

## Internet Appendix

### Who Prices Credit Rating Inflation?

This internet appendix is divided into two sections. The first section describes the secondary market data and its matching with DealScan. The second section provides supplementary figures and tables.

#### A. Secondary market data

LPC collects self-reported data starting from 1998 from brokers that quote prices on secondary market loans. There are 27,129 unique loans in the database which are identified by a proprietary loan identification number (*lin*). Refinitiv provides a proprietary “translation matrix” linking *lin* to the FacilityID identifiers from DealScan. This link is available for 22,671 loans.

Not all loans with quotes in LPC are featured in DealScan. In fact, a direct merge between the two complete databases using the translation matrix matches 4.9% of the 379 thousand unique FacilityIDs in DealScan. This low matching rate is partly explained by the fact that loans traded less frequently in the past—the fraction of traded loans increased from 10% in the early 2000s to 40% in 2013 (Beyhaghi and Ehsani (2017)). It is likely that LPC has low coverage for loans that are sold infrequently, and loans that are sold directly without the involvement of a broker.

We are able to match 75 of the 1,814 facilities in our loan sample, which translates into a 4.1% matching rate. One reason why our matching rate is slightly lower than the overall matching rate of 4.9% is that 80% of our sample are revolving loan facilities, whereas revolving loans represent only about 40% of loans in DealScan. Revolving loans are traded less frequently, with only about 14% of loans with secondary market data being revolving loans.

Since our matched sample is small, we formally test whether these loans are different from the universe of traded loans or from the PSD loans in our sample that are not in the secondary market data. In Table IA.26, we compare the 75 matched loans to the remaining loans traded in the secondary market. We find that while matched loans tend to be offered at lower discounts upon their first quote and exhibit lower standard deviations of their price over time, these differences are not statistically significant. The only statistically significant difference is that matched loans have an average of 1.5 brokers quoting a price on them, compared to an average of 2.2 brokers for non-matched loans. Overall, the matched loans seem to be representative of the universe of traded loans.

In Table IA.27, we compare the firms that issued our 75 matched loans to the firms that issued the remaining PSD loans in our sample. These two types of borrowers are similar across most dimensions. However, the matched firms tend to have credit ratings about 1.5 notches below and larger loans than their counterparts. To avoid any observable difference from impacting our comparison between traded and non-traded loans, we use a nearest neighbor matching framework in our analysis of whether loans are more likely to be traded if they feature higher costs of downgrades. We test for differences between the two types of loans in Table IA.24. We find that there are no economically or statistically significant differences between the firms in the two samples, except that traded loans are slightly larger and riskier.

## References

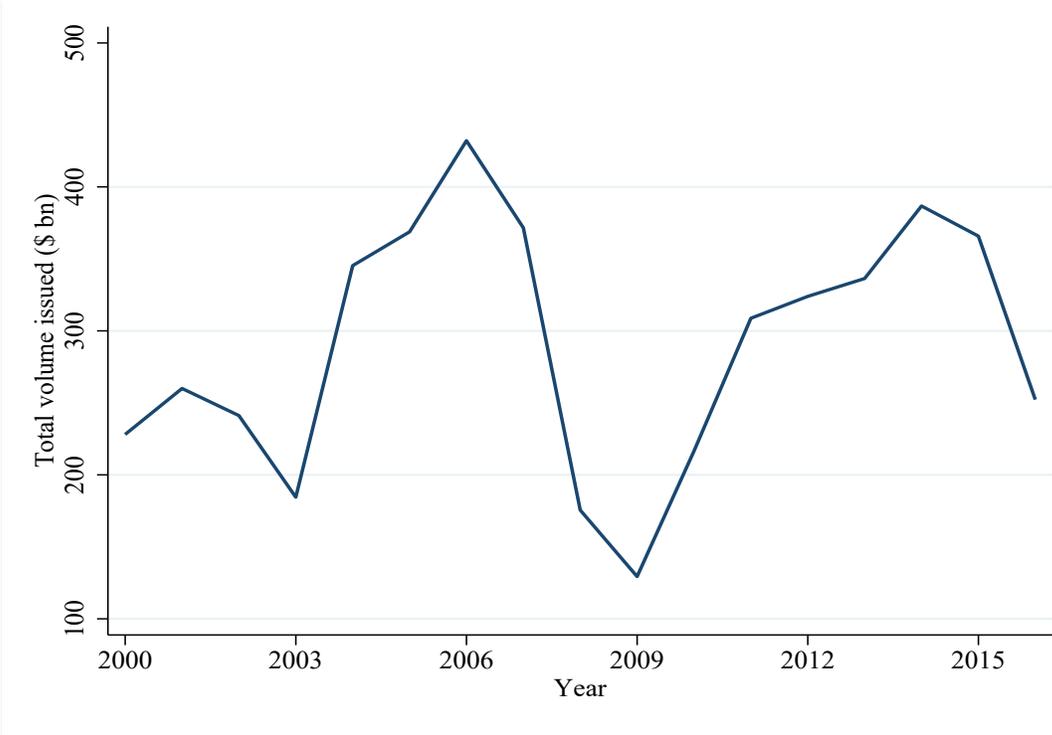
Beyhaghi, M., and S. Ehsani. 2017, The cross-section of expected returns in the secondary corporate loan market, *Review of Asset Pricing Studies*, 7:243–77.

B. Supplementary figures and tables

FIGURE IA.1

Annual volume of newly issued credit rating rating-based PSD

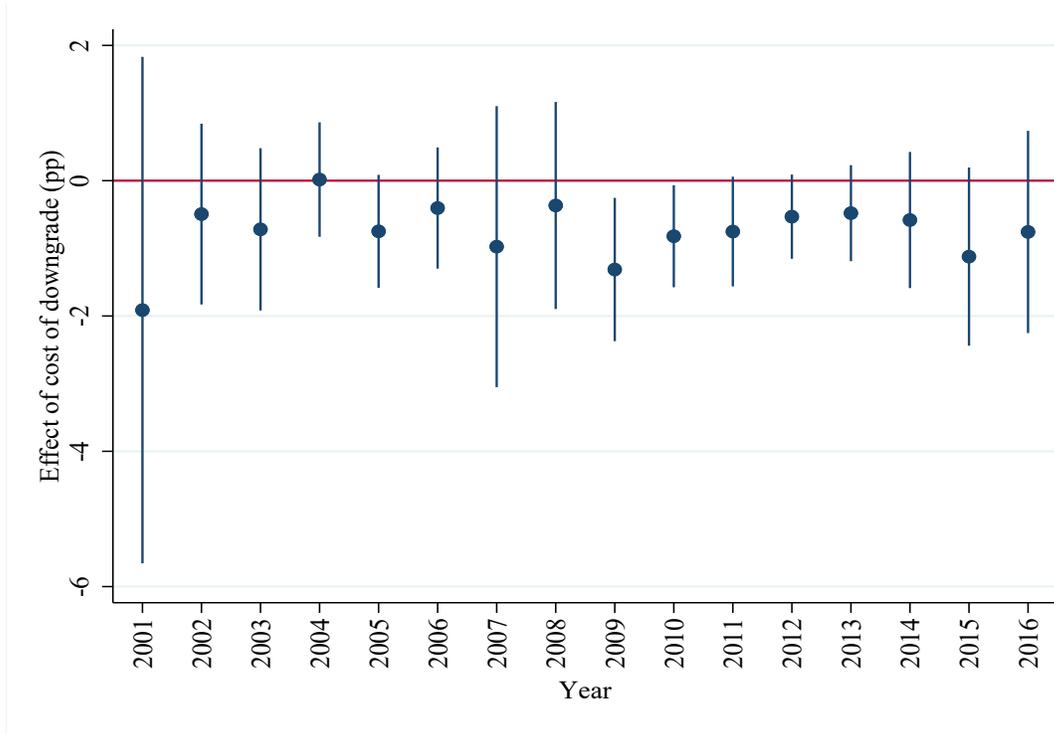
This figure shows the volume of newly issued credit rating-based performance-sensitive debt, by year.



**FIGURE IA.2**

**Coefficient estimate on cost of downgrade by year**

This figure shows the effect of a one standard deviation increase in *cost of downgrade* on the probability that the borrower is downgraded, by year. We regress an indicator that takes the value of 1 if the borrower is downgraded on the interaction between *cost of downgrade* (a measure of the increase in the loan spread that would result from a credit rating downgrade of one notch) and indicator variables for each year. *cost of downgrade* is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. Loan- and firm-level controls, as well as current credit rating, year, and firm fixed effects are included in the regression. The coefficients (in percentage points) associated with the interactions are denoted by solid circles, and the vertical bars denote the corresponding 95% confidence interval (based on standard errors clustered by firm).



**TABLE IA.1****Loans rated by Moody's versus other loans**

This table compares the subsample of loans rated by Moody's in the sample with the remaining loans across observable characteristics. Observations are at the loan-year level.  $1(\cdot)$  denotes indicator variables. Statistical significance computations are based on heteroscedasticity-robust standard errors clustered by loan. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Mean		Difference
	Other loans	Moody's rating	
Leverage	0.3008	0.3269	-.026***
Total assets (log)	9.1819	9.0246	0.157***
Intangibles/assets	0.2207	0.1878	.032***
Profitability (ROA)	0.00979	0.00745	0.002***
1(secured)	1.1262	1.2527	-0.126***
Facility amount	952.878	809.101	143.7***
$N$	13,522	9,238	22,760

**TABLE IA.2**

**Robustness for Table 3: Sample excluding loans rated above A+ and below BBB-**  
 Regressions reported in this table are identical to Table 3, except that the sample excludes loans rated above A+ (column 1) below BBB- (column 2) and either of the two (column 3). Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)		
	< A+ (1)	> BBB- (2)	BBB- – A+ (3)
Cost of downgrade	-0.665*** (0.210)	-0.482*** (0.182)	-0.465** (0.185)
Firm FE	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes
Rating FE	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes
$N$	22,399	18,241	17,880
$Adj.R^2$	0.13	0.13	0.13
Mean of dependent variable	2.54	1.67	1.63

**TABLE IA.3****Robustness for Table 3: Revolver and term loan subsamples**

Regressions reported in this table are identical to Table 3, except that the regressions are estimated separately for revolvers (Column 1) and term loans (Column 2). Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)	
	Revolver (1)	Term loan (2)
Cost of downgrade	-0.703*** (0.205)	-1.125* (0.574)
Firm FE	Yes	Yes
Year-quarter FE	Yes	Yes
Rating FE	Yes	Yes
Loan controls	Yes	Yes
Firm controls	Yes	Yes
$N$	18,568	4,179
$Adj.R^2$	0.12	0.16
Mean of dependent variable	2.38	3.37

**TABLE IA.4**

**Robustness for Table 3: Cost of downgrade based on two-notch downgrades**

Regressions reported in this table are identical to Table 3, except that the variable for the cost of downgrade is based on two-notch downgrades instead of one-notch downgrades. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)			
	(1)	(2)	(3)	(4)
Cost of downgrade (2 notches)	-1.469*** (0.331)	-1.156*** (0.261)	-0.944*** (0.235)	-1.026*** (0.245)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
$N$	22,021	22,021	22,021	22,021
$Adj.R^2$	0.09	0.11	0.13	0.13
Mean of dependent variable	2.60	2.60	2.60	2.60

TABLE IA.5

**Robustness for Table 3: Cost of downgrade as fraction of total assets**

Regressions reported in this table are identical to Table 3, except that the variable for the cost of downgrade is constructed as a dollar cost divided by total assets. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)			
	(1)	(2)	(3)	(4)
Cost of downgrade (% of assets)	-0.692*** (0.187)	-0.801*** (0.192)	-0.310* (0.183)	-0.455** (0.204)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
$N$	22,760	22,760	22,760	22,760
$Adj.R^2$	0.09	0.11	0.12	0.12
Mean of dependent variable	2.57	2.57	2.57	2.57

**TABLE IA.6**

**Robustness for Table 3: When S&P and Moody's are the only CRA**

Regressions reported in this table are identical to Table 3, except that the regressions are estimated separately for borrowers rated by S&P (Column 1) and Moody's (Column 2). Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)	
	S&P	Moody's
	(1)	(2)
Cost of downgrade	-0.967*** (0.233)	-1.392* (0.726)
Firm FE	Yes	Yes
Year-quarter FE	Yes	Yes
Rating FE	Yes	Yes
Loan controls	Yes	Yes
Firm controls	Yes	Yes
$N$	16,895	1,234
$Adj.R^2$	0.12	0.26
Mean of dependent variable	1.79	4.94

**TABLE IA.7**

**Placebo test for Table 3: Sample of accounting ratio-based PSD loans**

Regressions reported in this table are identical to Table 3, except the regressions are estimated using a sample of accounting ratio-based PSD loans (instead of credit rating-based PSD loans) and the independent variable of interest is *cost of moving to lower ratio bracket*, which represents the interest rate increase that would result from declining by one bracket in the pricing grid. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)			
	(1)	(2)	(3)	(4)
Cost of moving to lower ratio-bracket	1.476*** (0.276)	1.042*** (0.274)	0.788*** (0.279)	0.815*** (0.287)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
$N$	23,586	23,586	23,586	23,586
$Adj.R^2$	0.11	0.14	0.15	0.15
Mean of dependent variable	2.37	2.37	2.37	2.37

**TABLE IA.8**

**Time-to-downgrade and cost of downgrade**

This table shows OLS regressions where the dependent variable is the number of quarters between loan origination and the first time the firm was downgraded. The independent variable of interest is *cost of downgrade*, a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. Loan- and firm-level controls, as well as current credit rating, year-quarter, and firm fixed effects are included as reported. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Time to downgrade			
	(1)	(2)	(3)	(4)
Cost of downgrade	1.591*** (0.586)	1.627*** (0.557)	1.428** (0.588)	1.718*** (0.560)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
$N$	247	247	247	247
$Adj.R^2$	0.74	0.75	0.74	0.74
Mean of dependent variable	6.10	6.10	6.10	6.10

TABLE IA.9

**Probability of downgrade and cost of downgrade when rating is decisive**

This table shows OLS regressions where the dependent variable is an indicator that takes the value of 1 if the borrower is downgraded, and 0 otherwise. The indicator is multiplied by 100 so that regression coefficients are in percentage points. The independent variables of interest are *cost of downgrade*, *1(decisive rating)*, and the interaction between the two variables. *Cost of downgrade* is a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. *1(decisive rating)* is an indicator that takes the value of 1 if the a potential downgrade by a credit rating agency would be the marginal downgrade to determine the loan’s interest rate. Columns 1 and 2 shows the regression results when S&P is the decisive credit rating agency, and Columns 3 and 4 show the regression results when Moody’s is the decisive credit rating agency. Loan- and firm-level controls, as well as current credit rating, year-quarter, and firm fixed effects are included as reported. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)			
	S&P		Moody’s	
	(1)	(2)	(3)	(4)
Cost of downgrade	0.443 (0.328)	0.383 (0.338)	0.110 (0.099)	0.083 (0.093)
1(decisive rating)	-0.452 (0.817)	-0.298 (0.818)	-1.059 (2.304)	-1.172 (2.346)
Cost of downgrade $\times$ 1(decisive rating)	-1.237*** (0.363)	-1.200*** (0.375)	-0.932* (0.538)	-0.961* (0.538)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	Yes	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	Yes	Yes	Yes	Yes
<i>N</i>	22,760	22,760	22,760	22,760
<i>Adj.R</i> <sup>2</sup>	0.11	0.11	0.14	0.14
Mean of dependent variable	1.57	1.57	1.10	1.10

**TABLE IA.10****Robustness for Table 3: Previous downgrades**

Regressions reported in this table are identical to Table 3, except that the regressions are estimated separately for loans that have not been downgraded in the last 4 years (Column 1) the full sample while directly controlling for recent downgrades (Column 2). Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)	
	No downgrade (1)	Full sample (2)
Cost of downgrade	-6.462*** (2.059)	-2.588*** (0.944)
Downgraded previous 4 years		-0.216*** (0.020)
Loan FE	Yes	Yes
Year-quarter FE	Yes	Yes
Rating FE	No	Yes
Loan controls	No	Yes
Firm controls	No	No
$N$	17,140	21,720
$Adj.R^2$	0.37	0.20
Mean of dependent variable	1.45	2.31

TABLE IA.11

**Probability of downgrade and cost of downgrade: Managerial optimism**

This table shows OLS regressions where the dependent variable is an indicator that takes the value of 1 if the borrower is downgraded, and 0 otherwise. The indicator is multiplied by 100 so that regression coefficients are in percentage points. The independent variables of interest are *cost of downgrade* and the interaction between *cost of downgrade* and measures of CEO optimism about the future prospects of their firms. Specifically, *Confidence (moneyness)* is the fraction of top executives that hold options that are at least 67% in-the-money (Campbell et al, 2011). The variable *Confidence (holding time)* measures the fraction of top executives that hold an option that is at least 40% in-the-money 12 months prior to expiration. Standalone confidence variables not included in the table are absorbed by fixed effects. All regressions include firm-level controls, as well as current credit rating, year-quarter, and loan fixed effects. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)			
	(1)	(2)	(3)	(4)
Cost of downgrade	-0.821*** (0.296)	-1.229* (0.715)	-0.740** (0.311)	-1.289** (0.613)
Cost of downgrade × Confidence (moneyness)	0.541 (0.549)			
Cost of downgrade × 1(Confidence (moneyness) above median)		0.389 (0.433)		
Cost of downgrade × Confidence (holding time)			0.389 (0.638)	
Cost of downgrade × 1(Confidence (holding time) above median)				0.508 (0.408)
Confidence (moneyness)	0.142 (0.922)			
1(Confidence (moneyness) above median)		-0.299 (0.651)		
Confidence (holding time)			-0.749 (1.542)	
1(Confidence options holding time above median)				-0.090 (0.674)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	Yes	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes
<i>N</i>	19,709	19,709	18,249	18,249
<i>Adj.R</i> <sup>2</sup>	0.11	0.11	0.11	0.11
Mean of dependent variable	2.46	2.46	2.33	2.33

**TABLE IA.12**

**Nominal credit ratings versus Merton's distance-to-default**

This table shows OLS regressions where the dependent variable is Merton's distance-to-default (in a given quarter). The independent variables of interest is *cost of downgrade*, a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. Specifically, *distance-to-default* is the 5-year-future likelihood of default of the borrower based on Merton's model, standardized to have a mean of 0 and standard deviation of 1. Observations are at the loan level. Loan- and firm-level controls, as well as current credit rating, year-quarter, firm, and industry-year fixed effects are included as reported. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Distance to default	
	(1)	(2)
Cost of downgrade	-0.003 (0.013)	-0.014** (0.007)
Year-quarter FE	Yes	Yes
Firm FE	Yes	Yes
Rating FE	Yes	Yes
Industry-year FE	No	Yes
Loan controls	Yes	Yes
Firm controls	Yes	Yes
$N$	20,814	20,814
$Adj.R^2$	0.82	0.90
Mean of dependent variable	0.00	0.00

**TABLE IA.13**

**Robustness for Table 7: Alternative definition of the commodities shock variable**

Regressions reported in this table are identical to Table 7, except that the variable  $1(\text{commodities shock})$  is defined to take the value of 1 between 2014Q3 and 2015Q4. Standalone variables that are not included in the table are absorbed by fixed effects. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)			
	(1)	(2)	(3)	(4)
Cost of downgrade	-0.664*** (0.244)	-0.651*** (0.222)	-0.540** (0.215)	-0.618*** (0.219)
$1(\text{commodities}) \times 1(\text{commodities shock})$	6.305** (2.601)	5.278** (2.335)	2.408 (2.245)	2.124 (2.252)
Cost of downgrade $\times 1(\text{commodities}) \times 1(\text{commodities shock})$	-5.274** (2.622)	-5.067** (2.402)	-4.493** (2.194)	-4.502** (2.186)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
Other interactions	Yes	Yes	Yes	Yes
$N$	22,760	22,760	22,760	22,760
$Adj.R^2$	0.09	0.11	0.12	0.13
Mean of dependent variable	2.57	2.57	2.57	2.57

**TABLE IA.14**

**Robustness: Additional loan fixed effect regressions**

This Table shows OLS regressions identical to the most complete specifications in Tables 7 and 12, except that the regressions include loan fixed effects. Standalone variables that are not included in the table are absorbed by fixed effects. All regressions include firm-level controls, as well as current credit rating, year-quarter, and loan fixed effects. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)	
	Table 7	Table 12
	(1)	(2)
Cost of downgrade	-1.159* (0.643)	-1.383** (0.559)
Cost of downgrade $\times$ 1(commodities) $\times$ 1(commodities shock)	-3.518* (1.799)	
Cost of downgrade $\times$ 1(post settlement)		-0.609 (0.689)
Loan FE	Yes	Yes
Year-quarter FE	Yes	Yes
Rating FE	Yes	Yes
Firm controls	Yes	Yes
$N$	22,650	22,650
$Adj.R^2$	0.11	0.10
Mean of dependent variable	2.57	1.58

TABLE IA.15

**Probability of downgrade and cost of downgrade during earnings surprises**

This table shows OLS regressions where the dependent variable is an indicator that takes the value of 1 if the borrower is downgraded, and 0 otherwise. The indicator is multiplied by 100 so that regression coefficients are in percentage points. The independent variables of interest are *cost of downgrade* and the interaction between *cost of downgrade* and indicators for earnings surprises. *Cost of downgrade* is a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. The variable  $1(\text{Negative earnings surprise})$  is an indicator for firm-quarters with significant negative earnings updates, defined as those in the bottom 10% of earnings updates. *Earnings expectation change* is a continuous measure of earnings updates. Observations are at the loan level. All regressions include loan- and firm-level controls, as well as credit rating at origination, year-quarter, and firm fixed effects. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)	
	(1)	(2)
Cost of downgrade $\times$ 1(Negative earnings surprise)	-1.305* (0.737)	
Cost of downgrade $\times$ Earnings expectation change		0.002 (0.025)
Cost of downgrade	-0.507** (0.231)	-0.639*** (0.231)
1(Negative earnings surprise)	1.494 (1.069)	
Earnings expectation change		0.023 (0.025)
Firm FE	Yes	Yes
Year-quarter FE	Yes	Yes
Rating FE	Yes	Yes
Loan controls	Yes	Yes
Firm controls	Yes	Yes
$N$	19,437	19,437
$Adj.R^2$	0.13	0.13
Mean of dependent variable	2.29	2.29

TABLE IA.16

**Probability of downgrade and cost of downgrade: Firm opaqueness and non-investment grade**

This table shows OLS regressions where the dependent variable is an indicator that takes the value of 1 if the borrower is downgraded, and 0 otherwise. The indicator is multiplied by 100 so that regression coefficients are in percentage points. The independent variables of interest are *cost of downgrade* and the interaction between *cost of downgrade* and indicators for above-median values of proxies for firm opaqueness and an indicator of having a credit rating just above non-investment grade. *Cost of downgrade* is a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. *1(high intangibles)* is an indicator variable that takes the value of 1 if the firm's intangibles divided by total assets is above the sample median. *1(high R&D)* is an indicator variable that takes the value of 1 if the firm's R&D expenses are above the sample median. *1(high coverage)* is an indicator variable that takes the value of 1 if the firm is covered by more stock market analysts than the sample median. *1(border junk)* is an indicator that takes the value of 1 if the firm is rated BBB- (i.e., one credit rating notch above the non-investment grade classification). Standalone variables that are not included in the table are absorbed by fixed effects. All regressions include loan- and firm-level controls, as well as current credit rating, year-quarter, and firm fixed effects. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)		
	(1)	(2)	(3)
Cost of downgrade $\times$ 1(high intangibles)	0.429 (0.435)		
Cost of downgrade $\times$ 1(high R&D)		-0.154 (0.439)	
Cost of downgrade $\times$ 1(border junk)			-0.400 (0.529)
Cost of downgrade	-0.886*** (0.262)	-0.649*** (0.229)	-0.545** (0.218)
1(high intangibles)	0.212 (0.862)		
1(high R&D)		-2.587* (1.415)	
Firm FE	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes
Rating FE	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes
$N$	22,760	22,760	22,760
$Adj.R^2$	0.12	0.12	0.12
Mean of dependent variable	2.57	2.57	2.57

**TABLE IA.17**

**Debt issuance and cost of downgrade**

This table shows OLS regressions of quarterly issuing of loans and bonds on *cost of downgrade*. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. The dependent variable in Column 1 is the number of newly issued loans, the dependent variable in Column 2 is the logarithm of the dollar amount of newly issued loans, the dependent variable in Column 3 is the number of newly issued bonds, and the dependent variable in Column 4 is the combined number of newly issued loans and bonds. All regressions include firm-level controls, as well as current credit rating, year-quarter, and loan fixed effects. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Number loans	Volume loans (log)	Number bonds	Number loans + bonds
	(1)	(2)	(3)	(4)
Cost of downgrade	-0.000 (0.000)	0.220* (0.131)	-0.019 (0.033)	-0.019 (0.033)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	Yes	Yes	Yes	Yes
Loan controls	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes
$N$	22,760	22,760	22,760	22,760
$Adj.R^2$	1.00	0.48	0.46	0.71
Mean of dependent variable	2.46	18.77	0.85	3.31

**TABLE IA.18**

**Investment and cost of downgrade**

This table shows OLS regressions of quarterly investment in property plant and equipment on *cost of downgrade*. Data is on the firm-quarter level. For firms with more than one performance pricing loan outstanding *cost of downgrade* is the average cost of downgrade across all outstanding loans. Loan- and firm-level controls, as well as current credit rating, year-quarter, and firm fixed effects are included as reported. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	PPE Investment/Assets (%)			
	(1)	(2)	(3)	(4)
Cost of downgrade	0.118 (0.125)	0.147 (0.130)	0.091 (0.127)	0.067 (0.125)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
$N$	8,354	8,354	8,354	8,354
$Adj.R^2$	0.00	0.00	0.01	0.01
Mean of dependent variable	1.11	1.11	1.11	1.11

**TABLE IA.19**

**Robustness for Table 8: Probability of upgrade and benefit from upgrade (loan fixed effects regressions)**

Regressions reported in this table are identical to Table 8, except that all regressions include loan fixed effects instead of firm fixed effects. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(Upgrade)	
	(1)	(2)
Benefit of upgrade $\times$ 1(Upgrade grid)	3.771** (1.496)	
Benefit of upgrade	-2.695*** (0.465)	1.898 (1.351)
Loan FE	Yes	Yes
Year-quarter-FE	Yes	Yes
Rating FE	Yes	Yes
Loan controls	No	No
Firm controls	Yes	Yes
$N$	22,595	1,877
$Adj.R^2$	0.03	0.13
Mean of dependent variable	1.69	3.73

**TABLE IA.20**

**Probability of upgrade and benefit from upgrade: Profitability of clients**

Regressions reported in this table are similar to Table 8, except that  $1(\text{high yield issuer})$  is added as an independent variable of interest. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(upgrade)
	(1)
Benefit of upgrade	-0.379** (0.180)
Benefit of upgrade $\times$ 1(Upgrade grid) $\times$ 1(high yield issuer)	5.234*** (1.688)
Benefit of upgrade $\times$ 1(Upgrade grid)	-1.443 (1.045)
1(Upgrade grid)	4.204*** (1.188)
Firm FE	Yes
Year-quarter FE	Yes
Rating FE	Yes
Firm controls	Yes
$N$	22,702
$Adj.R^2$	0.05

**TABLE IA.21**

**Credit rating reversals and cost of downgrade**

This table shows OLS regressions where the dependent variable is an indicator that takes the value of 1 if a firm experiences a credit rating change that fully offsets the last change (i.e., either an upgrade followed by a downgrade or vice versa) during the lifetime of the loan, and 0 otherwise. The indicator is multiplied by 100 so that regression coefficients are in percentage points. The independent variable of interest is *cost of downgrade*, a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation. Loan- and firm-level controls, as well as current credit rating, year-quarter, and firm fixed effects are included as reported. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. A detailed description of all variables is available in Appendix A. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(reversal)			
	(1)	(2)	(3)	(4)
Cost of downgrade	-0.000 (0.003)	0.006 (0.005)	0.004 (0.005)	0.005 (0.005)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
<i>N</i>	22,760	22,760	22,760	22,760
<i>Adj.R</i> <sup>2</sup>	0.01	0.02	0.02	0.02
Mean of dependent variable	0.01	0.01	0.01	0.01

**TABLE IA.22**

**Robustness for Table 11: Loan pricing at initiation and average realized cost of downgrade**  
 Regressions reported in this table are identical to Table 11, except the variable for the average cost of a downgrade is computed as the average increase in interest rates after a downgrade by one notch over the lifetime of a loan (as opposed to the average across all levels of the initial loan contract ). Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Loan spread			
	(1)	(2)	(3)	(4)
Average cost of downgrade	12.157*** (2.063)	7.331*** (2.131)	9.822*** (1.917)	7.294*** (2.030)
Firm FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
Rating at origination FE	No	Yes	Yes	Yes
Loan controls	No	Yes	No	Yes
Firm controls	No	No	Yes	Yes
$N$	1,988	1,988	1,988	1,988
$Adj.R^2$	0.67	0.77	0.73	0.77
Mean of dependent variable	113.60	113.60	113.60	113.60

**TABLE IA.23****Robustness for Table 11: Revolver and term loan subsamples**

Regressions reported in this table are identical to Table 11, except that the regressions are estimated separately for revolvers (Column 1) and term loans (Column 2). Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Loan spread	
	Revolver (1)	Term loan (2)
Avg. cost of downgrade	3.397*** (0.491)	4.005*** (0.960)
Firm FE	Yes	Yes
Year-quarter FE	Yes	Yes
Rating at origination FE	Yes	Yes
Loan controls	Yes	Yes
Firm controls	Yes	Yes
$N$	1,299	249
$Adj.R^2$	0.79	0.94
Mean of dependent variable	104.02	157.29

**TABLE IA.24****Traded versus non-traded loans**

This table compares the sub-sample of traded loans in the sample with the matched non-traded loans across observable characteristics. The non-traded loans are selected so that they resemble the traded loans using a nearest neighbor matching framework based on firm characteristics (current credit rating, size, profitability, asset tangibility, and leverage) and loan characteristics (amount, number of financial covenants, and whether the loan is secured or not). Observations are at the loan level. 1( $\cdot$ ) denotes indicator variables. Statistical significance computations are based on heteroscedasticity-robust standard errors clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Mean		
	Traded	Not traded	Difference
Leverage	0.35	0.35	0
Total assets (log)	9.37	9.37	0.01
Intangibles over assets	0.28	0.27	0.01
Profitability (ROA)	0.03	0.03	0
Issuer credit rating (numeric)	10.05	9.94	0.1
Number of financial covenants	1.57	1.55	0.03
Loan amount (\$ millions)	1339	1338	0.1
1(secured)	1.17	1.17	0
1(Revolver)	0.17	0.19	0.1
<i>N</i>	75	75	

**TABLE IA.25**

**Probability of downgrade and cost of downgrade: The effect of the financial crisis**

This table shows OLS regressions where the dependent variable is an indicator that takes the value of 1 if the borrower is downgraded (Column 1) or the number of quarters between loan origination and the first time the firm was downgraded (Column 2). The independent variables of interest are *cost of downgrade* and the interaction between *cost of downgrade* and  $1(\text{post crisis})$ . *Cost of downgrade* is a measure of the increase in loan spread that would result from a credit rating downgrade of one notch. The variable is standardized so that regression coefficients reflect the impact of changing the variable by one standard deviation.  $1(\text{post crisis})$  is an indicator that takes the value of 1 for the quarters from January 2008 onwards. Standalone variables that are not included in the table are absorbed by fixed effects. All regressions include loan- and firm-level controls, as well as current credit rating, and firm fixed effects. Year or year-quarter fixed effects are included as reported. A detailed description of all variables is available in Appendix A. Loan-level controls include loan type, amount, number of financial covenants, whether the loan is secured, and deal purpose. Firm-level controls include size, profitability, asset tangibility, and leverage. Reported standard errors in parentheses are heteroscedasticity-robust and clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	1(downgrade)	Time to downgrade
	(1)	(2)
Cost of downgrade	-0.533*	1.446*
	(0.296)	(0.771)
Cost of downgrade $\times$ $1(\text{post crisis})$	-0.138	0.105
	(0.372)	(1.366)
Firm FE	Yes	Yes
Year FE	No	Yes
Year-quarter FE	Yes	No
Rating FE	Yes	Yes
Loan controls	Yes	Yes
Firm controls	Yes	Yes
$N$	22,760	247
$Adj.R^2$	0.11	0.74
Mean of dependent variable	1.57	6.10

**TABLE IA.26****Traded loans in sample versus traded loans not in sample**

This table compares the subsample of traded loans in the sample with the remaining traded loans in LPC across observable characteristics. Observations are at the loan level.  $1(\cdot)$  denotes indicator variables. Note, since LPC does not provide a firm identifier for all traded loans, standard errors are not clustered. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Mean		Difference
	In sample	Not in sample	
Initial quote (mid spread)	98.3	94.9	3.38
Standard deviation of quotes	1.19	3.93	-2.73
Number of quotes	1.51	2.23	-0.71***
$N$	75	27,054	

**TABLE IA.27****Traded loans versus remaining PSD loans**

This table compares the subsample of traded loans in the sample with the remaining loans across observable characteristics. Observations are at the loan level.  $1(\cdot)$  denotes indicator variables. Statistical significance computations are based on heteroscedasticity-robust standard errors clustered by firm. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ .

	Mean		Difference
	Traded	Not traded	
Leverage	0.35	0.32	0.03
Total assets (log)	9.37	9.09	0.29
Intangibles over assets	0.28	0.20	0.08
Profitability (ROA)	0.03	0.03	0.00
Issuer credit rating (numeric)	10.05	8.62	1.43**
Number of financial covenants	1.57	1.46	0.11
Loan amount (\$ millions)	1339	875	464**
1(secured)	1.17	1.15	0.02
<i>N</i>	75	1,739	