

ESG in CDS indices – A practitioner perspective

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There has been recent media coverage¹ that seems to disagree with our views on credit derivatives and the implementation of credit derivatives in an Environmental, Social, and Governance (ESG) context. This note seeks to explain some of the fundamental motivations for using CDS in general, and with regards to ESG investing in particular. We exemplify using a broad brush description of an earlier trading mandate at a traditional real-money investor where CDS played an important role in the mandate, allowing for much higher exposure to e.g. green bonds than otherwise possible.

This shall not be construed to be an endorsement of particular ESG CDS products per se.

Key takeaways:

- The demand and supply of CDS affects cost of funding/capital for underlying issuers, and hence have financial impact.
- For real money users, CDS indices are a natural hedging product for lowering the market exposure on credit portfolios. A CDS index hedge is constructed by ‘buying protection’ and raises the cost-capital for the companies in the index.
- Analogously, a ‘good-ESG’ CDS index has its main merits from the long risk, sell protection, anti-hedging side, by lowering cost-of-capital for good companies.
- An ESG fund that uses ESG indices to hedge their underlying cash bond portfolio are effectively negating their positive ESG effects. This could be called ‘greenwashing’.²
- Ideally we would suggest to use a ‘bad-ESG’ index for hedging: this would remove market beta while also raising cost-of-capital on perceived bad bond issuers.
- ESG CDS indexes can be a very useful tool to manage flows in an ESG focused fund, making it possibly to retain a sought ESG mix while also managing their trading in an illiquid cash market in a good way. It could also be an attractive alpha product for market timing and/or to trade the ESG factor directly.
- We discuss using ESG CDS indices in structured products, such as CDOs.

¹ “[Slow start for CDS index reveals challenge for sustainable investment](#)”, Financial Times 6 Aug 2020.

² For avoidance of doubt, this is not a suggestion that the investors quoted in the referenced article are engaging in greenwashing, rather we think they may have been quoted out of context or simply misinterpreted.

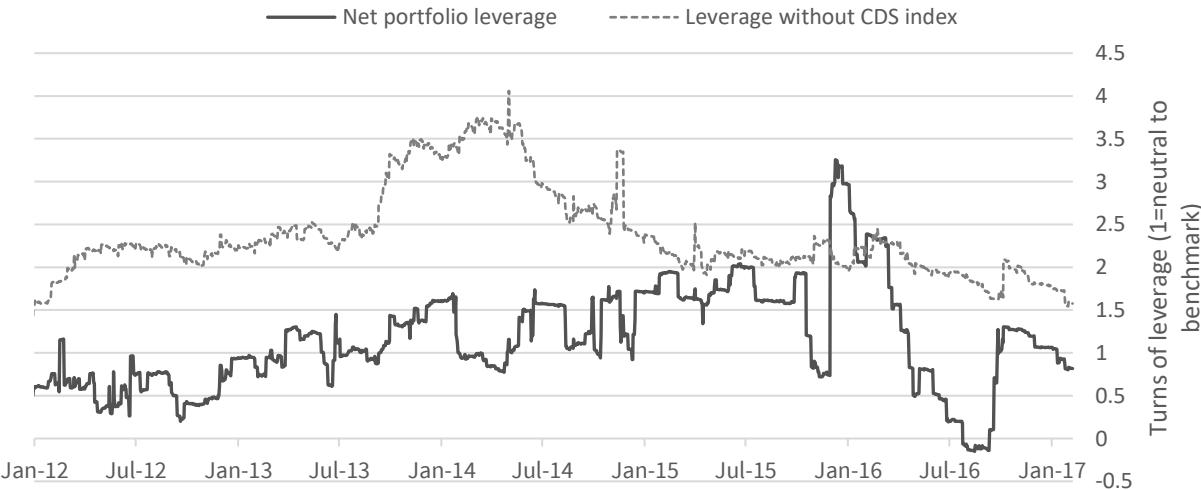
Background to using CDS indices

This discussion will be framed in terms of trading mandate/portfolio more closely described in [“Credit alpha and CO2 reduction: A portfolio manager perspective”](#) (Erlandsson, 2017).³ This historical mandate would have a certain benchmark allocation given to it, whereby management would instruct e.g. ‘we expect you to hold \$500mn of corporate credit bonds’. They would furthermore state an expectation to go generate returns (‘alpha’) in excess of return of the return of that benchmark portfolio. This could be done in two ways: i) by holding a different portfolio, where selected bonds should generate higher returns than the comparison portfolio (‘credit selection’); and/or ii) by deviating from that \$500mn absolute allocation to take on higher (or lower) market exposure than the benchmark (‘market timing’).

In practice, one would try and do both i) and ii). The first could be fulfilled by buying better bonds, e.g. by tilting the portfolio to have more high ESG bond issuers than the benchmark, and ii) by leveraging up (or down) the exposure to the asset mix from i). On ii), given some nifty internal systems in that mandate, portfolio managers were able to internally reallocate money⁴ in order to build bigger portfolios than that originally allocated \$500mn. In practice, the book often ran with cash bond exposure to the tune of \$1-2bn, meaning a leverage factor of 2-4x, as depicted by the dotted line in Figure 1.

With a leveraged approach, the portfolio could take both big absolute exposures to the nascent green bond asset class, but still remain well-diversified, as well as positioned to the general credit risk premium. The actual exposure to green bonds in itself would at times exceed the total benchmarked allocation to the credit asset class. Leverage, in the context of supplying more capital to ‘good’ products can be quite additive to an ESG strategy. We will return to this topic in a later piece.

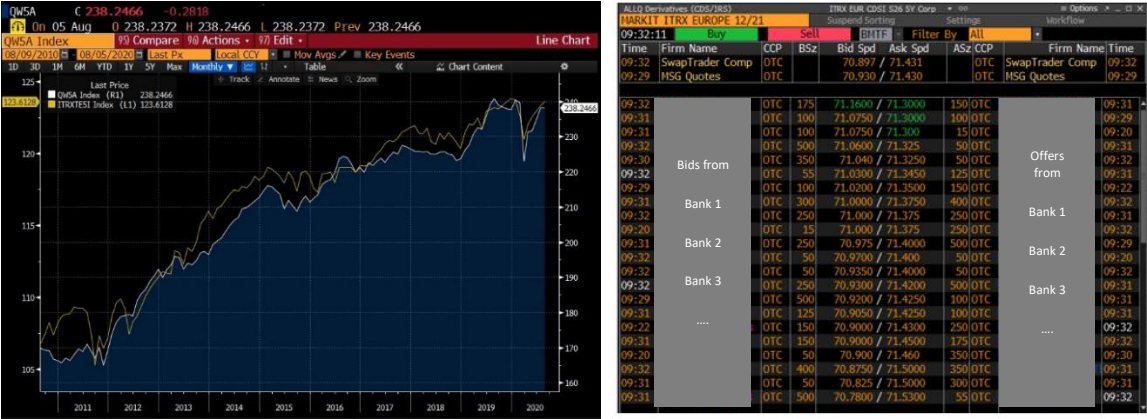
Figure 1. Historical mandate market exposure, turn of leverage including and excluding CDS index positions. Large-cap issuers only: this is only an indication of the total risk-level of the mandate and for illustrative purposes only.



³ Some of the trading strategies applied are described in “Systematic CDS index trading handbook” (Rennison, Erlandsson and Ghosh, Barclays Capital, 2008). The general thinking around ESG, or carbon-footprinting, in the context of CDS indices is further illustrated in the thesis [“Greenhouse Gas Footprint Minimization of Credit Default Swap Baskets”](#) (Britse and Jarmo, 2018) which I was fortunate enough to supervise.

The key challenge in running a portfolio like this was the magnified market beta coming from the over-exposure to general credit. If the credit spread return on the benchmark portfolio was -1%, the expectation would be for the actual portfolio to generate a return of -2 to -4% (benchmark return x leverage factor). Even with perfect credit selection, the portfolio would underperform the benchmark in a bearish market environment through the leverage factor. As can be seen by the solid line in Figure 1, the net leverage/market exposure of the portfolio tended to be lower than the exposure from the cash bond/single-name portfolio meaning that the book on average was a buyer of CDS index protection.

Figure 2. Left: comparison of iBoxx and iTraxx Main total returns. Right: (Redacted) ALLQ screen indicating trading liquidity for iTraxx Main. Source: Bloomberg.



The usage of liquid, large volume capable instruments to hedge the market beta was crucial in order to generate an attractive risk-profile. This is where the usage of CDS indexes came into play. **As credit hedge instruments, CDS indexes are quite strong in our opinion.** We are not going into a broad argument around CDS suitability as corporate bond hedges here – there are detractors to this standpoint – but just refer to the right-hand panel of Figure 2. The figure highlights the iBoxx EUR corporate bond index total return vis-à-vis a total return index on iTraxx Main on-the-run, showing fairly tight correlation on an intermediary time-scale. An investor holding the iBoxx broad bond index would have been quite decently hedged by using CDS.

The other benefit of the CDS indices is that **the CDS indices would offer enough liquidity, even in stressed market conditions** and especially relative to other credit products. iTraxx Main, the European investment grade index, would be offered in €250m by €250mn size on electronic screen, with firm pricing and bid-offers inside 1 basis point (0.01% credit spread), as indicated in the right-hand panel of Figure 2. By voice trading, Main could usually be traded up to €1bn direct execution. Hence, for a book running with overexposure to the market in excess of \$1bn, the CDS indexes were ideally suited for hedging and even going short market risk.

Hedging an ESG credit book with CDS indices

Given this context, **the natural position to take would be to buy protection for the portfolio, which – translated into CDS index trading terms- would be to buy protection on iTraxx Main.**⁵ The operation of buying protection using CDS translates into a higher cost-of-capital for the underlying issuer or companies in the index you are buying protection on. We make the arbitrage argument for this in the appendix. Under this assumption, **implementing a hedge of the portfolio through buying protection on iTraxx Main would mean an increased cost-of-capital for the companies included in the index.**⁶

Let us now turn to the construction of ESG CDS indexes. They are (so far) constructed to be a collection of issuers with strong performance on ESG metrics, with bad companies being excluded from the portfolio. Over time, the investment hypothesis would be that the stronger ESG portfolio should outperform the weaker ones. Note however that it is likely that the general market beta is several orders of magnitude higher than the ESG factor.⁷

Given these construction rules, the suggestion of **hedging the market beta of strong ESG corporate bond book by buying protection and increasing cost-of-capital for strong ESG names would simply be nonsensical.**⁸ It would effectively mean that the hedge would not only be for market exposure, but also for the ESG factor. For a commercial actor selling investment products, we believe having sold a product as ‘ESG’ and then hedge out the ESG factor would potential be a misrepresentation of the product, aka. ‘greenwashing.’

So even **in the presence of an ESG index, the mandate would not have been a hedger using the ESG index** – rather the traditional index would have continued to be the natural hedging instrument. It would simply be aligned with the exposures the mandate tried to take: long the ESG factor, but dynamically hedging the market beta. The traditional index would have the added benefit of much higher liquidity, cheaper trading costs and centralized clearing.

In fact, **the ideal hedge product** for the historical book (if liquidity, costs etc were decent) **would have been an index that concentrated on low ESG scorers.** We think, for example, that during the market volatility during March-April 2020, when fossil laggards underperformed in credit, such an ‘evil’ index would have provided great benefits to the portfolio. Indeed, our own model portfolio saw green exposures falling being overly compensated by the shorts on a concentrated portfolio of high-fossil companies.⁹

⁵ The mandate would be active in the US version, CDX.IG as well.

⁶ As an example, the ECOBAR portfolio carbon intensity metric scores positions according to a scale of 0 (=green bond) to 9 (=climate transgressors). An outright long position in a bad company is assigned a score, but in case of a short position, the score inverts to a 1. Hence, the portfolio manager can choose to shift relative cost of capital between green and fossil either through by ‘good’ assets or shorting ‘bad’ assets, or a combination thereof. More on ECOBAR in the referenced “Credit alpha...” article or through this [15-minute presentation](#).

⁷ Not even the most ardent ESG proponents (to our knowledge) suggest that the ESG factor is a stronger return driver than the general market. For a specific micro study of this, green bonds vs traditional bond from the same issuer could be considered, see e.g. “Green bonds risk premiums: A Twin-Bond ULFP Approach” (Erlandsson, 2020, [SSRN link](#)).

⁸ We make this point in contrast to the focus of the media coverage that appeared to focus on the ESG index as a hedging product.

⁹ The ‘bad boy’ ESG index can be constructed either outright or alternatively through an operation of selling protection on the ESG index and buying protection on the traditional index, with weights such that there is

Natural usage of current ESG CDS indexes

So when would it be attractive to use a ‘good’-ESG CDS index? Again, we would like to highlight that this is not an endorsement of specific products. We see four key areas:

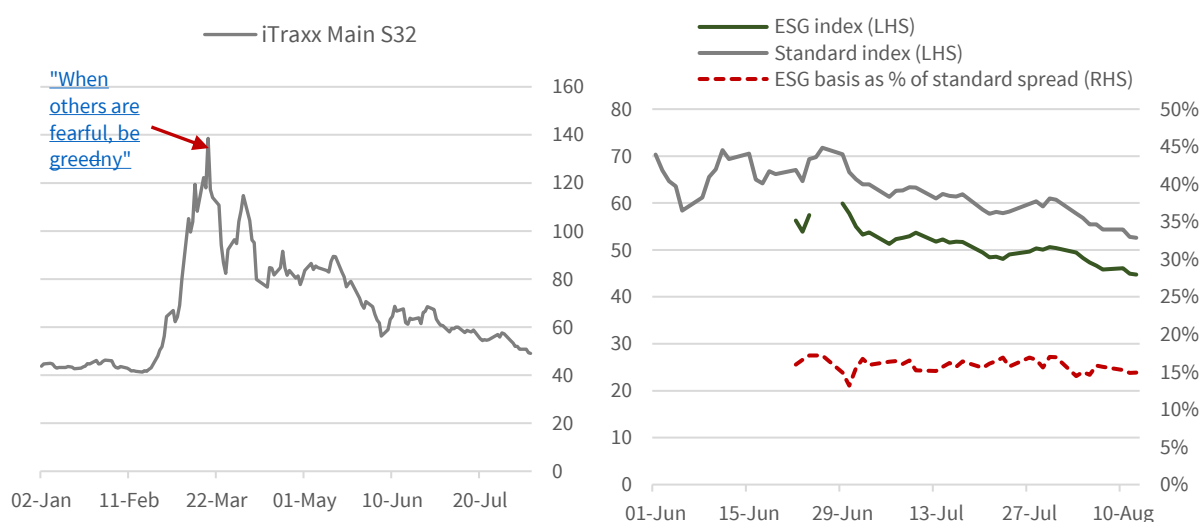
- **Managing inflows**

The situation where the ESG CDS index could come in handy is in the case of large inflows into a commercial fund. Suppose a fund runs AUM of €500mn and suddenly has an institution coming wanting to invest €100mn in the fund. Given often daily liquidity being offered in the European market, this puts the fund manager in a tricky situation. Investing €100mn in corporate bonds with ESG credentials within a short time-frame can be tricky and costly. Ideally, the fund manager would like to dollop out the money as new issues come to market.¹⁰ However, having the money sitting in cash accounts during the wait until the money can be fully allocated, is costly on an absolute basis (negative rates on cash) and relative basis (the fund has a lower %-wise exposure to the market beta during this time).

Traditionally, the fund manager could at this time sell protection on a CDS index in order to get their market exposure up to the sought level, and then reduce the CDS exposure as she bought new issues or found cheap secondary market bonds. However, with the added complexity of the ESG tilt of the fund, selling the traditional index would however weaken the ESG tilt in the portfolio. Again, selling protection would mean lowering cost-of-capital also for the ‘evil’ issuers.

Here the ESG CDS index works nicely as a bridging solution. By selling ESG CDS Index instead, the investor is able to both retain a decently good ESG profile on their total portfolio, while also being able to be opportunistic with regards to putting the incoming cash to work. As the portfolio manager is able to buy good ESG bond, she can take off the ESG CDS index (long risk) position.

Figure 3. Left panel: iTraxx Main S32 spread. Right panel: iTraxx Main S33 in standard, ESG versions and percent difference between the indices (in terms of the standard index).



net zero exposure to all of the components of the ESG index, but net shorts on the complementary part of the traditional index. However, from a practical standpoint, this would be cumbersome and expensive.

¹⁰ I.e. wanting to buy bonds in the primary market, where investors buy bonds directly from the issuer, rather than from other investors as in the secondary market. This also has the added ESG benefit of actually directing money straight to the ‘good’ company, rather than indirectly.

- **Market timing**

Contrary to popular belief, ESG investors can look to use market timing to generate alpha in their strategies. One of the more popular potential typical trades one can do in credit is with relation to going long risk at or near the trough in the market. We refer to the left hand panel of Figure 3 illustrating the article “[When others are fearful, be greedy](#)” (Responsible Investor, Mar 18, 2020) as such an example.

If the market conditions at the time were such that the convinced bullish ESG investor would have problems sourcing enough bonds, or wanted to nurse their cash liquidity, taking a long risk/sell protection position through the (ESG) index would indeed have been very profitable. iTraxx Main going went from a level of 138bp on Mar 18 to 82bp one month later, giving a delta of 56bp which would equate approximately 2.8% of return unlevered or 33.6% on an annualized basis. All illustrated in the right-hand panel of Figure 3, it is likely that the ESG version of the index– had it existed then – would have been highly correlated with the standard move. An apt ESG minded trader could have monetized strong returns by using the ESG as well as the standard index.

- **Leveraging up a good vs bad ESG basis: cheap shorts on the basket of ‘bads’**

We have previously referred to both hedging and going long the index, but with the assumption that those trades, when taken off, are neutralized using the same product. For example, if I bought protection on the traditional index to hedge market beta, I would neutralize that hedge by selling the same amount on the same index. This would ‘collapse’ the initial trade, and is treated favorable from an administrative and collateral usage standpoint.

Alternatively, one could see a situation where the investor hedge market beta with the traditional index, but then neutralizes that beta hedge by selling protection on the ESG index. This would create a residual portfolio with short positions on the bad companies and long positions on the good companies. It would quite literally lever up the fund on the ESG relative value factor. The right-hand panel of Figure 3 shows how this relative factor (barely) moves given the short history we currently have.

Given the frequency of trading in the indices, such a residual portfolio’s nominal exposure could grow quite quickly. This ‘basis’ could be smartly managed, and we also believe trading this would be a cheap way to go short ‘bad’ names in terms of bid-offers and trading costs. Doing a list of bad names and incorporating full bid-offer on single name CDS is likely to be more expensive, than doing it through index this way. For the finer points on trading relative index, e.g. by using ratio, DV01 or nominal weights, we refer to the “Systematic CDS index trading” publication referenced above.

- **Structured products**

Another use of ESG CDS indexes would be in the construction of structured products. However, in order to be involved with these products, you should be professional enough to understand the implications for the investment based on the above descriptions. As a general note, given the prevalence of CDO structures being sold to non-professional investors, we believe it would be unfortunate if ESG investing was associated with products that by means of construction and selling process, if not in investment exposure, are in breach of the ESG principles.¹¹

¹¹ As a test of understanding: please describe what the implication of ESG portfolio selection would be for correlation of the underlying portfolio in a tranching product, and how that should shift value (and thus risk-premia/yields) between equity, mezz, junior and senior tranches? Confidence in responding to this should be

Appendix: The relationship between CDS and cost of funding

This is our simple arbitrage argument relating CDS to cost of funding for borrowers capital: Our portfolio manager holds a bond from a company/issuer, and there is a hedge fund having a (very) negative view on that company. The bond curve for the particular issuer suggests that a 5yr bond should trade at a credit spread of 1%.

Now, the issuer needs to access the bond market to refinance a bond that is maturing. The issuer seeks out the investor and offers 1% spread on a new 5yr bond.

At this point, the speculative hedge fund goes to the investor and offers to replicate the same cash flows, including default risks and recoveries, but giving a credit spread of 2% instead¹². Clearly, ceteris paribus, the investor would prefer enter into a transaction with identical risk but double the potential return.

If the hedge fund and the portfolio manager enters into such a transaction, they have entered into a credit default swap, where the hedge fund bought protection (shorted risk) and the portfolio manager has sold protection (went long risk).

How does this affect the cost of capital for the company that needs to refinance? In order to counter the offer from the hedge fund, the issuer (the company) needs to increase the spread they offer on the new bond, up to 2.01% in order to outbid the hedge fund for the investor's capital. Hence, if the company must refinance, and lack access to capital in other ways, the company's cost-of-capital will effectively be entirely driven by the equilibrium price agreed on the CDS between the portfolio manager and hedge fund.

In practice, these relationships are much granular, but hopefully this conveys the principle. Indeed, as we saw during the European sovereign crisis, CDS was the main arena to trade sovereign default risk, and this has large effects on the costs of funding for the various Treasuries, eventually leading the EU to ban naked short-selling of CDS.

a necessary but not sufficient condition with regards to the suitability to invest in such products. Ensuring such suitability among end investors would be necessary to comply with general Social and Governance principles (the S and G of ESG), in our opinion.

¹² We assume no counterparty risk here, but counterparty risk can otherwise be included in the spread that needs to be offered.

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