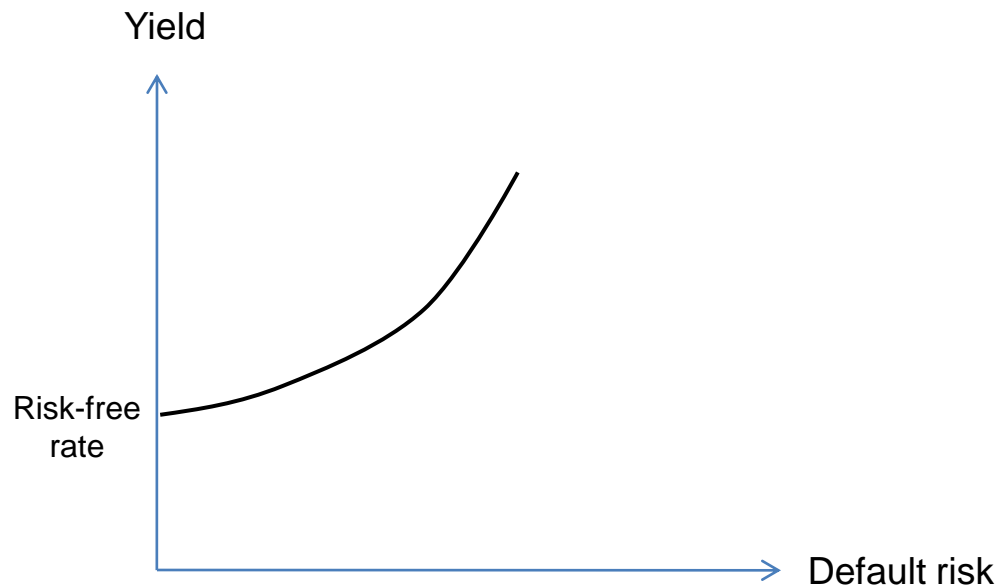


The default risk structure of interest rates

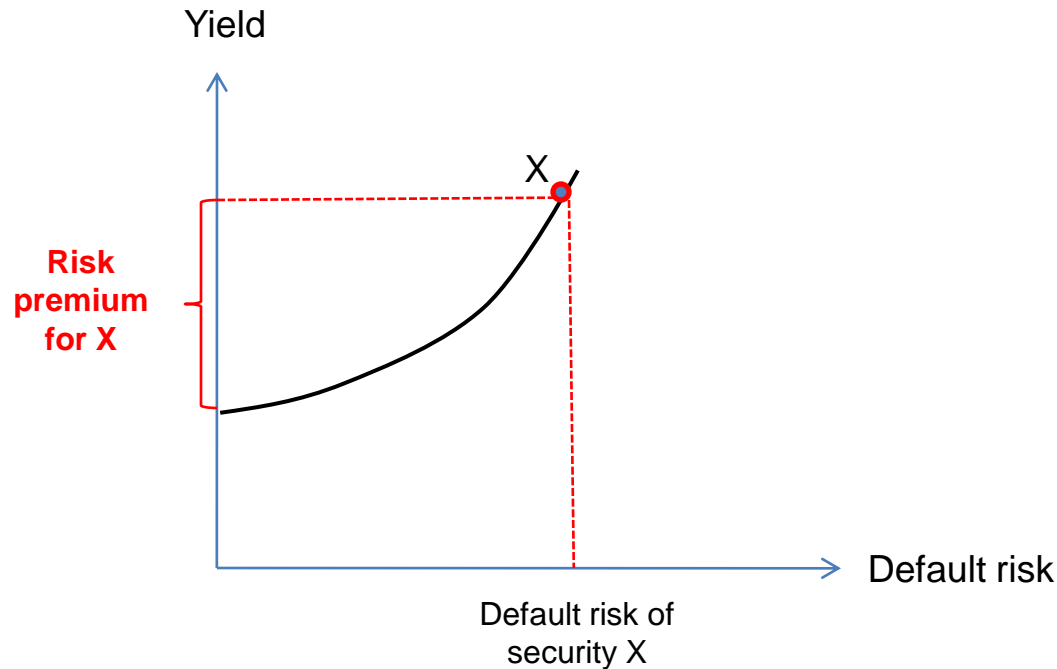
What is default risk?

- The risk that the borrower will default in the contractual payment of principal or interest.



What is risk premium?

- A **risk premium** is defined as the differential in yield between a security being studied and a default-free one, with all factors other than default risk being held constant.



Changes in default risk

- The default risk of a borrower may increase after you lend him.
- If this happens, the price of your bond decreases and you lose money. The price decreases because the probability that the borrower will miss at least some interest or principal payments increases.
- Loans or bonds that trade at less than “90 cents on the dollar” are considered distressed securities, implying a high likelihood of a default event unforeseen at the time of loan or bond issuance.

How to measure default risk?

- The most commonly used measure of default risk for relatively standardized fixed income securities is credit ratings.

Moody's	S&P	Fitch	
Aaa	AAA	AAA	Investment Grade
Aa1	AA+	AA+	
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
Ba1	BB+	BB+	Non-Investment Grade
Ba2	BB	BB	
Ba3	BB-	BB-	
B1	B+	B+	
B2	B	B	
B3	B-	B-	

Understanding ratings

Moody's	Explanation
Aaa	Best quality
Aa	High quality
A	Upper medium grade
Baa	Medium grade
Ba	Possess speculative elements
B	Generally lack characteristics of a desirable investment
Caa	Poor standing; may be in default
Ca	Speculative in a high degree; often in default
C	Lowest grade; extremely poor prospects

Average Volume-Weighted Corporate Default Rates by Letter Rating, 1994-2008¹

Rating	Year 1	Year 2	Year 3	Year 4	Year 5
Aaa	0.000	0.000	0.000	0.000	0.000
Aa	0.037	0.037	0.037	0.037	0.037
A	0.332	0.680	0.950	1.121	1.328
Baa	0.348	0.811	1.186	1.655	2.067
Ba	1.295	2.867	4.443	6.045	7.333
B	4.106	9.904	14.912	18.881	21.835
Caa-C	18.088	27.994	34.545	37.910	39.561
Investment-Grade	0.255	0.546	0.780	0.999	1.210
Speculative-Grade	5.100	9.824	13.695	16.654	18.776
All Rated	1.175	2.307	3.223	3.945	4.501

1. Data in percent. Cumulative default rates are calculated using monthly cohort frequency.

Average One-Year Letter Rating Migration Rates, 1970-2008¹

From/To	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	88.494	7.618	0.650	0.026	0.028	0.002	0.002	0.000	0.000	3.179
Aa	1.047	86.817	7.077	0.288	0.042	0.016	0.008	0.001	0.016	4.688
A	0.066	2.832	87.274	4.961	0.473	0.086	0.028	0.003	0.024	4.253
Baa	0.043	0.191	4.786	84.382	4.165	0.781	0.203	0.021	0.163	5.265
Ba	0.008	0.056	0.395	5.678	76.054	7.070	0.549	0.061	1.084	9.045
B	0.011	0.037	0.133	0.346	5.034	73.939	5.090	0.620	4.165	10.624
Caa	0.000	0.026	0.037	0.222	0.484	8.928	60.781	3.589	13.122	12.810
Ca-C	0.000	0.000	0.000	0.000	0.331	2.790	9.446	39.479	30.033	17.921

Average Five-Year Letter Rating Migration Rates, 1970-2008¹

From/To	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	54.006	23.725	5.327	0.470	0.265	0.040	0.038	0.000	0.085	16.044
Aa	3.322	50.875	21.090	3.219	0.540	0.165	0.031	0.000	0.174	20.585
A	0.224	8.378	53.060	14.324	2.781	0.877	0.169	0.013	0.448	19.725
Baa	0.262	1.204	13.616	46.491	9.082	3.039	0.535	0.070	1.729	23.971
Ba	0.046	0.199	2.375	11.885	27.468	10.865	1.386	0.151	8.024	37.602
B	0.044	0.065	0.312	1.712	6.857	22.207	4.536	0.663	20.932	42.672
Caa	0.000	0.000	0.072	1.235	2.222	6.110	7.354	1.010	39.627	42.370
Ca-C	0.000	0.000	0.000	0.308	0.540	1.747	1.850	2.158	47.867	45.529

1. Data in percent. Average migration rates in Exhibit 31-33 are calculated using monthly cohort frequency.

Largest Moody's-Rated Defaults, 1920-2008

Corporate Family	Default Volume (US\$ Mil)	Default Year	Specific Industry	Domain
Lehman Brothers Holdings Inc.	\$120,483	2008	FIRE: Finance	United States
Worldcom, Inc.	\$33,608	2002	Telecommunications	United States
GMAC LLC	\$29,821	2008	FIRE: Finance	United States
Kaupthing Bank Hf	\$20,063	2008	Banking	Iceland
Washington Mutual, Inc.	\$19,346	2008	Banking	United States
Glitnir Banki Hf	\$18,773	2008	Banking	Iceland
NTL Communications Corp.	\$16,429	2002	Media: Broadcasting & Subscription	United Kingdom
Adelphia Communications Corp.	\$16,256	2002	Media: Broadcasting & Subscription	United States
Enron Corp.	\$13,852	2001	Energy: Electricity	United States
Tribune Company	\$12,674	2008	Media: Diversified & Production	United States

Average Corporate Debt Recovery Rates Measured by Post-Default Trading Prices¹

Lien Position	Issuer-Weighted			Value-Weighted		
	2008	2007	1982-2008	2008	2007	1982-2008
Bank Loans						
Sr. Secured	63.4%	68.6%	69.9%	49.0%	78.3%	62.1%
Second Lien	40.4%	65.9%	50.4%	36.6%	65.8%	49.8%
Sr. Unsecured ²	29.8%	--	52.5%	22.6%	--	41.0%
Bonds						
Sr. Secured	58.0%	80.5%	52.3%	45.9%	81.7%	53.0%
Sr. Unsecured	33.8%	53.3%	36.4%	26.2%	56.9%	32.4%
Sr. Subordinated	23.0%	54.5%	31.7%	10.4%	67.7%	26.4%
Subordinated	23.6%	--	31.0%	7.3%	--	23.5%
Jr. Subordinated	--	--	24.0%	--	--	16.8%
Pref. Stock³						
Trust Pref.	--	--	11.7%	--	--	13.0%
Non-trust Pref.	8.6%	--	21.6%	1.7%	--	13.1%

1. Based on 30-day post-default market prices.

2. 2008's average senior unsecured loan recoveries are based on three observations.

3. Only includes defaults on preferred stock that are associated or followed by a broader debt default. Average recovery rates for preferred stock only covers the period of 1983-2008.

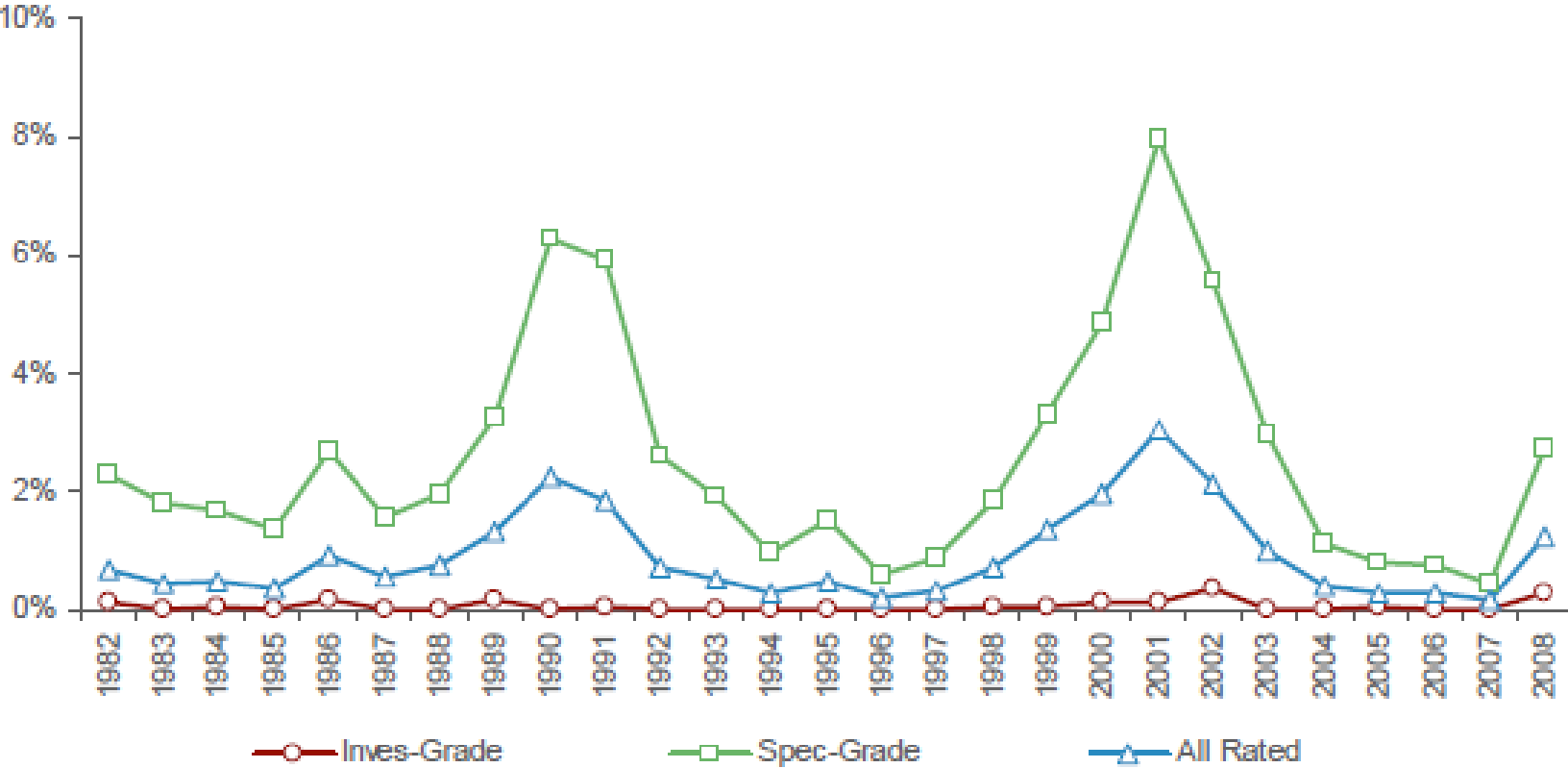
Average Corporate Debt Recovery Rates Measured by Ultimate Recoveries, 1987-2008¹

Lien Position	Emergence Year			Default Year		
	2008	2007	1987-2008	2008	2007	1987-2008
Loans	87.0%	96.6%	82.8%	61.2%	93.5%	82.8%
Bonds						
Sr. Secured	70.0%	85.5%	63.6%	51.1%	65.4%	63.6%
Sr. Unsecured	74.0%	60.0%	46.2%	76.8%	83.7%	46.2%
Sr. Subordinated	23.0%	62.9%	29.7%	9.3% ²	55.4%	29.7%
Subordinated	--	0.0%	28.9%	--	0.0%	28.9%
Jr. Subordinated	0.0%	50.0%	16.0%	--	--	16.0%

1. Some of these numbers differ from last year's report due to new data being added to the Ultimate Recovery Database during 2008.

2. There were only two sr. sub bond defaults in 2008.

Annual Credit Loss Rates, 1982-2008



Correlation between Default and Recovery Rates

