Global Fixed Income Research
U.S. Credit Spreads Composite Overview and Methodology

Overview

Standard & Poor's Credit Composites reflect daily movements in credit spread levels within various bond market sectors. Credit spreads are a measure of the market's valuation of credit risk. Credit spreads are quoted in basis points (hundredths of a percentage point) relative to a benchmark such as a U.S. Treasury bond or the U.S. Treasury yield curve. Standard & Poor's currently reports daily credit spreads above the U.S. Treasury yield curve for two rating spectrums within the U.S. industrial sector:

- **Standard & Poor's U.S. Industrial Investment-Grade Credit Composite** represents daily credit spread levels within the U.S. industrial investment grade rating spectrum.

- **Standard & Poor's U.S. Industrial Speculative-Grade Credit Composite** represents daily credit spread levels within the U.S. industrial speculative grade rating spectrum.

Features

Standard & Poor's corporate bond spreads are compiled on a daily basis using daily closing option-adjusted spreads (OAS) for more than 5,000 issues. The number of issues varies depending on data availability since a composite is an aggregate of all issues in a single group that fulfill a particular set of criteria. Fixed-coupon bonds, excluding convertible, step-up, and preferred securities, are among the issues included in Standard & Poor's Credit Composites. Issues included in the composite bond spread calculations have the following characteristics:

- Face amount outstanding of $100 million or greater
- U.S.-dollar denominated issues of companies domiciled in or outside the U.S.
- Rated by Standard & Poor's
- Embedded call, put, and sinking fund options (as long as they are not callable or putable within one year)
- Duration-matched Treasury bond maturity of at least 0.7 years

Example Matrix: U.S. Composite Credit Yields—Industrial Sector

Date	Maturity	Treasury	AAA	AA	A	BBB	BB+	BB/BB-	B
5/28/2004	1	1.82	2.21	2.10	2.11	1.78	3.66	4.21	6.22
	5	3.80	4.44	4.39	4.56	5.22	6.13	6.64	8.21
	10	4.65	5.40	5.38	5.62	6.71	7.19	7.69	9.07
	15	4.86	5.67	5.66	5.94	7.29	7.52	8.01	9.28
	20	5.06	5.92	5.93	6.23	7.76	7.81	8.29	9.49
	25	5.27	6.16	6.17	6.50	8.16	8.09	8.56	9.70

The creation of a full yield curve requires a sufficient number of bonds with maturities throughout the curve. Lower speculative-grade rated issues have short maturities, making it impossible to create yield curves with meaningful end values. For these reasons, some rating categories, designations, and maturities are necessarily omitted.

Rating Spectrum

Each business day, issuers that are included or have the potential to be included in the U.S. Industrial Investment-Grade Credit Composite and U.S. Industrial Speculative-Grade Credit Composite must be rated by Standard & Poor's with one of the rating designations below.

Investment-Grade Credit Index
Required issue rating designations

Standard & Poor's Ratings Services
AAA
AA+
AA
AA-
A+
A
A-
BBB+
BBB
BBB-*

*Unless the issue also has a CreditWatch listing with Negative or Developing implications

Speculative-Grade Credit Index
Required issue rating designations

Standard & Poor's Ratings Services
BB+**
BB
BB-
B+
B
B-
CCC+
CCC
CCC-

**Unless the issue also has a CreditWatch listing with Positive or Developing implications

U.S. Industrial Subsectors

For the purposes of the Standard & Poor's Credit Composites, Standard & Poor's has identified the following 18 U.S. industrial subsectors.

Aerospace and defense
Autos and auto suppliers
Capital goods
Chemicals
High technology
Home builders
Machinery
Media and entertainment

Consumer products	Metals and mining
Energy	Retail and restaurants
Engineering and construction	Telecommunications
Forest products, building materials, packaging	Transportation
Health care	Waste services

Why Use Option-Adjusted Spreads?
Fixed-income securities may have a variety of embedded options. Examples include:

- Call options, giving the issuer the right to repurchase the issue at either one or multiple time(s) and price(s);
- Put options, giving the investor the right to repurchase the issue at either one or multiple time(s) and price(s);
- Sinking fund options, giving the issuer the right to accelerate or vary the manner in which future scheduled principal payments are made.

In certain interest rate environments, the nominal credit spreads of bonds with embedded options may not be representative of actual credit spread movements. OAS are used as a proxy for nominal credit spreads in order to adjust for the presence of these embedded options.

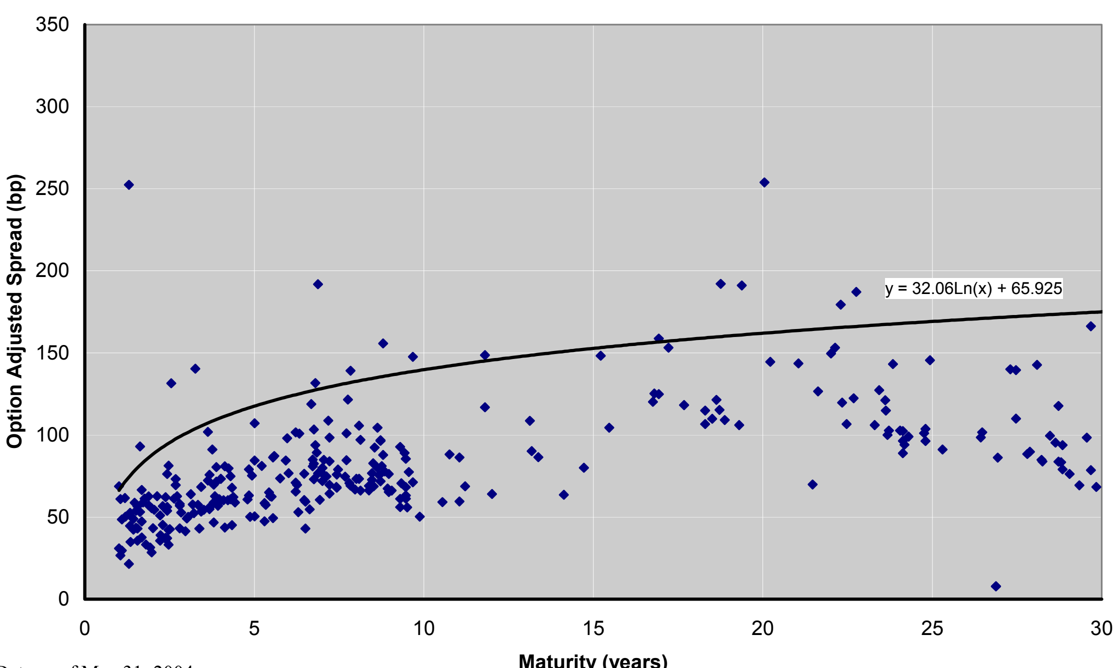
How to Calculate Option-Adjusted Spreads
An OAS is derived from a standard fixed income calculation that measures the market's valuation of credit risk relative to reference yield curve. Using the daily U.S. Treasury yield curve, a short rate volatility, and mean reversion, the OAS model generates an interest rate binomial tree for one-period-forward rates. When the price of a bond with an embedded option is entered, the model shifts the discount rates on the lattice up or down by a uniform number of basis points until it finds the appropriate discount rate for the bond's cash flows so that their sum converges with the entered price. The magnitude of the shift required for convergence is equal to the OAS. The OAS on bullet (optionless) bonds is about the difference between the corporate bond's yield to maturity and the yield to maturity of a similar U.S. Treasury issue.

Standard & Poor's uses fixed income valuation software developed by Andrew Kalotay Associates, Inc. to calculate OAS, portfolio option adjusted spreads, and effective portfolio duration. For detailed information about the methodologies used in these calculations please refer to the Andrew Kalotay Associates, Inc. Web site: www.debtpays.com, or call (1) 888-525-6829 ((1) 888-KALOTAY).

Methodology
Example: U.S. Industrial 'A' Credit Spreads

The U.S. Industrial 'A' OAS are plotted against duration-matched Treasury maturities in Chart 1 below. A logarithmic curve is fitted to the data points. Reported credit spread composites are defined by various points on the logarithmic curve. For example: one, five, 10, 15, 25, and 25-year spreads.

U.S. Industrials Rating Category 'A' Credit Spreads



Data as of May 31, 2004.