INTERNET APPENDIX FOR "Do Bond Issuers Shop for Favorable Credit Ratings?"

Figure A.1. **Average number of ratings over time**
This figure shows the average number of rating agencies per bond over time.

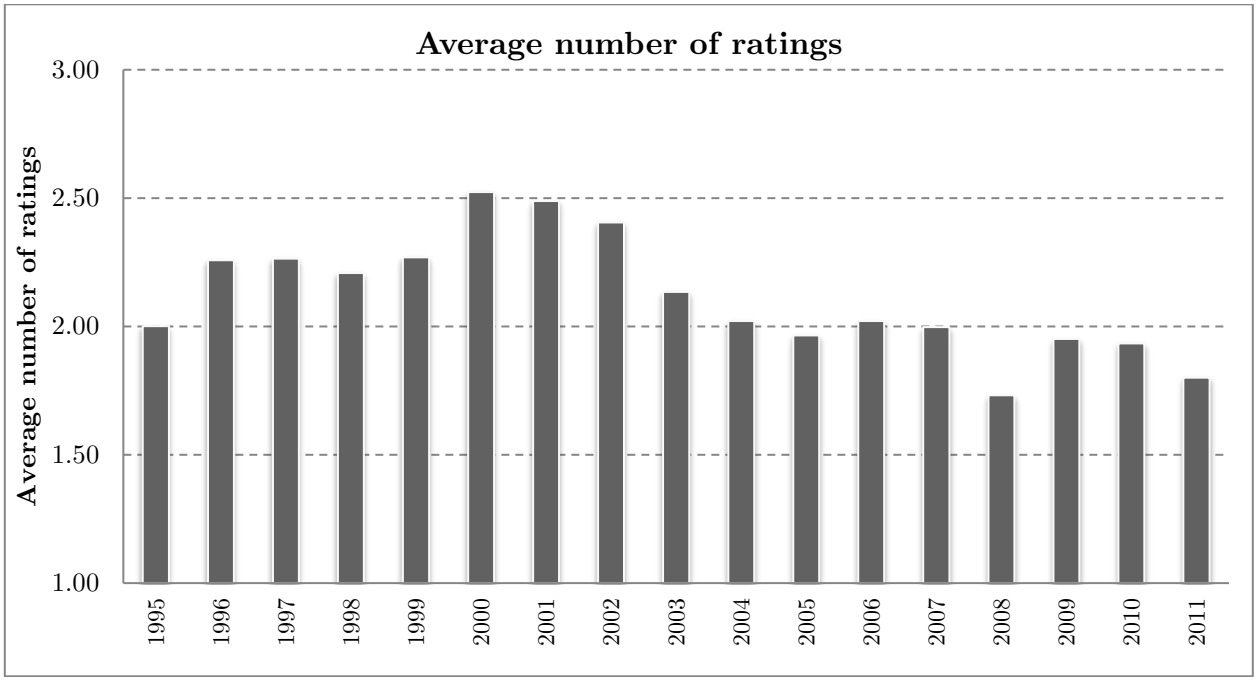

Figure A.2. **Credit ratings and offering yield spread over treasuries**
This figure shows 95% confidence intervals for the average offering yield spread by credit rating (median rating, rounded down to nearest full notch if the median is between notches). Offering spreads are calculated by subtracting a maturity-matched treasury yield (interpolated if between maturities) from a bond's offering yield.

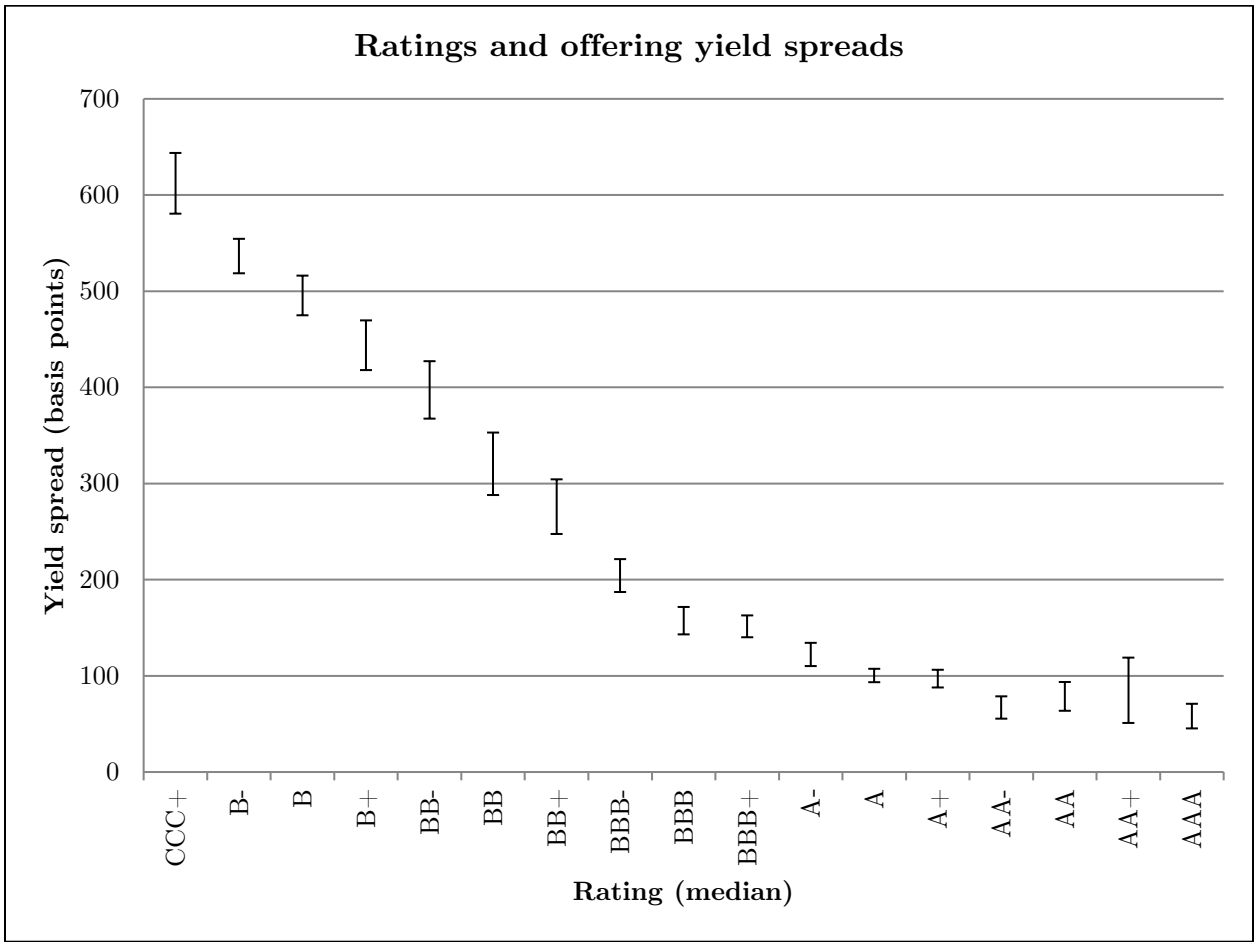

Table A.1 **Characteristics of issuers and bonds with only one rating**
This table describes the characteristics of issuers (Panel A) and bonds (Panel B) that have one rating. In Panel A, the observations are at the issuer-year level, and the dependent variable is the fraction of issues (for that issuer-year) that have only one rating; if an issuer issues no bonds in a year, that observation is missing. The independent variables are firm characteristics (assets, leverage, market-to-book, ROA, tangibility) and issuance activity characteristics (number of issues in a year, average issue size). I further control for year, industry, and industry-year fixed effects. In Panel B, the observations are at the bond level; the dependent variable is an indicator for whether a bond has one rating, and the independent variables are a set of bond characteristics. Column 3 controls for issuer-year fixed effects which subsume the issuer-level characteristics studied in Panel A. Standard errors are robust to heteroscedasticity and clustered at the Issuer level. t-stats are reported in parentheses.

A. Issuer characteristics

Dependent variable: Fraction of issues with one rating				
	(1)	(2)	(3)	(4)
Assets (log)	-0.015***	-0.018***	-0.008	-0.008
	(-4.22)	(-4.56)	(-1.60)	(-1.52)
Leverage	-0.042*	-0.033	-0.028	-0.029
	(-1.69)	(-1.21)	(-1.03)	(-1.02)
Market-to-Book	0.004***	0.004***	0.004***	0.004***
	(2.61)	(2.77)	(2.94)	(2.73)
ROA	-0.399***	-0.401***	-0.394***	-0.314***
	(-4.80)	(-4.40)	(-4.28)	(-3.27)
Tangibility	-0.094***	-0.076**	-0.078**	-0.081**
	(-4.41)	(-2.47)	(-2.57)	(-2.54)
Number of issues (log)			-0.015**	-0.012*
			(-2.23)	(-1.77)
Average issue size (log)			-0.037***	-0.038***
			(-4.18)	(-4.24)
Year FE	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	Yes
Industry*Year FE	No	No	No	Yes
R^2	0.051	0.057	0.062	0.123
N	5,088	5,088	5,088	5,088

Table A.1, continued

B. Bond characteristics

Dependent variable: Bond has one rating (indicator)	(1)	(2)	(3)
Senior (Base: Junior)	-0.017	-0.028	-0.084**
	(-0.41)	(-1.20)	(-2.19)
Senior Secured	0.053	-0.004	-0.155**
	(1.63)	(-0.12)	(-2.45)
Missing seniority indicator	0.020	-0.010	0.011
	(0.39)	(-0.19)	(0.13)
Log Offering Amount	-0.008	0.008**	0.006**
	(-1.35)	(2.09)	(2.22)
Log Maturity	0.032***	0.044***	0.037***
	(3.44)	(7.12)	(5.61)
Rule 144A	-0.004	-0.055*	-0.055*
	(-0.08)	(-1.74)	(-1.92)
Putable indicator	-0.028	-0.012	0.011
	(-1.32)	(-0.54)	(0.35)
Callable indicator	-0.042***	-0.058***	-0.032***
	(-3.19)	(-5.21)	(-3.66)
Convertible indicator	0.088**	0.061	0.005
	(2.40)	(1.58)	(0.10)
Enhancements indicator	0.040	-0.103	-0.050
	(0.82)	(-1.21)	(-1.49)
Covenants indicator	-0.032	0.016	0.001
	(-0.66)	(0.80)	(0.03)
Bond type FE	Yes	Yes	Yes
Rating notch FE	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes
Issuer FE	No	Yes	No
Issuer*Year FE	No	No	Yes
R^2	0.173	0.346	0.532
N	60,512	58,847	54,096

Table A.2 **Time series correlation of bias for each agency and regression evidence**
This table shows additional evidence of the persistence of agencies' rating bias from year to year. These bias measures are only calculated across newly issued bonds in a specific year, and are thus free of any mechanical correlation from ratings being carried over for the same bond from year to year. Panel A shows the year-to-year matrix of bias separately for each agency. Panel B reports results from a regression of an agency's bias (continuously measured) on the lagged bias. The observations are at the agency-issuer-year level. Standard errors are robust to heteroscedasticity and clustered at the Issuer level. t-stats are reported in parentheses.

A. Agency-specific persistence

Fitch:

	Negative bias, t	Neutral, t	Positive bias, t
Negative bias, t-1	63%	11%	2%
Neutral, t-1	26%	70%	17%
Positive bias, t-1	12%	19%	81%

Moody's:

	Negative bias, t	Neutral, t	Positive bias, t
Negative bias, t-1	82%	14%	5%
Neutral, t-1	15%	75%	19%
Positive bias, t-1	3%	11%	76%

S&P:

	Negative bias, t	Neutral, t	Positive bias, t
Negative bias, t-1	80%	13%	5%
Neutral, t-1	17%	75%	17%
Positive bias, t-1	3%	12%	79%

B. Regression evidence

Dependent variable: Bias, t	(1)	(2)	(3)
Bias, t-1	0.796***	0.787***	0.783***
	(71.92)	(68.05)	(67.11)
Agency FE	No	Yes	Yes
Agency*Year FE	No	No	Yes
R^2	0.615	0.616	0.620
N	9,016	9,016	9,016

Table A.3. **Robustness: Rating bias and agency choice, employing indicators for high, low, and neutral bias**

This table reports results for tests similar to those in Table 3, but where the continuous measure of bias from Table 3 is replaced with indicators for whether an agency's bias is the lowest, neutral, or the highest (the lowest bias indicator is the omitted category in the regression). Specifically, if all three agencies rated some of the previously outstanding bonds, and Agency A rated them the highest, Agency B rated them the lowest, and Agency C rated them lower than A but higher than B, they are assigned "highest", "lowest", and "neutral," respectively. If only two agencies rated those bonds, the agency that rated higher is set to "highest," and the other is "lowest." If all agencies rated an issuer's bonds the same on average, all indicators are set to "neutral." Standard errors are robust to heteroscedasticity and clustered by issuer. t-stats are reported in parentheses.

Dependent variable: Indicator whether agency rates bond						
	(1)	(2)	(3)	(4)	(5)	(6)
	All bonds		Bonds with one rating		Bonds with two ratings	
Neutral bias	0.002	-0.001	0.125***	0.092***	0.028	0.016
[Base level: Lowest bias]	(0.09)	(-0.06)	(3.93)	(3.19)	(1.24)	(0.63)
Highest bias	0.053**	0.048**	0.182***	0.115***	0.022	0.031
	(2.34)	(2.16)	(3.16)	(2.65)	(0.83)	(1.16)
Agency FE	Yes	Yes	Yes	Yes	Yes	Yes
Agency*Year FE	No	Yes	No	Yes	No	Yes
R^2	0.098	0.187	0.112	0.209	0.413	0.452
N	146,663	146,663	23,195	23,195	68,956	68,956

Table A.4 **Table 3 with additional controls**
This table reports results using different controls for Table 3 (Panel A, column 4). Column 1 omits all agency controls, column 2 repeats the baseline result, and columns 3-5 add rating notch fixed effects, issuer-level controls (log of book assets and book leverage), and issuer fixed effects. Because the average bias (across agencies) is zero for every bond, any bond- and issuer-level variables (included in columns 3-5) are by construction uncorrelated with *Bias* and cannot affect the coefficient. The table illustrates that these latter controls have little effect on this coefficient, other than minute differences that result from the dropping of observations due perfect multicollinearity or missing data.

Dependent variable: Indicator whether agency rates bond					
	(1) No agency controls	(2) Base result	(3) With rating notch fixed effects	(4) Plus issuer controls	(5) Plus issuer fixed effects
Bias	0.086**	0.061**	0.059**	0.055**	0.058**
	(2.52)	(2.55)	(2.45)	(2.47)	(2.46)
Agency*Year FE	No	Yes	Yes	Yes	Yes
Rating notch FE	No	No	Yes	Yes	Yes
Issuer controls	No	No	No	Yes	Yes
Issuer FE	No	No	No	No	Yes
R^2	0.012	0.205	0.206	0.194	0.199
N	23,195	23,195	23,195	15,175	15,175

Table A.5 **Ratings shopping and active issuers**
This table builds on Table 3 by interacting the *Bias* measure with the issuer's issuing intensity. The measure of issuing intensity is the natural logarithm of the number of new issues by the issuer in the year. Standard errors are robust to heteroscedasticity and clustered by issuer. t-stats are reported in parentheses.

Dependent variable: Indicator whether agency rates bond		
	(1)	(2)
Bias	-0.024	-0.014
	(-0.84)	(-0.49)
Bias * Issuing Intensity	0.024**	0.014*
	(2.45)	(1.77)
Issuer*Year FE	Yes	Yes
Agency FE	Yes	Yes
Agency*Year FE	No	Yes
R^2	0.115	0.215
N	23,195	23,195

Table A.6 **Number of ratings, defaults, and yields**
This table reports results from regressions of default within five years (columns 1-3) and offering yield spreads (columns 4-6) on the number of rating agencies. The main independent variables are indicator variables for having two or three rating agencies at offering (the omitted category is one agency); all other variables and the sample construction is the same as in Table 6 (for columns 1-3) or Table 7 (for columns 4-6). Controls include rating notch fixed effects, industry-by-year fixed effects, and issuer fixed effects where indicated as well as bond-level controls (log of offering amount, log of maturity, and indicators for callability, enhancements, covenants, and seniority level). Standard errors are two-way clustered by issuer and year. t-stats in parentheses.

Dependent variable:	Default within 5 years of offering (%)			Offering yield spread over treasuries (%)		
	(1)	(2)	(3)	(4)	(5)	(6)
Two rating agencies	0.280	0.587	0.540	-1.157	1.198	-0.764
[Omitted: One agency]	(0.33)	(0.68)	(0.63)	(-0.25)	(0.29)	(-0.24)
Three rating agencies	0.795	1.527	1.595	11.283	11.413	3.159
	(0.72)	(1.29)	(1.39)	(1.12)	(1.40)	(0.58)
Split rating (indicator)	-0.918	-0.937	-0.899	-3.930	-2.906	3.774
	(-0.98)	(-1.01)	(-0.98)	(-0.87)	(-0.75)	(0.70)
Rating notch FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	No	Yes	Yes	No	Yes	Yes
Bond controls	No	No	Yes	No	Yes	Yes
Issuer FE	No	No	No	No	No	Yes
R^2	0.061	0.092	0.106	0.792	0.826	0.855
N	59,222	59,212	59,211	32,788	32,766	31,076

Table A.7 **Robustness: Excluding any ratings from S&P that could be unsolicited**
This table examines whether the estimate of the effect of S&P rating a bond after the offering differs depending on whether the sample includes all ratings within ten days of offering or only includes the S&P ratings that were solicited (i.e., excluding any S&P ratings that are unsolicited or that cannot be perfectly matched to S&P RatingsXpress). Interactions with Fitch and Moody's are included but not separately reported. Standard errors are robust to heteroscedasticity and clustered by Issuer-OfferingDate. t-stats are reported in parentheses.

Dependent variable: Credit rating (coded numerically from 1 for C to 21 for AAA)			
	(1)	(2)	(3)
Rated after offering * S&P	-0.064*	-0.164***	-0.311***
	(-1.95)	(-3.71)	(-5.77)
Control: Updated rating after offering	No	Yes	Yes
Control: Sequence	No	No	Yes
Agency FE	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes
R^2	0.97222	0.97224	0.97231
N	83,363	83,363	83,363

Table A.8 **Placebo tests for Table 13**
This table reports results from "Placebo" tests for Table 13. In column 1, the maturity difference is across bonds that have a maturity between 398-800 days versus >800 days (neither of which meets the eligibility criteria for money market funds) for bonds with a highest rating of A- versus A. Columns 2-10 report results across a range of other rating differences, but for the same maturity difference as in the base regression. Standard errors are robust to heteroscedasticity and clustered by Issuer-OfferingDate. t-stats are reported in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Ratings difference	A vs. A-	AAA vs. AA+	AA+ vs. AA	AA vs. AA-	AA- vs. A+	A+ vs. A	A- vs. BBB+	BBB+ vs. BBB	BBB vs. BBB-	BBB- vs. BB+
Maturities difference	398-800 vs. >800 days				≤397 vs. 398-800 days					
Constant	0.135***	0.335***	0.106**	0.096**	0.105***	0.111***	0.094***	0.056**	0.199*	0.308**
	(3.41)	(3.37)	(2.61)	(2.42)	(5.36)	(4.01)	(3.27)	(2.03)	(1.89)	(2.40)
Lower rating	-0.035	0.006	-0.009	0.008	0.007	-0.038	-0.038	0.143	0.109	-0.010
	(-0.87)	(0.08)	(-0.16)	(0.18)	(0.22)	(-1.00)	(-0.85)	(1.50)	(0.65)	(-0.06)
Shorter maturity	-0.062*	-0.065	-0.059	0.159	-0.007	-0.046	0.246**	0.027	-0.108	-0.108
	(-1.83)	(-1.13)	(-1.22)	(1.01)	(-0.23)	(-1.62)	(2.42)	(0.39)	(-0.91)	(-0.53)
Lower rating * Shorter maturity	0.055	0.006	0.218	-0.166	-0.039	0.014	-0.219*	-0.135	0.000	-0.190
	(1.42)	(0.08)	(1.41)	(-1.08)	(-1.06)	(0.38)	(-1.72)	(-1.25)	(0.00)	(-0.82)
R^2	0.005	0.039	0.047	0.040	0.003	0.009	0.059	0.041	0.024	0.007
N	12,409	2,790	2,757	5,846	6,075	5,045	1,123	519	259	92