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Overview of Credit Ratings

As the number and complexity of financial instruments in the global financial markets have grown, credit ratings have taken on heightened importance in helping individual and institutional investors make better-informed investment decisions. Credit-rating agencies are often regarded as the gatekeepers of the capital markets because of the impact of their opinions on the structuring and pricing of financial products.

What Is a Credit Rating?

A credit rating is an opinion of the general creditworthiness of either an *issuer* or one of the specific *issues* made by the issuer. The rating is based on whatever risk factors the rating agency believes are relevant to the likelihood that the issuer will honor the terms of a financial contract. An example of an *issuer* rating is the rating of a company (e.g., IBM), an organization (e.g., Fannie Mae), or a sovereign country (e.g., Brazil). An example of an *issue* rating is a rating of a specific instrument of an issuer, such as Bell South's bond with a 6.875% coupon and maturity of 2031. The risk and, therefore, the rating of an issue will depend on how it is structured in terms of its seniority relative to other issues in the capital structure and in terms of its collateral (i.e., assets pledged as security). Because of these structural factors, an issue may receive a different rating than the issuer. While ratings remain primarily focused on debt and other fixed-income instruments, the spectrum of rated instruments has grown. **Exhibit 1** provides a summary of the various types of rated securities.

Rating Agencies

The three primary rating agencies are as follows:

1. Moody's Investor Service (Moody's)
2. Standard & Poor's (S&P)
3. Fitch IBCA, Duff & Phelps (Fitch)

Moody's and S&P are generally considered the most influential because they have the widest geographical coverage.

Rating agencies began assigning ratings of government and corporate debt at the beginning of the 20th century.[1] With few sources of reliable information, investors had difficulty comparing bonds issued by different companies. Rating agencies filled this void by providing an objective view to help investors evaluate

[1] Company websites of Moody's and S&P.

their alternatives. The agencies operate without government mandate and have remained independent from the investment community. It is because of their independence and reputation for objectivity that their opinions are accepted as credible by the investment community.

Rating agencies generate their revenues from two primary sources:

1. Fees from issuers that solicit ratings for their securities, which consist of both per-issue fees and annual fees. The amount of the fee depends on the type and size of security being rated and on the total number of securities of the issuer already rated by the agency. For bonds and preferred stock, per-issue fees for both Moody's and S&P have a minimum of $25,000–$30,000 and a maximum of $225,000–$250,000. Annual fees range from $12,500 to $15,000.[2]
2. The sale of research, software, and other proprietary information.

At first glance, it may seem unusual that rating agencies are able to charge issuers to scrutinize their credit quality. In particular, why should a firm pay to get a low or disappointing rating? The alternative, however, is to attempt to issue the security with no rating, which is tantamount to signaling the very poorest of investment quality. Over the years, the rating agencies have established a reputation as providing reliable assessments of risk in the capital markets—so much so that a low rating is better than no rating in terms of the price paid for a new issue and the level of demand for the issue. On the flip side, receiving a high rating works strongly in an issuer's favor by signaling to the market that the issue deserves favorable pricing. Such signaling would not be credible in the capital markets without the services of a highly reputable third party whose livelihood depends directly on its reputation for accuracy and independence.

Rating Categories

Ratings are constructed to represent the risk of default; that is, a high (low) rating implies a low (high) probability of default. Default refers to any event that results in the issuer's breaching its financial contract. A default could be relatively minor, such as failing to meet a contracted financial ratio like times interest earned (EBIT divided by interest expense). Or a default could be more serious, such as a failure to make an interest or principal payment.

Accordingly, large companies with strong and stable cash flows are likely to be rated higher than small companies with more volatile cash flows. Ratings are broken down between short-term and long-term securities, where short term is defined as a maturity of one year or less. **Figure 1** shows the major rating categories for the three rating agencies.[3]

[2] Moody's and S&P fee schedules for corporate debt and preferred stock, January 1, 2001.

[3] Short term refers to securities whose maturities are less than one year; long term refers to securities whose maturities are greater than one year. "P" for Moody's refers to "Prime."

Figure 1. Rating categories.

Intermediate to Long-Term:

	Moody's	S&P	Fitch
	AAA	AAA	AAA
Investment Grade	Aa	AA	AA
	A	A	A
	Baa	BBB	BBB
	Ba	BB	BB
Speculative Grade	B	B	B
	Caa	CCC	CCC
	Ca	CC	CC
	C	C	C
Default	D	D	D

Short-Term:

Moody's	S&P	Fitch
P-1	A-1	F-1
P-2	A-2	F-2
P-3	A-3	F-3
NP	B	B
	C	C
D	D	D

Source: Unless otherwise notes, all figures created by authors based on publicly available data.

Investment grade refers to the safest levels of financial securities. This term was originally used by regulatory bodies to denote obligations eligible for investment by such institutions as banks, insurance companies, and savings and loan associations.[4] Investment-grade securities have historically exhibited relatively low rates of default.

Speculative grade, or noninvestment grade, refers to the riskier securities. Debt rated BB (Ba for Moody's) or below is noninvestment grade, and is sometimes referred to as "high yield" or "junk." Default rates among these classes of securities are comparatively high.

Within the major rating categories (AA, A, etc.), credit ratings are often modified to show relative standing within a category.[5] Moody's uses numbers 1, 2, and 3, while S&P and Fitch use plus (+) and minus (−) signs. For example, **Figure 2** shows the three tiers of the "triple-B" category:

Figure 2. "Triple-B" category.

Moody's	S&P	Fitch
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

It is not uncommon for different ratings to be assigned by the rating agencies to the same issuer/issue. For example, Intelsat, a Washington-based satellite company, was rated A3 by Moody's and A by S&P in April 2001, reflecting a slightly more optimistic opinion by S&P. An issuer/issue that has different ratings from two of the rating agencies is said to be "split rated."

Notching

Rating agencies recognize the relative risk of securities issued by the same firm by notching the issues relative to each other. Debt obligations have varying degrees of risk, depending on their priority in a

[4] Standard & Poor's Corporate Ratings Criteria 2000.
[5] Only for ratings between the categories of AA and CCC.

company's capital structure. For example, senior debt has priority over subordinated debt in bankruptcy and will therefore receive a higher rating. Similarly, secured debt will receive a higher rating than unsecured debt because of its senior claim. A specific example is CSX Corporation, a transportation company headquartered in Richmond, Virginia, which received a Moody's rating of A1 for its equipment trust certificates (secured debt), Baa2 for its senior unsecured debt, and Baa3 for its subordinated debt. Its subordinated debt is said to be rated one notch below its senior debt.[6]

Default Risk

Because ratings are assessed in terms of default risk, we would expect that the historical frequency of defaults would be higher for lower-rated bonds. In this case, a default is considered to have occurred upon the first missed promised payment. **Exhibit 2** reports the average cumulative frequency of default as a function of time after receiving a certain rating as reported by S&P. For example, the last column of the table shows that, on average, after being rated BB, 16.36% of the bonds default within 15 years. In contrast, after being rated AAA, only 0.51% of bonds default within 15 years.

Figure 3. Average cumulative 15-year default rates.

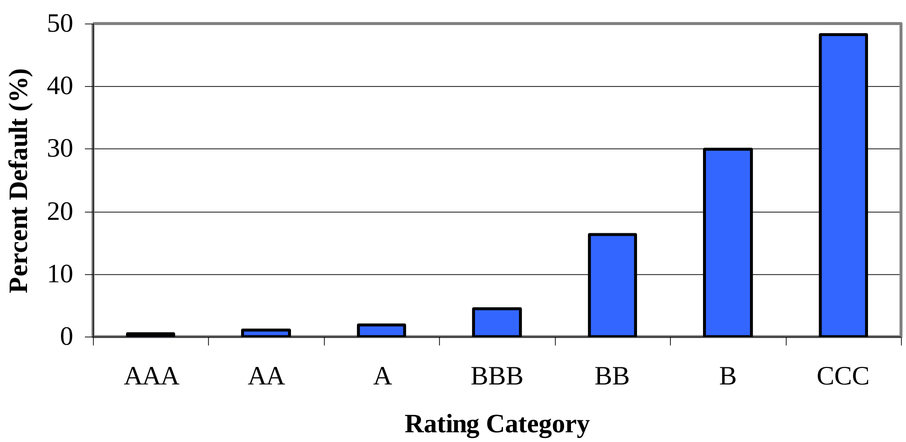


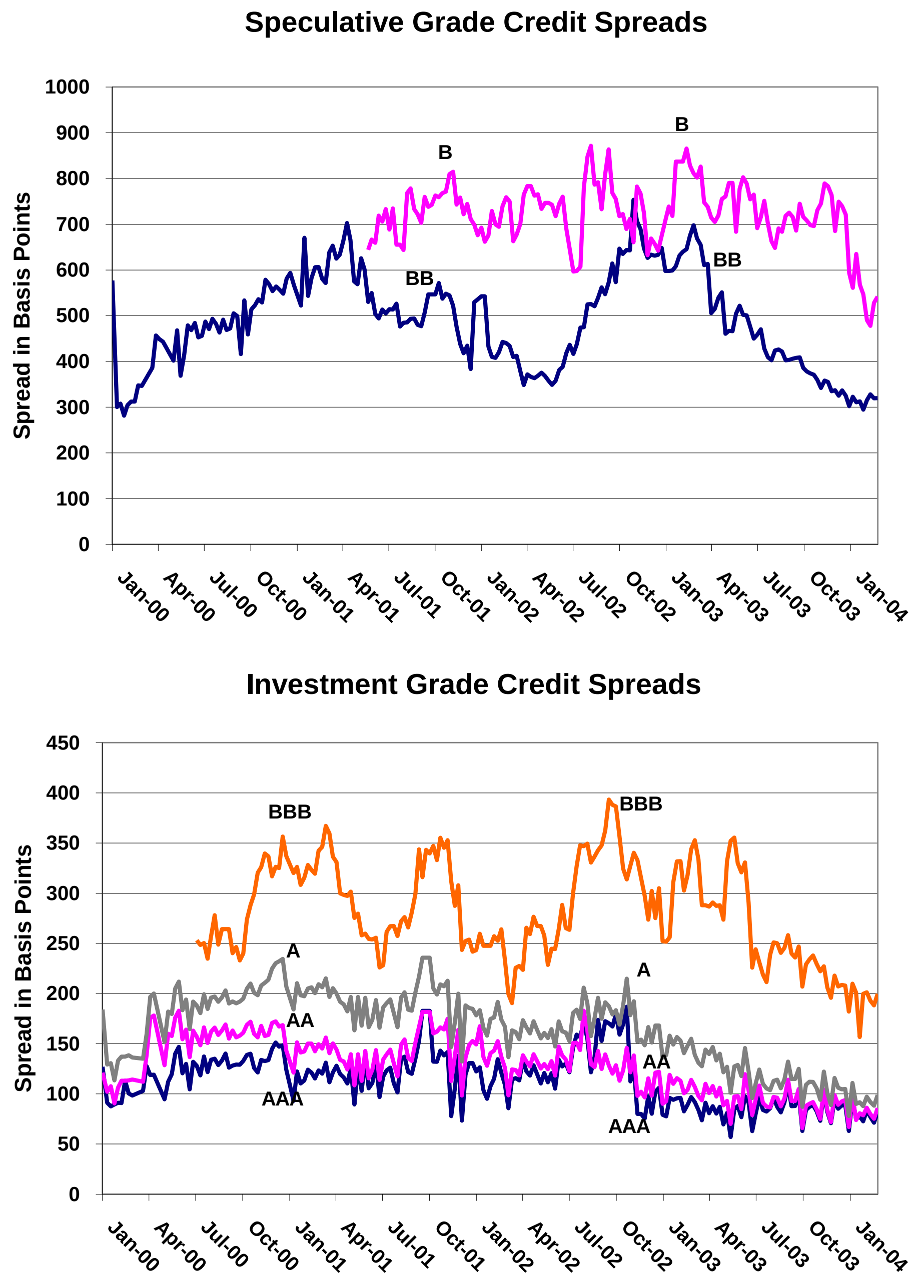
Exhibit 2 and **Figure 3** illustrate that the 15-year default rate increases dramatically as the ratings cross from investment grade (BBB and above) to noninvestment grade (BB and below).

Ratings and the Cost of Capital

Because lower ratings correspond to higher default rates, investors require greater returns for lower-rated securities to compensate for the higher risk. This required rate is normally quoted as an additional return, or "spread," over comparable-maturity Treasury securities. **Figure 4** shows examples of credit spreads for investment-grade and speculative-grade corporate bonds:

[6] Only for ratings between the categories of AA and CCC.

Figure 4. Credit spreads.



Source: Bloomberg.

The charts in **Figure 4** demonstrate that lower ratings correspond to a higher cost of financing. Therefore, a credit rating can have a dramatic impact on a company's bottom line and creates significant incentives for the company to take actions to improve its rating.

A rating is given based on the assessment of the risks facing the issuer at that point in time. Issuers that change their ability to honor financial commitments can have their rating changed. For example, on February 12, 2001, both Moody's and S&P lowered their ratings of Lucent Technologies, owing to continued credit-quality deterioration. Moody's lowered its senior unsecured rating from Baa1 to Baa3, while S&P lowered its rating from BBB+ to BBB−. Moody's and S&P also lowered their commercial-paper ratings from P-2 to P-3 and from A-2 to A-3, respectively. These actions raised Lucent's cost of financing considerably, and effectively shut the company out of the commercial-paper market.[7] Lucent's stock price fell 3.6% on the day of the announcement, the same day the S&P 500 rose 1.2%.

Rating Outlooks

Rating agencies recognize the possibility that future performance will deviate from initial expectations. Rating outlooks address this matter by focusing on scenarios that could result in a rating change. For example, a security could be placed on Moody's Review or S&P's CreditWatch because of a merger announcement if it has the potential to affect, either adversely or positively, the ability of an issuer to meet its obligations. Rating reviews are normally completed within 60 to 90 days or as soon as the situation has been resolved.

The Rating Process

Given the impact that ratings have on the cost of financing, issuers normally approach the rating agencies before registering and selling securities. First-time issuers want to know what type of rating they can expect. Similarly, existing issuers want to know how an additional debt issuance, for example, will affect their current rating.

The first step in the process is for the rating agencies to meet with company management. The purpose of this meeting is to discuss the proposed offering, the company's operating and financial performance and outlook, and a host of other factors that might affect the rating. The company's CFO is the main participant in these discussions, with the CEO participating in any strategy discussions.

Following this meeting, the rating agencies assign a team of individuals to analyze the transaction. This team includes the relevant industry analyst and a product analyst if the security to be rated is specialized. The team reviews the offering documents, financial statements, and management's presentation, which includes the terms of the proposed offering, use of proceeds, historical and pro forma financial analysis, competitive analysis, capital-expenditure plans, and so on. The rating agency's analysis, projections, and opinions may vary from those of the company's management or its investment bankers.

When the rating team has finished its analysis, a recommendation is made to an internal rating committee that votes on the proposed rating. Once the rating is determined, the company is notified and the rationale behind the rating is explained. A rating is often assigned within two weeks, depending on the nature of the proposed transaction, the current demand for ratings by other issuers, and the urgency of the company's request. Both Moody's and S&P allow the company to respond to the rating before it is released to the media, which gives the company the opportunity to appeal and present additional data supporting a higher rating.

After the final rating is assigned, an industry analyst tracks the company's performance and adjusts the rating, as appropriate, over time. Provided there are no specific concerns or additional issuances of securities, the rating agency typically conducts formal quarterly reviews and meets with management at least once annually to stay current with the company's development.

[7] S&P and Moody's press releases, February 12, 2001; "Lucent Says Shut Out of Commercial Paper Market," Reuters.

Rating Methodology

Assigning a rating involves a comprehensive review and analysis of a number of important categories of information with respect to the issue or issuer. A summarized list from both Moody's and S&P appears in **Exhibit 3**.

For international issuers, rating agencies consider additional factors that may affect the rating. These factors include sovereign rating ceiling, differences in local accounting standards, state ownership, local ownership and cross-holdings, access to local capital markets, political risk, economic risk, and monetary risk.

There is no specific formula for aggregating scores from these categories to determine a rating. In fact, much of the evaluation on the part of the agencies is subjective. Ratings are ultimately based on the relative strength of these and other variables deemed relevant by the agency.

Financial Ratios

Because ratings are relative measures of default risk, it is not surprising that companies with stronger financial measures have higher ratings, on average. **Figure 5** shows a summary of financial ratios for US industrial companies for the three-year period 1997–99.[8] The table shows that AAA companies had much larger EBIT interest-coverage ratios than did BBB companies (17.5× versus 3.9×). Similarly, operating margin was much higher for AAA (29.2%) than for BBB (15.3%) firms. In general, the ratios were consistent with higher-rated firms having less debt than lower-rated firms. For this reason, it is common practice for CFOs to use rating agencies' ratio medians as benchmarks for adjusting leverage levels to achieve a certain rating. Astute managers realize, however, that ratings are not determined solely by comparing ratios and are therefore best managed by demonstrating stability of performance over the long term.

Figure 5. US industrial three-year medians.

US Industrial Three-year Medians:	AAA	AA	A	BBB	BB	B
EBIT interest coverage (x)	17.5	10.8	6.8	3.9	2.3	1.0
EBITDA interest coverage (x)	21.8	14.6	9.6	6.1	3.8	2.0
Funds flow / total debt (%)	105.8	55.8	46.1	30.5	19.2	9.4
Free operating cash flow / total debt (%)	55.4	24.6	15.6	6.6	1.9	(4.5)
Return on capital (%)	28.2	22.9	19.9	14.0	11.7	7.2
Operating income / sales (%)	29.2	21.3	18.3	15.3	15.4	11.2
Total debt / capital (%)	26.9	35.6	40.1	47.4	61.3	74.6

The Role of Ratings in the Capital Markets

Ratings provide benefits to both issuers and investors. Issuing companies with investment-grade ratings enjoy wide and relatively inexpensive access to capital. Many investors, such as insurance companies, can invest only a limited percentage of funds in either speculative-grade or unrated securities. Thus companies that have investment-grade ratings expand their universe of potential investors considerably. Ratings also provide issuers with greater financial flexibility. For example, investment-grade companies qualify under SEC Rule 415, the so-called shelf-registration rule that allows companies to preregister securities and sell them more quickly in the capital markets once the company decides to raise capital. Also, higher ratings allow

[8] Standard & Poor's, *Corporate Ratings Criteria 2000*. Definitions for the formulas are provided in **Exhibit 4**.

companies to enter the capital markets more often and to sell larger offerings and securities with longer maturities.

For investors, ratings primarily reduce uncertainty. Less uncertainty encourages market growth and greater efficiency and liquidity. Ratings also widen investors' horizons by providing expert analysis of issues or issuers that can be difficult for even the most sophisticated investors to examine. Finally, ratings provide benchmark investment limits, so that a pension fund, for example, can manage its risk by stipulating a limit on the percentage of its assets that can be invested in securities below a certain rating.

Exhibit 1

Overview of Credit Ratings

Types of Rated Securities and Issuers

Issue Specific	Issuer Specific
Debt:	Corporate
--Equipment Trust Certificates	Sovereigns
--Secured	Counterparty ratings
--Senior Unsecured	Project Finance
--Subordinated	Agency
--Junior Subordinated	Municipals
--Mortgaged Backed	Structured Finance
--Asset Backed	
--Bank Loans	
Private Placements	
Preferred Stock	
Medium-term Notes	
Commercial Paper	

Source: Standard & Poor's, Moody's

Exhibit 2

Overview of Credit Ratings

S&P Cumulative Average Default Rates

Rating Category	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
AAA	0.00	0.00	0.03	0.06	0.10	0.18	0.26	0.40	0.45	0.51	0.51	0.51	0.51	0.51	0.51
AA	0.01	0.04	0.09	0.16	0.25	0.37	0.53	0.63	0.70	0.79	0.85	0.92	0.96	1.01	1.07
A	0.04	0.11	0.19	0.32	0.49	0.65	0.83	1.01	1.21	1.41	1.56	1.65	1.70	1.73	1.83
BBB	0.22	0.50	0.79	1.30	1.80	2.29	2.73	3.10	3.39	3.68	3.91	4.05	4.22	4.37	4.48
BB	0.98	2.97	5.35	7.44	9.22	11.11	12.27	13.35	14.29	15.00	15.65	16.00	16.29	16.36	16.36
B	5.30	11.28	15.88	19.10	21.44	23.20	24.77	26.01	26.99	27.88	28.48	28.96	29.34	29.68	29.96
CCC	21.94	29.25	34.37	38.24	42.13	43.62	44.40	44.82	45.74	46.53	46.84	47.21	47.66	48.29	48.29

Source: Standard & Poor's

Exhibit 3

Overview of Credit Ratings

Summary of Analytical Categories for Rating Corporate Industrial Issuers

Business Risks:

Industry Characteristics
--Principal competitors
--Size of industry and market share trends
--Competitive position in relevant markets
--Significant industry developments
--Strength of industry prospects
--Vulnerability to technological change, labor unrest or regulatory interference
--Capital intensiveness of industry

Operational Characteristics
--Breakdown of revenues, margins and cash flow by business segment
--Brand names, types and quality
--Characteristics of patents and proprietary knowledge
--Characteristics of research and development activity
--Description of principal suppliers
--Description of physical properties
--Capacity and utilization of facilities
--Subsidiary performance and intra-company dealings
--Government contracts and subcontracts
--Seasonality factors in business segments

Management
--Strategic plan for operations
--Description of directors and their affiliations
--Description of officers
--Organizational framework for operations
--Ownership of stock
--General assessment of credibility of management

Financial Risks:

Profitability
--Earnings record and budget for last 3-5 years
--Operating margins for business segments
--Fixed charge coverage trends
--Pretax return on capital employed
--Earnings comparison vs. competitors by business segment

Capital Structure
--Leverage ratios
--Off-balance sheet financing
--Preferred stock characteristics

Asset Valuation
--Book, liquidating and market values
--Patents held
--Characteristics of inventory
--Aging of receivables and bad debt provision
--Characteristics of investments

Cash Flow Protection
--Cash flow ratios
--Working capital requirements
--Debt repayment schedule

Financial Policy
--Accounting controls
--Risk tolerance of management

Financial Flexibility
--Contingent liabilities
--Insurance coverage
--Restrictive covenants in loan agreements
--Access to various capital markets
--Pension obligations
--Liquidity measures

Source: Standard & Poor's, Moody's.

Exhibit 4

Overview of Credit Ratings

Definitions of Financial Ratios

EBIT interest coverage =	<u>Earnings from continuing operations* before interest and taxes</u> Gross interest expense before capitalized interest and interest income
EBITDA interest coverage =	<u>Earnings from continuing operations* before interest, taxes, depreciation and amortization</u> Gross interest expense before capitalized interest and interest income
Funds from operations / total debt =	<u>Net income plus depreciation, amortization, deferred taxes and other non-cash items</u> Short and long-term debt** plus current maturities, commercial paper and other borrowings
Free operating cash flow / total debt =	<u>Funds from operations minus capital expenditures, plus/minus change in working capital</u> Short and long-term debt** plus current maturities, commercial paper and other borrowings
Return on capital =	<u>EBIT</u> Average of beginning and ending of year capital including debt**, equity and long-term deferred taxes
Operating income / sales =	<u>Sales minus cost of goods sold (before depreciation and amortization), SG&A, and R&D</u> Sales
Total debt / capitalization =	<u>Short and long-term debt** plus current maturities, commercial paper and other borrowings</u> Total debt plus shareholders' equity, preferred stock and minority interest

* Includes interest income and equity earnings; excludes non-recurring items.
**Includes amount for operating lease debt equivalent.

Source: Standard & Poor's