

Internet Appendix

For

“Impact of the Dodd-Frank Act on Credit Ratings”

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This Internet Appendix reports the results of supplementary and robustness tests as described below:

Table IA1: Alternative definitions for false warnings in Table 4.

Table IA2: Additional business cycle controls in Table 3 and Table 4.

Table IA3: Characteristics of corporate bond credit ratings around the recession of 2001.

Table IA1: Alternative false warning definitions

Panel A: False warnings defined as BB+ or lower rated issues that do not default within two years

Variable	Model 1			Model 2		
	Pred. Sign	Main Model Coefficient	z-stat.	Pred. Sign	Fitch Market Share Interaction Coefficient	z-stat.
After Dodd-Frank	+	0.627***	5.02	+/-	0.351**	2.24
Fitch market share	/			+/-	-0.121	-0.54
After Dodd-Frank x Fitch market share	/			+	1.527***	3.72
Bond index return	-	-3.313***	-6.52	-	-4.749***	-7.86
Moody	+/-	-0.079	-0.87	+/-	-0.049	-0.56
Fitch	+/-	-0.652***	-4.90	+/-		
Years to maturity	+/-	-0.009*	-1.75	+/-	-0.008	-1.38
ROA	+	6.137	1.14	+	2.055	0.42
Log of market value	-	-1.049***	-8.73	-	-1.073***	-10.86
Interest coverage	-	-0.091***	-3.86	-	-0.063***	-3.11
Total stock return volatility	+	0.334***	4.28	+	0.263***	3.53
Book-to-market	-	-0.791***	-2.95	-	-0.803***	-2.89
LT debt-to-equity	+	0.319***	4.13	+	0.277***	2.75
Intercept	/	8.603***	7.58	/	9.074***	9.68
# Observations		23,105			12,462	
Pseudo R ²		40.79%			38.91%	

Panel B: False warnings defined as B+ or lower rated issues that do not default within two years

Variable	Pred. Sign	Model 1		Model 2		
		Main Model		Fitch Market Share Interaction		
		Coefficient	z-stat.	Pred. Sign	Coefficient	z-stat.
After Dodd-Frank	+	0.416**	2.18	+/-	0.055	0.27
Fitch market share	/			+/-	-0.206	-1.03
After Dodd-Frank x Fitch market share	/			+	1.271***	3.40
Bond index return	-	-3.568***	-5.52	-	-3.856***	-5.86
Moody	+/-	0.074	0.81	+/-	0.121	1.41
Fitch	+/-	-0.859***	-4.34			
Years to maturity	+/-	-0.004	-0.43	+/-	-0.001	-0.08
ROA	+	7.425	1.64	+	5.934	1.48
Log of market value	-	-1.118***	-10.74	-	-1.127***	-11.90
Interest coverage	-	-0.062***	-2.70	-	-0.050**	-2.49
Total stock return volatility	+	0.284***	3.42	+	0.241***	3.74
Book-to-market	-	-0.506**	-2.15	-	-0.626***	-2.95
LT debt-to-equity	+	0.181***	4.45	+	0.181***	3.25
Intercept	/	7.431***	7.17	/	7.711***	8.59
# Observations		23,105			12,462	
Pseudo R ²		43.00%			38.57%	

This table shows logistic regression results for type II errors (false warnings) for all credit rating announcements between January 2006 and May 2012. The sample excludes financial industry firms. In Panel A, the dependent variable is a dummy variable with a value of one for a BB+ or lower rated issue that does not default within two years, and zero otherwise. In Panel B, the dependent variable is a dummy variable with a value of one for a B+ or lower rated issue that does not default within two years, and zero otherwise. After Dodd-Frank is a dummy variable with a value of one for ratings assigned after July 21, 2010, and zero for ratings assigned between January 2006 and July 21, 2010. Fitch market share is a dummy variable with a value of one for ratings in industries with Fitch market share below the 25th percentile, and zero otherwise. Industries are defined according to the Fama-French 12 industry classification and Fitch market share percentiles are calculated by year and industry. Moody and Fitch are dummy variables indicating which agency rated the bond. The remaining variables are defined in Table 1. Standard errors are clustered by firm. ***, **, * represent significance beyond the 1st, 5th, and 10th percentile levels, respectively.

Table IA2: Business cycle controls

Panel A: Rating levels

Variable	Model 1 Main Model			Model 2 Fitch Market Share Interaction		
	Pred. Sign	Coefficient	z-stat.	Pred. Sign	Coefficient	z-stat.
After DODD	+	0.610***	5.18	+/-	0.521***	3.27
Fitch market share	/			+/-	-0.308**	-1.98
After Dodd-Frank*Fitch Market Share	/			+	0.983***	3.24
Log GDP	-	-6.426***	-4.21	-	-8.630***	-4.66
S&P 500 level	+	0.001***	3.09	+	0.001*	1.87
Earnings-to-price	-	-0.431	-0.78	-	-1.094**	-2.25
Quarterly stock returns	+	0.298	0.87	+	0.060	0.22
S&P 500 returns	+	1.353***	3.88	+	1.420***	2.99
Moody	+/-	0.098	1.60	+/-	0.091	1.54
Fitch	+/-	-0.218**	-2.24	+/-		
Operating margin	+	1.224**	2.44	+	1.009**	2.19
LT debt leverage	+	2.395	0.62	+	1.881	0.60
Total debt leverage	+	1.252	0.29	+	1.359	0.37
Log of market value	-	-1.036***	-6.13	-	-1.027***	-6.54
Stock beta	+	0.592***	4.31	+	0.553***	4.99
Idiosyncratic stock return volatility	+	0.461***	5.29	+	0.376***	5.20
Interest coverage	-	-0.072***	-6.20	-	-0.060***	-5.55
# Observations		21,372			11,248	
Pseudo R ²		22.06%			21.69%	

Panel B: False warnings

Variable	Model 1 Main Model			Model 2 Fitch Market Share Interaction		
	Pred. Sign	Coefficient	z-stat.	Pred. Sign	Coefficient	z-stat.
After Dodd-Frank	+/-	0.953***	4.40	+/-	0.750***	2.72
Fitch market share	/			+/-	-0.376	-1.34
After Dodd-Frank x Fitch market share	/			+	1.693***	3.61
Log GDP	-	-7.592***	-3.06	-	-6.530**	-2.08
S&P 500 level	+	0.004***	5.98	+	0.004***	5.24
Earning-to-price	+	2.256***	2.83	+	1.995***	3.01
Quarterly stock returns	+	1.170***	3.11	+	1.348***	2.96
S&P 500 returns	+	1.839***	4.13	+	1.112*	1.66
Bond index return	-	-1.794***	-2.63	-	-3.698***	-3.84
Moody	+/-	-0.071	-0.64	+/-	-0.047	-0.45
Fitch	+/-	-0.547***	-3.75			
Years to maturity	+/-	-0.008	-1.50	+/-	-0.007	-1.26
ROA	+	0.836	0.14	+	-4.048	-0.69
Log of market value	-	-1.176***	-8.54	-	-1.236***	-10.64
Interest coverage	-	-0.076***	-3.33	-	-0.050**	-2.32
Total stock return volatility	+	0.754***	6.38	+	0.633***	5.65
Book-to-market	-	-0.137	-0.41	-	-0.118	-0.35
LT debt-to-equity	+	0.451***	4.03	+	0.369***	3.49
Intercept	/	75.553***	3.22	/	66.465**	2.24
# Observations		21,228			11,181	
Pseudo R ²		48.65%			47.15%	

This table shows ordered logistic regression results for numerical rating codes (Panel A) and logistic regression results for type II errors (Panel B) for all credit rating announcements between January 2006 and May 2012, controlling for business cycle variables. The sample excludes financial industry firms. In Panel A, the dependent variable is the numerical rating for a bond, ranging from 1-21 (AAA-C). In Panel B, the dependent variable is a dummy variable with a value of one for a BB+ or lower rated issue that does not default within one year, and zero otherwise. After Dodd-Frank is a dummy variable with a value of one for ratings assigned after July

21, 2010, and zero for ratings assigned between January 2006 and July 21, 2010. Fitch market share is a dummy variable with a value of one for ratings in industries with Fitch market share below the 25th percentile, and zero otherwise. Industries are defined according to the Fama-French 12 industry classification and Fitch market share percentiles are calculated by year and industry. Moody and Fitch are dummy variables indicating which agency rated the bond. GDP and S&P 500's level are measured for the most recent quarter ending prior to the rating announcement. Earnings-to-price is calculated as the firm's forecasted earnings per share for the next fiscal year divided by stock price per share. The return on the S&P 500 is measured over the year prior to the rating announcement. Quarterly stock returns are the firm's cumulative stock returns over the quarter prior to the rating announcement. The remaining variables are defined in Table 1 of the paper. Standard errors are clustered by firm. ***, **, * represent significance beyond the 1st, 5th, and 10th percentile levels, respectively.

Table IA3: Characteristics of credit ratings around the recession of 2001

Panel A: Rating levels

Variable	Model 1 Main Model			Model 2 Fitch Market Share Interaction		
	Pred. Sign	Coefficient	z-stat.	Pred. Sign	Coefficient	z-stat.
After Recession	+/-	0.614***	4.59	+/-	0.752***	6.21
Fitch market share	/			+/-	0.229	1.07
After Recession x Fitch market share	/			+/-	-0.795	-1.04
Moody	+/-	0.063	0.55	+/-	0.090	1.17
Fitch	+/-	-0.352***	-2.70	/		
Operating margin	+/-	-0.960***	-2.76	+/-	-0.974***	-2.80
LT debt leverage	+	6.844***	5.92	+	6.427***	5.92
Total debt leverage	+	-3.171**	-2.40	+	-2.858**	-2.41
Log of market value	-	-0.863***	-11.83	-	-0.882***	-11.63
Stock beta	+	0.315***	3.19	+	0.350***	3.15
Idiosyncratic stock return volatility	+	0.337***	7.24	+	0.347***	9.06
Interest coverage	-	-0.090***	-7.48	-	-0.089***	-7.63
# Observations		35,440			30,212	
Pseudo R ²		20.57%			20.87%	

Panel B: False warnings

Variable	Model 1			Model 2		
	Pred. Sign	Coefficient	z-stat.	Pred. Sign	Coefficient	z-stat.
After Recession	+/-	1.142***	8.67	+/-	1.104***	7.66
Fitch market share	/			+/-	-0.055	-0.27
After Recession x Fitch market share	/			+/-	-0.087	-0.38
Bond index return	-	-1.272**	-2.15	-	-1.160**	-2.15
Moody	+/-	0.345***	3.02	+/-	0.349***	3.14
Fitch	+/-	-0.013	-0.07	/		
Years to maturity	+/-	-0.028***	-3.16	+/-	-0.030***	-3.41
ROA	+	3.541	0.98	+	3.011	0.79
Log of market value	-	-0.968***	-11.51	-	-1.007***	-11.94
Interest coverage	-	-0.086***	-3.87	-	-0.076***	-3.29
Total stock return volatility	+	0.402***	6.41	+	0.395***	6.03
Book-to-market	-	-0.673***	-3.84	-	-0.733***	-4.27
LT debt-to-equity	+	0.062	1.25	+	0.044	0.93
Intercept	/	6.158***	9.00	/	6.600***	9.44
# Observations		36,631			31,039	
Pseudo R ²		37.28%			37.99%	

Panel C: Stock price response to rating downgrades and upgrades (mean return %)

	Full Sample		Bottom Quartile of Fitch Market Share		Top Three Quartiles of Fitch Market Share	
	Downgrades	Upgrades	Downgrades	Upgrades	Downgrades	Upgrades
Before & During Recession	-4.597***	0.184	-3.607***	-0.085	-5.142***	0.265
After Recession	-4.541***	0.680**	-2.372*	0.711	-4.774***	0.674**
Difference (After-Before)	0.056	0.496	1.235	0.797	0.368	0.409
T statistic	0.101	1.377	0.896	1.053	0.578	0.997

This table shows characteristics of credit ratings around the 2001 recession. The sample excludes financial industry firms. After Recession is the period from December 2001 to October 2004. Before & During Recession is the period from January 1996 to November 2001. After Recession is a dummy variable with a value of one for ratings issued during the After Recession period, and zero otherwise. Industries are defined according to the Fama-French 12 industry classification and Fitch market share percentiles are calculated by year and industry. Fitch market share is a dummy variable with a value of one for ratings in industries with Fitch market share below the 25th percentile, and zero otherwise. Panel A shows ordered logistic regression results for numerical rating codes for all credit rating announcements between January 1996 and October 2004. The dependent variable in Panel A is the numerical rating for a bond, ranging from 1-21 (AAA-C). Panel B shows logistic regression results for type II errors (false warnings) for all credit rating announcements between January 1996 and October 2004. The dependent variable in Panel B is a dummy variable with a value of one for a BB+ or lower rated issue that does not default within one year, and zero otherwise. Panel C shows mean stock returns surrounding credit rating downgrade and upgrade announcements from January 1996 to October 2004. Mean differences are tested using a T-test. Variables are defined in Table 1. Standard errors are clustered by firm. ***, **, * represent significance beyond the 1st, 5th, and 10th percentile levels, respectively.