

CREDIT DEFAULT SWAPS

Article by Marc Barrachin, CFA, Director - Evaluated Services, FT Interactive Data Corporation

Credit Default Swaps (CDS) are in the news: Even though no longer the chairman of the Federal Reserve, Alan Greenspan talks about them, the Federal Reserve and others are focused on operational inefficiencies in settlement; hedge funds and mutual funds use them. But, they remain mysterious for a lot of investors and asset managers. This article aims to provide a brief overview of the CDS market and basic CDS mechanics.

The International Swaps and Derivatives Association (ISDA®) reports that the notional amount of credit derivatives as of the end of 2005 reached \$17.1 trillion.¹ That is fairly small compared to the \$285 trillion notional amount outstanding for over-the-counter (OTC) derivatives, but it grew an astonishing 105% from 2004. The top four dealers represent over 25% of the total traded volume of all credit derivatives (the top ten dealers represent over 75% of the total traded volume).² For comparison purposes, the outstanding US bond market (including municipal, corporate, mortgage, treasury, agency/GSE, and asset-backed bonds) is \$25.8 trillion, and the total US-listed equities market capitalization is \$17.7 trillion.³

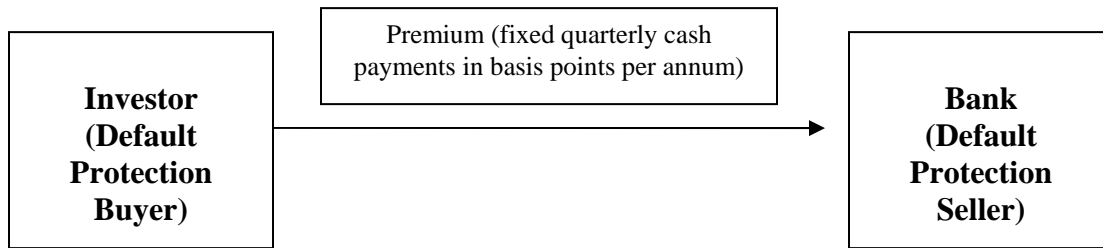
CDS contracts allow an investor to gain or shed credit exposure without having to own the underlying instruments (bonds). In their simplest form, they provide default protection on a bond position. For example, a hypothetical investor has a \$10 million position in GM bonds and wants to protect this position against the possibility that GM will stop making interest and/or principal payments on the debt. For a periodic premium (typically paid quarterly), he can buy protection by entering into a CDS contract, generally with a bank. In the event of default, the counterparty (the bank selling the protection) makes him whole (in a physical settlement, the bank would give him \$10 million and he would give the bank the now defaulted bonds). Below is a visual representation of this scenario.

From contract initiation to either CDS maturity or credit event

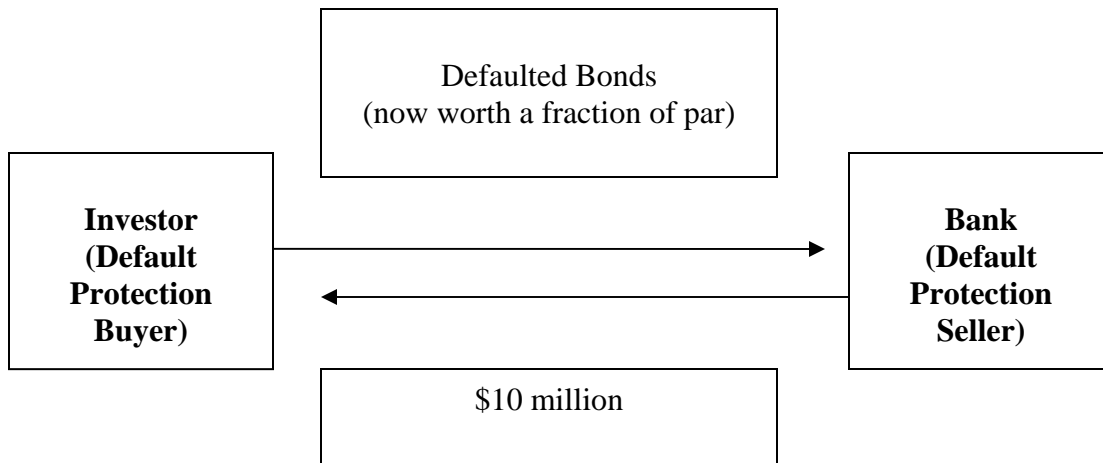
¹ www.isda.org

² www.fitchcdx.com

³ Bond Market Association - www.bondmarkets.com and www.nyse.com. Note that there are inherent limitations in comparing equity and fixed income amounts outstanding (real dollars in investors accounts) to the notional amount of derivatives. It is called notional because it is neither paid nor received (Options, Futures, and Other Derivatives; 6th Edition; John C. Hull). For Interest Rate Swaps, neither party to a transaction risks \$10 million, and for Credit Default Swaps the notional only comes into play in case of a credit event. More information can be found in the 1994 GAO Report, the September 2003 Financial Policy Forum Special Policy Brief.



Occurrence of Credit Event (Physical Settlement), assuming the credit event occurs on the premium payment date:



If the credit event occurs at a date other than on the premium payment date, the accrued portion of the premium is taken into consideration.

Our investor can also layer in different levels of complexity.

- He can short a company's credit, by entering into a CDS and buying protection. He doesn't own any bonds, but he believes that the current price of protection is cheap (the company's credit is going to worsen). He makes money if the company's credit deteriorates by entering into a reverse trade at a higher price.
- He can gain exposure to a company's credit without buying bonds. He can sell protection to gain exposure to a particular company, and receive the premium payments. He then benefits if the company's credit improves, collecting the periodic premium payments, and buying protection at a cheaper rate.
- He can package CDS together and create Collateralized Debt Obligations (CDOs).
- In addition to CDS on corporate bonds (example above), he can write CDS contracts on sovereign bonds, indexes, asset-backed securities, loans, commercial mortgage backed securities, etc.

Trends

Emergence of Markit RED™ codes as a standard – RED stands for Reference Entity Database, and RED codes identify the reference entity (entity issuing or guaranteeing the debt) and the reference obligation (the bond referred to in the CDS contract). It is critical to identify the correct underlying entity/obligation in the CDS contract. The mis-identification of the reference entity or obligation will result in inaccurate valuation of the trade, and ineffective protection in the case of a credit event.

DTCC's effort for automated affirmation/confirmation service – DTCC's Deriv/SERV service provides participants with real-time affirmation and confirmation services on single name CDS and index CDS trades. This automates the previously paper-driven process, and should allow firms to decrease the number of unmatched trades.

Growth in indexes volumes – Although credit derivative indexes have been around since JPMorgan launched Hydi in November 2001, the landscape changed dramatically in April 2004 with the merger of the Dow Jones® and iBoxx indexes and the emergence of the CDX and the iTraxx™. The CDX focuses on North America and the iTraxx on Europe and Asia. Investors can easily trade \$50 or \$100 million dollar notional amounts, with bid-ask spreads of 0.5 to 1 basis point, and execution costs of \$500 for a standard trade on Creditex.⁴

Standardization of terms – ISDA documentation has provided a high level of standardization in the terms of contracts, defining credit events and helping to establish the pay-as-you-go system for ABS and Loan CDS and the assignment process for trades between parties. ISDA also released guidelines for cash settlement of CDS contracts rather than physical settlement.

Globalization – CDS are being used worldwide. ISDA has translations of the model agreements and definitions in many languages, including French, Japanese, Chinese, and Portuguese. Volumes have risen dramatically in Hong Kong and Korea.

Electronic trading – Electronic trading of CDS has grown for index contracts, as the electronic commerce networks (ECNs) have added index CDS to the panoply of tradable products. Single name CDS are expected to start trading on ECN platforms soon, and exchanges have been talking about listing some CDS contracts.

Valuation methodology

There are many ways to value CDS contracts, however most firms use the JPMorgan® model or a derivation thereof. The JPMorgan model calculates the value of each leg of the trade (the fee leg – the protection buyer making periodic payments to the protection seller; and the contingent leg – the potential payment of the protection seller to the protection buyer in case of a credit event), discounts the cash flows to the present, and assumes that the combined value of both legs equals zero (if it didn't, you would have a pure arbitrage opportunity). The two legs of the transaction are determined using the credit spread to infer the probability of default of the reference entity over time. If there is

⁴ CreditFlux – Inside Guide to Credit Index Trading

no default, the premiums are paid until maturity (buyer to seller), but if there is a default there is a payment from the seller to the buyer.

The following factors impact the valuation:

- Reference entity: It is key to identify the proper reference entity (the legal entity issuing or guaranteeing the debt). The cost of protection for GMAC is very different than for GM. RED codes should help.
- Tier: It is more costly to buy protection on junior debt than on senior debt (there is more risk for junior than senior debt)
- Currency
- Restructuring type
- Dates (trade, settle, maturity)
- Credit spread curve
- Recovery rate

Keep in mind

CDS are over-the-counter contracts. They don't have a security identifier, such as a CUSIP®, and each dealer you trade with may use a different identifying nomenclature. The RED code identifies the reference entity and the reference obligation (defining the tier of debt deliverable under the contract), and although it is becoming a standard, not all of the organizations you deal with are using RED codes. Therefore, the onus is on your organization to identify each trade and reference entity. While setting up your numbering scheme, you should also verify with your applications and data vendors, that they can manage and deliver the data based upon your codes (which may require some initial mapping).

The data for CDS is different than for cash instruments. The investor and its counterparty are the only ones to know what the terms of the trade are: its trade date, maturity date, initial spread, tier, reference entity, restructuring type, currency. You will have to enter these details in your internal system(s), and make this data available to your pricing vendors and other service providers.

Unlike for equities, it is extremely unlikely that an investor will receive the same valuation for a CDS contract from different sources. For different sources to match, all the factors highlighted above will have to match perfectly. As you compare valuations, review the underlying assumptions, and decide on an internally acceptable level of variance.

Risks and Returns

CDS are a relatively new type of instrument, and the last few years have seen more standardization after some growing pains: lack of clarity in the definition of restructuring, more CDS contracts outstanding than bonds deliverable, and settlement of index trades where one of the constituents defaulted are a few examples. Standardizing contracts, definitions, and credit events has reduced the legal costs and risks. However, these contracts are still paper-driven, and therefore inefficient, and operationally risky. It is not

unusual for contracts to be signed days or weeks after they have been entered into, creating potential conflicts.

Overall, CDS have become easier to use. The growth of CDS indexes has made it easier and cheaper for firms to increase or decrease their credit risk exposure. CDS allow investors to buy exposure to entities when cash bonds are not available, or when bonds with a desired maturity aren't available, to short credit, and to buy foreign credit without exposure to foreign exchange rate risk. Their use has increased dramatically over the last three years, and the trend is expected to continue.