

Covenant Violations, Loan Contracting, and Default Risk of Bank Borrowers

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Motivation

Covenants are „restrictions in credit agreements that dictate, to varying degrees, how borrowers can operate, financially and otherwise.“

LSTA Handbook of Loan Syndication and Trading

Early literature:

- ▶ Shareholders use covenants to monitor
Jensen and Meckling (1976); Smith and Warner (1979)
- ▶ Creditors are passive investors
Townsend (1979), Gale and Hellwig (1985) and Hart and Moore (1998)

More recent literature:

- ▶ Creditors are active investors – monitor the management *before* firms are in default
Shleifer and Vishni (1997)
- ▶ A possibility to monitor management are loan covenants. Covenants are included in almost all private credit agreements.
Roberts and Sufi (2009): 96% of all loans contain at least 1 financial covenant

Motivation

We are interested in financial covenants and the effects following their violation.

- ▶ Financial covenants are accounting-based risk and performance ratios and values that the borrower must meet to be in compliance with the credit agreement.

Nini, Smith, Sufi (2009)

- ▶ Covenants give creditors the right to intervene before bankruptcy (creditor governance) because control rights are shifted after a violation.
 - ▶ A covenant violation is a “technical default” on the loan giving the lender the right to accelerate the loan.
- Financial covenants are often termed “tripwires” or “performance hurdles”.

- ▶ Covenant Violations occur frequently and rarely lead to payment default or bankruptcy.

Dichev and Skinner (2002), Gopalakrishnan and Parkash (1995)

- ▶ After a violation, in most cases interest rates (↑) and loan amounts (↓) are renegotiated in the current loan.
- ▶ Beneish and Press, 1993, 1995, Chen and Wei, 1993, Smith, 1993, Sweeney, 1994, Dichev and Skinner, 2002, Sufi, 2009, DeAngelo, DeAngelo, and Wruck (2002)

Related Literature

Papers on the impact of financial covenant violations so far analyze

- ▶ **Corporate financial policy**
net debt issuance decreases, interest rates increase in this loan (Roberts and Sufi, 2009a)
- ▶ **Investment**
capital expenditures decline sharply (Chava and Roberts, 2008)
- ▶ **Renegotiations**
violations used as contingencies to accelerate renegotiations (Roberts and Sufi, 2009b)
- ▶ **Risk shifting**
in renegotiations capital expenditure restriction is 20% more likely to be introduced, capital expenditure restrictions cause a reduction in firm investment (Nini et al., 2009)
- ▶ **Governance mechanisms**
decline in acquisitions and capital expenditures, sharp reduction in leverage and shareholder payouts, increase in CEO turnover (Nini et al., 2011)

→ Covenant Violations result in less leverage, higher (debt) costs, and less investments and payouts.

Research Questions

What are the consequences of a covenant violation on subsequent loans to the borrower?

We provide a window into how banks monitor borrowers:

- ▶ Is a covenant violation an early warning signal?
 - Do borrowers who violate covenants have a higher probability of default?
- ▶ How do lenders react to a covenant violation?
 - Do lenders increase monitoring, i.e. become more active monitors?
 - Do they structure loan contracts such that control rights are transferred to lenders in more states of the world?
 - Do they implement more covenants?
 - Are covenants stricter?
 - Is the loan contract overall stricter?
 - If violations indicate an elevated level of borrower risk, is it reflected in higher cost of debt for borrowers in subsequent contracts?
 - Do lenders use different covenant types in subsequent loan contracts, to be able to better monitor?
- ▶ Are lenders successful in their intent to monitor more intensely, i.e. do lenders gain control rights more often and earlier?
 - Do borrowers violate in subsequent contracts more often?
 - Do they also violate earlier?
- ▶ Do lenders try to avoid negative consequences after a covenant violation by switching the lender in the subsequent loan?

Preview of the results

- ▶ Covenants serve as an early warning signal.
 - Borrowers who violate covenants have a higher probability of default (PD)
 - The higher PD decreases over time back to “regular” levels
- ▶ Lenders monitor more actively.
 - After a violation, subsequent loan contracts
 - comprise more covenants
 - comprise stricter covenants
 - are overall stricter
 - Lenders use different types of covenants subsequent to a violation, which enable them to monitor better.
- ▶ Borrowers’ cost of debt increase following a covenant violation.
- ▶ Lenders gain control rights more often (a third) and earlier (109 days) compared with contracts of borrowers who did not violate covenants in the previous loan contract.
- ▶ Lenders who violated a covenant in the previous contract more often (5 percentage points) switch to new lenders.

Data

Selection Procedure

- ▶ Collect individual loan contracts from **EDGAR**
(SEC requires firms to file these electronically since 1996, contracts are an exhibit to a 10-K, 10-Q or 8-K report)
 - ▶ Match loan information derived from **LPC Dealscan** to each contract
 - ▶ Match firm and bank accounting information obtained via **Compustat**
 - ▶ Obtain borrower default information from **UCLA-LoPucki** bankruptcy research database
 - ▶ Obtain merger history for each lender via information from the FDIC and the National Information Center (NIC)
-
- We start with the 3,720 contracts provided by Greg Nini, David Smith and Amir Sufi for the time period 1996–2005 and extend the data set through 2010 with 1,276 more contracts.
 - We ensure that all contracts are *new* (i.e. no amendments, supplementary agreements and the like).
 - After cleaning and filtering the data, we incorporate 5,411 loan facilities from 1996 to 2010.
 - We manually investigate (i.e. read) each individual loan contract to exactly identify covenants and violations of these over contract lifetime and over time for each lender.

Data – Example: Loan Covenant Section

SECTION 7.10. Certain Financial Covenants

(a) Debt Ratio. The Borrower will not permit the Debt Ratio to exceed the following respective ratios at any time during the following respective periods:

Period	Ratio
From the date hereof through August 31, 2000	4.75 to 1
From September 1, 2000 through August 31, 2001	4.50 to 1
From September 1, 2001	4.25 to 1
and at all times thereafter	4.00 to 1

- ▶ We found more than 80 individual covenants in the loan contracts.
- ▶ We use all of these to calculate covenant violations (not SEC filings).

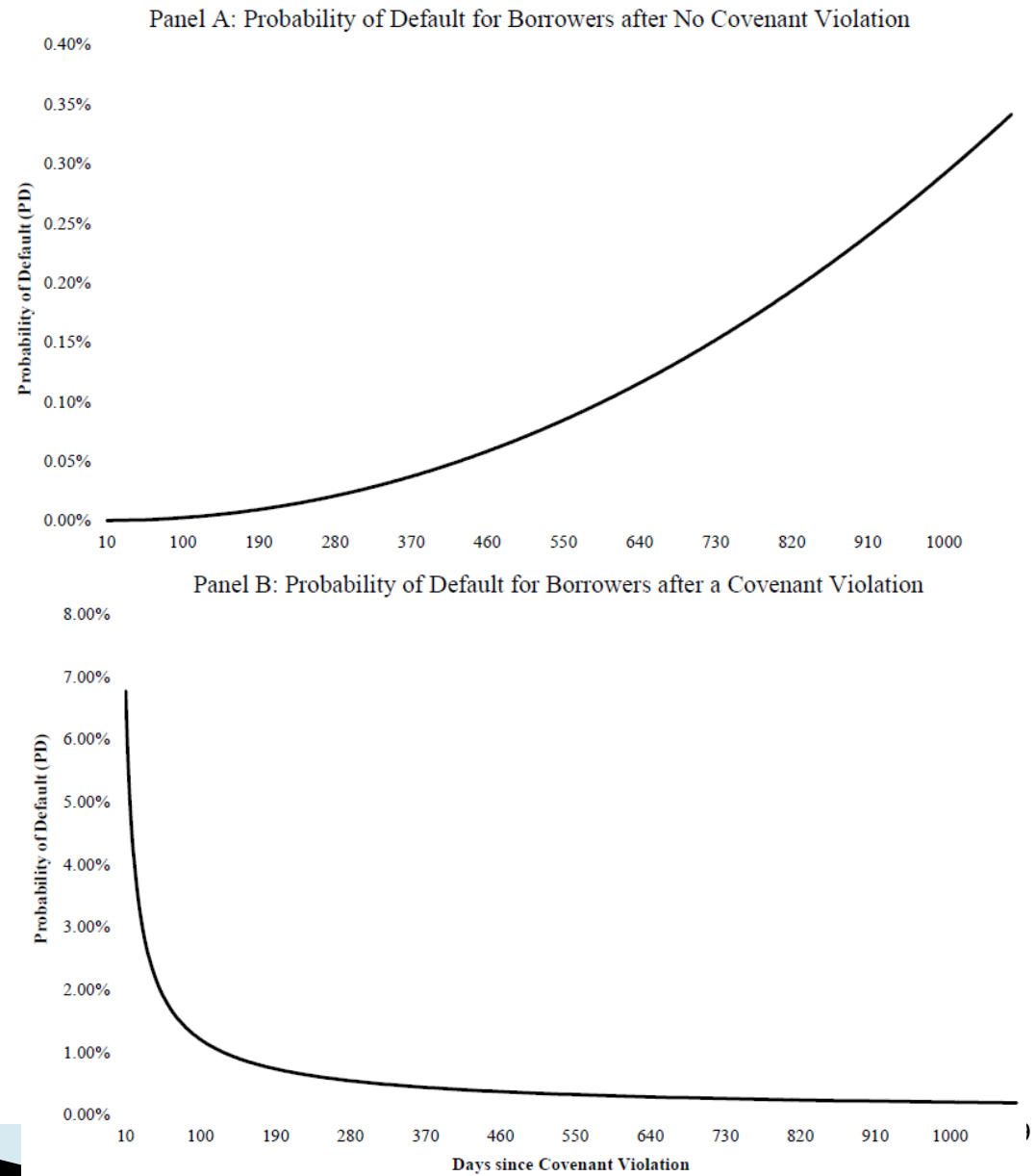
Results – Covenant Violations & Borrower PD

Borrower default probability...

...after no covenant violation...

...and after covenant violation.

- ▶ 1st day after violation PD=30.26%
- ▶ In the first 100 days PD substantial
- ▶ It takes > 2 years (882 days) until PDs “converge” again



Results – Covenant Violations & Borrower PD

We investigate the impact of covenant violation on borrower PD in a regression framework using 3 different specifications of violation.

1. Violation in last contract – Default on current contract
2. Violation in the period [-1,080; -180] days – Default at t=0
3. Violations in past contract – Default on current contract
 - use complete borrower history of loans and covenant violations
 - have to control for time

(a violation 10 years ago should have a different indication for borrower PD than a violation yesterday)

	(1)	(2)	(3)	(4)
	Model 1	Model 2	Model 3	
Previous Covenant Violation	3.054** (1.352)			
Violation in Contract [1080; 180] Days before Default		3.235*** (0.587)		
Violation in Past Contract			21.341*** (6.783)	21.472*** (6.499)
Ln[Days since Past Contract (Violation)]			2.251** (0.943)	2.397** (0.938)
Violation in Past Contract * Ln[Days since Past Contract (Violation)]			-3.108*** (0.978)	-3.155*** (0.898)
Number of loans with no violation in between				-1.164 (0.958)

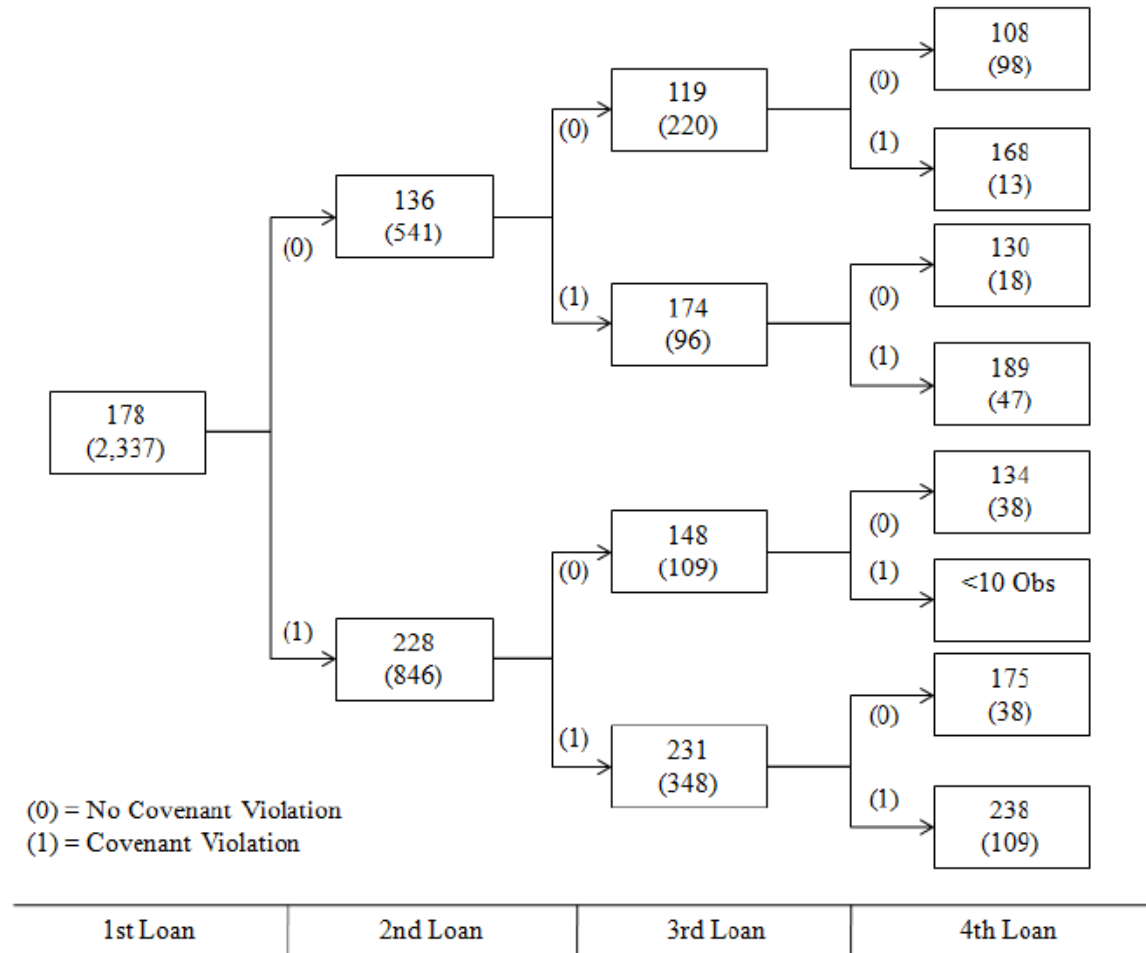
→ Covenants may serve as a red flag/early warning signal.

Results

- ▶ **Covenant violations indicate an elevated level of borrower credit risk.**
- ▶ **How do lenders react to covenant violations?**
 - Do lenders increase monitoring, i.e. become more active monitors?
 - Do they structure loan contracts such that control rights are transferred to lenders in more states of the world?
 - Do they implement more covenants?
 - Are covenants stricter?
 - Is the loan contract overall stricter?
 - If violations indicate an elevated level of borrower risk, is it reflected in higher cost of debt for borrowers in subsequent contracts?
 - Do lenders use different covenant types in subsequent loan contracts, to be able to better monitor?

Results – Loan Contract Design: Interest Rate Spread

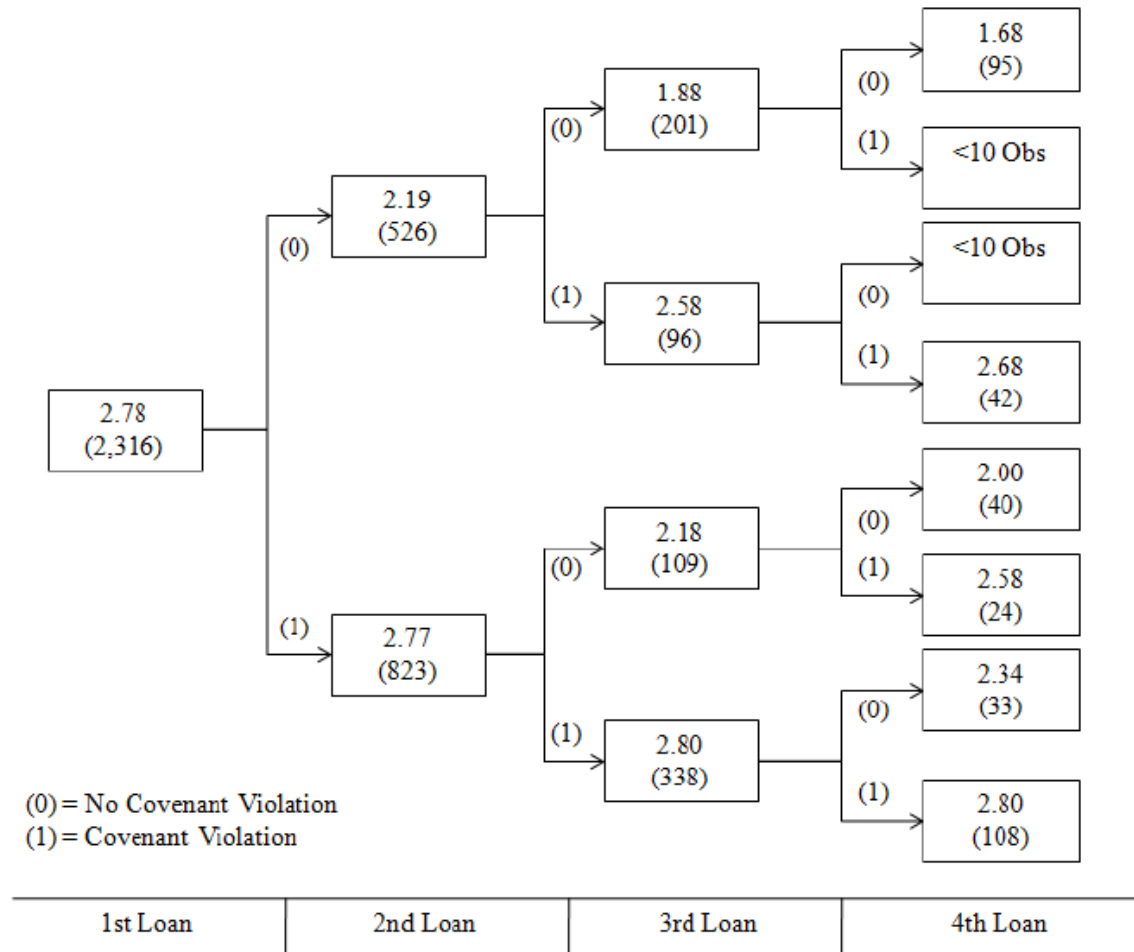
Panel A: The Effect of Past Covenant Violations on the All-in-Spread Drawn



- ▶ The cost of debt increase after a violation.
- ▶ Effects are more pronounced directly after a violation.

Results – Loan Contract Design: Covenant Number

Panel B: The Effect of Past Covenant Violations on the Number of Covenants



- ▶ The number of covenants increases after a violation.
- ▶ Effects are more pronounced directly after a violation.

Results – Covenant Violations & Contract Design

- ▶ To analyze the effect of covenant violations on the design of subsequent loan contracts, we use a regression framework of the following form

$$LCT = a + b * Previous\ Covenant\ Violation + c * Loan\ Characteristics \\ + d * Borrower\ Characteristics + e * Other\ Controls + \varepsilon$$

LCT = “Loan Contract Terms”

- ▶ AISD
- ▶ Number of Covenants
- ▶ Covenant Looseness
- ▶ Contract Strictness

Results – Covenant Violations & Contract Design

	(1)	(2)	(3)	(4)
Dependent Variable	AISD	Covenant Number	Covenant Looseness	Contract Intensity
Regression Methodology	OLS	Ordered Logit	OLS	Ordered Logit
Previous Covenant Violation	17.706*** (3.899)	0.412*** (0.108)	-1.521*** (0.342)	0.463* (0.239)
Loan Characteristics	YES	YES	YES	YES
Borrower Characteristics	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Rating Class Fixed Effects	YES	YES	YES	YES
Loan Type Fixed Effects	YES	YES	YES	YES
Loan Purpose Fixed Effects	YES	YES	YES	YES
Number of Observations	2,786	2,709	2,572	848
R ²	0.664	0.165	0.221	0.185

Results – Covenant Violations & Contract Design

Covenant violations result in more active monitoring of borrowers by increasing the number of contingencies shifting control rights to lenders.

Do lenders use different covenant types in subsequent loan contracts, to be able to better monitor?

- ▶ Following Christensen and Nikolaev (2011), we group covenants into
 - profitability-based covenants: ideal for lenders to monitor borrowers because control rights are allocated to lenders ex-post
 - capital-based covenants: shareholders have sufficient incentives to maximize firm value and control management as incentives are aligned between shareholders and lenders ex-ante
- ▶ If lenders monitor more actively subsequent to covenant violations, loan contracts should include more profitability-based covenants.

Results – Covenant Violations & Contract Design

	(1)	(2)	(3)
Dependent Variable	Number of Profitability Covenants	Number of Capital Covenants	Percentage of Profitability Covenants
Regression Methodology	Ordered Logit	Ordered Logit	OLS
Previous Covenant Violation	0.415*** (0.116)	-0.012 (0.148)	0.041** (0.019)
Loan Characteristics	YES	YES	YES
Borrower Characteristics	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Rating Class Fixed Effects	YES	YES	YES
Loan Type Fixed Effects	YES	YES	YES
Loan Purpose Fixed Effects	YES	YES	YES
Number of Observations	2,699	2,699	2,693
R ²	0.201	0.161	0.308

Results – Covenant Violations & Effects

- ▶ Are lenders successful in their intent to monitor more intensely, i.e. do lenders gain control rights more often and earlier?
 - Do borrowers violate in subsequent contracts more often?

$$\begin{aligned} Pr(VIOL) = & a + b * PreviousCovenantViolation + c * LoanCharacteristics \\ & + d * BorrowerCharacteristics + e * OtherControls + \varepsilon \end{aligned}$$

- Do they also violate earlier?

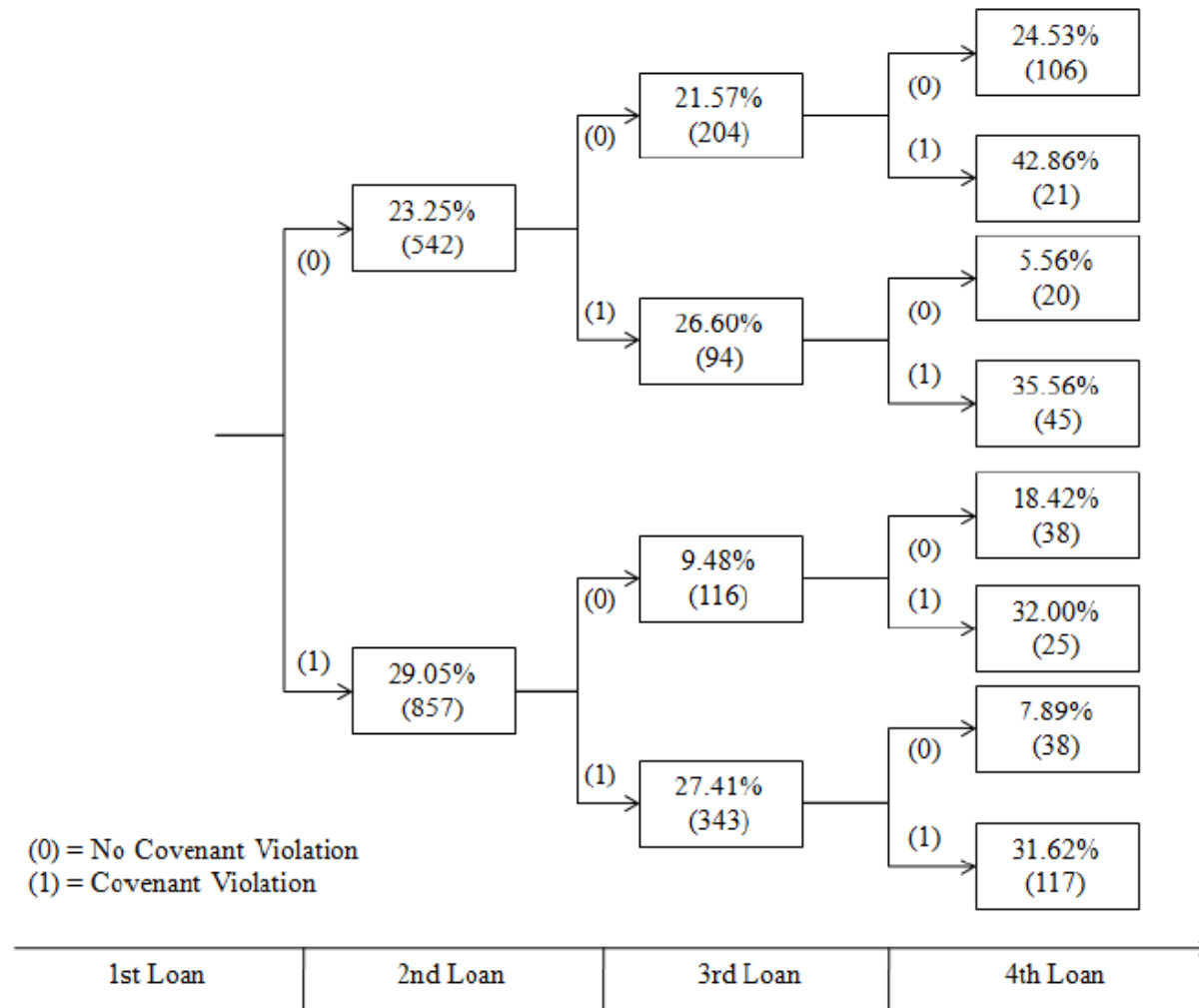
$$\begin{aligned} DAYS = & a + b * Previous Covenant Violation + e * LoanCharacteristics \\ & + f * BorrowerCharacteristics + g * OtherControls + \varepsilon \end{aligned}$$

Results – Covenant Violations & Effects

	(1)	(2)	(3)
Dependent Variable	Contract Violation	Days to Contract Violation	
Regression Methodology	Logit	OLS	Hazard Model
Previous Violation	1.243*** (0.157)	-108.779*** (38.697)	0.310*** (0.102)
Loan Characteristics	YES	YES	YES
Borrower Characteristics	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Rating Class Fixed Effects	YES	YES	YES
Loan Type Fixed Effects	YES	YES	YES
Loan Purpose Fixed Effects	YES	YES	YES
Number of Observations	1,931	1,039	1,039
R ²	0.235	0.228	

Results – Covenant Violations & Effects

- Do lenders try to avoid negative consequences after a covenant violation by switching the lender in the subsequent loan?



Results – Covenant Violations & Effects

- ▶ **Do lenders try to avoid negative consequences after a covenant violation by switching the lender in the subsequent loan?**
- ▶ We only observe the aggregate loan supply and demand effect at the initiation of a new loan!
- ▶ We do not know:
 - Did the previous lender make a worse offer? Was there any offer at all?
 - Did the borrower apply for a new loan at the previous lender? Was it perhaps ex-ante the intention to start a new loan relationship?
- ▶ Switching might be endogenous to the borrower's characteristics.

- We match equal borrowers only differing in whether they have violated a covenant in the previous loan contract.

Results – Covenant Violations & Effects

Propensity Score Matching Estimation	
Estimator	
Nearest Neighbor (n = 10)	5.113% ** (0.024)
Nearest Neighbor (n = 50)	5.119% ** (0.022)
Nearest Neighbor (n = 100)	4.997% *** (0.019)
Gaussian	4.468% ** (0.019)
Epanechnikov	5.191% *** (0.018)

Further Results & Questions

- Information asymmetry has no influence on monitoring: opaque borrowers have higher cost of debt (Bharath et al., 2011; Saunders and Steffen, 2011) but are as actively monitored as other borrowers after a violation.
- The results are the same at the loan and at the facility level.
- Excluding all overlapping loan contracts of a borrower does not change the results. – Possible refinancing of loans does not bias our findings.
- Identification: Regression discontinuity framework to assess affect of violating covenants on loan contract terms (Nini et al., 2009, 2010; Roberts and Sufi, 2009)
- Do lenders monitor lenders? – Does the syndicate structure change after a violation? Is there a potential reputational loss for the lead arranger?
- Do banks monitor even more actively after shocks? (Murfin, 2011)

Conclusion

- ▶ Covenants shift control rights to lenders when borrower performance deteriorates.
- ▶ The existence of covenants ensures that borrowers receive loans in the first place.
- ▶ Covenant violations thus should have an impact on the design of contracts in subsequent loans (and not only on renegotiations).

We find that

- ▶ A covenant violation is an early warning signal for lenders.
- ▶ Lenders significantly increase monitoring after covenant violations.
- ▶ Lenders also demand higher compensation for the higher risk.
- ▶ Lenders are successful in their monitoring activities.
- ▶ Borrowers try to avoid negative consequences by switching the lender after a covenant violation.

Covenant Violations, Loan Contracting, and Default Risk of Bank Borrowers

Appendix



Data

We manually investigate (i.e. read) each individual loan contract. Why?

Dealscan comprises data on loan covenants but

- ▶ Covenant values are only included for the 1st quarter of the contract – however, many change over contract lifetime, specified at contract initiation
- ▶ The definition of covenants is not clear in Dealscan (e.g. debt: senior? long-term? total?) – contracts have a “definition section” and a “covenant section”, both have to be considered
- ▶ Only 50% of loans in Dealscan contain covenants – Roberts and Sufi (2009) and also our data show that it is actually the case in more than 96% of all loan contracts

Greg Nini, David Smith and Amir Sufi provide data on loan covenants but

- ▶ only use dummy variables for each covenant type, not values, using a text-search algorithm on all 10-K, 10-Q, 8-K
- ▶ a text-search algorithm may still cause misspecifications (we have already provided the authors with all corrections)
- ▶ we extend their time period by 5 more years of data including 34% more contracts

We look into every loan contract to exactly identify covenants and violations of these over contract lifetime and over time for each lender.

Data – Example: Loan Covenant Section

SECTION 7.10. Certain Financial Covenants

(b) Senior Debt Ratio. The Borrower will not permit the Senior Debt Ratio to exceed the following respective ratios at any time during the following respective periods:

Period	Ratio
-----	-----
From the date hereof through February 29, 2000	3.75 to 1
From March 1, 2000 through August 31, 2000	3.50 to 1
From September 1, 2000	3.00 to 1
and at all times thereafter	2.50 to 1

Data – Example: Loan Covenant Section

SECTION 7.10. Certain Financial Covenants

(c) Interest Coverage Ratio. The Borrower will not permit the Interest Coverage Ratio to be less than the following respective ratios at any time during the following respective periods:

Period	Ratio
-----	-----
From the date hereof through August 31, 2000	2.25 to 1
From September 1, 2000 through August 31, 2001	2.00 to 1
From September 1, 2001	1.75 to 1
and at all times thereafter	1.50 to 1

(d) Fixed-charges Ratio. The Borrower will not permit the Fixed-charges Ratio to be less than 1.00 to 1 as at the last day of any fiscal quarter of each fiscal year.

Data – Loan Covenant Types

We use 17 main covenant types.

Variable	Description	Source
<i>Financial Covenant Types</i>		
Debt Service Coverage Ratio	EBITDA to Interest Expense and Principal Payment	SEC Filings
Fixed Charge Coverage Ratio	EBITDA to Interest Expense, Principal Payment, Income Tax and Dividend on Preferred Stock	SEC Filings
Interest Coverage Ratio	EBITDA to Interest Expense	SEC Filings
Debt to Capitalization	Debt to Capitalization (Total Debt and Equity)	SEC Filings
Senior Debt to Capitalization	Senior Debt to Capitalization (Total Debt and Equity)	SEC Filings
Debt to EBITDA	Debt to EBITDA	SEC Filings
Senior Debt to EBITDA	Senior Debt to EBITDA	SEC Filings
Debt to Net Worth	Debt to Net Worth	SEC Filings
Senior Debt to Net Worth	Senior Debt to Net Worth	SEC Filings
Current Ratio	Current Assets to Current Liabilities	SEC Filings
Asset Coverage Ratio	Current Assets to Liabilities	SEC Filings
Quick Ratio	Current Assets minus Inventory to Current Liabilities	SEC Filings
Net Worth	Net Worth	SEC Filings
Tangible Net Worth	Tangible Net Worth	SEC Filings
EBITDA	EBITDA	SEC Filings
Working Capital	Current Assets minus Current Liabilities	SEC Filings
Cash and Cash Equivalents	Cash and Cash Equivalents	SEC Filings

- ▶ We found more than 80 individual covenants in the loan contracts.
- ▶ We use all of these to calculate covenant violations (not SEC filings).

Data – Loan Covenant Types

We use 17 main covenant types.

	Obs	Mean
Panel C: Distribution of Covenants		
Debt to EBITDA	5,163	61.70%
Interest Coverage	5,163	44.30%
Fixed Charge Coverage	5,163	41.70%
Net Worth	5,163	23.80%
Debt to Capitalization	5,163	20.00%
Tangible Net Worth	5,163	14.40%
Senior Debt to EBITDA	5,163	13.30%
EBITDA	5,163	11.90%
Current Ratio	5,163	6.90%
Debt Service Coverage	5,163	4.60%
Debt to Net Worth	5,163	4.10%
Quick Ratio	5,163	1.80%
Asset Coverage Ratio	5,163	1.60%
Cash and Cash Equivalents	5,163	1.10%
Senior Debt to Capitalization	5,163	0.90%
Working Capital	5,163	0.80%
Senior Debt to Net Worth	5,163	0.30%

Data – Example: No Covenant Violation

Alltel Corp., Debt to Capitalization Covenant

Loan Number	Start Date	Duration (Months)	Quarter/ Year	Number of Covenants	Covenant Type	Threshold	Actual Value	Violation Status	Lender
1	31/07/2002	12	3/2002	1	Maximum	< 0.65	0.54	No	BAC
1	31/07/2002	12	4/2002	1	Maximum	< 0.65	0.53	No	BAC
1	31/07/2002	12	1/2003	1	Maximum	< 0.65	0.51	No	BAC
1	31/07/2002	12	2/2003	1	Maximum	< 0.65	0.47	No	BAC
2	30/07/2003	12	3/2003	1	Maximum	< 0.65	0.46	No	BAC
2	30/07/2003	12	4/2003	1	Maximum	< 0.65	0.45	No	BAC
2	30/07/2003	12	1/2004	1	Maximum	< 0.65	0.46	No	BAC
2	30/07/2003	12	2/2004	1	Maximum	< 0.65	0.44	No	BAC
3	28/07/2004	60	3/2004	1	Maximum	< 0.65	0.44	No	BAC
3	28/07/2004	60	4/2004	1	Maximum	< 0.65	0.44	No	BAC
3	28/07/2004	60	1/2005	1	Maximum	< 0.65	0.37	No	BAC
...

Data – Example: Covenant Violation

American Ecology Corp., Current Ratio Covenant

Loan Number	Start Date	Duration (Months)	Quarter/ Year	Number of Covenants	Covenant Type	Threshold	Actual Value	Violation Status	Lender
1	17/08/2000	24	3/2000	3	Minimum	> 0.75	0.83	No	1st Sec. Bank
1	17/08/2000	24	4/2000	3	Minimum	> 0.75	1.16	No	1st Sec. Bank
1	17/08/2000	24	1/2001	3	Minimum	> 0.75	1.47	No	1st Sec. Bank
1	17/08/2000	24	2/2001	3	Minimum	> 0.75	1.24	No	1st Sec. Bank
1	17/08/2000	24	3/2001	3	Minimum	> 0.75	1.19	No	1st Sec. Bank
1	17/08/2000	24	4/2001	3	Minimum	> 0.75	0.65	Yes	1st Sec. Bank
1	17/08/2000	24	1/2002	3	Minimum	> 0.75	0.70	Yes	1st Sec. Bank
1	17/08/2000	24	2/2002	3	Minimum	> 0.75	0.76	No	1st Sec. Bank
2	28/10/2002	60	4/2002	4 (+ D to CF)	Minimum	> 1.2	1.46	No	Wells Fargo
2	28/10/2002	60	1/2003	4 (+ D to CF)	Minimum	> 1.2	1.24	No	Wells Fargo
2	28/10/2002	60	2/2003	4 (+ D to CF)	Minimum	> 1.2	1.37	No	Wells Fargo
...

Data – Example: Changing Threshold and Covenant Violation

Arrow Electronics Corp., Debt to Capitalization Covenant

Loan Number	Start Date	Duration (Months)	Quarter/Year	Number of Covenants	Covenant Type	Threshold	Actual Value	Violation Status	Lender
1	24/03/2000	12	1/2000	3	Maximum	< 0.60	0.54	No	Chase Sec.
1	24/03/2000	12	2/2000	3	Maximum	< 0.60	0.56	No	Chase Sec.
1	24/03/2000	12	3/2000	3	Maximum	< 0.60	0.57	No	Chase Sec.
1	24/03/2000	12	4/2000	3	Maximum	< 0.60	0.65	Yes	Chase Sec.
2	22/02/2001	36	1/2001	3	Maximum	< 0.70	0.63	No	Wells Fargo
2	22/02/2001	36	2/2001	3	Maximum	< 0.70	0.60	No	Wells Fargo
2	22/02/2001	36	3/2001	3	Maximum	< 0.70	0.59	No	Wells Fargo
2	22/02/2001	36	4/2001	3	Maximum	< 0.68	0.58	No	Wells Fargo
2	22/02/2001	36	1/2002	3	Maximum	< 0.65	0.58	No	Wells Fargo
2	22/02/2001	36	2/2002	3	Maximum	< 0.60	0.67	Yes	Wells Fargo
...



Data – Covenant Strictness/Looseness

We introduce a new measure for average covenant strictness/looseness.

Financial Covenant Type	Covenant Definition in Loan Contract	Threshold Type	Covenant Threshold	Slack scaled by Standard Deviation	Mean by Main Financial Covenant Type
Debt Service Coverage Ratio	Cash Flow to Interest and Principal Payment	Min.	1.10	2.763	2.763
Senior Debt to EBITDA	Senior Debt to Cash Flow	Max.	4.25	0.531	0.531
Fixed Charge Coverage Ratio	Cash Flow to Interest, Principal Payment, Income Taxes and Capital Expenditures	Min.	1.00	0.942	0.942
Interest Coverage Ratio	Cash Flow to Interest and Capital Distribution	Min.	1.50	0.637	0.637
Debt to EBITDA	Total Debt to Cash Flow	Max.	6.90	0.191	
Debt to EBITDA	Total Debt - Cash and Marketable Securities to Cash Flow	Max.	6.75	0.127	0.159
				Covenant Looseness	1.0064

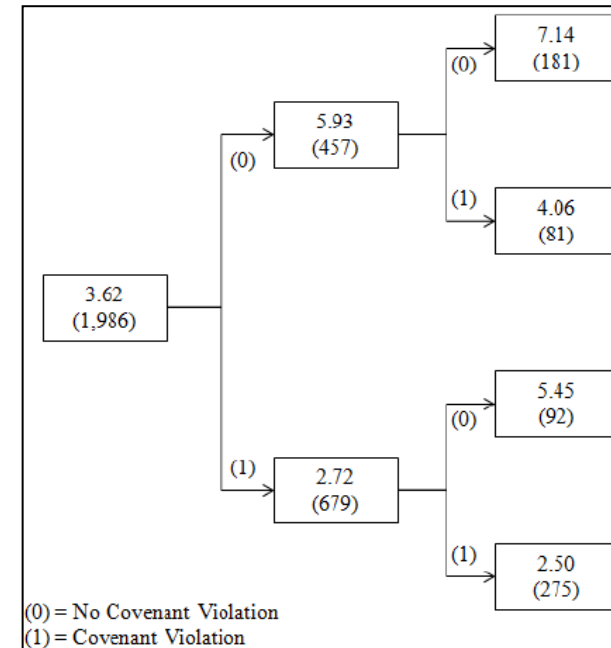
It measures the average distance a covenant value/ratio may deteriorate, in terms of its number of standard deviations, before the threshold is violated.

Data – Descriptive Statistics

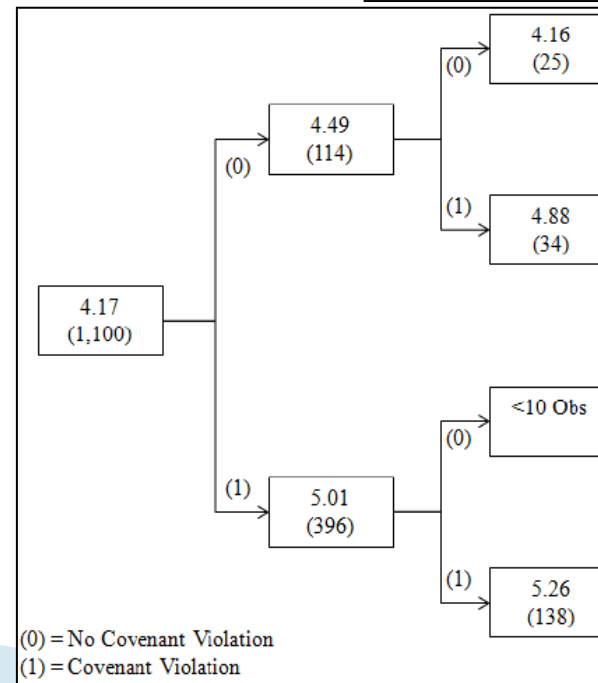
	Obs	Mean
Panel A: Dependent Variables		
All-in-Spread-Drawn	5,315	183
Number of Financial Covenants	5,163	2.55
Covenant Looseness	4,978	3.95
Contract Intensity Index	1,985	4.55
Contract Violation	5,163	55.0%
Days to Contract Violation	3,023	427
Default	5,411	2.5%
Switch	5,346	35.1%
Panel B: Independent Variables		
B.1 Loan Characteristics		
Previous Covenant Violation	2,971	57.2%
Facility Size (Year 2000 USD mm)	5,411	298
Maturity (Months)	5,349	48
Secured	5,371	63.6%
Number of Loans	5,411	7.91
Performance Pricing	5,411	68.8%
B.2 Borrower Characteristics		
Total Assets (Year 2000 USD mm)	5,409	3,291
Profitability	5,376	0.17
Current Ratio	5,333	1.84
Leverage	5,401	0.33
Coverage	5,241	15.44
Market to Book	5,330	1.68
Borrower IPO (Years)	4,476	45
Credit Rating		
Investment Grade Rating	5,411	24.1%
Non-Investment Grade Rating	5,411	34.5%
Not Rated	5,411	41.4%

Results – Loan Contract Design: Covenant and Contract Strictness

- ▶ Covenants become stricter (less loose) on average.



- ▶ Contracts become overall stricter.



Results – Descriptive Statistics by Covenant Violation

	No Violation	Violation	(A) - (B)	
	(A)	(B)	t-statistics	z-statistics
	Mean	Mean		
Panel A: Dependent Variables				
Default	0.008	0.041	-5.350***	-5.330***
All-in-Spread-Drawn	131	229	-21.920***	-23.140***
Number of Financial Covenants	2.02	2.62	-15.030***	-14.600***
Covenant Looseness	5.82	2.84	13.108***	18.101***
Contract Intensity Index	4.57	5.12	-5.340***	-4.430***
Contract Violation	0.28	0.70	-24.630***	-22.340***
Days to Contract Violation	493	414	2.960***	1.690*
Switch	0.20	0.28	-5.160***	-5.140***

Frequency of Waiver and Renegotiation Cases

