Borrowing From Government Owned Banks & Firm's Liquidation Risk

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Questions

1. Does borrowing from government owned banks (GOBs) affects firm's liquidation risk?
    - Exploits securitization reform that increased liquidation risk
    - $\frac{D}{A} = f(., Liquidation\ Risk)$
    - Differential response, $\Delta(D/A)$, of GOB Vs non-GOB Firms

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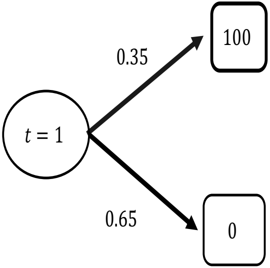
    - Exploits securitization reform that increased liquidation risk
    - $\frac{D}{A} = f(., Liquidation\ Risk)$
    - Differential response, $\Delta(D/A)$, of GOB Vs non-GOB Firms
2. Does this have any spillover effect?
    - Compare the investment rate of GOB Vs non-GOB firms

A Motivating Example

$$Face\ Value\ of\ Debt = 40$$

$$Liquidation\ Value = 25$$



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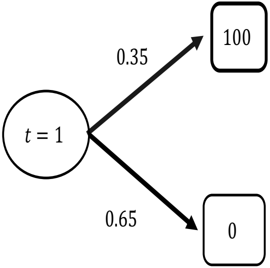

1. $NPV = 35 - 25 = 10$
2. $E[Lender] = (40 * 35) - 25 = -11$
3. $E[Owner] = (60 * 35) = 21$

Are GOBs lenient?

"Moreover, as a project went into distress, **private banks** *were sometimes more agile in securing their positions with additional collateral from the promoter, or getting repaid, even while* **public sector banks** *continued supporting projects with fresh loans. Promoters astutely stopped infusing equity, and sometimes even stopped putting in effort, knowing the project was unlikely to repay given the debt overhang"*

–Former RBI Governor, Prof. Raghuram Rajan
"Resolving Stress In Banking System"

What do GOBs maximize?

- Theories
  - Social View (Stiglitz [1993])
  - Agency View (Banerjee [1997])
  - Political View (Shleifer [1998])

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- Evidence
  - GOB lending is less cyclic (Coleman and Feler [2015])
  - GOBs lend at lower rates & politically connected firms. And increase lending during election years Sapienza [2004], Khwaja and Mian [2005], Cole [2009])

Let's see this in our earlier example...

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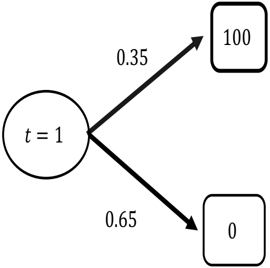


- $NPV = 35 - 25 = 10$
- $E[Lender] = \lambda(\pi = -11) + (1 - \lambda)(PB) > 0$ if PB is large
- $\pi =$ Profit & $PB =$Private Benefit

But wait... there is another force to reckon with!

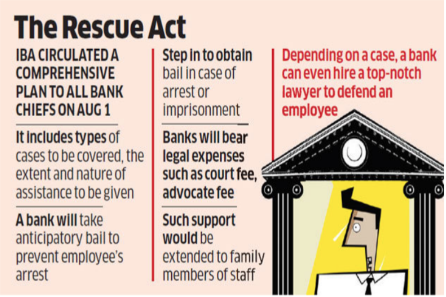


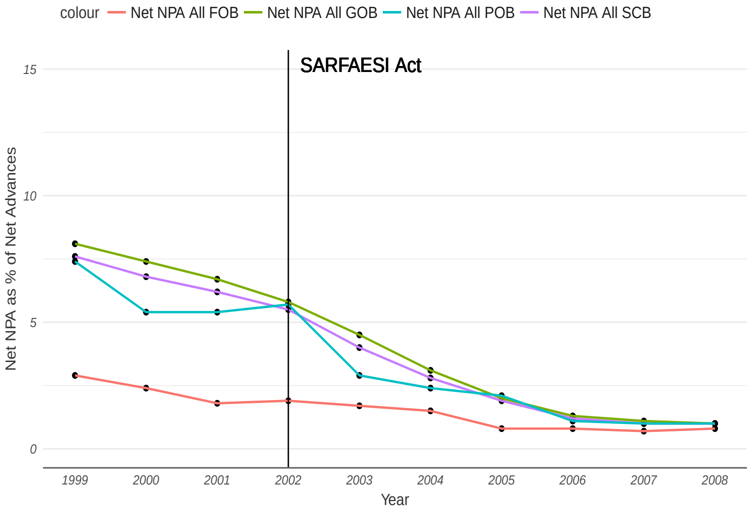
Figure: Taken from Economic Times, 6th August, 2018

Could make reorganization difficult, & create liquidation bias

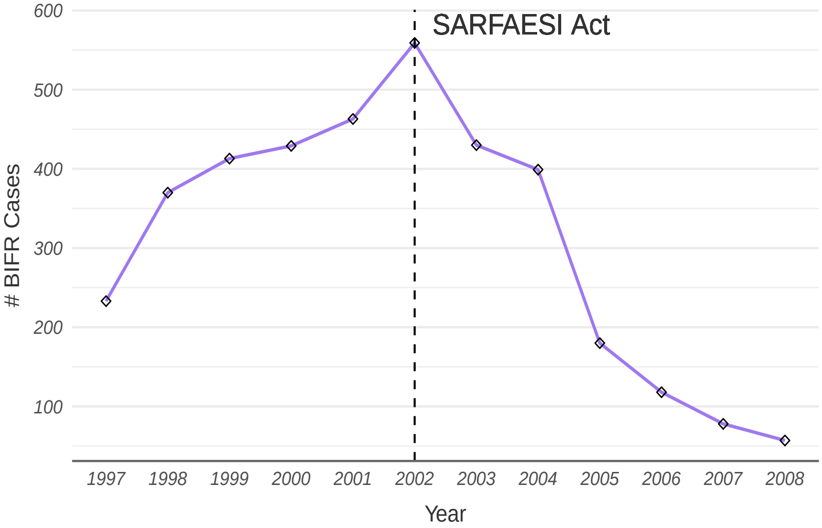
SARFAESI Act

- Perceived to be transformation from pro-debtor to pro-creditor regime
- Ex-ante effects are important (i.e. credible threat)
- No. of cases with DRTs went down by 40% (Rajan, 2008)
- Initial recovery rates around 61% (later on 21.9%)
- Firm‘s with high level of tangible assets reduced their debt usage (Vig [2013])

NPA Trend Around SARFAESI Act



BIFR Flow of Cases



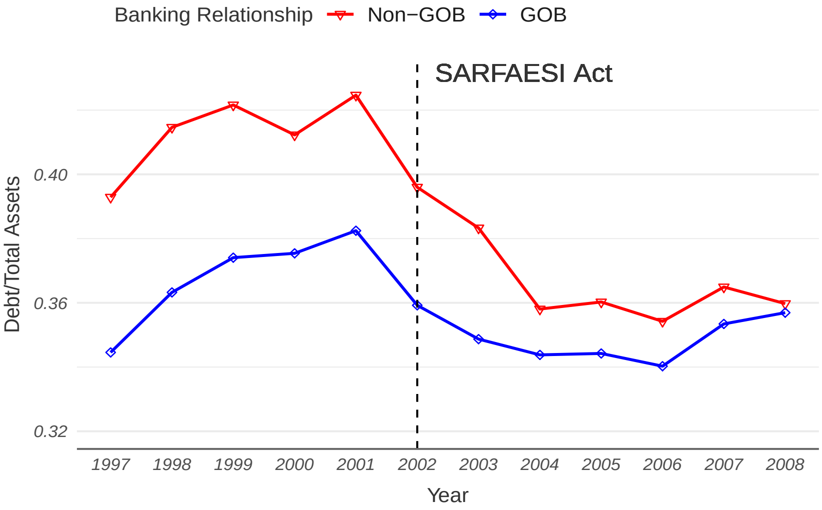
Empirical Strategy

- Variables of Interest
  - Debt/Total Assets
  - Secured Debt/Total Assets
- Regression Framework

$$Y_{it} = \alpha_i + \gamma_{jt} + \theta Post_t * GOB_i + \omega X_{ijt} + \epsilon_{ijt}$$

  - α_i and γ_{jt} are firm and industry-year fixed effects
  - $Post_t = 1$ for $Year >= 2002$
  - $GOB_i = 1$ for firms having exclusive relationship with GOBs
  - X_{ijt} are standard leverage controls (Rajan and Zingales [1995])

Debt/Total Assets



Debt/Total Assets

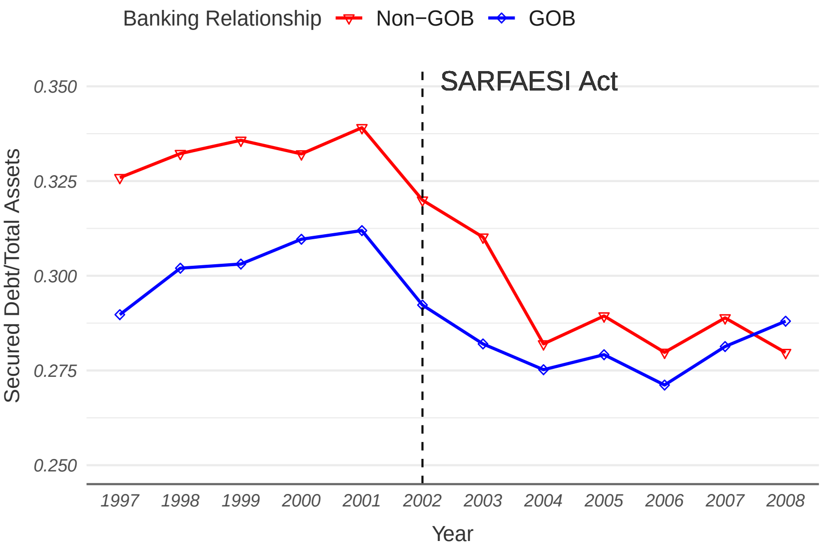
Table: Difference-In-Difference

Firm Type	Before	After	Diff	se_diff	No.Obs
Non-GOB	0.413	0.369	-0.044	0.006	2929
GOB	0.368	0.350	-0.018	0.007	4367
			0.026^{**}	0.009	7296

Debt/Total Assets

	Full Sample		*Above Median*	
	(1)	(2)	(3)	(4)
Post*GOB	0.017**	0.026***	0.027**	0.035***
	(0.007)	(0.008)	(0.011)	(0.010)
Obs	17,536	13,349	7,321	6,772
Adj R^2	0.700	0.731	0.675	0.712
Controls	N	Y	N	Y
Firm FEs	Y	Y	Y	Y
Ind-Year FEs	Y	Y	Y	Y
Note:		$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$		

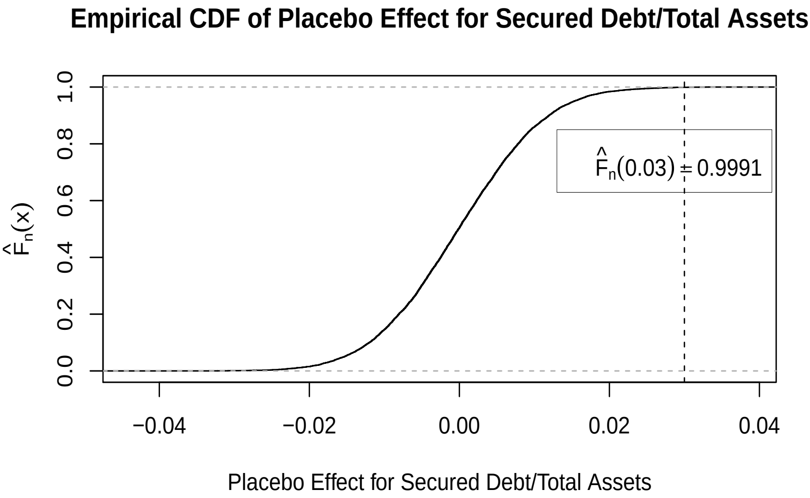
Secured Debt/Total Assets



Secured Debt/Total Assets

	Full Sample		*Above Median*	
	(1)	(2)	(3)	(4)
Post*GOB	0.015**	0.025***	0.021**	0.030***
	(0.006)	(0.007)	(0.010)	(0.009)
Observations	16,831	12,919	7,156	6,632
Adjusted R^2	0.687	0.706	0.652	0.684
Controls	N	Y	N	Y
Firm FEs	Y	Y	Y	Y
Industry Year FEs	Y	Y	Y	Y
Note:	$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$			

Permutation Test



Cross Sectional Evidence

	Dependent variable: Secured Debt/Total Assets					
	Profitability		Size		Group	
	High	Low	Big	Small	Affiliated	Standalone
Post*GOB	0.005	0.061***	0.014	0.058***	−0.007	0.056***
	(0.011)	(0.018)	(0.011)	(0.020)	(0.015)	(0.013)
Obs	4,069	2,563	4,293	2,339	2,497	4,135
Adj R^2	0.672	0.727	0.703	0.613	0.710	0.674
Controls	Y	Y	Y	Y	Y	Y
Firm FEs	Y	Y	Y	Y	Y	Y
Ind-Year FEs	Y	Y	Y	Y	Y	Y

Note: *p<0.1; **p<0.05; ***p<0.01

Switcher Characteristics

	Switch to GOBs	Switch to Non-GOBs
	(1)	(2)
Group Dummy	-0.021^{**}	0.007
	(0.009)	(0.012)
Log Total Assets	-0.038^{***}	0.046^{***}
	(0.003)	(0.004)
Profit Volatility	0.591^{***}	0.030
	(0.145)	(0.166)
Interest Coverage Ratio	0.003^{**}	0.003^{*}
	(0.001)	(0.002)
Debt/Total Assets	0.138^{***}	-0.116^{***}
	(0.028)	(0.034)
PBITDA /Assets	-0.061	0.478^{***}
	(0.070)	(0.085)
TobinQ	-0.017^{***}	0.030^{***}
	(0.005)	(0.010)
Observations	5,963	7,645
Adjusted R^2	0.049	0.037

Real Effects-Investments

Table: Difference-In-Difference

Firm Type	Before	After	Diff	se_diff	No.Obs
Non-GOB	0.074	0.040	-0.034	0.006	2910
GOB	0.051	0.041	-0.010	0.005	4313
			0.024^{***}	0.07	7223

Investments

	Full Sample		Above Median	
	(1)	(2)	(3)	(4)
Post*GOB	0.015***	0.020***	0.023***	0.033***
	(0.005)	(0.005)	(0.008)	(0.008)
Observations	17,804	15,367	7,291	6,388
Adjusted R^2	0.117	0.175	0.112	0.216
Controls	N	Y	N	Y
Firm FEs	Y	Y	Y	Y
Industry-Year FEs	Y	Y	Y	Y
Note:		$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$		

Is this obviously bad?

Table: Likelihood of Firms Filling For Insolvency

Firm Type	No. of Obs	Proportion of Total
Panel A–Full Sample–1695 Firms		
GOB	920	0.54
Non-GOB	774	0.46
Panel B–BIFR Cases Prior to Reform–198 Firms		
GOB	129	0.65
Non-GOB	69	0.35
Panel C–BIFR Cases Post Reform–157 Firms		
GOB	95	0.61
Non-GOB	62	0.39

Future Performance

	Dependent variable:			
	PBITDA/ Total Assets	Interest Cov Ratio	Interest Cost	Assets Turnover
	(1)	(2)	(3)	(4)
Post*GOB	0.001	−0.140	−0.002	0.013
	(0.005)	(0.285)	(0.004)	(0.032)
Observations	7,484	6,660	5,398	7,452
Adjusted R^2	0.402	0.395	0.556	0.715
Controls	N	N	N	N
Firm FEs	Y	Y	Y	Y
Industry Year FEs	Y	Y	Y	Y
Note:		$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$		

Consistent with Current Indian Banking Scenario

- Neither liquidate nor reorganize–Wait & Pray

" They [one or two banks] will try to delay the matter by either seeking revaluation, asking for a higher amount in case it's sale, or just raising more questions. Unfortunately, today there is no penalty for not taking a decision, but you could be punished for taking on"
–Papia Sengupta, ED, BOB

Thank You...

Falsification Tests

- Falsely assign 1999 as the year of reform
- Below median tangibility sample
- Unsecured Debt

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Robustness Tests

- Restricted Sample till 2006
- Taken 2003 as first year after the act
- Removed firms that switch between GOB and non-GOB category during the sample period

Conclusion

- GOBs have different incentives then a profit maximizing lender
- These incentives affects their contract enforcement decisions
- That in turn will affect borrower‘s liquidation risk

Falsification Test–1–Year of Act as 2000

	Debt/Assets	Sec. Debt/Assets	Investments
Tangibility	0.135***	0.132***	
	(0.033)	(0.030)	
TobinQ			0.037
			(0.024)
Cashflow			0.240**
Log Total Assets	0.107***	0.114***	0.243***
	(0.021)	(0.022)	(0.034)
PBITDA/Total Assets	−0.359***	−0.261***	
	(0.064)	(0.060)	
Debt/Total Assets			−0.223***
			(0.073)
Post*GOB	**0.010**	**0.014**	**0.014**
	(0.012)	(0.012)	(0.016)
Observations	2,289	2,260	1,690
Adjusted R^2	0.833	0.820	0.261
Note:			*p<0.1; **p<0.05; ***p<0.01

FT–2–Below Median Tangibility Sample

	Debt/Total Assets	Secured Debt/Total Assets	Investments
Tangibility	0.106**	0.127***	
	(0.052)	(0.037)	
TobinQ			0.008
			(0.005)
Cashflow			0.049*
			(0.026)
Log Total Assets	0.011	0.009	0.034***
	(0.013)	(0.012)	(0.010)
PBITDA/Assets	−0.234***	−0.152***	
	(0.065)	(0.056)	
Debt/Total Assets			−0.043
			(0.037)
Post*GOB	**0.014**	**0.011**	**−0.006**
	(0.016)	(0.013)	(0.014)
Observations	2,174	2,174	1,835
Adjusted R^2	0.752	0.721	0.128
Note:			*p<0.1; **p<0.05; ***p<0.01

Falsification Test–3–Unsecured Debt

	Full Sample	Above Median	Top Tercile
Tangibility	0.001	0.022	0.014
	(0.019)	(0.021)	(0.024)
Log Total Assets	0.001	0.003	−0.002
	(0.008)	(0.010)	(0.010)
PBITDA/Total Assets	-0.128^{***}	-0.134^{***}	-0.133^{***}
	(0.032)	(0.039)	(0.050)
Post*GOB	**0.0001**	**0.003**	**0.005**
	(0.006)	(0.008)	(0.010)
Observations	5,007	2,822	1,994
Adjusted R^2	0.571	0.555	0.597
Note:			$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Restricting Sample Till 2005

	Debt/ Assets	Secured Debt/ Assets	Investments
Tangibility	0.150***	0.119***	
	(0.033)	(0.033)	
TobinQ			0.021
			(0.020)
Cashflow			0.203**
			(0.081)
Log Total Assets	0.075***	0.071***	0.162***
	(0.021)	(0.025)	(0.025)
PBITDA/Total Assets	−0.439***	−0.342***	
	(0.064)	(0.056)	
Debt/Total Assets			−0.174***
			(0.049)
Post*GOB	**0.022***	**0.020***	**0.031****
	(0.013)	(0.011)	(0.014)
Observations	2,561	2,561	2,249
Adjusted R^2	0.826	0.816	0.278

Note: *p<0.1; **p<0.05; ***p<0.01

Estimates Are Lower Bounds

- Only transaction relationship with non-GOB
    - Regression is weighted average of heterogeneous effects

Industry	GOB	Non-GOB	Diff	Weight	Weighted Diff.
A	-0.02	-0.02	0 .00	0.50	0.00
B	-0.02	-0.10	0.08	0.50	0.04
		Estimated Effect			**0.04**

    - Long term relationship less likely to be only transactional
- Lower supply effect for GOB
    - Exp. Liquidation Value = Prob. of Liquidating * Liquidation Value

	count	mean	sd	min	max
Debt/Assets	6549	0.331	0.185	0.001	0.904
Secured Debt/Assets	6549	0.259	0.166	0.000	0.741
Log Assets	6549	6.519	1.629	2.284	11.477
Investments	6549	0.034	0.122	-0.292	1.490
Tangibility	6549	0.627	0.310	0.005	2.018
PBITDA/Assets	6549	0.118	0.075	-0.158	0.491
TobinQ	5865	1.073	0.863	0.115	14.299
Assets	6549	2765	6517	9.	41545

Summary-GOB Firms & Non-GOB Firms

	GOB	sd	**Non-GOB**	sd	Diff	t
Debt/Assets	0.361	0.183	0.375	0.179	-0.014*	(-2.306)
Secured Debt/Asset	0.286	0.165	0.298	0.173	-0.011	(-1.942)
Short Term Debt	0.420	0.247	0.360	0.256	0.060***	(6.670)
Investments	0.028	0.128	0.047	0.135	-0.020***	(-4.359)
Tangibility	0.818	0.250	0.772	0.235	0.045***	(5.507)
PBITDA/Assets	0.114	0.074	0.135	0.071	-0.020***	(-8.165)
TobinQ	0.907	0.435	1.142	0.780	-0.235***	(-10.013)
Total Assets	1211	4084	5398	9104	-4186***	(-16.340)
Observations	2155		1432		3587	

Three Things Matter

Who decides?

- SARFAESI Act-: Strengthen creditors rights
- Lender decides to some extent

What does the lender get?

- Liquidation Value
- High Tangibility Group

What are the lender's objectives?

- Profit maximization is implicitly assumed
- Govt./Quasi-Govt. Agency might have other objectives

Summary-Before & After

	After	sd	**Before**	sd	Diff	t
Debt/Assets	0.356	0.181	0.388	0.182	-0.032***	(-4.944)
Secured Debt/Assets	0.281	0.167	0.312	0.169	-0.031***	(-5.169)
Short Term Debt	0.411	0.258	0.367	0.237	0.044***	(4.878)
Investments	0.037	0.132	0.033	0.129	0.004	(0.859)
Tangibility	0.814	0.264	0.769	0.198	0.045***	(5.679)
PBITDA/Assets	0.124	0.075	0.120	0.068	0.003	(1.386)
TobinQ	1.075	0.662	0.868	0.484	0.207***	(10.024)

Increase in Distress Risk—Vig [2013]

	Sec. Debt/ Assets	Debt/Assets	Short. Debt/ Debt
Tangibility	0.022^{*}	0.028^{**}	-0.077^{***}
	(0.013)	(0.014)	(0.022)
PBITDA/Total Assets	-0.233^{***}	-0.315^{***}	-0.009
	(0.024)	(0.025)	(0.045)
Log Sales	0.008^{***}	0.010^{***}	0.0002
	(0.003)	(0.003)	(0.005)
Post*High Tangibility	$-\mathbf{0.053}^{***}$	$-\mathbf{0.050}^{***}$	$\mathbf{0.061}^{***}$
	(0.008)	(0.008)	(0.014)
Observations	14,625	15,813	12,966
R^2	0.763	0.779	0.723
Note:	Includes Firm & Industry-Year Fixed Effects		

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