly across credit.

iTraxx Main and Cross CDS indices are the clear winner in this context, owing to very steep CDS curves, whereas €IG cash remains the least attractive area to invest from this perspective.

Taking into account expectations of roll-down return, LT2s and AT1s now have a similar compensation to insurance hybrids, only a smidge below the compensation seen for other parts of the market.

FIGURE 9

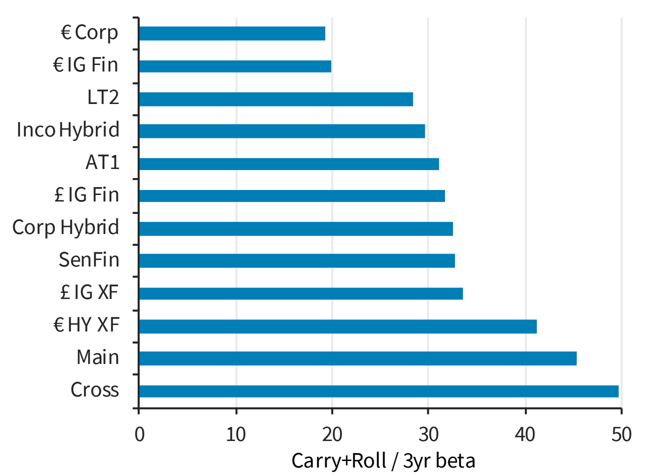
Carry compensation to 3yr beta * duration



Source: Barclays Research

FIGURE 10

Carry+roll compensation to 3yr beta * duration



Source: Barclays Research

Downside for a given carry target

We can also compare different parts of credit in another fashion, by asking: to achieve a certain level of carry, how big a loss is there for 1) a 'unit' move wider in spread and 2) if we move to 1yr wides in different parts of the credit market? A similar calculation could be done for upside to 1yr tights.

Whereas the first aspect is similar to the concepts discussed above, the second aspect is different in that it relates more to how tight/wide a given part of credit is versus history. As an example, focus on corporate hybrids. To generate €100k of carry, at current spreads, €5.1mn of corporate hybrid notional is required. Given where corporate hybrids trade now versus the 1yr wides, there is 6.5% of downside. For the notional required, the downside is €327k. Repeating this exercise for each part of credit, we rank these downsides in Figure 11, where corporate hybrids are shown at the €327k from above.

Given the relatively high level of carry per beta of HY documented above and the fact that they already trade fairly wide versus history, the downside to 1yr wides (for a given level of income required) is the lowest. Conversely, Main and SenFin (and £IG ex-financials) have the most downside, owing to a combination of how much notional is required to generate the benchmark income and how tight they are currently versus wides.

We also see that LT2s and AT1s are very similar in terms of downside at the wides, taking into account their current carry, whereas corporate and insurance hybrids have a bit more downside given how far they have tightened.

Putting it together: spread sensitivity versus downside

We can combine the two measures above, showing in one chart (Figure 12) the downside at 1yr wides for a given level of income, compared to the general sensitivity to 1bp spread moves in €corps (at the notionals needed to generate that income).

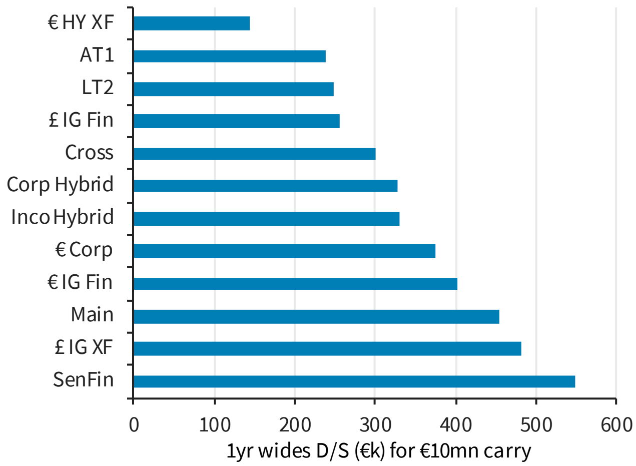
Simply put, credit in the bottom left are 'safe', top right are 'risky'. There are a number of interesting conclusions. Fitting with the discussion above, comparing AT1s to LT2s, for the same amount of income, their downsides if we reach 1yr wides are the same, whereas L2Ts have stronger sensitivity to spread moves.

iTraxx SenFin screens as the riskiest long here, with the most downside if 1yr wides are revisited, considering the carry currently on offer, and also one of the largest sensitivity to spread moves.

€Corps screen as the most sensitive to spread moves, driven by the conclusions from Figure 9, and for a given income target, with relatively significant downside in case of widening: longs on €Corps are very much ECB longs. In contrast, HY screens as the most attractive in terms of potential downside in case of reaching 1yr wides, and also the lowest sensitivity to spread moves in general.

FIGURE 11

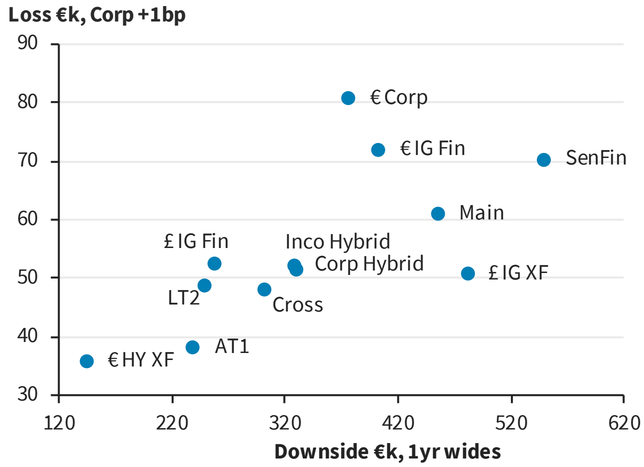
P&L downside for revisiting 1yr wides for €100k carry



Source: Barclays Research

FIGURE 12

Downside at 1yr wides vs sensitivity to spread moves



Note: For notionals chosen to generate €100k carry. Source: Barclays Research

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