CDS EXPLAINED

Understanding Credit Default Swaps

In order to understand how credit default swaps ("CDS") are used, it is important to understand some of the basic mechanics of swaps. Interest rate swaps are the most common form of swap in existence, and by using an interest rate swap to understand the relevant swap terminology, we can approach CDS from a more informed vantage point.

In a plain vanilla interest rate swap, one party agrees to pay a fixed interest payment in exchange for a floating interest payment (generally based on LIBOR). One party is the fixed leg of the transaction, and one party is the floating leg. To make life easier, the parties don't actually both have to send each other periodic payments; they just have to exchange the spread between the payments. So for example, if the fixed payor is obligated to pay 5%, and the floating rate at the time is 7%, the floating payor sends a payment of 2% to the fixed rate payor. The ability to pay a fixed rate is valuable in times when interest rates are rising, whereas the floating rate obligation is valuable in times when interest rates are falling. Those entering into an interest rate swap may be expressing an opinion on the direction of interest rates, hedging an existing liability or asset, or seeking to make changes to the overall duration of their portfolio.[1]

A credit default swap is designed to mitigate credit risk, rather than interest rate risk, but they were often traded from the same desk as interest rate swaps, so the interest rate swap terminology was used to describe CDS as well.

In a credit default swap one party agrees to pay a fixed stream of payments for a set period of time in exchange for the other party promising to

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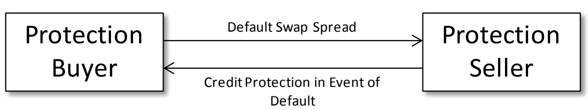
cover any losses incurred as a result of default (which can be defined a number of ways) on a named reference security. Again, we have two legs, one is the fixed pay leg and the other is the default leg. The buyer of protection (the fixed leg payor) always makes payments, whereas the default leg makes no payments unless there is a default event. As a result, the 'spread' between the two payments is really just going to be equal to the fixed leg payment. **Chart 1** illustrates the mechanics of this trade.

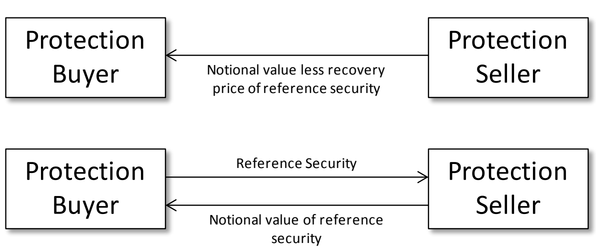
Chart 1



Source: Fabozzi Handbook of Fixed Income Securities 7th Ed.

In the event that there is a default, our CDS contract can specify either cash or physical settlement. In cash settlement, the protection seller pays the full amount lost on the reference entity to the protection buyer. In a physical settlement, the protection seller pays the full loss amount to the protection buyer, but the protection buyer provides the defaulted security back to the protection sellers (who can then try and recover some value from the security). **Chart 2** illustrates these two pay-off scenarios.

Chart 2



Source: Fabozzi Handbook of Fixed Income Securities 7th Ed.

In either case, the protection buyer does not have to actually own the underlying bond. While some of the mechanics of CDS trades suggest a hedging or insurance like nature to the contract, they are often traded in absence of the underlying collateral. In theory, this disconnection between ownership of the underlying security and the CDS contract should facilitate price discovery, in that it creates the possibility of going short or long the underlying without actually having to locate and trade the security. The absence of physical ownership should also allow the market to operate more efficiently, and with less friction caused by lower turnover and trading in the fixed income markets. However, the reality of CDS trading includes market days in which only a handful of contracts are traded, sometimes among very few market participants. Academic studies of the Credit Crisis time period have found that CDS levels were not an adequate predictor of default, and often decoupled dramatically from bond pricing, as a result of low liquidity in the CDS market space.

Ideally, the protection seller has set the fixed rate that it would require to sell protection at a level that covers its probability weighted losses if there is a default event. So, for example, I sell you protection on a $100 bond, and I think that if there is a default event you'll be able to recover 45 cents on the dollar. As a result of default I may have to pay you $55 at some point. Let's say I think there is a 4% chance that the bond will default during the five year term of our agreement. I would set the fixed rate to make sure that the present value of the payments I receive from you is worth $2.20 ($55 times 4%).

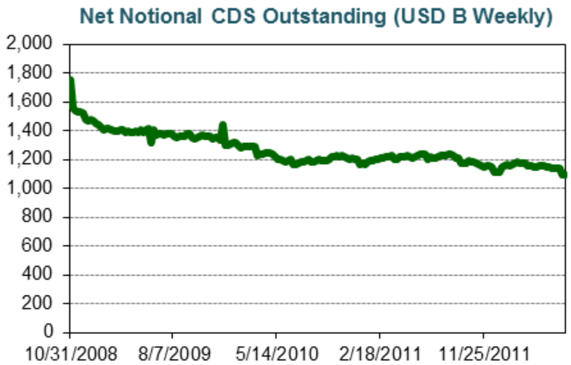
In a rational pricing model world, there is another way to set (or check) the level that the fixed rate payments should be set at. If I own a bond, and buy CDS protection on it, I have created a risk free bond. That is, I have eliminated the possibility of loss due to default, and have left myself with only exposure to changes in interest rates. The opportunity for arbitrage means that this synthetic risk free bond should not yield more than the risk free rate. So a good shortcut in setting rates (or checking them) would be to take the current yield on the referenced security and subtract the risk free rate, and set the fixed payment at that spread. If I own a bond that is yielding 8%, and the risk free rate is 5%, then it would make sense for someone to charge me 3% in exchange for a promise to cover default losses. Why? Because I can take that 8% that I am earning, use 3% on CDS payments, leaving me with a 5% return (just like if I owned a true risk free bond). If someone was willing to sell me credit protection for less than 3%, there would be an arbitrage opportunity to earn a risk free rate above the true risk free rate of 5%.

This spread based simple pricing helped perpetuate the misapplied spread terminology that was left over from interest rate swaps, but there is no actual iron law that requires people selling CDS protection to price at that level. As previously mentioned, there have been academic studies examining the relationship between CDS rates and actual bond yields, and there are clearly times when people were really concerned about the likelihood of default and the CDS spreads gapped out wider than the bond yield less risk free rate would suggest. There are also times when the reverse was true.

CDS trading experienced a boom brought about by the standardization of CDS contract terms under the International Swaps and Derivatives Association's master agreement, which was first defined for CDS in 1999 and then updated in 2003. Of particular importance is the definition of a credit event (which can be something less than default), as each contract can specify these events in number of different ways, having a standardized set of contracts allows both parties to be sure that they are undertaking the desired exposures. Contract standardization also allows for CDS exposure to be offset with another contract to close the trade, which is much more difficult if individual terms have to be matched up precisely.

CDS statistics report outstanding amount of activity in both gross and net notional terms. In **Chart 3** below, we present the outstanding amount of single-name[2] CDS on a net notional basis. While the exposure level is still in the billions, this is far lower than the $26 billion gross notional exposure recorded at the end of 2011 for both single and multi-name CDS. The exposure is lower because offsetting contracts are netted against each other, whereas the gross notional approach counts the notional value of every open CDS contract. As an example, if I am the protection seller on $10 million in bonds, the gross and net notional amounts would agree (assuming I am the only trader and this is my only trade). However, if I decided to close out my exposure to the first CDS contract by buying protection with identical terms to the first contract, the gross and net numbers will now disagree. On a net basis, my exposure to default is zero, I have offsetting trades. On a gross basis, I have created two $10 million contracts or $20 million in gross notional exposure. While gross notional numbers are useful in understanding the size of the CDS market space, net notional provides a clearer picture of actual exposure levels.[3]

Chart 3



Source: SIFMA

CDS have provided a means for investors to take a negative (or short) position on credit far more easily than they could by actually obtaining and selling a reference security. Because CDS positions are unfunded, and often times un-collateralized, these positions also allow for leverage. Selling a CDS contract requires the seller to put up nothing, until there is a credit event. As a result of this, CDS positions often had the effect of trading one type of credit exposure for another – while you may have protected yourself from a payment failure on behalf of the reference security, you are now implicitly relying on the CDS counterparty's ability to make payment. Credit exposure has not been eliminated, it has merely been shifted from the security to the counterparty. Of course, CDS protection could be obtained against the counterparty in another CDS contract, and so on, leading to a dramatic entanglement of opaque exposure like that experienced during the Credit Crisis in 2008.

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[1] Without getting too technical, because the floating rate leg of an interest rate swap carries near zero duration, whereas the fixed rate leg carries positive duration, the party that is long the fixed leg (receiving fixed payments) is always increasing their portfolio duration. The party that pays the fixed rate (receiving floating payments) is always decreasing their portfolio duration.

[2] Written against one specific reference entity.

[3] Even this may be high, since for the net notional amount to be paid out all referenced securities would need to default, and their recovery rates would need fall to zero.

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