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Learning Curve
Illustration of a Basket Credit Default Swap
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Figure 1 shows a basket credit default swap (CDS) written on a portfolio of five reference names. The protection seller writes protection on the basket, for which it receives the CDS premium. A notional amount is specified for each reference entity in the basket. During the term of the CDS if one of the reference entities experiences a credit event, the protection seller will make a protection payment to the protection buyer, to the value of the pre-specified notional amount (minus the usual value in accordance with the type of settlement mechanism chose. On occurrence of a credit event, the affected reference entity is removed from the basket. However the CDS itself still runs to its original maturity date, covering the remaining entities in the basket.

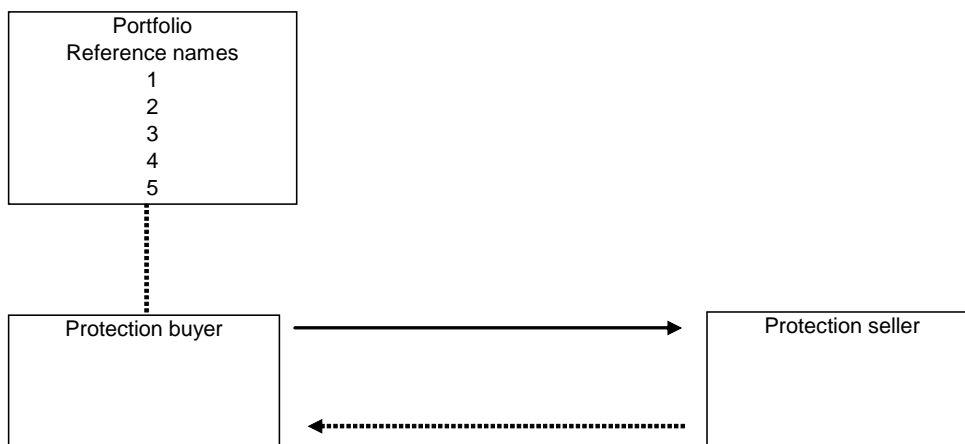


Figure 1 Basket CDS

For example consider a basket CDS as shown in Figure 1, written on a portfolio of five reference entities. A protection buyer enters into a basket CDS with a market maker with the following terms:

Trade date	17 February 2004
Value date	19 February 2004
Maturity date	19 Feb 2009
Notional amounts	USD 20 million for each entity
Portfolio notional value	USD 100 million
Settlement	Cash
Premium	285 bps

Assume that one year into the transaction, one of the reference entities experiences a credit event. Its recover value is determined to be 70%. The protection seller makes a payment of :

$$\text{USD } 20 \text{ million} \times (1.00 - 0.70)$$

or USD 6 million at the time of the credit event. The affected reference name then drops out of the basket.

The CDS will then continue to maturity, and assuming the portfolio experienced no further credit events, would expire on 19 February 2009 having not paid out any more cash flows (apart from the ongoing premium). The terms of the CDS would have changed to reflect a USD 80 million notional basket value, covering four reference entities.

If any of the remaining four entities experience a credit event, the same procedure will apply again. The main difference between a single name CDS and the basket is that the CDS would have terminated on occurrence of the credit event, whereas the basket will continue, albeit covering only for the remaining unaffected names, to its original maturity date. The key advantage of the basket CDS is that it typically offers protection for multiple names at a lower cost than if the protection buyer had taken out a series of single-name CDS for each name in the portfolio.

First to Default Portfolio CDS

A first-to-default CDS (FtD) is similar to the basket CDS described above, with one key difference: unlike with a standard basket CDS, on occurrence of a credit event the entire FtD CDS will terminate and settlement will be with regard to the entire notional amount following the first credit event affecting one of the reference entities. They are discussed further in Choudhry (2004).

If we assume the same circumstances as the earlier basket CDS, with the FtD CDS written on five reference entities for a notional total of USD 200 million, following the first credit event the swap will terminate with a settlement of USD 186 million.

The key issue for those analysing FtD swaps is the correlation between the different reference entity names. Correlation is assessed with respect to each name's industrial sector, credit rating, geographical region and so on. In contrast to an investor in (say) a cash flow CDO, where diversifying among the names in the portfolio will reduce the risk exposure to the credit protection seller, with an FtD CDS greater diversity may in fact increase the risk factor. This is because it may increase the probability of default or other credit event, since as soon as the first reference entity to experiences a credit event, it triggers termination of the entire CDS. For this reason, a FtD CDS will be priced at a higher level than a basket CDS for the same reference name, to compensate investors for the higher resultant risk exposure.

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Reference

Choudhry, M., *Structured Credit Products: Credit Derivatives and Synthetic Securitisation*, John Wiley & Sons 2004