Package CDS

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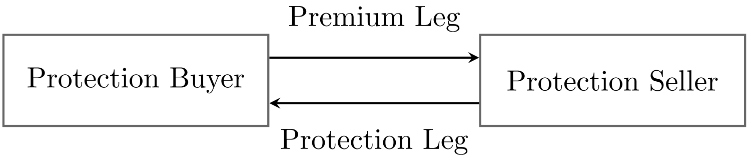
Single-Name CDS

- A transfer of credit risk between two parties
- The buyer pays a stream of coupon payments in order to receive a one-off, contingent payment in the case of a credit event

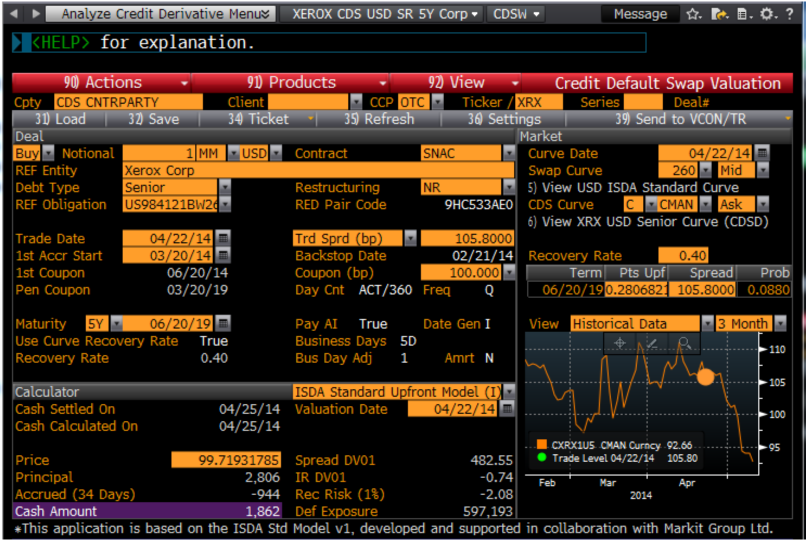
Figure : Mechanics of a CDS contract



The ISDA Standard Model

- Standardized coupon, recovery rate, and first accrual dates
- Conversion between conventional spread and upfront payments

Existing Tools - Bloomberg CDSW



Existing Tools - Markit Calculator

CDS Reference Entity And Contract Terms

Xerox Corp — (R) Required

Trade Details

Ticker/Company	XRX (R)	Red Code	
Trade Date	22-Apr-2014 (R)	Buyer/Seller	Buyer (R)
Trade Level	105.80(bp (R)		

CDS Contract Terms

Maturity Date	20-Jun-2019 (R)	Running Cpn	100 bps (R)
Notional (MM)	1 (R)	Tier	SNRFOR (R)
Currency	USD (R)	Recovery Rate	40 % (R)
Counterparty		Restructuring	XR

Advanced Terms

Cash Settlement	3	Roll Code	F
Holiday Code	none	Day Count Conv	A/360
Payment Freq	3M	Step In Date	23-Apr-2014

Calculate | Clear All

E-mail Results — Send

Please note:
All cash flows and default probabilities correspond to the trade level and trade maturity.
Maturities correspond to: IMM dates

Credit Curve

Transform Method: Proportional

Maturity	Markit EOD	Transformed	Default Prob
6M		105.800 bps	1.1756 %
1Y		105.800 bps	2.0506 %
2Y		105.800 bps	3.7868 %
3Y		105.800 bps	5.4877 %
4Y		105.800 bps	7.1585 %
5Y		105.800 bps	8.7997 %
7Y		105.800 bps	12.0000 %
10Y		105.800 bps	16.5890 %
15Y		105.800 bps	23.7093 %
20Y		105.800 bps	30.2218 %
30Y		105.800 bps	41.6292 %

Recalculate

Calculation Results

Market Value	1,862
Cash Settlement	1,862
Accrued Days	34
Accrued Amt	944.44
Currency	USD

Details — Show Cash Flows

	Transformed	User
Market Value	1,862	1,862
Clean Price	99.72 %	99.72 %
Cash Settlement	1,862	1,862
Accrued Days	34	34
Accrued Amt	944.44	944.44
Credit DV01	483	483
IR DV01	-1	-1

Yield Curve

Date 21-Apr-2014
Snap 1600 TimeZone: New York

Recalculate

Period	Type	Rate
1M	Deposit	0.1522 %
2M	Deposit	0.1929 %
3M	Deposit	0.2259 %
6M	Deposit	0.3198 %
1Y	Deposit	0.5465 %
2Y	Swap	0.5380 %
3Y	Swap	1.0000 %
4Y	Swap	1.4475 %
5Y	Swap	1.8165 %
6Y	Swap	2.1180 %
7Y	Swap	2.3490 %
8Y	Swap	2.5430 %
9Y	Swap	2.6955 %
10Y	Swap	2.8250 %
12Y	Swap	3.0275 %
15Y	Swap	3.2285 %
20Y	Swap	3.3970 %
25Y	Swap	3.4730 %
30Y	Swap	3.5070 %

Interest Rate Conventions

Spot Date: 24-Apr-2014	Swap DCC: 30/360
MM DCC: A/360	Swap Interval: 6M
Floating DCC: A/360	Holidays: none
Floating Interval: 3M	Bad Day Conv: MF

Package CDS

```
> library(CDS)
>  cds1 = CDS(entityName = "Xerox",
+              RED = "9HC533",
+              TDate = "2014-04-22",
+              maturity = "5Y",
+              notional = 1e6,
+              coupon = 100,
+              parSpread = 105.8)
>  summary(cds1)
```

Contract Type:	SNAC	TDate:	2014-04-22
Entity Name:	Xerox	RED:	9HC533
Currency:	USD	End Date:	2019-06-20
Spread:	105.8	Coupon:	100
Upfront:	1,862	Spread DV01:	483
IR DV01:	-0.74	Rec Risk (1 pct):	-2.12

Package CDS

Calculator		ISDA Standard Upfront Model (I)	
Cash Settled On	04/25/14	Valuation Date	04/22/14
Cash Calculated On	04/25/14		
Price	99.71931785	Spread DV01	482.55
Principal	2,806	IR DV01	-0.74
Accrued (34 Days)	-944	Rec Risk (1%)	-2.08
Cash Amount	1,862	Def Exposure	597,193

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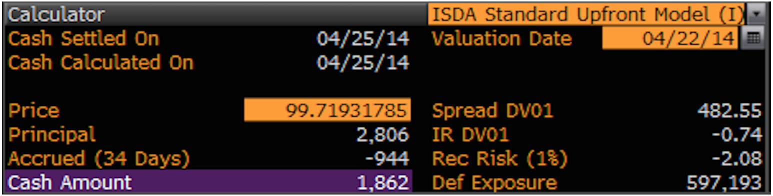

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```
> cds1@defaultExpo
[1] 597193.4
```

Package CDS

Benchmark S260 (USD ISDA Standard Curve - Mid)
Date 04/22/2014

Term	Rate	Term	Rate
1 Month	0.1522	12 Year	3.0275
2 Month	0.1929	15 Year	3.2285
3 Month	0.2259	20 Year	3.3970
6 Month	0.3198	25 Year	3.4730
12 Month	0.5465	30 Year	3.5070
2 Year	0.5380		
3 Year	1.0000		
4 Year	1.4475		
5 Year	1.8165		
6 Year	2.1180		
7 Year	2.3490		
8 Year	2.5430		
9 Year	2.6955		
10 Year	2.8250		

```
> cds1

...

Credit curve effective of 2014-04-22
 Term       Rate Term       Rate
    1M 0.001522   7Y 0.023490
    2M 0.001929   8Y 0.025430
    3M 0.002259   9Y 0.026955
    6M 0.003198  10Y 0.028250
    1Y 0.005465  12Y 0.030275
    2Y 0.005380  15Y 0.032285
    3Y 0.010000  20Y 0.033970
    4Y 0.014475  25Y 0.034730
    5Y 0.018165  30Y 0.035070
    6Y 0.021180
```

We Welcome Feature Requests!

Thank You!

CDS Package: http://cran.r-project.org/web/packages/CDS/index.html

Repository: https://github.com/yl2/CDS

Vignette: http://cran.r-project.org/web/packages/CDS/vignettes/CDS.pdf

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