Internet Appendix for "Tiebreaker: Certification and Multiple Credit Ratings"

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This Internet Appendix contains 9 supplementary tables to the main article.

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Table IA.I
Summary Statistics of Quarterly Ratings Sample

The table presents summary statistics and a brief description for the sample of bond issues that have both a Moody's and an S&P rating in the quarterly rating sample for 2000 - 2008.

Variable	Obs	Mean	Std. Dev.	Min	Max	Explanation
Fitch Rated	104,629	0.68	0.47	0	1	Dummy for Fitch rating
Fitch Rating	70,863	7.27	2.84	1	19	Fitch rating
Moodys Rating	104,629	7.85	3.07	1	18	Moody's Rating
S&P Rating	104,629	7.66	2.99	1	20	S&P rating
Fitch could push IG	104,629	0.04	0.19	0	1	Fitch could push IG
Fitch could push A-	104,629	0.05	0.22	0	1	Fitch could push A-
S&P and Moodys Disagree	104,629	0.37	0.48	0	1	Dummy for MSP disagreement
Notches of MSP Rating Dispersion	104,629	0.47	0.73	0	12	Notches of MSP rating dispersion
Analyst Dispersion	104,629	0	0.02	0	1.66	Analyst dispersion
Stdev	104,629	0.02	0.01	0.0012	0.13	Daily idiosyncratic equity volatility (past 180 days)
Beta	104,629	0.94	0.44	-1.01	4.39	Equity beta (past 180 days)
Log Total Assets	104,629	9.85	1.25	5.32	12.59	Log of total book value of assets
PPE / Total Assets	104,629	0.38	0.23	0	0.96	PPE over total book assets
R&D / Total Assets	104,629	0.01	0.02	0	0.23	R&D expenditure over total book assets
R&D missing	104,629	0.45	0.5	0	1	R&D expenditure missing
Leverage	104,629	0.35	0.15	0	6.04	Book leverage (debt/total assets)
ROA	104,629	0.01	0.02	-0.63	0.41	Return on book assets (earnings/total assets)
Log of Offering Amount	104,629	11.42	2.2	0	15.07	Log of offering amount
Maturity Left	104,629	9.61	10.71	0	98.52	Maturity left (years)
Redeemable	104,629	0.56	0.5	0	1	Dummy if the bond is redeemable

Table IA.II

Fitch Inflated Credit Spread Regressions on Fitch Rating Additions

This table is equivalent to Table V of the main article except that for determining whether Fitch is better, equal or worse than the average of Moody's and S&P rating, the Fitch rating is corrected with one notch. Thus, an original AAA rating by Fitch would in this table correspond to a AA+ rating. The column with only a dummy for a Fitch rating added in Table V is not replicated here since it is invariant to this correction.

	(1)	(2)	(3)	(4)	(5)
Fitch added and better	-0.726	0.132	-5.533	-2.973	-1.09
	[-0.09]	[0.02]	[-0.73]	[-0.35]	[-0.15]
Fitch added and equal	-6.747	-6.22	-10.37	1.624	-1.683
	[-0.84]	[-0.77]	[-0.95]	[0.32]	[-0.13]
Fitch added and worse	2.645	2.953	9.538	2.909	3.203
	[0.64]	[0.71]	[1.06]	[0.70]	[0.77]
Fitch added and makes IG		-30.71***	-22.98**		
		[-2.86]	[-2.15]		
Fitch added and denies IG		11.16	22.99		
		[0.60]	[0.89]		
At IG boundary		15.57***	11.10***		
		[3.26]	[2.60]		
*Fitch added and equal**				-2036.8	
analyst dispersion				[-1.10]	
analyst dispersion				588.2***	
				[4.13]	
*Fitch added and equal**					-8.636
rating dispersion					[-1.11]
rating dispersion					2.399**
					[2.00]
Controls	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Segment	All	All	BBB+ to BB-	All	All
N	34,621	34,621	15,100	34,724	34,621
adj. R^2	0.531	0.532	0.626	0.534	0.531
N. issuers	671	671	465	672	671

Table IA.III
CRA Default Prediction with MSP Disagreement

Using yearly panel data between 2000 and 2008, we compare CRA performance with respect to default prediction on a one year horizon. The table shows results from a logit regression of issuer default events on Moody's and S&P rating scales, rating differences between Moody's and Fitch, dummies for the effect of Fitch as a tiebreaker when Moody's and S&P are at different sides of the IG boundary and time fixed effects for the complete universe of bonds that are rated by all three CRAs. The rating variables are in notches where 1 corresponds to AAA. The difference variables measure the difference between the First minus the second CRA in notches. Column 1 is restricted to cases where Moody's and S&P disagree. Only marginal effects are reported (multiplied by 10,000 for readability), and t-statistics are in brackets (using robust standard errors clustered by issuer). *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)
Moody's Rating	5.00***	3.91***
	[3.28]	[4.00]
S&P Rating	0.403	0.37
	[0.54]	[0.65]
Difference Fitch vs Moody's	5.00***	
	[3.28]	
Fitch makes IG		-5.63
		[-1.52]
Fitch denies IG		-4.08
		[-0.96]
Year FE	Yes	Yes
Moody's and S&P disagree only	Yes	No
N	56,376	112,329
pseudo R^2	0.372	0.369
N. issuers	1693	2066

Table IA.IV
Credit Spread Regressions, Full Sample

Using quarterly panel data between 2002 and 2008, we regress credit spread levels for AAA to B- rated bonds on bond and firm characteristics, with rating and time fixed effects. Main variables of interest are whether a Fitch rating is better ($FR < MSP$), equal to ($FR = MSP$) or worse ($FR > MSP$) than the average Moody's and S&P rating, as well as variables relating to regulation (IG). See Table IA.V for descriptions of other control variable descriptions. However, levels instead of changes are used for the controls. Time fixed effects are estimated for the IG and HY category separately to accommodate the sharp widening of the IG/HY spread during the crisis. t-statistics are in brackets (using robust standard errors clustered by issuer). *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)
Fitch<MSP	4.314	5.487	3.771	4.1
	[1.14]	[1.42]	[1.00]	[1.12]
Fitch=MSP	7.151**	7.184**	6.594*	7.678**
	[2.12]	[2.15]	[1.94]	[2.27]
Fitch>MSP	16.37**	13.16**	16.68**	15.71**
	[2.28]	[2.04]	[2.30]	[2.18]
Fitch makes IG		-26.35***		
		[-2.62]		
Fitch denies IG		18.22		
		[1.17]		
*analyst dispersion**			207.4	
Fitch=MSP			[1.40]	
analyst dispersion			252.2	
			[0.95]	
*Rating dispersion**				-1.356
Fitch=MSP				[-0.35]
Rating dispersion				2.083
				[0.64]
Controls	Yes	Yes	Yes	Yes
Time FE by IG/HY	yes	yes	yes	yes
MSP Rating FE	yes	yes	yes	yes
N	44,139	44,139	43,711	44,139
adj. R^2	0.814	0.815	0.815	0.814
N. issuers	739	739	716	739

Table IA.V

Change in Credit Spreads and Rating Changes, Pre-Crisis Sample

Using quarterly panel data between 2002 and 2007Q2, we regress changes in credit spreads for AAA to B- rated bonds that are rated by all three CRAs on rating up- and downgrades for all three CRAs, changes in bond and firm characteristics, dummies for boundary effects and time fixed effects. Up- and downgrades are coded as dummies indicating whether each of the three CRAs upgraded or downgraded its rating. These firm and bond controls are included but not shown (all in changes): Leverage, liquidation/intrinsic value (PPE/total assets), R&D expenses (divided by total assets), ROA (return on assets), Stdev (daily idiosyncratic equity volatility), Historical Equity Beta (half year daily corrected for Bid-Ask-bounces), Log Total Assets (firm size, book value) and Log Offering Size (issue size), Redeemable (dummy for callability), Duration and Convexity. *Fitch Upgrade, Breaks Tie* is a dummy indicating that a Fitch upgrade made the issue qualify for IG, while *Fitch Downgrade, Breaks Tie* is a dummy indicating that a Fitch downgrade made the issue lose its IG qualification. *Fitch Could Break Tie* is a dummy indicating that the S&P and Moody's ratings are on opposite sides of the IG-HY boundary. Column (5) is restricted to issues rated A- or better by Moody's and S&P, whereas column (6) is restricted to issues rated BBB+ or worse by Moody's and S&P. t-statistics are in brackets (using robust standard errors clustered by issuer; N. issuer gives the number of issuers). *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. 'F-test *Fup=Fdown* (p-value)' gives the p-value for the coefficients on *Fitch Upgrade* and *Fitch Downgrade* being equal, while 'F-test *Fup,tie=Fdown,tie* (p-value)' gives the p-value for the coefficients on *Fitch Upgraded, Breaks Tie* and *Fitch Downgraded, Breaks Tie* being equal.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Moody's Upgrade	-5.546**						-2.794	-2.472
	[-2.44]						[-1.41]	[-1.28]
Moody's Downgrade	14.59***						9.905**	9.704***
	[4.42]						[2.56]	[2.66]
S&P Upgrade		-9.268***					-8.036***	-7.805***
		[-3.20]					[-3.20]	[-3.13]
S&P Downgrade		16.31***					11.66***	11.38***
		[4.49]					[3.47]	[3.53]
Fitch Upgrade			-6.228*	-6.134*	-0.435	-6.175	-4.103	-4.227
			[-1.86]	[-1.79]	[-0.13]	[-1.65]	[-1.40]	[-1.41]
Fitch Downgrade			13.97***	10.31***	0.662	14.95***	6.467	3.32
			[3.04]	[2.63]	[0.26]	[2.89]	[1.44]	[0.82]
Fitch Upgrade, Breaks Tie				-3.222		-5.122		-0.185
				[-0.38]		[-0.65]		[-0.02]
Fitch Downgrade, Breaks				44.20**		38.69*		40.55**
Tie				[2.16]		[1.92]		[1.98]

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Table IA.V – continued from previous page

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fitch Could Break Tie				-4.869*		-3.611		-5.081*
				[-1.85]		[-1.42]		[-1.94]
Lagged Credit Spread Change	-0.266***	-0.268***	-0.264***	-0.263***	-0.419***	-0.223***	-0.271***	-0.270***
	[-9.24]	[-9.14]	[-8.95]	[-8.91]	[-22.09]	[-6.67]	[-9.38]	[-9.32]
Sample	All	All	All	All	≤A-	≥BBB+	All	All
N	16,889	16,889	16,889	16,889	8,535	8,354	16,889	16,889
Adj. R^2	0.204	0.207	0.202	0.206	0.269	0.23	0.212	0.214
N. issuers	343	343	343	343	107	276	343	343
F-test *Fup=Fdown* (*p*-value)			0.05%	0.16%	79.00%	0.09%	5.19%	14.00%
F-test *Fup,tie=Fdown,tie* (*p*-value)				3.25%		4.44%		

Table IA.VI
Credit Spread Regressions on Fitch Rating Additions, Pre-Crisis Sample

Using quarterly panel data between 2002 and 2007Q2, we regress changes in credit spreads for AAA to B- rated bonds that are rated by Moody's and S&P on rating additions from Fitch, the relative ranking of those additions and whether additions happened at the IG boundary, interactions with uncertainty measures and changes in bond and firm characteristics plus time fixed effects. *Fitch Added, Better*, *Fitch Added, Equal* and *Fitch Added, Worse* are dummies indicating whether a Fitch rating has been added that is respectively better than, equal to and worse than the average rating by Moody's and S&P. *Fitch Added, Makes IG* and *Fitch Added, Denies IG* are dummies that indicate whether the added Fitch rating makes the issue qualify for IG or not, conditional on Moody's and S&P ratings being on opposite sides of the boundary. See Table IA.V for descriptions of bond and firm level control variables. t-statistics are in brackets (using robust standard errors clustered by issuer in all columns except column 5, which uses double clustering by both issuer and time). *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. 'F-test *FAdded,IG=FAdded,HY* (p-value)' is the p-value of the F-test of *Fitch Added, Makes IG* and *Fitch Added, Makes HY* being equal. The sample is all issues rated by both Moody's and S&P with their average rating better or equal to B-, except in column 4, where their average rating is between BBB+ and BB-.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fitch Added	0.0133						
	[0.00]						
Fitch Added, Better		-7.003	-6.641	-2.535	-6.641	-7.365	-6.903
		[-0.97]	[-0.91]	[-0.39]	[-0.83]	[-1.01]	[-0.95]
Fitch Added, Equal		5.256*	5.021*	11.94**	5.021**	2.798	4.947*
		[1.84]	[1.76]	[2.11]	[2.03]	[0.94]	[1.80]
Fitch Added, Worse		-0.00141	-0.0856	17.21	-0.0856	-0.466	-0.187
		[-0.00]	[-0.01]	[0.86]	[-0.01]	[-0.04]	[-0.02]
Fitch Added, Makes IG			-20.28*	-20.13*	-20.28*		
			[-1.65]	[-1.70]	[-1.70]		
Fitch Added, Makes HY			30.46	27.03	30.46		
			[1.45]	[1.28]	[1.35]		
At IG boundary			-1.259	-1.149	-1.259		
			[-0.46]	[-0.45]	[-0.46]		
*Fitch Added, Equal * Analyst Dispersion*						1280.3	
						[0.99]	

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Table IA.VI – continued from previous page

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Analyst Dispersion						184.8	
						[1.51]	
*Fitch Added, Equal * Rating Dispersion*							0.602
							[0.10]
S&P and Moodys Disagree							-0.686
							[-1.24]
Lagged Credit Spread Change	-0.276***	-0.277***	-0.277***	-0.243***	-0.277***	-0.279***	-0.277***
	[-11.99]	[-12.02]	[-12.01]	[-7.62]	[-6.84]	[-12.18]	[-11.99]
Sample	All	All	All	BBB+ to BB-	All	All	All
Double Clustering	No	No	No	No	Yes	No	No
N	24,557	24,557	24,557	9,751	24,557	24,650	24,557
Adj. R^2	0.205	0.206	0.206	0.224	0.206	0.207	0.206
N. issuers	605	605	605	404		608	605
F-test *FAdded,IG=FAdded,HY* (p-value)			3.24%	4.59%	8.93%		

Table IA.VII
Logistic Regressions for Having a Fitch Rating

Logit regressions of having a Fitch rating on rating category dummies based on average Moody's and S&P (MSP) ratings, measures for uncertainty as Analyst Dispersion (standard deviation of analyst earning forecasts normalized per dollar share value), Dummy S&P and Moody's Disagree or *Notches of MSP Rating Dispersion* (absolute value of the notches difference between Moody's and S&P), and *F Could Break Tie* and *F Could Push A-* are dummies indicating whether the Moody's and S&P ratings are on opposite sides of the IG-HY and A- boundaries respectively. All specifications further include industry fixed effects. In column (6) and (7) issues are removed after, respectively, their first year and first quarter after being rated by Fitch. Other controls that are included but not shown are the firm Beta, Leverage, PPE / Assets, R&D Expenses / Assets, ROA, Log of Offering Amount, Maturity Left and Maturity Left Squared and Redeemable (see Table IA.V for descriptions). Quarterly data for 2000-2008 are used, and the sample consists of all issues with both Moody's and S&P ratings that are on average rated B- or better. Marginal effects are reported, and t-statistics are in brackets (using robust standard errors clustered by issuer). *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Pseudo R^2 refers to McFadden (1973) pseudo R^2.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MSP Rating A+ to A-	0.418***		0.417***	0.420***	0.414***	0.216**	0.0985**
	[3.97]		[3.93]	[3.98]	[3.95]	[2.36]	[2.02]
MSP Rating BBB+ to BBB-	0.401***		0.397***	0.386***	0.395***	0.191***	0.0726**
	[4.31]		[4.21]	[4.08]	[4.24]	[2.69]	[2.26]
MSP Rating BB+ to BB-	0.299***		0.291***	0.290***	0.289***	0.243*	0.123
	[6.70]		[6.25]	[6.12]	[6.23]	[1.96]	[1.60]
MSP Rating B+ to B-	0.266***		0.266***	0.267***	0.263***	0.223	0.111
	[6.13]		[6.09]	[6.19]	[5.96]	[1.60]	[1.30]
Fitch Could Break Tie		0.144***	0.117***		0.103**	0.092	0.0369
		[3.99]	[3.18]		[2.51]	[1.60]	[1.17]
Fitch Could Pull A		0.0649	0.0328		0.00998	0.0282	0.0226
		[1.31]	[0.60]		[0.17]	[0.63]	[0.96]
Avg MSP BB+				0.0952**			
				[2.39]			
Avg MSP BBB-				0.0790**			
				[2.24]			
Notches of MSP Rating Dispersion					-0.00204		
					[-0.07]		

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Table IA.VII – continued from previous page

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
S&P and Moodys Disagree	-0.0305	-0.0309	-0.0426	-0.0333		-0.0347	-0.022
	[-0.69]	[-0.62]	[-0.87]	[-0.74]		[-1.10]	[-1.60]
Analyst Dispersion	0.835	0.728	0.855	0.816	0.903	0.337	0.0652
	[0.96]	[0.84]	[0.96]	[0.98]	[0.97]	[1.21]	[1.29]
Idiosyncratic Volatility	-5.432***	-5.334***	-5.397***	-5.513***	-5.388***	-2.103**	-0.182
	[-4.67]	[-4.80]	[-4.70]	[-4.75]	[-4.68]	[-1.98]	[-0.56]
Log of Total Assets	0.177***	0.151***	0.177***	0.179***	0.178***	0.0766***	0.0195***
	[8.86]	[5.64]	[8.82]	[8.90]	[8.87]	[5.87]	[5.36]
Time Limit after Fitch Addition	No	No	No	No	No	1 Year	1 Quarter
N	104,435	104,435	104,435	104,435	104,435	27,550	32,135
Pseudo R^2	0.223	0.174	0.224	0.225	0.223	0.163	0.098
N. issuers	818	818	818	818	818	639	683

Table IA.VIII
Logistic Regressions for Having a Fitch Rating with Double Clustering

Logit regressions of having a Fitch rating on rating category dummies based on average Moody's and S&P (MSP) ratings, measures for uncertainty as Analyst Dispersion (standard deviation of analyst earning forecasts normalized per dollar share value), Dummy S&P and Moody's Disagree or *Notches of MSP Rating Dispersion* (absolute value of the notches difference between Moody's and S&P), and *F Could Break Tie* and *F Could Push A-* are dummies indicating whether the Moody's and S&P ratings are on opposite sides of the IG-HY and A- boundaries respectively. All specifications further include industry fixed effects. Other controls that are included but not shown are the firm Beta, Leverage, PPE / Assets, R&D Expenses / Assets, ROA, Log of Offering Amount, Maturity Left and Maturity Left Squared and Redeemable (see Table IA.V for descriptions). Quarterly data for 2000-2008 are used, and the sample consists of all issues with both Moody's and S&P ratings that are on average rated B- or better. Only coefficient estimates are reported, and t-statistics are in brackets using robust standard errors clustered by issuer in Column (1) and standard errors clustered by issuer and time in Column (2). *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Double clustered standard errors are calculated using the Stata code available on Mitchel Petersen's website.

	(1)	(2)
MSP Rating A+ to A-	2.411***	2.411***
	[3.76]	[3.69]
MSP Rating BBB+ to BBB-	2.440***	2.440***
	[3.84]	[3.74]
MSP Rating BB+ to BB-	2.645***	2.645***
	[4.00]	[3.92]
MSP Rating B+ to B-	2.472***	2.472***
	[3.45]	[3.39]
Fitch Could Break Tie	0.705***	0.705***
	[2.61]	[2.66]
Fitch Could Pull A	0.172	0.172
	[0.58]	[0.59]
Notches of MSP Rating Dispersion	-0.213	-0.213
	[-0.87]	[-0.89]
Analyst Dispersion	4.331	4.331
	[0.96]	[0.82]
Industry FE	yes	yes
Double clustering	no	yes
N	104,435	104,435
pseudo R^2	0.224	
N. issuers	818	

Table IA.IX

Change in Credit Spreads and Rating Changes, verification tests

Using quarterly panel data between 2002 and 2008, we regress changes in credit spreads for AAA to B- rated bonds that are rated by all three CRAs on rating up- and downgrades for all three CRAs, changes in bond and firm characteristics, dummies for boundary effects and time fixed effects. Up- and downgrades are coded as dummies indicating whether each of the three CRAs upgraded or downgraded its rating. These firm and bond controls are included but not shown (all in changes): Leverage, liquidation/intrinsic value (PPE/total assets), R&D expenses (divided by total assets), ROA (return on assets), Stdev (daily idiosyncratic equity volatility), Historical Equity Beta (half year daily corrected for Bid-Ask-bounces), Log Total Assets (firm size, book value) and Log Offering Size (issue size), Redeemable (dummy for callability), Duration and Convexity. *Fitch Upgrade, Breaks Tie, Moody's Upgrade, Breaks Tie* and *S&P Upgrade, Breaks Tie* are a dummies indicating that the respective CRA upgrade made the issue qualify for IG, while *Fitch Downgrade, breaks no tie anymore, Moody's Downgrade, breaks no tie anymore* and *S&P Downgrade, breaks no tie anymore* are dummies indicating that a downgrade by the respective CRA made the issue lose its IG qualification. *Fitch Could Break Tie, Moody's Could Break Tie* and *S&P Could Break Tie* are a dummies indicating that the ratings by the other CRAs are on opposite sides of the IG-HY boundary. Columns (3) and (4) are restricted to issues rated A- or better by Moody's and S&P, whereas columns (5) and (6) are restricted to issues rated BBB+ or worse by Moody's and S&P. t-statistics are in brackets (using robust standard errors clustered by issuer; N. issuer gives the number of issuers). *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. 'F-test *Mup=Mdown* (p-value)' and 'F-test *SPup=SPdown* (p-value)' give the p-values for the test on the coefficients on *Moody's Upgrade* and *Moody's Downgrade* being equal and the test on the coefficients on *S&P Upgrade* and *S&P Downgrade* being equal respectively. Similarly 'F-test *Mup,tie=Mdown,tie* (p-value)' and 'F-test *SPup,tie=SPdown,tie* (p-value)' give the p-values for the test of the coefficients on *Moody's Upgraded, Breaks Tie* and *Moody's Downgraded, Breaks Tie* being equal and the test of the coefficients on *S&P Upgraded, Breaks Tie* and *S&P Downgraded, Breaks Tie* being equal respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Moody's upgrade	-4.463*		-5.414**		-8.704***		-2.493	-2.418	-2.587
	[-1.90]		[-2.34]		[-3.18]		[-1.13]	[-1.13]	[-1.17]
Moody's downgrade	14.06***		9.149**		18.55***		7.378**	7.032*	8.239**
	[4.09]		[2.22]		[3.97]		[2.07]	[1.89]	[2.41]
S&P upgrade		-4.977*		-10.41***		-4.846	-4.321	-3.701	-3.833
		[-1.84]		[-2.64]		[-1.65]	[-1.62]	[-1.37]	[-1.40]
S&P downgrade		16.63***		4.094		20.43***	18.70***	13.13***	12.95***
		[4.39]		[1.06]		[4.76]	[4.21]	[3.52]	[3.50]
Fitch upgrade							-4.948	-5.207*	-4.086
							[-1.64]	[-1.72]	[-1.36]
Fitch downgrade							4.631	4.779	4.2
							[0.80]	[0.84]	[0.71]

Continued on next page

Table IA.IX – continued from previous page

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fitch upgraded and breaks tie									-8.796
									[-0.62]
Fitch downgraded and breaks no tie anymore									4.181
									[0.21]
Fitch could break tie									10.27**
									[2.08]
Moody's upgraded and breaks tie	-2.479				3.764		-0.728		1.183
	[-0.37]				[0.58]		[-0.12]		[0.21]
Moody's downgraded and breaks no tie anymore	1.052				-2.068		-1.156		-18.97
	[0.04]				[-0.08]		[-0.04]		[-0.70]
Moody's could break tie	2.818				-0.792		2.661		-6.331
	[0.74]				[-0.26]		[0.71]		[-1.38]
S&P upgraded and breaks tie		-14.25*				-10.03		-13.21*	-12.1
		[-1.82]				[-1.57]		[-1.73]	[-1.58]
S&P downgraded and breaks no tie anymore		40.15***				36.08***		39.51***	40.53***
		[2.98]				[2.92]		[2.84]	[2.61]
S&P could break tie		11.87***				8.468**		12.14***	7.797*
		[2.61]				[2.13]		[2.64]	[1.66]
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
rated by All 3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Range	All	All	≤A-	≤A-	≥BBB+	≥BBB+	All	All	All
N	24282	24282	11330	11330	12952	12952	24282	24282	24282
adj. R^2	0.531	0.537	0.451	0.451	0.602	0.608	0.534	0.537	0.538
N. issuer	380	380	117	117	313	313	380	380	380
F-test *Mup=Mdown* (*p*-val)	0		0.008		0		0.015		
F-test *Mup,tie=Mdown,tie* (*p*-val)	0.897				0.833		0.987		
F-test *SPup=SPdown* (*p*-val)		0		0.008		0		0	

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Table IA.IX – continued from previous page

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
F-test		0				0.001		0.001	
SPup,tie=SPdown,tie									
(p-val)									