

# CREDITOR CONTROL RIGHTS AND RESOURCE ALLOCATION WITHIN FIRMS<sup>1</sup>

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<sup>1</sup>Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census. All results have been reviewed to ensure that no confidential information is disclosed.

# Big Picture: Creditors and Corporate Governance

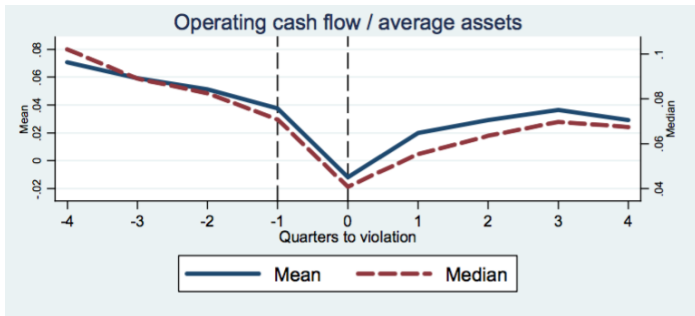
- ▶ Traditionally, shareholders provide corporate governance
- ▶ But, debt can also provide corporate governance
  - Disciplining role of debt Jensen (1989)
  - Threat of control “shifting” to creditors upon default may spur efficiency Aghion and Bolton (1992), Dewatripont and Tirole (1994)
- ▶ When do creditors have control rights?
  - Legally, in bankruptcy only
  - Contractually, outside default through debt covenants

# Covenant Violations (“Technical Default”)

- ▶ Covenants and violations are common Nini et al. (2012)
  - Of U.S. publicly-traded firms from 1997-2008...
  - 40.5% of firms violate a covenant
  - 6.9% of firm-quarters are in violation
  - Violators are only 4%pts more likely to exit
  
- ▶ More conservative financing and investment Chava and Roberts (2008),  
Nini et al. (2009, 2012), Roberts and Sufi (2009), Denis and Wang (2013)
  - Leverage and shareholder payouts reduced
  - Lower capital expenditures and (cash) acquisitions
  
- ▶ What is the overall effect on firm value?
  - Is “debt governance” effective?
  - Can creditor discipline benefit both creditors and shareholders?
    - If so, why can't shareholders do it themselves?

# Covenant Violations and Debt Governance

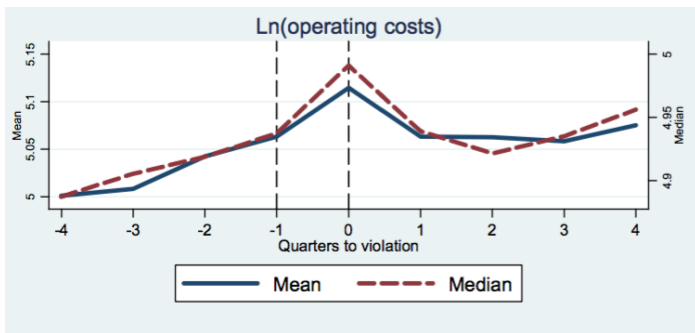
Nini, Smith, and Sufi (2012)



- ▶ Turnaround in accounting performance (operating cash flows)

# Covenant Violations and Debt Governance

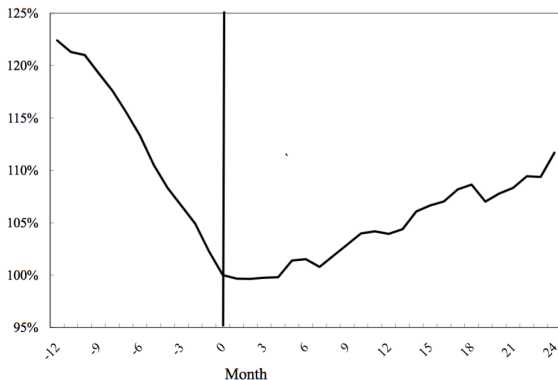
Nini, Smith, and Sufi (2012)



- ▶ Driven by reduction in operating costs
- ▶ Suggests shift in control improves operating efficiency

# Covenant Violations and Debt Governance

Nini, Smith, and Sufi (2012)



- ▶ Equity value rebounds as a consequence ( $\sim 50$ bps per month)
- ▶ Suggests creditors “add value” rather than “grab value”

# This Paper

- ▶ Can creditors be more effective than shareholders at providing governance?
  - De facto control rights upon violation vs voting rights
- ▶ Does allocating control rights to creditors outside of bankruptcy improve efficiency? If so, how?
  1. Which operational changes? Do creditors catalyze “early” corporate restructuring?
    - Organic changes: employment, investment
    - Divestiture: establishment sales, closures
  2. Are these changes consistent with the shift of control mitigating agency problems?
- ▶ Approach: Trace out financing effects in the internal capital market around covenant violations
  - Get inside “black box”
  - Establishment-level data from U.S. Census Bureau

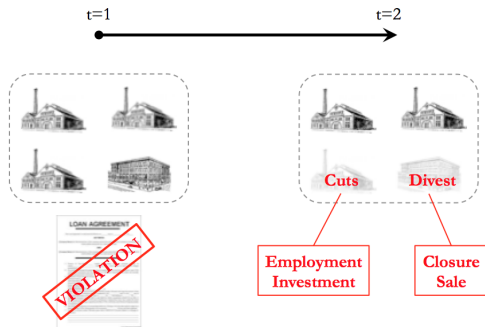
## Setting: What is an Establishment?



- ▶ An establishment is a place of employment
- ▶ Each establishment characterized by
  - Size, location, industry, performance, etc.
- ▶ Each firm is a portfolio of heterogeneous establishments
  - Single- vs multi-unit
  - Single- vs multi-division (“conglomerate”)



# Setting: Self-Reported Covenant Violations



- ▶ Universe violations self-reported to SEC post-1996 [Nini et al. \(2012\)](#)
- ▶ Main outcomes of interest
  - Layoffs at retained establishments
  - Establishment sales and closures
  - ... Policies least likely in absence of intervention

# Main Findings

## 1. Overall firm level effects

- Violating firms decrease employment (-5%pts)
- Establishment sales/closures more often (+8%pts)

## 2. Within-firm reallocation/restructuring

- Employment cuts and sales/closures concentrated at
  - Noncore business lines (-15%pts)
  - Unproductive establishments (-20%pts)

- ▶ Takeaways: At least on average, creditors “force” debtors to do the right thing
  - Refocus and reallocate towards productive units
  - Reduce (over)investment and increase firm efficiency
  - ... Consistent with valuable delegated monitoring role of creditors

# Contributions to Literature

1. Covenant violations and corporate restructuring [Gilson \(1990\)](#), [Chava and Roberts \(2008\)](#), [Nini et al., \(2009, 2012\)](#), [Roberts and Sufi \(2009\)](#), [Chava et al. \(2015\)](#)
  - Post-violation asset sales and closures indicates corporate restructuring can begin well before bankruptcy
2. Debt governance and firm value [Diamond \(1984\)](#), [Fama \(1985\)](#), [James \(1987\)](#), [Billet et al. \(1995\)](#), [Dahiya et al. \(2003\)](#), [Nini et al., \(2009, 2012\)](#), [Ivashina et al. \(2008, 2015\)](#)
  - We show how creditor discipline outside of bankruptcy can improve operating efficiency and firm value
  - Supports idea of creditors playing “good governance” role
3. Misallocation and productivity [Haltiwanger \(2012\)](#), [Bloom \(2007\)](#)
  - We show how creditor discipline induces managers to shift resources away from unproductive units

# Remainder of Talk

1. Data and Methodology
2. Empirical Results
  - 2.1 Firm-Level
  - 2.2 Establishment-Level: Within-Firm Effects
3. Conclusion

# Main Data Sources

## 1. Compustat

- Non-financial firm-level information for control variables

## 2. Covenant Violations

2.a. Disclosed to SEC in 10-Q and 10-K filings Nini et al. (2012)

2.b. Imputed from covenant thresholds in loan contracts  
at-origination (Dealscan) Chava and Roberts (2008)

## 3. U.S. Census Bureau

3.a. Longitudinal Business Database (LBD): Annual register of all U.S. private sector establishments

- Employment: Payroll, employees
- Establishment affiliation → sales/closures
- Other establishment attributes (geography, industry)

3.b. Subsample of manufacturers (CMF/ASM)

- Capital expenditures
- Measures of plant labor, capital, and total factor productivity

# Key Variables

- ▶ Unit of observation = firm– or establishment–year
- ▶ Covenant violation indicator
  - Focus primarily on SEC data at annual frequency
  - First violation → cleanest measurement
- ▶ Annual change in (log) number of employees
  - Why? Complete data
  - Firm-level = sum across (surviving) establishments
- ▶ Establishment sale/closure indicator variables
  - Firm-level = any sale/closure

# Summary Statistics: Firm-Level

	Non-Violators			Violators		
	N	Mean	Std.	N	Mean	Std.
	[1]	[2]	[3]	[4]	[5]	[6]
$\Delta\text{Log}(\text{Employment})$	19,000	-0.002	0.399	2,000	-0.062	0.424
$\Delta\text{Log}(\text{Payroll})$	19,000	0.004	0.408	2,000	-0.047	0.431
Symmetric Employment Growth	19,000	0.018	0.306	2,000	0.029	0.334
$\Delta\text{Employees}/\text{Average Assets}$	19,000	9.322	48.448	2,000	11.392	26.895
$\Delta\text{Payroll}/\text{Average Assets}$	19,000	0.347	2.776	2,000	0.388	0.966
$\Delta\text{Average Wage}$	19,000	0.064	0.055	2,000	0.052	0.030
Any Establishment Sale	19,000	0.111	0.314	2,000	0.121	0.327
Any Establishment Closure	19,000	0.471	0.499	2,000	0.486	0.500
Operating Cash Flow	19,000	0.077	0.250	2,000	0.050	0.174
Leverage	19,000	0.252	0.466	2,000	0.315	0.280
Interest Expense	19,000	0.023	0.076	2,000	0.028	0.035
Net Worth	19,000	0.435	0.995	2,000	0.393	0.371
Current Ratio	19,000	2.821	4.744	2,000	2.048	1.724
Market-to-Book	19,000	2.063	3.255	2,000	1.533	1.305

# Summary Statistics: Establishment-Level

	Non-Violators			Violators		
	N	Mean	Std.	N	Mean	Std.
	[1]	[2]	[3]	[4]	[5]	[6]
<b>Panel A: All Establishments (LBD)</b>						
$\Delta\text{Log}(\text{Employment})$	1,900,000	-0.133	0.655	100,000	-0.251	0.832
Establishment Sale	1,900,000	0.000	0.008	100,000	0.000	0.009
Establishment Closure	1,900,000	0.053	0.224	100,000	0.087	0.282
Age	1,900,000	13.065	8.819	100,000	11.973	8.552
Labor Productivity	1,900,000	0.052	7.114	100,000	0.029	0.050
<b>Panel B: Manufacturing Establishments (CMF/ASM)</b>						
$\Delta\text{Log}(\text{Employment})$	57,000	-0.198	0.809	3,000	-0.395	1.162
$\Delta\text{Investment}$	57,000	-0.007	0.155	3,000	-0.021	0.168
Establishment Sale	57,000	0.000	0.011	3,000	0.001	0.029
Establishment Closure	57,000	0.036	0.185	3,000	0.082	0.274
Age	57,000	21.633	8.707	3,000	20.394	8.720
Total Factor Productivity	57,000	1.844	0.64	3,000	1.761	0.627
Labor Productivity (Alt. 1)	57,000	116.691	288	3,000	74.630	119
Labor Productivity (Alt. 2)	57,000	221	544	3,000	173	542
Labor Productivity (Alt. 3)	57,000	0.019	0.027	3,000	0.017	0.015
Return on Capital	57,000	5.379	557	3,000	1.706	3.766



# Empirical Model: Identification

- ▶ Challenge: Effect of violations or fundamentals?
  - Different types of firms have covenants (of varying strictness)
  - Violators are worse-performing, on average
  - Poorly performing firms (violators) might self-correct
  
- ▶ Two standard approaches in literature
  1. Self-reported violations Roberts and Sufi (2009)
    - Within-firm differences → time-invariant differences
    - Control flexibly for firm fundamentals and pre-violation trends
  
  2. Threshold-based violations Chava and Roberts (2008)
    - Thresholds from loan contracts → impute violations
    - Subset of firms with net worth and current ratio covenants
    - Internal validity: no sorting around threshold; balancing tests

# Firm-Level: Empirical Model

$$\Delta y_{i,t+1} = \alpha_k + \alpha_t + \beta \text{Violation}_{it} + \Gamma X_{it} + \epsilon_{it}$$

- ▶ Unit of observation: firm  $i \times$  year  $t$
- ▶ Control variables
  - $\alpha_k$  and  $\alpha_t$  are industry and year fixed effects
  - $X_{it}$  = contemporaneous, lagged, squared, cubed:
    - Operating cash flow, leverage ratio, interest expense scaled by average assets, net worth over total assets, current ratio, and the market-to-book ratio
- ▶ Identification of  $\beta$ 
  - Parallel trends assumption (no self-correction)
  - ↔ Managers preferences assumed smooth through threshold

# Firm-level: Employment

Dependent Variable: Annual Change in Log(Employment)				
	[1]	[2]	[3]	[4]
Covenant Violation	-0.063*** (0.007)	-0.042*** (0.008)	-0.042*** (0.009)	-0.040*** (0.009)
Operating Cash Flow		0.013*** (0.013)	0.061** (0.028)	0.119*** (0.036)
Leverage		0.048** (0.020)	-0.063* (0.032)	-0.095 (0.078)
Interest Expense		-0.085 (0.182)	-0.372 (0.257)	0.332 (0.848)
Net Worth		0.073*** (0.014)	0.032 (0.026)	0.050 (0.032)
Current Ratio		0.001 (0.001)	-0.007*** (0.002)	0.000 (0.006)
Market-to-Book		0.019*** (0.001)	0.022*** (0.002)	0.061*** (0.010)
Lagged Covenant Controls	N	N	Y	Y
Higher-Order Covenant Controls	N	N	N	Y
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Observations	30,000	26,000	21,000	21,000
R <sup>2</sup>	0.02	0.12	0.11	0.11

# Firm-level: Employment

## Economic Interpretation

- ▶ Covenant violation → job cuts around 4 to 6 p.p.
  - $\sim 15\%$  of unconditional standard deviation
- ▶ Violations occur frequently → creditor-induced changes are an important determinant of employment outcomes
- ▶ Lines up well with other estimates
  - Bond defaults  $\approx 27\%$
  - Bankruptcy filings  $\approx 50\%$

Agrawal and Matsa (2013)

Hotchkiss (1995)

# Firm-level: Employment

## Alternative Employment Measures

Dependent Variable:	$\Delta\text{Log(Payroll)}$	Symmetric Emp. Growth	$\Delta\text{Employees} /$ Avg. Assets	$\Delta\text{Payroll} /$ Avg. Assets	$\Delta\text{Average}$ Wage
	[1]	[2]	[3]	[4]	[5]
Covenant Violation	-0.027*** (0.008)	-0.026** (0.013)	-0.222** (0.104)	-0.011*** (0.003)	0.430 (0.461)
Covenant Controls	Y	Y	Y	Y	Y
Lagged Covenant Controls	Y	Y	Y	Y	Y
Higher-Order Cov. Controls	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y	Y
Observations	21,000	21,000	21,000	21,000	21,000
R <sup>2</sup>	0.10	0.02	0.07	0.16	0.03

- ▶ No adjustments in wages per employee

# Firm-Level: Results

## Establishment Closures and Sales

Dependent Variable: Any Establishment...	Closure	Sale
	[1]	[2]
Covenant Violation	0.093* (0.052)	0.073* (0.042)
Covenant Controls	Y	Y
Lagged Covenant Controls	Y	Y
Higher-Order Cov. Controls	Y	Y
Industry Fixed Effects	Y	Y
Year Fixed Effects	Y	Y
Observations	21,000	21,000
R <sup>2</sup>	0.17	0.28

- ▶ ~8%pts more like to divest assets
- ▶ But where do these cuts take place?

# Within-Firm Effects: Predictions

- ▶ Literature on **managerial agency problems in conglomerates** highlights two establishment attributes:
  1. Industry focus
    - Outside main scope of firm
    - “Grandstanding” or “empire building” → resources spread across too many industries
    - Refocusing scope may improve operating efficiency  
[Berger and Ofek \(1995\)](#), [Lang and Stulz \(1994\)](#), [Schoar \(2002\)](#)
  2. Performance
    - Underperforming units
    - “Quiet life” preferences or “private benefits of control” → managers might be slow or unwilling to close them down  
[Scharfstein and Stein \(2000\)](#), [Bertrand et al. \(2004\)](#)

## Within-Firm Effects: Empirical Model

$$\Delta y_{ij,t+1} = \dots + \beta_1 \text{Violation}_{it} \times Z_{ijt} + \beta_2 \text{Violation}_{it} \times Z_{ijt}^C + \dots$$

- ▶ Unit of observation: firm  $i$   $\times$  establishment  $j$   $\times$  year  $t$
- ▶  $\beta_i \rightarrow$  heterogenous effects of violations across establishments with/without attribute  $Z$
- ▶ Establishment controls: Size, age



# Within-Firm Effects: Employment

## Core versus Periphery Establishments

Dependent Variable: Annual Change in Log(Employment)				
	[1]	[2]	[3]	[4]
Covenant Violation $\times$ Core	-0.103*** (0.023)	-0.085*** (0.026)	-0.093*** (0.030)	-0.090*** (0.029)
Covenant Violation $\times$ Non-Core	-0.134*** (0.045)	-0.135*** (0.046)	-0.145*** (0.052)	-0.146*** (0.050)
Establishment Controls	Y	Y	Y	Y
Covenant Controls	N	Y	Y	Y
Lagged Covenant Controls	N	N	Y	Y
Higher-Order Covenant Controls	N	N	N	Y
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Observations	3,000,000	2,500,000	2,000,000	2,000,000
R <sup>2</sup>	0.02	0.03	0.03	0.03

- ▶ 3-digit SIC is core if  $\geq 25\%$  of employment [Maksimovic and Phillips \(2002\)](#)
- ▶ 50% greater employment cuts at non-core establishments
  - **Differences always significant** based on *F*-tests

# Within-Firm Effects: Establishment Sales and Closures

## Core versus Periphery Establishments

Dependent Variable:	Est. Sale [1]	Est. Closure [2]
Covenant Violation $\times$ Core	0.206*** (0.009)	0.157*** (0.007)
Covenant Violation $\times$ Non-Core	0.283*** (0.014)	0.264*** (0.010)
Establishment Controls	Y	Y
Covenant Controls	Y	Y
Lagged Covenant Controls	Y	Y
Higher-Order Covenant Controls	Y	Y
Industry Fixed Effects	Y	Y
Year Fixed Effects	Y	Y
Observations	2,000,000	2,000,000
R <sup>2</sup>	0.11	0.06

- ▶ Robust to alternative definitions (4-digit SIC, 50% cutoff)

# Within-Firm Effects: Measurement of Productivity

- ▶ Total factor productivity (TFP) Foster et al (2014)
  - Difference between actual and predicted output
  - Predicted output → log-linear Cobb-Douglas production function of capital, labor, and materials
  
- ▶ Individual factor productivities Brav et al. (2015), Silva (2013)
  - Labor
    1. Average wage
    2. Value-added per labor hour
    3. Output divided by total labor hours
    4. Wage per hour
  - Capital:  $ROC = \text{total value of shipments} - \text{labor, material, energy costs}$  divided by capital stock
  
- ▶ These are calculated relative to other establishments within-firm and industry (3-digit SIC)

# Within-Firm Effects: Employment

## Productive versus Unproductive Plants (Manufacturing Firms)

Dependent Variable: Annual Change in Log(Employment)				
	[1]	[2]	[3]	[4]
Violation × Productive	-0.077*** (0.026)	-0.067** (0.029)	-0.069** (0.032)	-0.053 (0.033)
Violation × Unproductive	-0.235*** (0.039)	-0.230*** (0.042)	-0.214*** (0.047)	-0.198*** (0.047)
Establishment Controls	Y	Y	Y	Y
Covenant Controls	N	Y	Y	Y
Lagged Covenant Controls	N	N	Y	Y
Higher-Order Covenant Controls	N	N	N	Y
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Observations	100,000	80,000	60,000	60,000
R <sup>2</sup>	0.05	0.06	0.07	0.07

- ▶ 20%pts cut in employment at unproductive plants only
- ▶ Productivity = within-firm TFP rank
- ▶ Robust across all other productivity measures

# Within-Firm Effects: Investment

## Productive versus Unproductive Plants (Manufacturing Firms)

Dependent Variable: Annual Change in Investment				
	[1]	[2]	[3]	[4]
Violation × Productive	-0.007 (0.006)	-0.006 (0.006)	-0.007 (0.005)	-0.007 (0.005)
Violation × Unproductive	-0.019*** (0.005)	-0.019*** (0.006)	-0.021*** (0.006)	-0.021*** (0.006)
Establishment Controls	Y	Y	Y	Y
Covenant Controls	N	Y	Y	Y
Lagged Covenant Controls	N	N	Y	Y
Higher-Order Covenant Controls	N	N	N	Y
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Observations	80,000	70,000	60,000	60,000
R <sup>2</sup>	0.01	0.01	0.01	0.01

- ▶ Investment rate declines by 2.1%pts at unproductive plants
- ▶ Similar for TFP within-industry and ROC

# Within-Firm Effects: Plant Sales and Closures

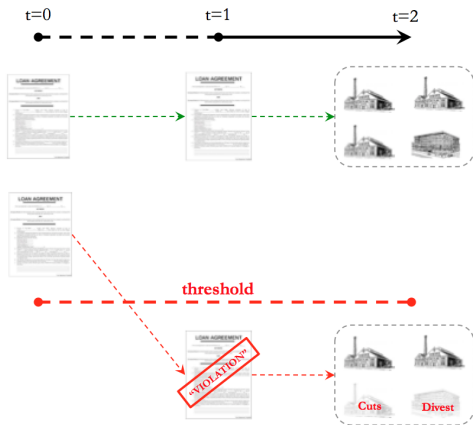
## Productive versus Unproductive Plants (Manufacturing Firms)

Dependent Variable:	Est. Sale [1]	Est. Closure [2]
Violation $\times$ Productive	0.128** (0.052)	0.193*** (0.058)
Violation $\times$ Unproductive	0.116** (0.056)	0.326*** (0.056)
Establishment Controls	Y	Y
Covenant Controls	Y	Y
Lagged Covenant Controls	Y	Y
Higher-Order Covenant Controls	Y	Y
Industry Fixed Effects	Y	Y
Year Fixed Effects	Y	Y
Observations	70,000	70,000
R <sup>2</sup>	0.08	0.17

- ▶ We don't observe the price  $\rightarrow$  mixed results on asset sales

# Further Supportive Evidence

## 1. Threshold-Based Violations

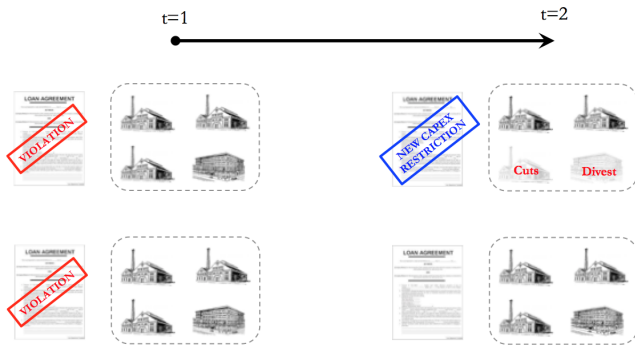


- ▶ RDD based on imputed violations

Chava and Roberts (2008)

# Further Supportive Evidence

## 2. Introduction of Contractual Restrictions



- ▶ Only observe effects where creditors apply constraints, notably capital expenditure restrictions

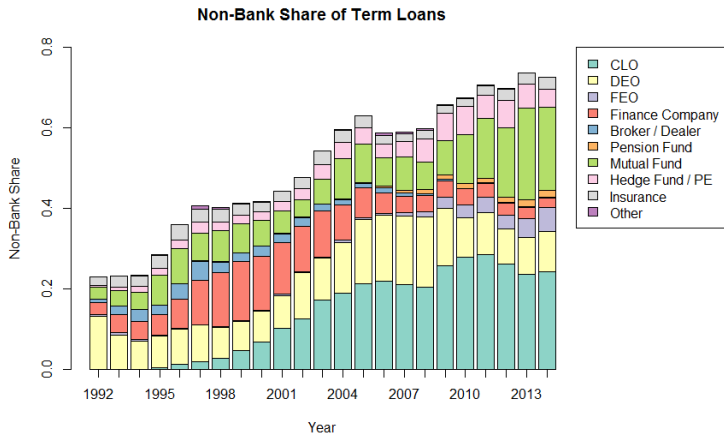
Nini et al. (2009)



# Conclusion

- ▶ We examine how creditor discipline improves performance with a focus on employment outcomes
  - Direct evidence on source of efficiency gains
  - Violating firms cut employment and divest assets at
    - Noncore business lines
    - Unproductive establishments
- ▶ Our evidence consistent with view that debt governance
  - i. Extends beyond bankruptcy
  - ii. Is not narrowly focused on conflicts of interest between creditors and shareholders
  - iii. Can benefit both creditors and shareholders
- ▶ What's missing?
  - “Bright” versus “dark” side of creditor interventions?
  - How does contract design matter for outcomes?
  - Does lender diversity play a role?

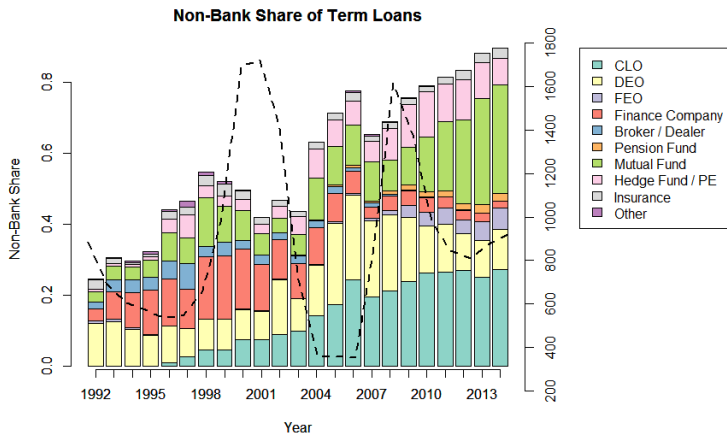
# Implications: Lender Diversity in Private Credit Market



► Source: Shared National Credit Program

# Implications: Lender Diversity in Private Credit Market

Pronounced among Non-Performing Loans



- ▶ Greater supply/diversity of funding, but at what cost?
- ▶ Diminishing role of creditors in corporate governance?