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Intro to Credit, Credit Analysis, and Credit Ratings

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Credit Ratings and Fixed-Income Credit Analysis

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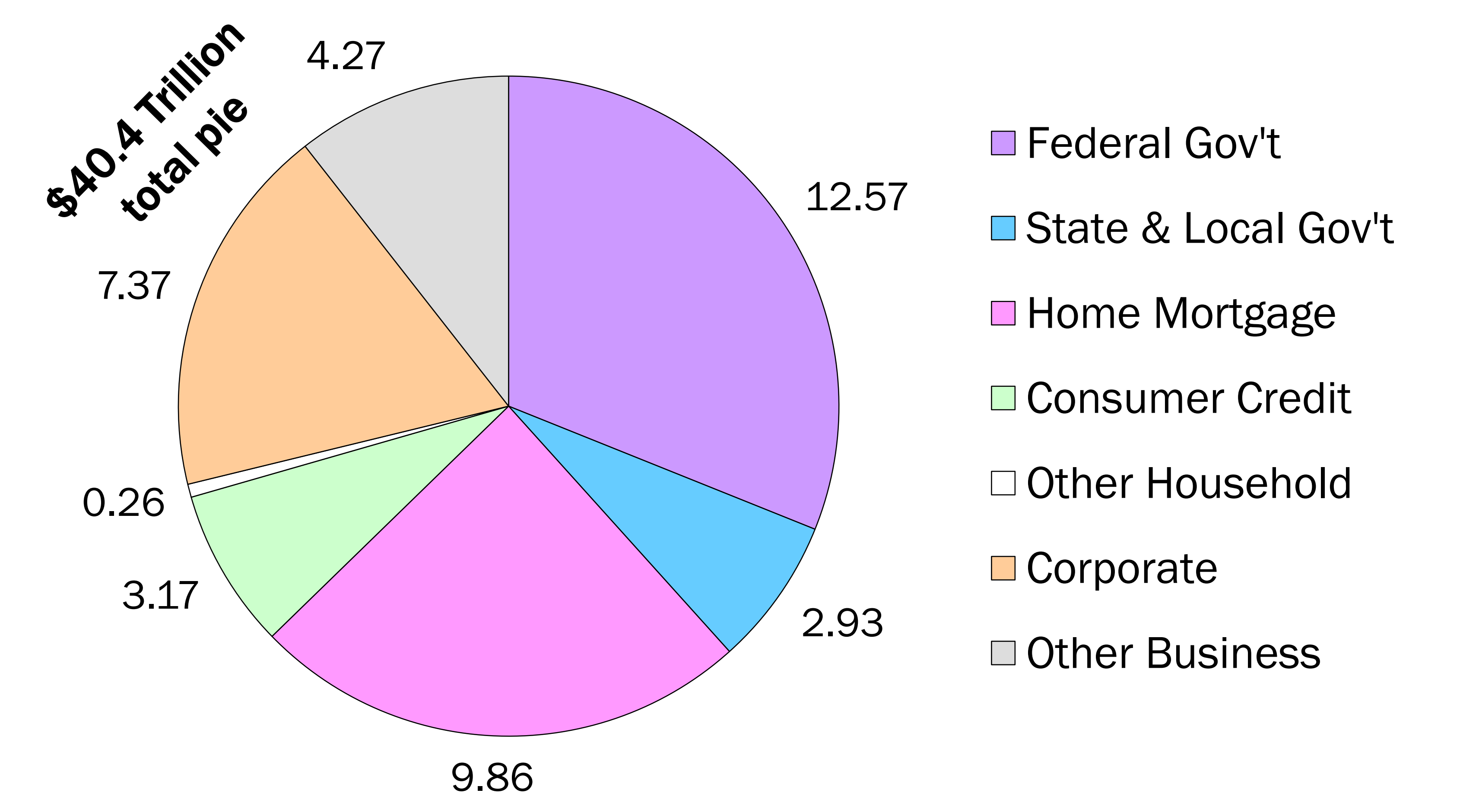
What is Credit (Debt)?

- Money owed
- Not an equity interest
- Principal and Interest only
  - Not as much “upside” as equity
- A traditional corporate bond is an “IOU” or a promise to pay from a company
- Credit relationships are everywhere
- May be secured or unsecured or carry ‘preferences’

U.S. Domestic Non-Financial Debt

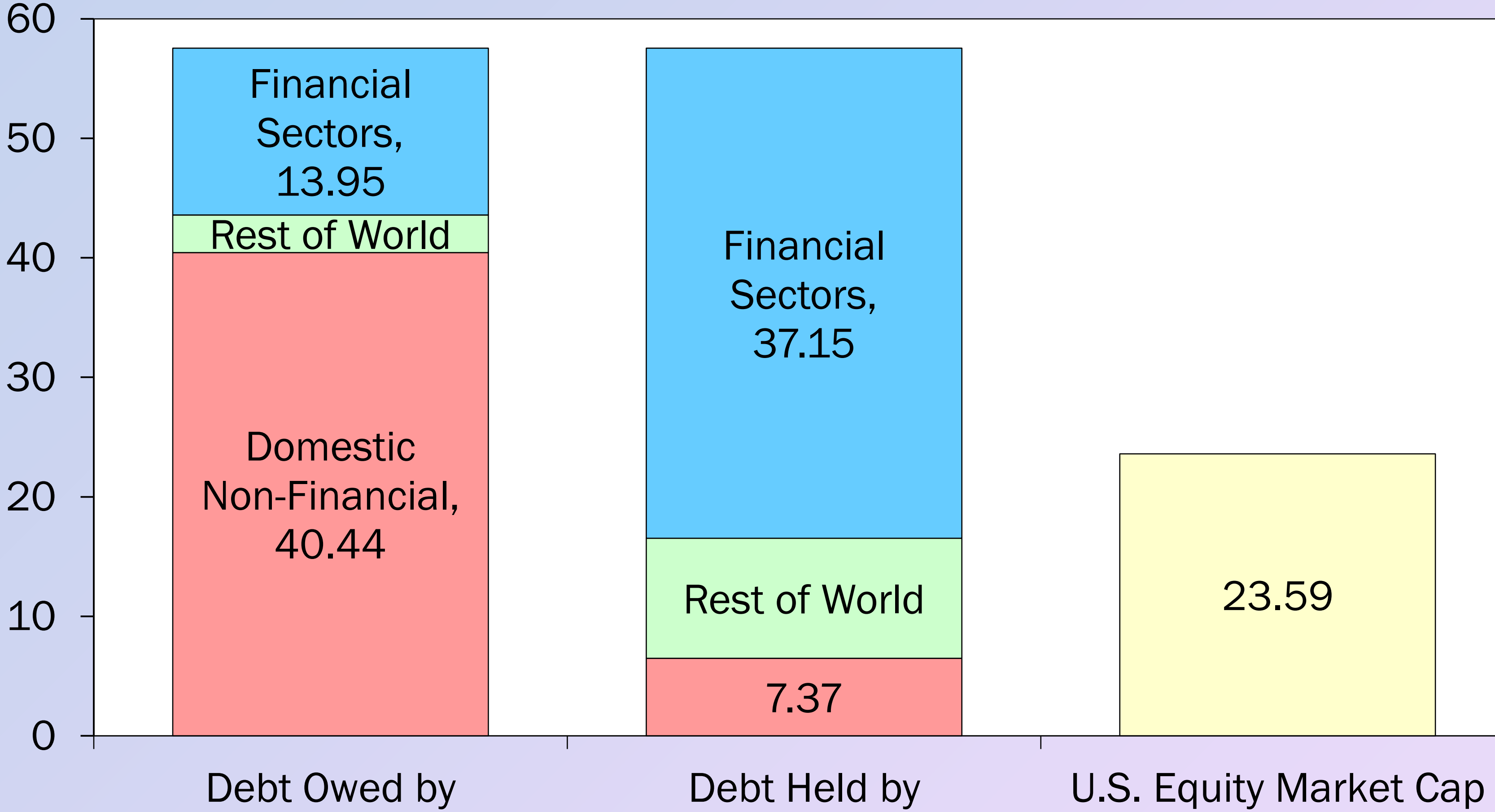
Debt Outstanding as of 6/30/2014 ($ Trillions)



Source: Federal Reserve, Flow of Funds Accounts of The United States, Table L.2

Comparative Amounts

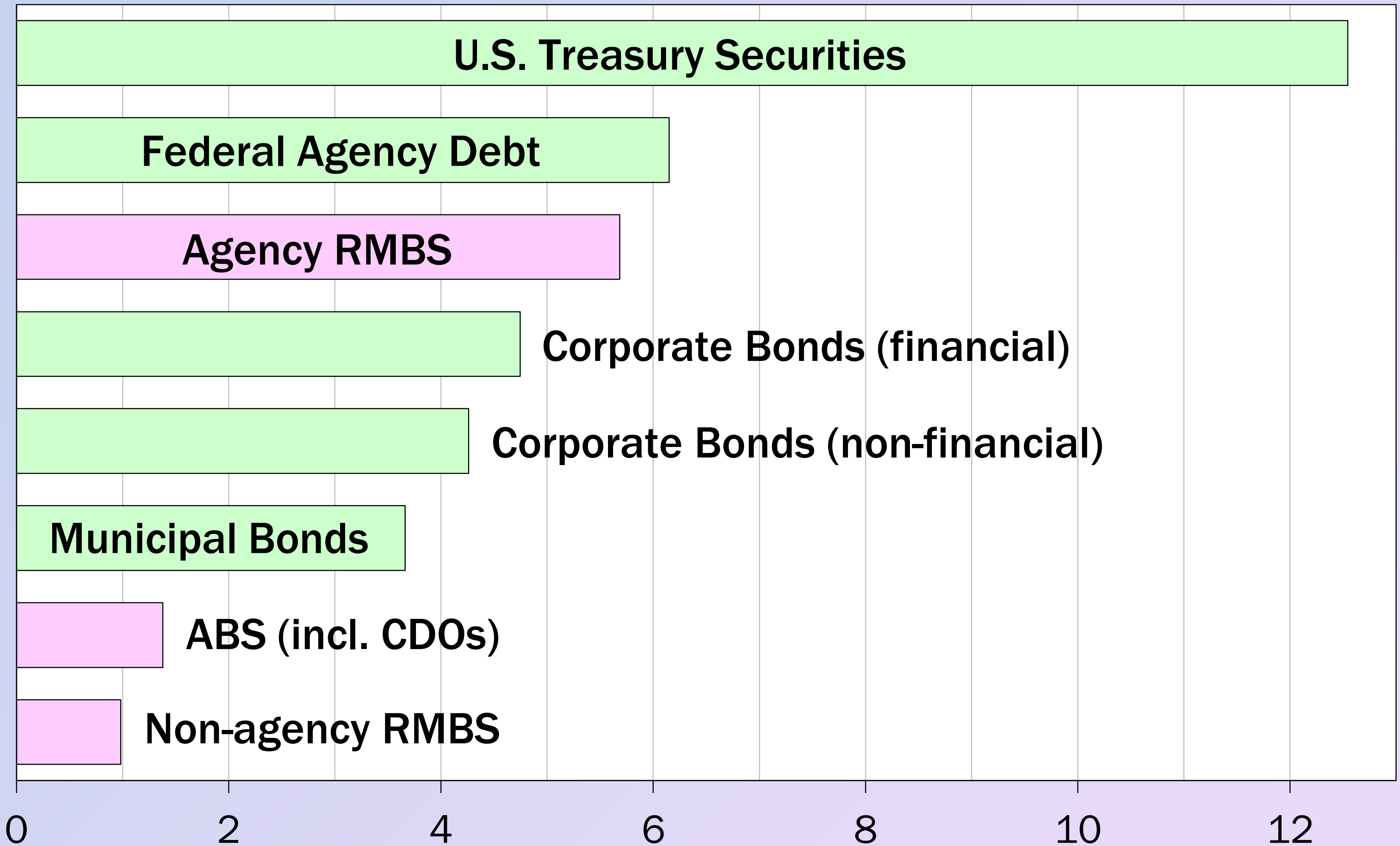
as of 6/30/2014 ($ Trillions)



Sources: Federal Reserve, Flow of Funds Accounts of The United States, Table L.1;
Bloomberg WCAUUS <index>

U.S. Capital Market Debt

as of 6/30/2014 ($ Trillions)



Sources: Federal Reserve, Flow of Funds Accounts of The United States; SIFMA

Credit Process Basics

- Lending money out
  - Whether to lend/invest
  - How much to lend/invest
  - What is the risk premium (*i.e.*, spread)
- Getting it back
  - Paid as due
  - Collecting on defaulted debts
  - Dealing with bankruptcy

What is Credit Quality?

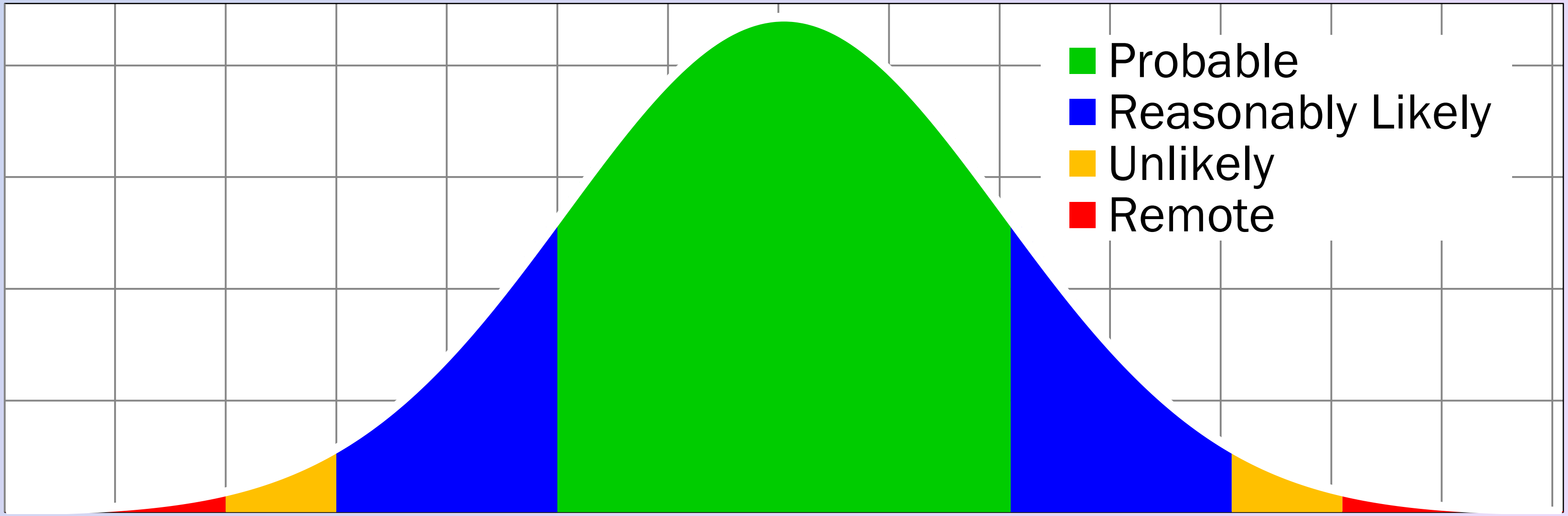
- How close is a borrower to defaulting (miss making required payments)?
  - Likelihood/probability approach
  - Scenario approach (e.g., recession, depression, etc.)
- If the borrower does default, will the lender's loss be large or small?
  - Expected loss approach
- How stable is the borrower's credit quality over time?
- What are the drivers of each of the above items?
- Multi-dimensional

Drivers of Credit Quality

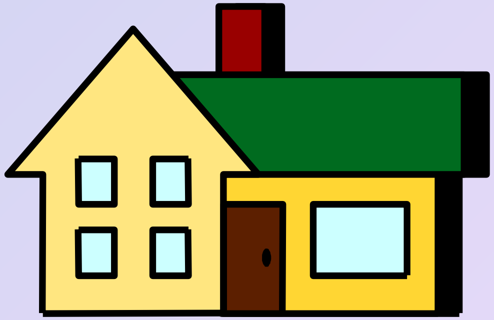
- Ability to pay
  - Sources of repayment
    - Future cash flows from operations
    - Future cash flows from specific assets
    - Liquidation of assets
    - Guarantees or other support arrangements
  - Competing claims on available resources
  - You can’t get blood from a stone
- Willingness to pay
  - Enforcement is expensive
  - Enforcement is not always possible

Analyzing Credit Quality

- Quantitative and qualitative factors
- Part science, part art
- Consider scenarios: probable, reasonably likely, unlikely, remote



Analyzing Credit Quality
Example: Residential Mortgage Loan



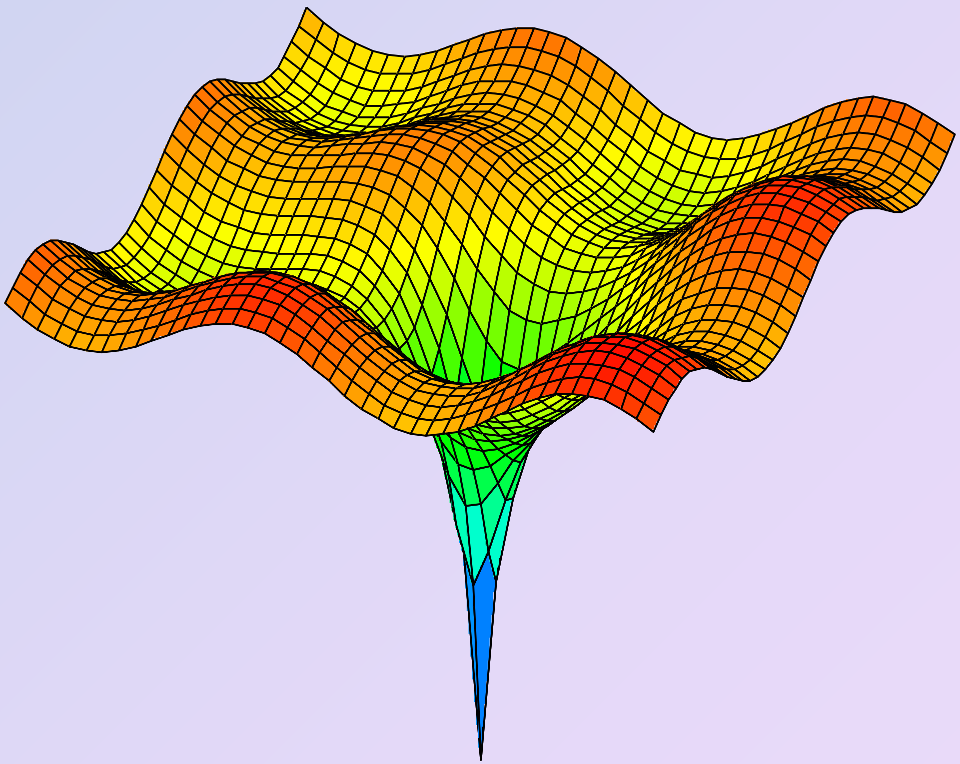
- Credit reputation
  - FICO® score
  - Credit history
  - Stability factors (time in home/job)
- Capacity
  - Monthly debt payments vs. stable monthly income
  - Financial reserves
- Collateral
  - Amount of loan vs. value of the property

Analyzing Credit Quality
Example – Business Exposures

- Corporates
  - Country risk
  - Industry risk
  - Competitive position
  - Cash flow
  - Profitability
  - Leverage
  - Diversification
  - Capital structure
  - Liquidity
  - Management
- Financial firms
  - Country risk
  - Asset quality
  - Reserves
  - Leverage
  - Capital structure
  - Off-balance sheet
  - Maturity matching
  - Regulation
  - Reputation

What Comes after Credit Analysis?

- Mitigate risk
- Price risk
- Consider opportunity cost
- Decide



What is a Rating? – Dictionary Definition

- A position assigned on a scale; a standing
- **a.** A classification according to specialty or proficiency, as of a member of the armed forces. **b.** *Chiefly British* An enlisted person in the navy
- **An evaluation of the financial status of a business or person: *a credit rating***
- A specified performance limit, as of capacity, range, or operational capability: the power rating of a light fixture
- The popularity of a television or radio program as estimated by a poll of segments of the audience

Examples of Ratings (Credit & Non-Credit)

- MPAA movie ratings (child suitability)
- Roger Ebert's movie ratings
- Gasoline octane ratings (87, 91, 93)
- Underwriters Laboratories (est. 1894)
- Good Housekeeping Seal, GHRI
- FICO® consumer credit ratings
- Consumer Reports
- National Baseball Hall of Fame
- Value Line® Timeliness Ranking System
- Miss America, Miss Universe
- Morningstar Ratings™
- Broker-dealer buy/hold/sell ratings
- Bond ratings (today's topic)

Attributes of Rating Systems

- Prospective vs. historical
- Grading/ranking scale vs. pass/fail
- Relative vs. absolute
- Multi-dimensional vs. one-dimensional
  - Factor weightings
- Designed for specific purpose
- Defined by their related rating organizations

Why Have Credit Ratings?

- Reduce information asymmetry
- Tool for decision-making
  - Investment policy or regulatory standard
- Division of labor
- Specialized expertise
- Comparative advantage
- Reduced cost
- Increased efficiency

Desirable Features of a Rating System

- Understandable
- Reliable, accurate
- Timely
- Useful (to whom, for what)
  - Comparison
  - Qualification
  - Decision-making
- Rating organization must try to meet the needs of its customers

U.S. Bond Rating Agencies (registered with the SEC)

- A.M. Best Company, Inc.
- DBRS
- Egan-Jones Ratings
- Fitch
- HR Ratings de México
- Japan Credit Rating Agency
- Kroll Bond Rating Agency
- Moody’s Investors Service
- Morningstar
- Standard & Poor’s

NRSRO

Nationally

Recognized

Statistical

Rating

Organization

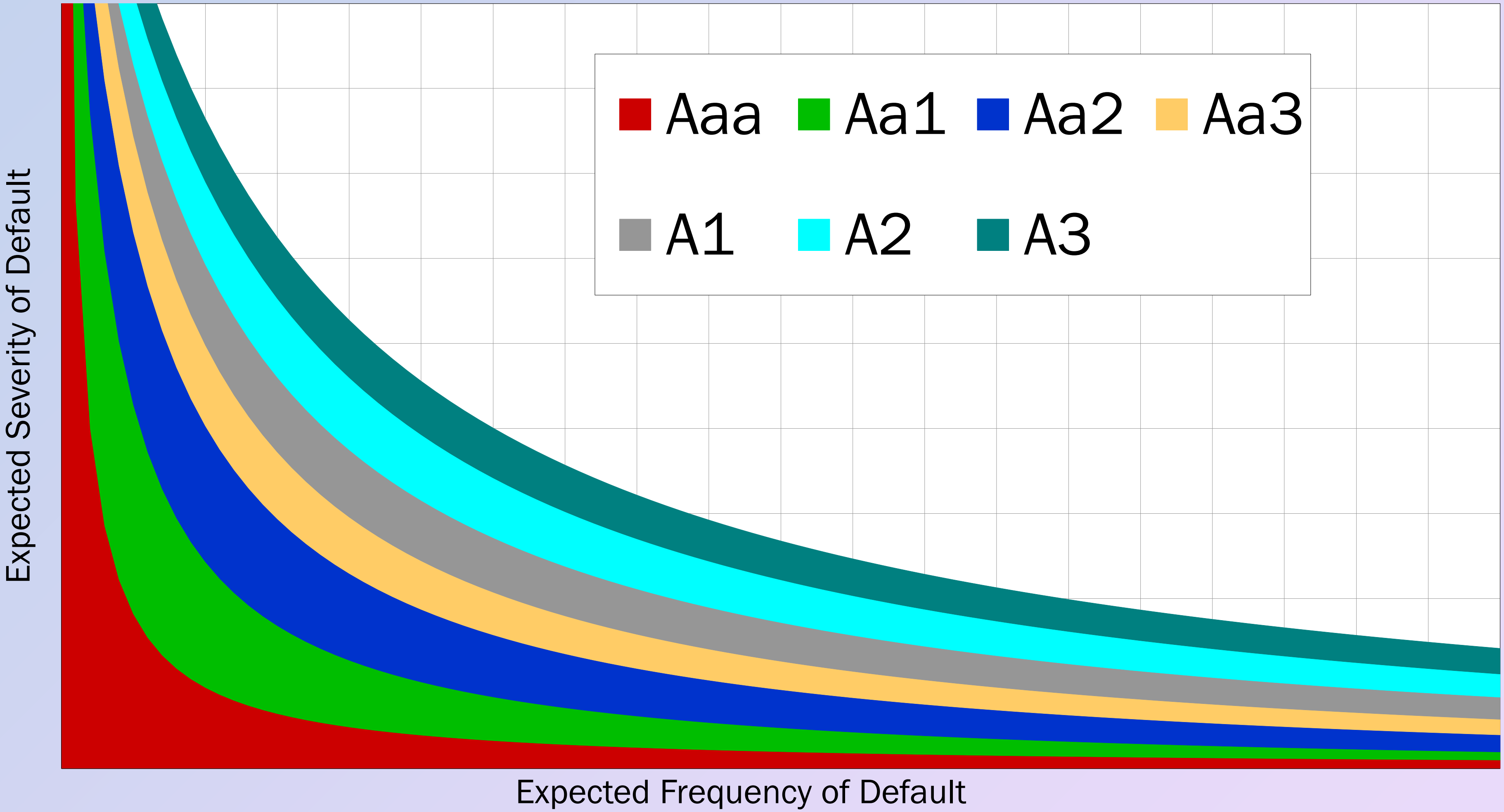
Rating Agency = Publishing Company

- Each has its own definition of "credit quality"
- Each defines its own ratings
- Each defines its own rating scale and rating symbols
- Each defines its own criteria or methodology
- Rating is an editorial
- Bond rating is an opinion about the future
  - Compare to lawyers or accountants, who give opinions about the past and present
- Rating analyst is a financial journalist

Competing Philosophies (Oversimplified)

Moody's	Standard & Poor's Ratings Services McGraw Hill Financial
Expected Loss (Frequency & Severity)	**Probability of Default** (Frequency only)

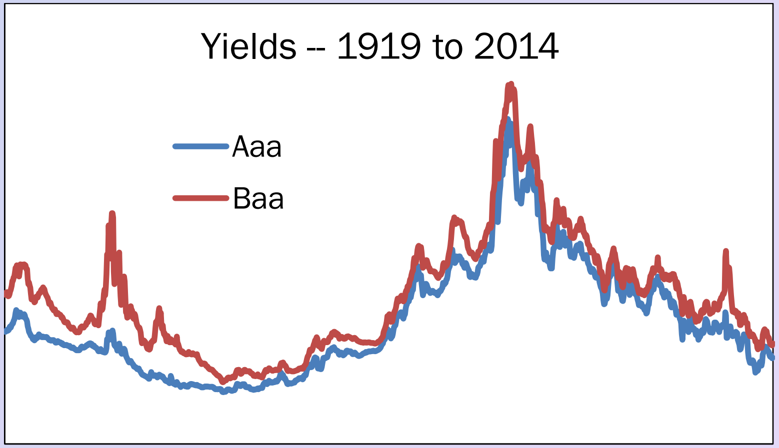
Relative Frequency and Expected Severity of Defaults within Moody's Rating Grades



Comparing Ratings of Different Rating Agencies

- Do the corresponding symbols on the rating scales of two rating agencies connote the same degree of "credit quality"?
  - If so, the scales are "**congruent**"
- To what degree do the ratings of two different rating agencies tend to agree or disagree?
  - The degree of agreement is "**correlation**"

What a Rating Agency Wants in a Rating System

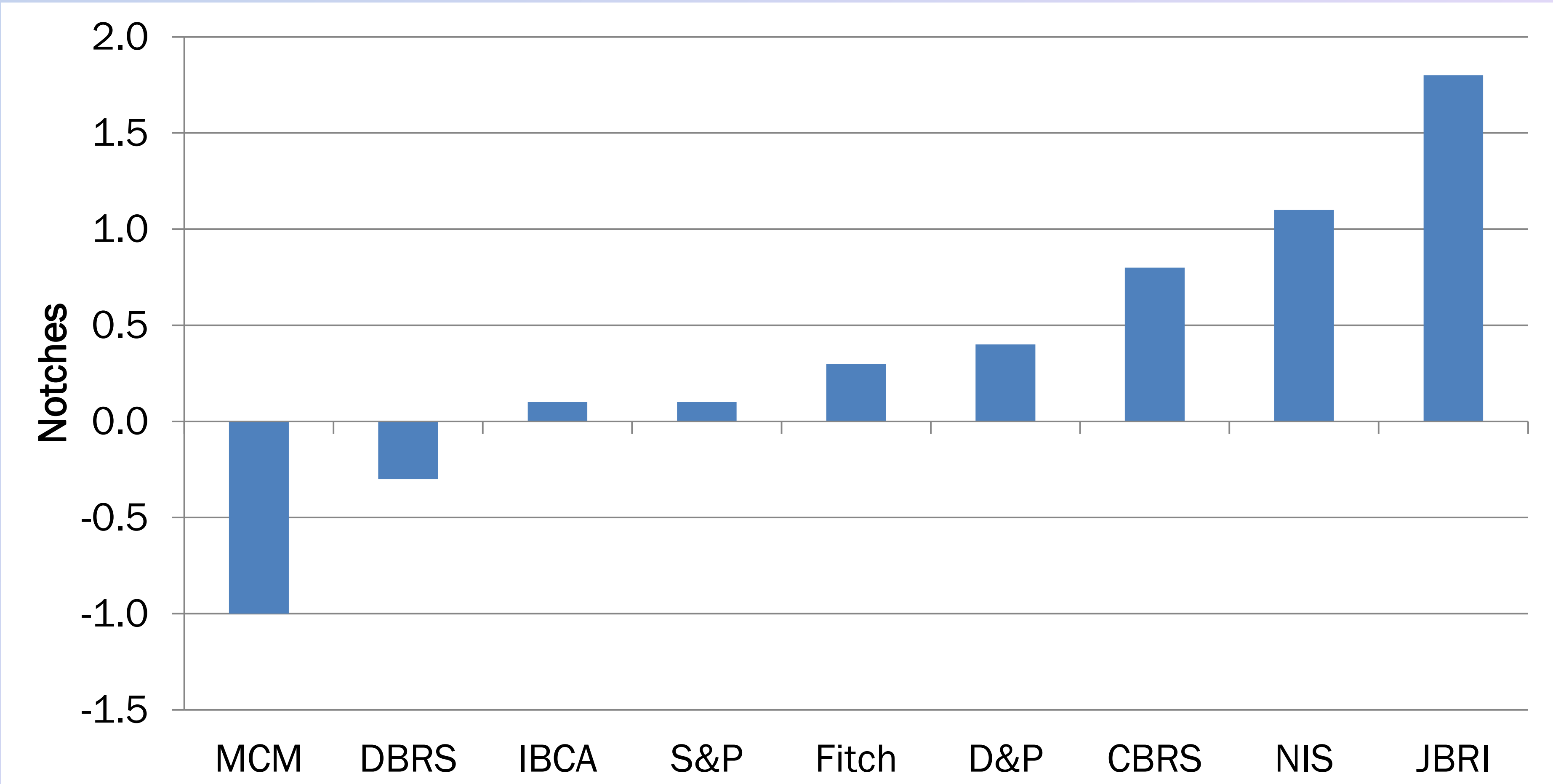


- Market impact
  - Prices/yields/spreads
  - Liquidity
- Get embedded in regulations and investment policies
- Easy to implement and administer
- ***Perception*** of congruence and correlation with Moody's and S&P

Credit Ratings of “Blue Chip” Companies

Credit Ratings of Dow Jones Industrial Average Components (10/14/2014)					
Name	Moody’s	S&P	Name	Moody’s	S&P
3M	Aa2	AA-	**Johnson & Johnson**	**Aaa**	**AAA**
American Express	A3	BBB+	JPMorgan Chase	A3	A
AT&T	A3	A-	McDonald's	A2	A
Boeing	A2	A	Merck	A2	AA
Caterpillar	A2	A	**Microsoft**	**Aaa**	**AAA**
Chevron	Aa1	AA	NIKE	A1	AA-
Cisco Systems	A1	AA-	Pfizer	A1	AA
Coca-Cola Co.	Aa3	AA	Procter & Gamble	Aa3	AA-
DuPont	A2	A	Travelers Cos.	A2	A
Exxon Mobil	**Aaa**	**AAA**	United Technologies	A2	A
General Electric	Aa3	AA+	UnitedHealth Group	A3	A
Goldman Sachs	Baa1	A-	Verizon	Baa1	BBB+
Home Depot	A2	A	Visa Inc	A1	A+
Intel	A1	A+	Wal-Mart Stores	Aa2	AA
IBM	Aa3	AA-	Walt Disney	A2	A

Average Difference in Ratings between Moody's and other Rating Agencies in 1990

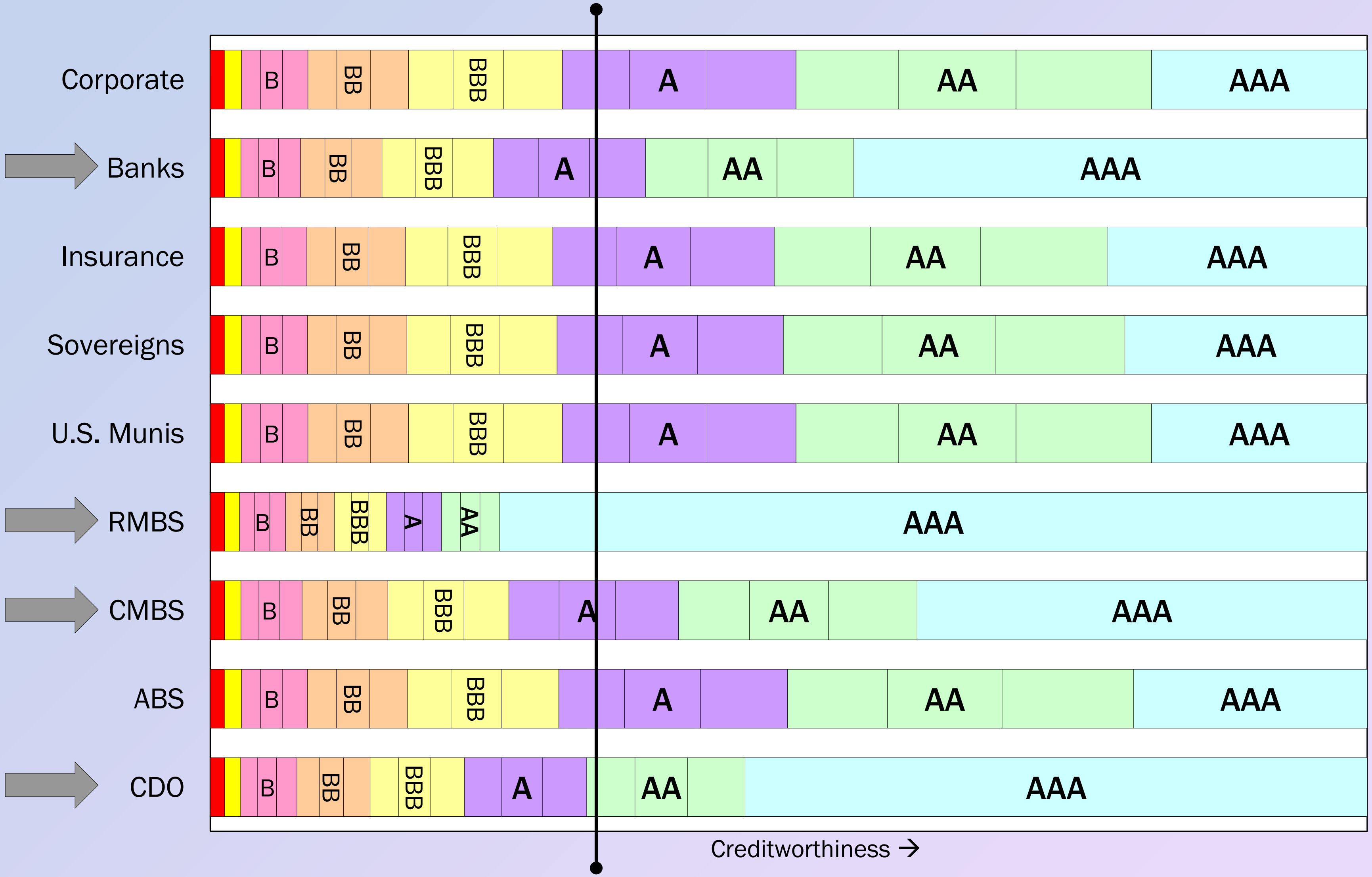


Source: Richard Cantor and Frank Packer, The Credit Rating Industry, 19 FRBNY Q. Rev. 1 (Summer-Fall 1994)

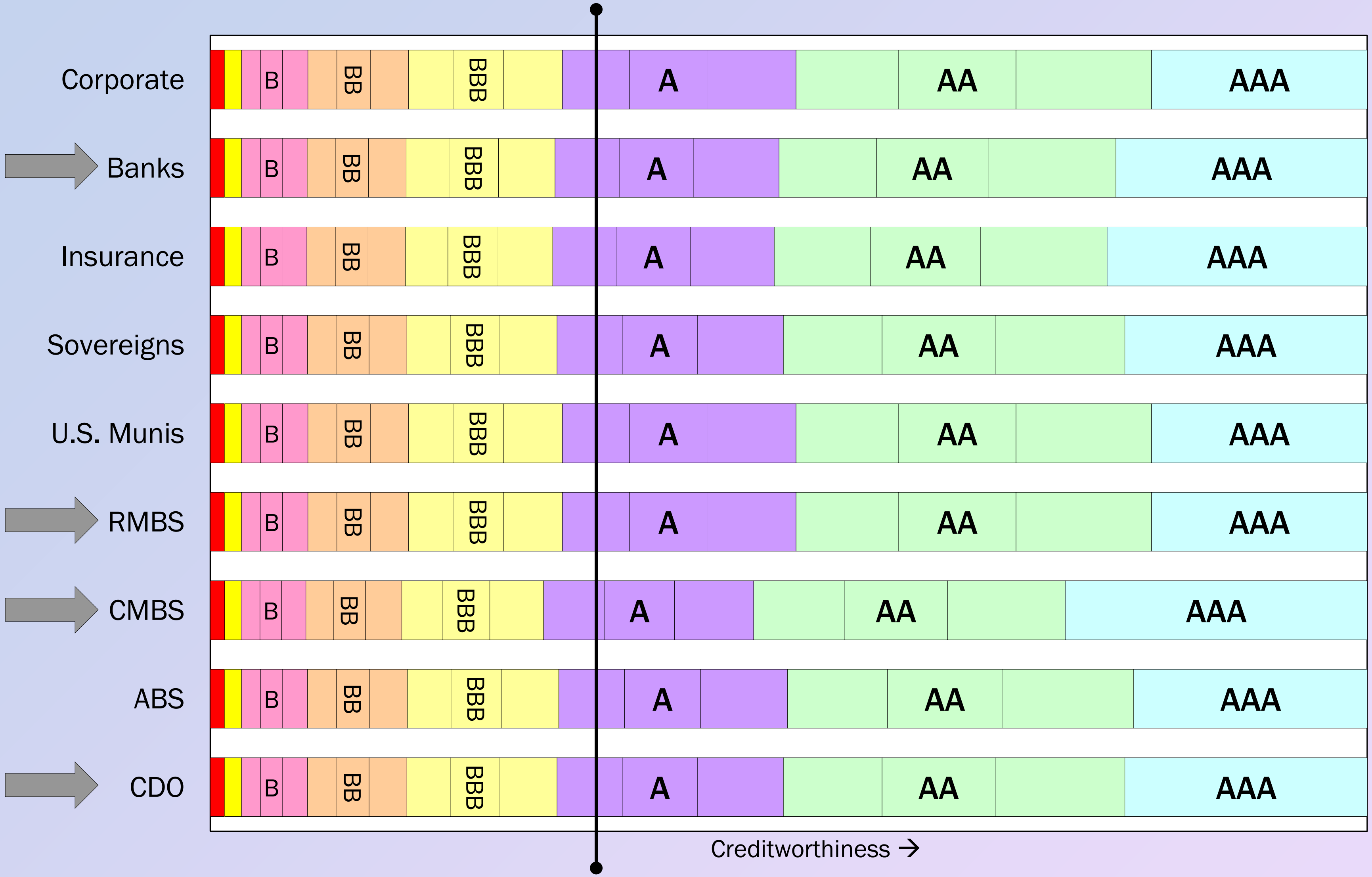
What About Within a Rating Agency?

- Must have a common definition of “credit quality”
- Cross-sector comparability
- Rating analysts are specialists
- Need to overcome departmental “silos”
- Rating committees
  - Narrow or broad composition

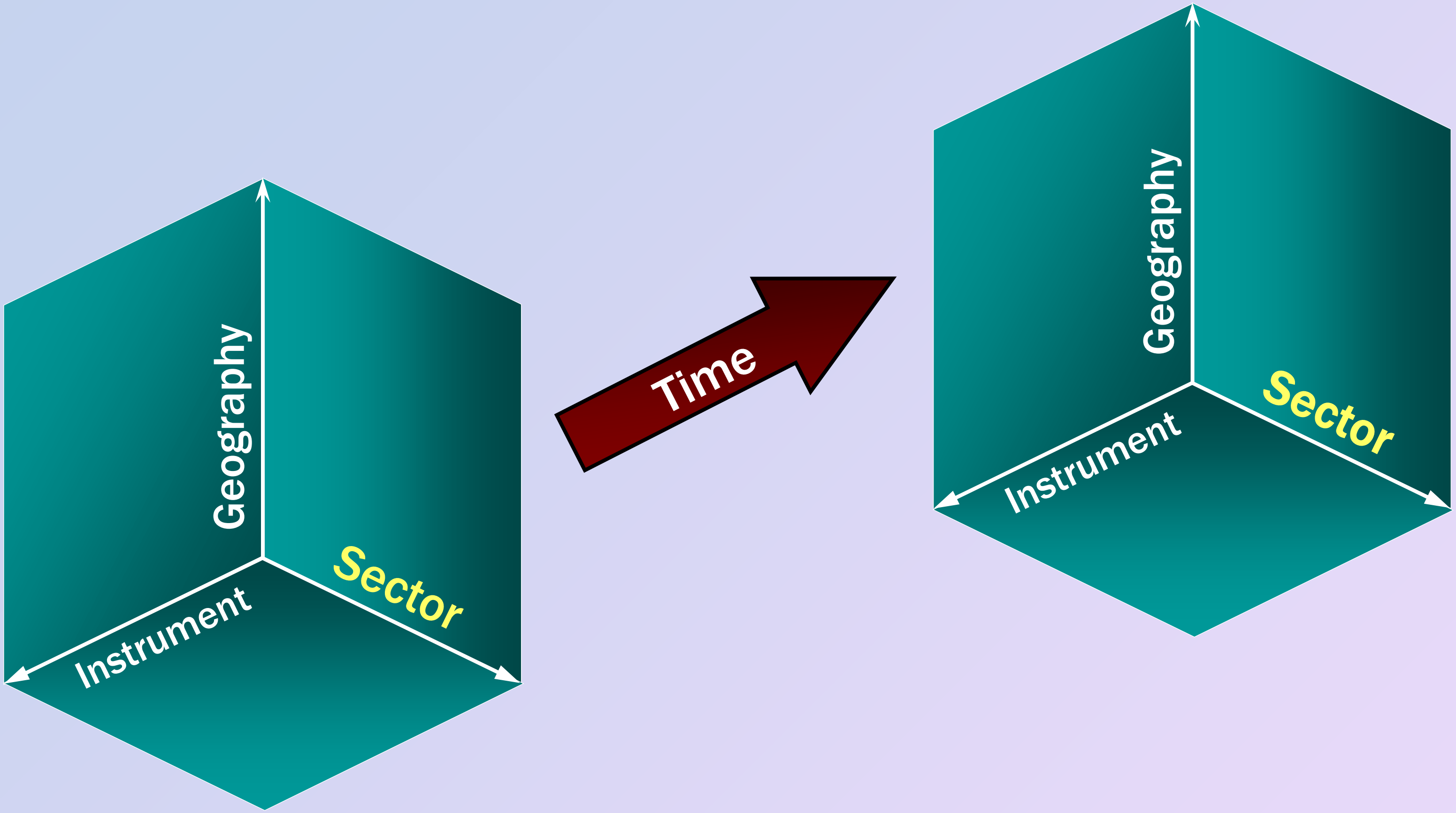
Illustration of Weak Cross-sector Comparability...



… and Stronger Cross-sector Comparability



Four Dimensions of Comparability



There is a trade-off between recalibrating to maintain cross-sector comparability and maintaining comparability over time

Delivering Comparability (S&P)

- Retrospective
  - Gini coefficients (rank ordering power)
  - Comparing default rates across sectors, regions, and over time
- Prospective
  - Common approaches to risk analysis (harmonization)
  - Stress scenarios for criteria calibration

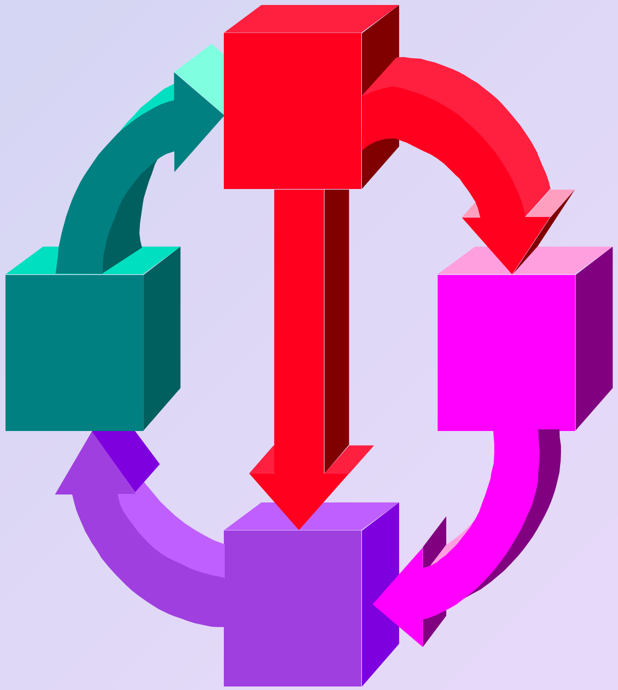
Criteria Calibration Stress Scenarios – Key Parameters						
	AAA	AA	A	BBB	BB	B
ΔGDP	-26½%	-15%	-6%	-3%	-1%	-½%
Unemp.	25%	20%	15%	10%	8%	6%
Equities	-85%	-70%	-60%	-50%	-25%	-10%

Understanding S&P Rating Definitions (3 Jun 2009)

- Ratings are forward looking and reflect views on relative ranking of overall creditworthiness
- S&P ratings are not just opinions of likelihood of default
  - Likelihood of default
  - Payment priority
  - Recovery
  - Credit stability
- New stress scenarios adopted to further our goal of comparability across sectors, geographies and time
- 'AAA' (“extreme”) stress scenario is based on the Great Depression
  - AAA face greater possibility of default under extreme scenario
  - AAA are likely to face more transitions with increasing decline in economy
- Stress scenarios used as a calibration tool for criteria

Rating Process

- Information collection
- Analysis
- Committee action
- Publication of the rating
- Surveillance
- Withdrawal



Focus on Analysis

- Quantitative aspects
- Qualitative aspects

Information Quality

- A rating is only as good as the information upon which it is based
- The rating process is not an audit
- Rating agencies do not independently verify information from sources that they believe to be reliable
- Information filed with the SEC generally should be the most reliable and complete
- Differing views about the benefit of using other information

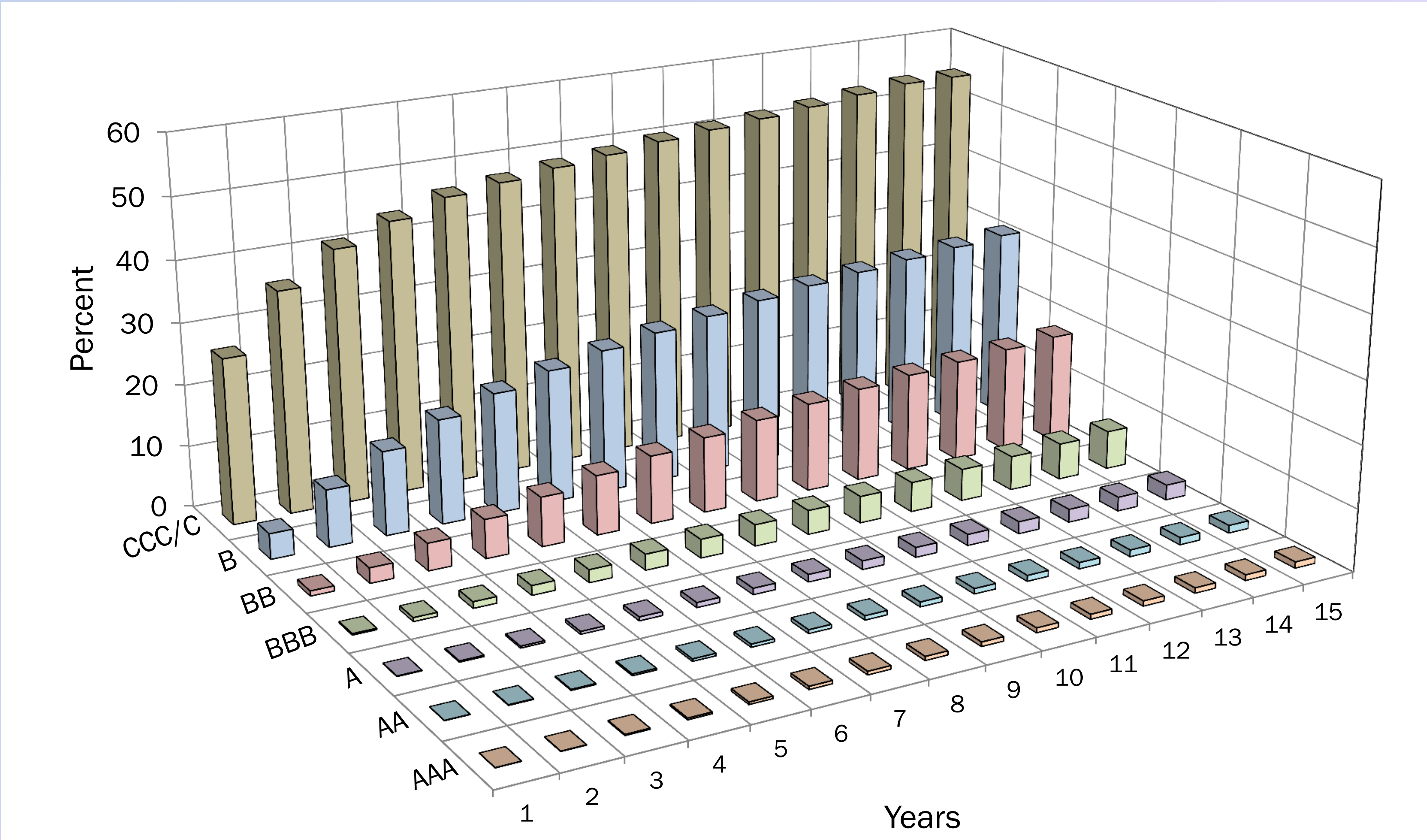
Credit Rating vs. Audit

- Credit rating is an opinion supported by a rationale
- Credit ratings are on a scale with gradations
- Scale and methodology vary from one rating agency to another
- Audit is a pass/fail test
- Audit standards are uniform within a country

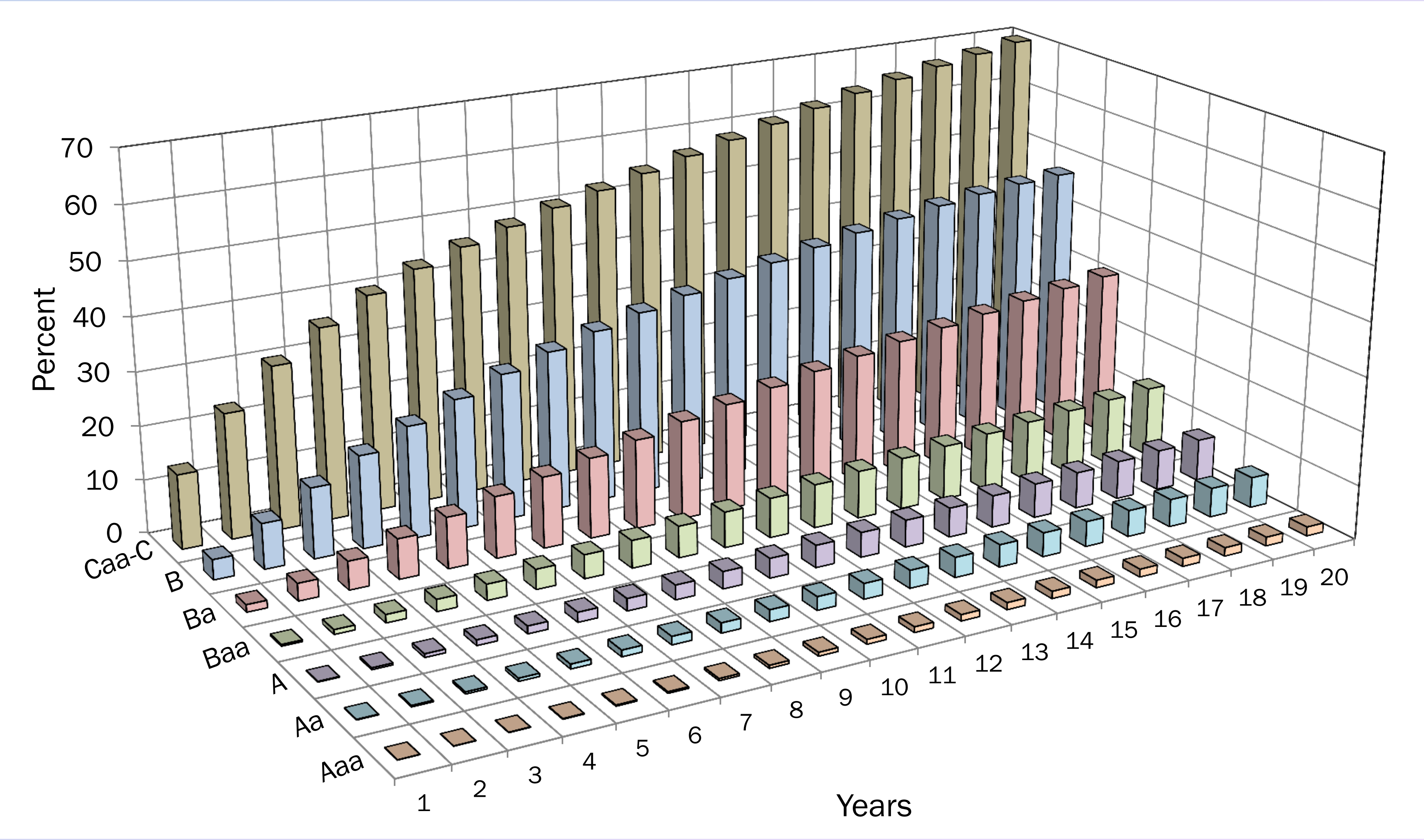
So, Does It Actually Work?

- Well, it depends…

S&P Corporate Average Cumulative Default Rates (1981-2013)



Moody's Corporate Avg. Cumulative Default Rates (1920-2013)



… But Sometimes Ratings Disappoint …

Adverse Credit Migrations of 2005-2007 Vintages of U.S. RMBS, CDOs of ABS, and SIV Lites					
Original S&P Rating	Status as of 31 Dec 2010				No. of Ratings
	Default + Near Default	Default	Near Default	Any Downgrade	
AAA	60.1%	**22.7%**	37.4%	77.3%	4,043
AA	78.2%	**45.8%**	32.4%	87.6%	8,340
A	88.5%	**59.7%**	28.8%	93.4%	7,456
BBB	94.0%	**69.4%**	24.7%	95.2%	7,806
Inv. Grade	82.8%	**52.8%**	30.0%	89.8%	27,645

Note: 'AAA' ratings from the same transaction are treated as a single rating in this table's calculation. Multiple rating actions are aggregated to calculate a security's cumulative rating performance. Near default means rated 'CCC+' or lower.
Source: Erturk, E., *Global Structured Finance Securities End 2010 With Rising Credit Stability*, Standard & Poor's research report (7 Feb 2011) (Table 6a).

Competition and Business Model

- Demand drivers
  - Price
  - Service
  - Reliability/accuracy
  - Timeliness
  - Regulatory passport
- Criteria
  - Rating Shopping
  - Competitive laxity
- Who pays: issuers or investors
  - Public availability of ratings

What is the Optimal Organization of the Credit Rating Industry?

- Few companies, each with a high level of coverage
- Many companies, each with a low level of coverage
- Few companies, each with a high level of coverage, **and** many companies, each with a low level of coverage
- Many companies, each with a high level of coverage

Conclusion

- Credit relationships are everywhere
- Credit analysis supports effective credit decisions
- Credit analysis has quantitative and qualitative aspects
- Emphasizing quantitative analysis to the exclusion of qualitative factors is very dangerous
- Rating agencies define their own rating systems
- Rating agencies generate important efficiencies for the fixed-income capital markets
- Investors want ratings that are useful by being timely, reliable, and informative