

Eurex iTraxx[®] Credit Futures

Increasing the efficiency of fund management and generating alpha

Eurex, Europe's largest derivatives exchange, already lists benchmark derivatives for the European equity, fixed income and volatility markets. The introduction of iTraxx[®] Europe, Crossover and HiVol CDS Index futures has expanded the exchange's range of products to the credit markets. This increases the efficiency of fund management and offers more opportunities to generate alpha across the range of European financial asset classes. Crucially, the exchange-traded credit derivative products offer advantages over and above their OTC counterparts – particularly as regards transparency, the introduction of a central clearing house, reduced counterparty risk and independent daily valuations.

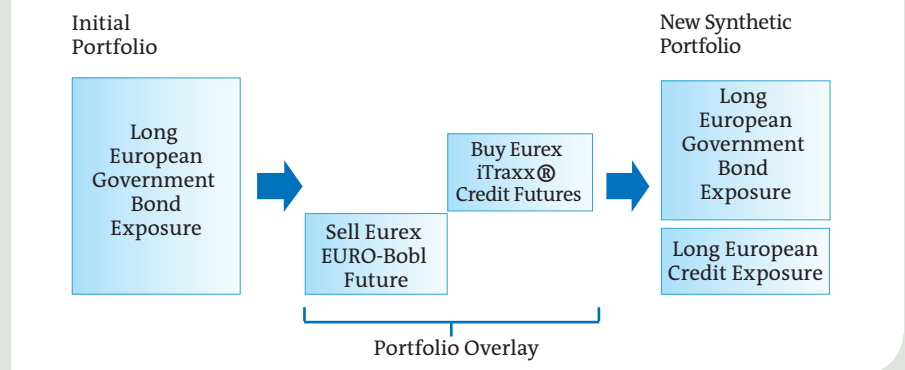
Increasing the efficiency of fund management: portfolio overlay

The benefit of introducing credit as an asset class within fixed-income fund management is underlined in a recent paper by Brian Eales of London Metropolitan University*. Using data from the September-December 2006 period, Eales looked at the benefits of incorporating credit into a European government bond portfolio. In his study, credit exposure was introduced through the iTraxx[®] Europe CDS Index, with the Bloomberg 3-5 year EFFAS Bond Index as the proxy for a short-term maturity European government bond holding.

The analysis demonstrated that the inclusion of credit into a bond portfolio reduced risk and increased return. The results showed that a 10% inclusion of iTraxx[®] reduced risk by 0.19% and increased return by 1.63%, while a 20% holding increased risk by 0.10% but increased return by 3.27%.

Consider the situation of a European fixed-income fund manager who manages a €500 million short maturity European government bond portfolio that has a (modified) duration of 4.5 years. The fund manager decides to switch 20% of the European bond exposure to a European credit exposure using the Eurex Euro-Bobl and iTraxx[®] Europe Credit futures contracts.

**DIAGRAM 1:
USING ITRAXX[®] CREDIT FUTURES IN PORTFOLIO OVERLAY**



Steps:

- * Calculate Portfolio BPV (BPV is the price value of an .01 change in yield):
- * $Portfolio\ BPV = Portfolio\ Modified\ Duration * Portfolio\ Value * 0.0001 = 4.5 * €500\ million * 0.0001 = €225,000$
- * Calculate the BPV of the Eurex Euro-Bobl futures contract i.e. $BPV\ Eurex\ Euro-Bobl\ Future = BPV\ CTD / CF\ CTD$.

Where BPV CTD is the BPV of the cheapest-to-deliver bond and CF CTD is the conversion factor of the cheapest-to-deliver bond, this gives 0.04807 in price terms, 9.614 futures ticks or €48.07 in monetary terms.

Calculate the appropriate number of Eurex Euro-Bobl futures to sell to synthetically reduce the fund managers' European government bond exposure by 20%:

- * $Number\ of\ Euro-Bobl\ futures\ to\ sell = (€225,000 / €48.07) * 0.20 = 936$.
- * Calculate the Eurex Euro-Bobl future: *Eurex iTraxx[®] Europe Credit future ratio.*

The BPV of the Euro-Bobl future is €48.07. The price value of a basis point change in the CDS curve in terms of the iTraxx[®] Europe Credit future is €45.25, which can be generated using the Bloomberg FCDS screen. Type FEAA <index> FCDS <go> and go to SprdDVO1 (there is a small interest rate exposure being long credit futures, but the exposure is minimal, see IR DVO1).

Therefore, the ratio is:

1 Eurex Euro-Bobl futures: 1.06 Eurex iTraxx[®] Credit futures.

The fund manager sells 936 Eurex Euro-Bobl futures and buys 992 Eurex iTraxx[®]

Europe Credit futures to synthetically switch 20% of his European bond exposure to a European credit exposure. By way of this portfolio overlay strategy, the fund manager can quickly switch part of his European bond exposure to a European credit exposure, whilst leaving his existing portfolio intact. When the fund manager feels the out-performance of credit has run its course, he can unwind the short Euro-Bobl/long iTraxx[®] Europe Credit futures spread position. Diagram 1 above outlines portfolio overlay using Eurex Euro-Bobl and iTraxx[®] credit futures contracts.

Generating alpha

The causality between credit spreads, the equity market and equity volatility (including the option volatility skew) can be attributed to 'the leverage effect' – a fall in equity prices increases a company's leverage, thereby increasing the risk to equity holders, and increasing equity volatility. Therefore, one would expect an inverse relationship between equity prices and credit spreads – or a positive relationship between the iTraxx[®] CDS index/Eurex iTraxx[®] CDS index future and equity and a positive relationship between credit spreads and equity volatility (however, there could be situations i.e. LBO and M&A activity, which would result in a breakdown of the inverse relationship and actually result in increasing equity prices with increasing credit spreads). An increase in the option volatility put skew is known to reflect the markets' expectations of an increasing downside risk in equity

prices: therefore, one would also expect a *positive relationship* between the option volatility, put skew and credit spreads.

DIAGRAM 2: ITRAXX® CROSSOVER SERIES 6 SYNTHETIC FUTURE & EUREX DAX® STOCK INDEX FUTURE

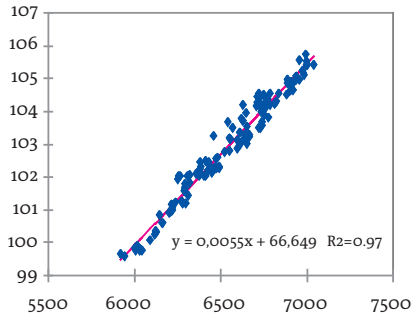


Diagram 2 (see diagram above) looks at the statistical historical relationship between iTraxx® Crossover Series 6 Index synthetic future and the Eurex DAX® stock index future.

Such a close correlation between iTraxx® Crossover and the Eurex DAX® stock index future – a R^2 of 0.97 – would suggest that should there be a divergence between the two variables, a *convergence trade*, taking a view on the re-establishment of the historical relationship between two markets can be established. With the recent launch of the Eurex iTraxx® CDS futures contracts, such a relative value/cross-asset class position can now be established on exchange with the *added* benefits of transparency, independent mark-to-market valuation and a central clearing house.

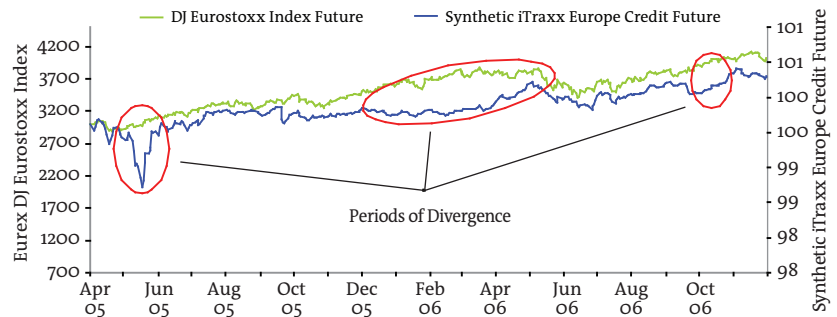
How can such relative value/cross asset class positions be structured? One method would be to structure such strategies in terms of the ratio of the monetary value of each of the respective contracts' risk positions based on historical price volatility.

Eurex DAX® stock index future
8105.50 (DAX® index future price) X 18.553%
(30 day historical price volatility) = 1,503.81
index points = €37,595

Eurex iTraxx® CDS Crossover index future
99.15 (iTraxx® CDS Crossover future price) X
6.698% (30 day historical price volatility) =
6.641 index points = €6,641

The monetary value of each of the respective contracts' risk positions (based on 30-day historical price volatility) would suggest we should structure a Eurex DAX® stock index future: Eurex iTraxx® CDS Crossover index future relative value

DIAGRAM 3: EUREX DJ EUROSTOXX® INDEX FUTURE AND SYNTHETIC ITRAXX® CDS EUROPE FUTURE



strategy in a 1:5.66 ratio. (Though obviously, as the relative price volatilities changed then the ratio of DAX® futures to iTraxx® CDS Crossover futures would need to be adjusted.)

The attraction of generating alpha across European asset classes can be further underlined by looking at Diagram 3 above which looks at the index price history of the Eurex Dow Jones Eurostoxx® stock index future price and a synthetic iTraxx® CDS Europe index future price.

Again, one approach to structuring a Eurex Dow Jones Eurostoxx® stock index future/Eurex iTraxx CDS Europe index future relative value strategy, would be to ratio the respective contracts monetary value of the risk position based on historical price volatility.

Such cross asset/relative value strategies can be extended to initiate Eurex iTraxx® Credit Index futures versus European-equity volatility plays, using the Eurex VStoxx®, VDAX – New® and VSMI® equity volatility index contracts, and to European credit versus European equity volatility skew positions, using the Eurex Eurostoxx® stock index option contracts.

The Eurex OTC Block Trade Facility ('BTF') is extended to iTraxx® Credit Futures. This promotes maximum liquidity and trading flexibility for a fund manager initiating portfolio overlay and relative value strategies across European credit, bonds and equities. The BTF allows market participants, trading either for their own account or on behalf of customers, to enter off-exchange transactions in Eurex futures and options contracts and yet still have the transactions cleared by Eurex Clearing AG, the Eurex clearing house.

Conclusion

Using derivatives in portfolio overlay increases the efficiency of fund

management by allowing fund managers to quickly move from one asset class to another without disrupting the underlying portfolio. The recent launch of the Eurex iTraxx® Credit Futures contracts introduces a new asset class for this strategy. The iTraxx® Credit futures contracts offers fund managers a highly *leveraged* (0.29% of underlying margin required for iTraxx® Europe futures; 0.55% for iTraxx® HiVol futures and 2% for iTraxx® Crossover futures) and *cheap* i.e. exchange fees of €0.40 per €100,000, access to credit market 'beta'. Moreover, the Eurex iTraxx® Credit futures offers fund managers more opportunities to generate alpha across European asset classes with all the benefits that exchange traded derivative products offer i.e. transparency, independent daily valuation and reduced counterparty risk.

** The Case for Exchange-Based Credit Futures Contracts*

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