

Credit Ratings

Abstract

The systems of credit ratings maintained by agencies such as Moody's and Standard & Poor's play an important role in evaluating credit risk. The agencies' historical data are valuable in interpreting the rating of a given obligor. Two issues that arise in using those historical data are:

- how to describe the dependence among rating changes for several obligors;
- how to relate those changes to the broader economy.

Both issues can be addressed by using an appropriate copula.

Standard & Poor's has published an analysis of historical data on cumulative default rates and rating transitions for the years 1981–2002.

Summaries include:

- Cumulative Average Default Rates;
- Average One-Year Transition Rates.

Cumulative Average Default Rates (%)

Jan. 1 rating	Years after static pool formation														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.00	0.00	0.03	0.06	0.10	0.17	0.25	0.38	0.43	0.48	0.48	0.48	0.48	0.56	0.67
AA	0.01	0.03	0.08	0.16	0.27	0.39	0.53	0.65	0.75	0.85	0.95	1.06	1.15	1.22	1.30
A	0.05	0.15	0.28	0.44	0.62	0.81	1.03	1.25	1.52	1.82	2.06	2.26	2.43	2.61	2.88
BBB	0.37	0.94	1.52	2.34	3.20	4.02	4.74	5.40	5.99	6.68	7.40	7.97	8.55	9.10	9.77
BB	1.38	4.07	7.16	9.96	12.34	14.65	16.46	18.02	19.60	20.82	21.98	22.79	23.58	23.99	24.51
B	6.20	13.27	19.07	23.45	26.59	29.08	31.41	33.27	34.58	35.87	36.98	37.97	38.95	39.96	41.09
CCC	27.87	36.02	41.79	46.26	50.46	52.17	53.60	54.36	56.16	57.21	58.15	58.95	59.59	60.70	60.70
Invest. grade	0.13	0.34	0.57	0.87	1.20	1.52	1.83	2.13	2.41	2.72	3.02	3.26	3.50	3.73	4.03
Spec. grade	5.17	10.27	14.81	18.46	21.31	23.67	25.71	27.36	28.83	30.07	31.20	32.09	32.97	33.72	34.52
All ratings	1.67	3.36	4.86	6.12	7.14	8.02	8.80	9.47	10.07	10.64	11.17	11.60	12.02	12.40	12.85

Average One-Year Transition Rates (%)

Rating	Rating at year-end								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	89.37	6.04	0.44	0.14	0.05	0.00	0.00	0.00	3.97
AA	0.57	87.76	7.30	0.59	0.06	0.11	0.02	0.01	3.58
A	0.05	2.01	87.62	5.37	0.45	0.18	0.04	0.05	4.22
BBB	0.03	0.21	4.15	84.44	4.39	0.89	0.26	0.37	5.26
BB	0.03	0.08	0.40	5.50	76.44	7.14	1.11	1.38	7.92
B	0.00	0.07	0.26	0.36	4.74	74.12	4.37	6.20	9.87
CCC	0.09	0.00	0.28	0.56	1.39	8.80	49.72	27.87	11.30

An obligor's credit rating gives useful information about the probability that it will default on its obligations, based on the historical frequencies for that rating.

Other information, such as *rating momentum* upward or downward is also useful in predicting rating transitions, but is often ignored.