

## What are Credit Default Swaps?

Credit default swaps are similar to insurance for credit risk. Net buyers of credit default swaps are commercial banks. The major net sellers are insurance companies and financial guarantors. Most swaps are for contracts that cover debt between \$10MM and \$20MM. The market in 2008 reached \$60 trillion.

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### Buyer

The buyer pays a fixed fee, called the “spread”. CDS spreads are not the same as “yield spreads” between a corporate bond and government bond. The spread is the annual price paid by the buyer.

For example, on a \$1MM bond, if the spread is 160 bps (1.6%) and the payments are made quarterly, the buyer of the CDS would pay 40bps (0.4%) of the \$1MM notional value, which is \$4,000.

### Seller

The seller pays compensation to the buyer in the event of a “credit event.” Credit events can be bankruptcy, failure to pay, restructuring. The seller pays the difference between the recoverable, or the value of the bond at the credit event, and the face value of the bond.

Physical settlement is the most common method in a credit event. The seller purchases the distressed loan or bond at par.

### CDS Pricing

Pricing, or valuation, is composed of 2 parts – Fixed payments (buyer) and the Contingent payment (seller). The net of these 2 components is the value of the CDS.

### Example

The notional amount of the bond is \$100. Portfolio A consists of a short position on the Corp. A bonds (selling CDS) and a risk free bond. Portfolio B consists of Corp A bonds.

#### Scenario 1

If Corp A and the risk free bond doesn't default, they have the same payout.

If the Corp. A bond defaults, then Portfolio B will get the recovery rate value, in this example 45% of the face value, or \$45.

#### Scenario 2

Portfolio A will get the \$100 when the risk free matures, but will have to payout (1-R), which is 55%, or \$55. The net of the \$100 maturity and the \$55 payout is \$45.

So they have similar risk profiles, but Portfolio A benefits from the payments that are received from selling the CDS.

	Portfolio A			Portfolio B	
	Sell CDS on Corp. A	Risk Free Bond	Total Return	Corp. A Bond	Total Return
Scenario 1: No Default	Spread	100	spread+100	100	100
Scenario 2: Default R=45%	Payout (1-R) -55	100	spread + 45	45	45

[Analyst\(s\)](#)

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Understanding CDS will be crucial since the market is huge and the issues that came about during the 2008-2010 credit crisis were caused by instruments such as CDS. SN Valuation aims to provide visitors with tools to understand the valuation aspect of each instrument.

Below is a screen shot of the Excel model that is available on SN Valuation's website. The model will help users to understand the factors underlying CDS valuation.

	Fixed Leg								Contingent Leg	
	1	2	3	4	5	6	7	8	9	10
Month	Discount Factor	Survival Probability for Period (%)	Fixed Periodic Payment (bps)	Expected value of Fixed payment (bps) (2) x (3)	PV of Fixed Payment \$1M x (4) x (1)	Default Probability for the Period (%)	Expected Accrued Payment (bps) (3)/2 x (6)	PV of Accrued Pmt of \$1MM x (7) x (1)	Expected Contingent Payment (bps) at R (1-R) x (6)	PV of Contingent payment \$1M x (9) x (1)
0	1	100	0	0.00	0	0	0.00	0.00	0.00	0
3	0.99	99.9	40	39.96	3,956	0.1	0.02	1.98	5.50	545
6	0.98	99.6	40	39.84	3,904	0.3	0.06	5.88	16.50	1,617
9	0.97	99.1	40	39.64	3,845	0.5	0.10	9.70	27.50	2,668
12	0.96	98.4	40	39.36	3,779	0.7	0.14	13.44	38.50	3,696
15	0.95	97.5	40	39.00	3,705	0.9	0.18	17.10	49.50	4,703
18	0.94	96.4	40	38.56	3,625	1.1	0.22	20.68	60.50	5,687
21	0.93	95.2	40	38.08	3,541	1.2	0.24	22.32	66.00	6,138
24	0.92	94	40	37.60	3,459	1.2	0.24	22.08	66.00	6,072
				<b>Sum of PV(\$)</b>	<b>29,814.28</b>		<b>Sum of PV(\$)</b>	<b>113.18</b>	<b>Sum of PV(\$)</b>	<b>31,124.50</b>

**Sum of Fixed Leg**            \$29,927.46  
**Sum of Contingent Leg**    \$31,124.50  
**Value of CDS to**  
**protection buyer**            \$1,197.04