

Borrowing From Government Owned Banks & Firm's Liquidation Risk

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Questions

- Does borrowing from government owned banks (GOBs) affects firm's liquidation risk?
 - ① Exploits securitization reform (SARFAESI Act, 2002) that increased liquidation risk
 - ② $\frac{D}{A} = f(., Liquidation Risk)$
 - ③ Differential response, $\Delta(D/A)$, of GOB Vs non-GOB Firms

Questions

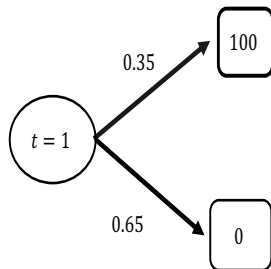
- Does borrowing from government owned banks (GOBs) affects firm's liquidation risk?
 - ① Exploits securitization reform (SARFAESI Act, 2002) that increased liquidation risk
 - ② $\frac{D}{A} = f(., Liquidation Risk)$
 - ③ Differential response, $\Delta(D/A)$, of GOB Vs non-GOB Firms
- Does this have any spillover effect?
 - ① Compare the investment rate of GOB Vs non-GOB firms

Liquidation Risk–A Motivating Example

- Firm is in default; if bank continues

Face Value of Debt = 40

Liquidation Value = 25

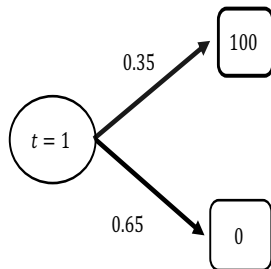


Liquidation Risk–A Motivating Example

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- 1 $NPV = 35 - 25 = 10$
- 2 $E[Lender] = (40 * 0.35) - 25 = -11$
- 3 $E[Owner] = (60 * 0.35) = 21$

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
 - ① Social View (Stiglitz [1993])
 - ② Agency View (Banerjee [1997])
 - ③ Political View (Shleifer [1998])

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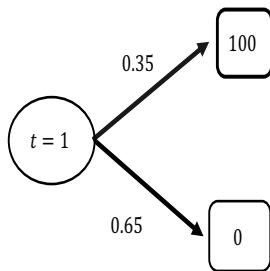
- Implications
 - ① GOBs have other objectives apart from profit maximization
 - ② That could reduce liquidation possibility

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

- Now, the lender max. weighted average of profit & private benefit

Face Value of Debt = 40

Liquidation Value = 25

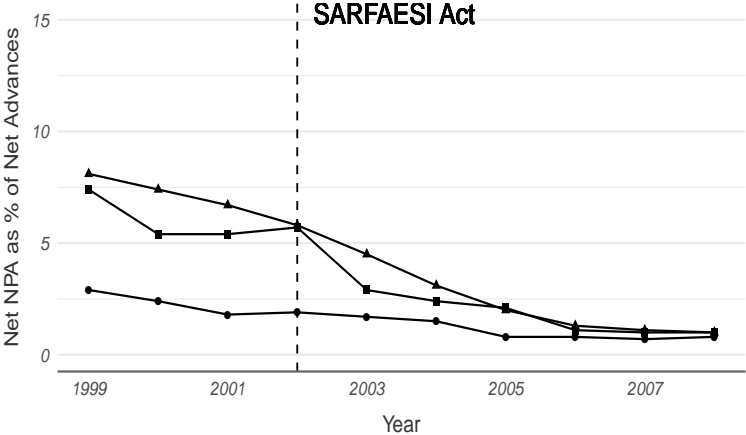


- $E[Lender] = \lambda(\pi = -11) + (1 - \lambda)(PB) > 0$ if PB is large
- $\pi =$ Profit & $PB =$ Private Benefit

SARFAESI Act

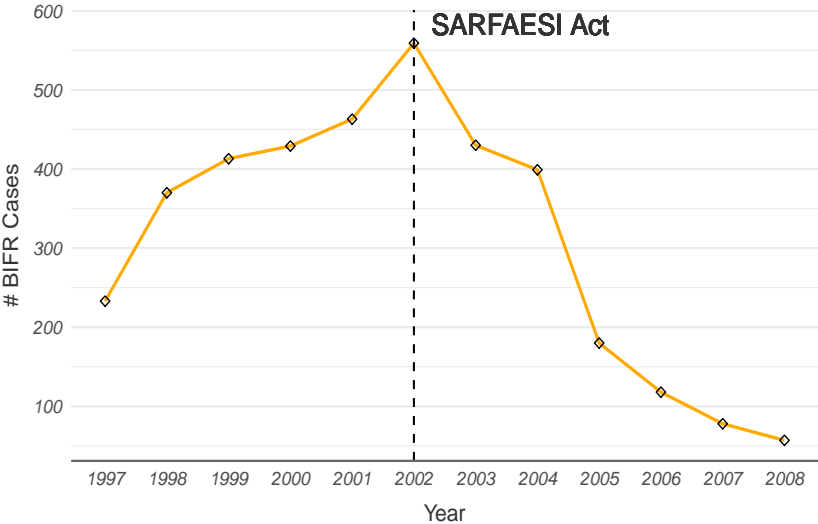
- ① Perceived to be transformation from pro-debtor to pro-creditor regime
- ② Ex-ante effects are important (i.e. credible threat)
- ③ No. of cases with DRTs went down by 40%
- ④ Initial recovery rates around 61% (later on 21.9%)
- ⑤ Firms reduced their secured debt usage (Vig [2013])

NPA Trend Around SARFAESI Act



shape • Net NPA FOB ▲ Net NPA GOB ■ Net NPA POB

BIFR Flow of Cases



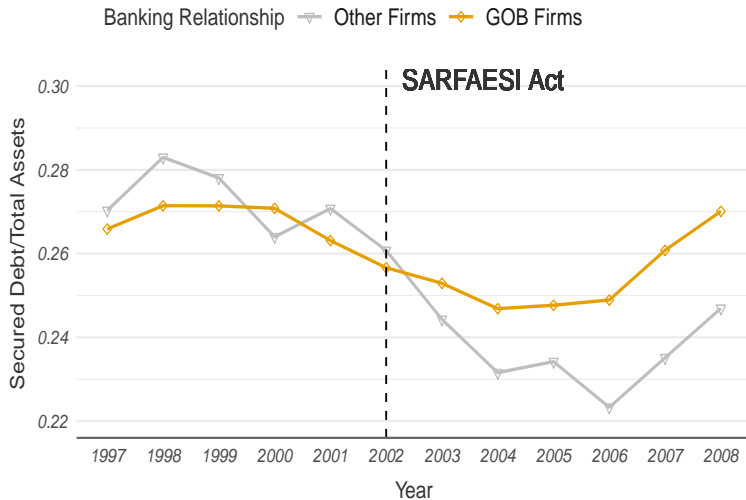
Summary Statistics

Variable	GOB Firms			Other Firms			Difference		
	mean	sd	Obs.	mean	sd	Obs.	diff	se	t-statistic
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Debt/Total Assets	0.323	0.176	6,400	0.333	0.185	4,551	-0.010	0.004	-2.866***
Secured Debt/Total Assets	0.262	0.156	6,400	0.257	0.168	4,551	0.004	0.003	1.421
Investments	0.071	0.127	6,400	0.077	0.128	4,551	-0.006	0.002	-2.529**
Tangibility _{t-1}	0.398	0.186	6,400	0.371	0.197	4,551	0.028	0.004	7.397***
Log Sales _{t-1}	5.759	1.463	6,400	6.686	1.739	4,551	-0.927	0.032	-29.333***
Log Total Assets	6.056	1.301	6,400	7.131	1.574	4,551	-1.075	0.028	-37.794***
Profitability _{t-1}	0.122	0.077	6,400	0.134	0.074	4,551	-0.012	0.001	-8.188***
# Banks	2.088	1.665	6,400	4.737	3.478	4,551	-2.649	0.056	-47.648***
TobinQ _{t-1}	0.938	0.566	5,876	1.195	0.920	4,313	-0.257	0.016	-16.199***

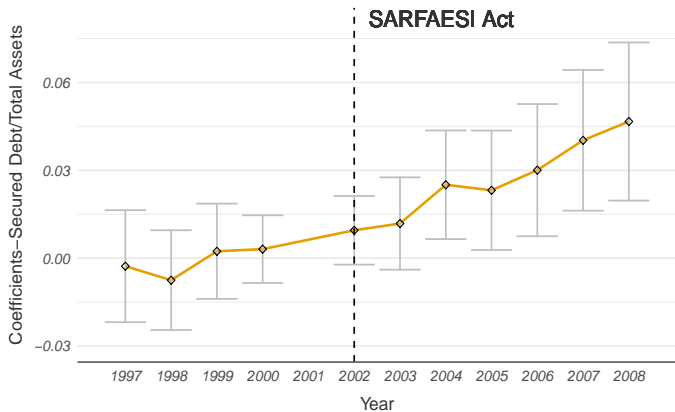
Note:

*p<0.1; **p<0.05; ***p<0.01

Secured Debt/Total Assets



$$Y_{it} = \alpha_i + \delta_{jt} + \sum_{Year=1997}^{2008} \theta_{Year} Year_t * GOB_i + u_{it}$$



Abadie and Imbens [2002] Bias-Corrected Matching Estimator

Secured Debt/Total Assets

GOB Firms: After - Before	-0.004
Other Firms: After - Before	-0.027
Bias-Corrected Matching Estimate (1 to 1 Match)	0.024**
	(0.011)
Bias-Corrected Matching Estimate (1 to 4 Match)	0.023**
	(0.010)
No. of Firms in Sample	850

Note:

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Matching Covariates: Log Total Assets, Profitability, Tangibility, Z-Score, & Fama-French industry code

Regression Framework

$$Y_{it} = \alpha_i + \gamma_{jt} + \theta Post_t * GOB_i + \omega X_{it-1} + \epsilon_{it}$$

- ① α_i and γ_{jt} are firm and industry-year fixed effects
- ② $Post_t = 1$ for $Year \geq 2002$
- ③ $GOB_i = 1$ for firms having exclusive relationship with GOBs
- ④ X_{it-1} are controls

Regression Results

	<i>Dependent variable: Secured Debt/Total Assets</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Sales _{t-1}		0.026*** (0.002)	0.011*** (0.003)	0.013*** (0.004)	0.018*** (0.004)	0.011*** (0.004)	0.012*** (0.004)
Tangibility _{t-1}		0.254*** (0.016)	0.056*** (0.019)	0.060*** (0.019)	0.090*** (0.020)	0.037*** (0.018)	0.060*** (0.019)
Profitability _{t-1}		-0.303*** (0.034)	-0.282*** (0.028)	-0.287*** (0.029)	-0.206*** (0.034)	-0.140*** (0.027)	-0.285*** (0.029)
Z-Score						-0.026*** (0.002)	
# Banks							0.002 (0.001)
Post*GOB	0.020** (0.008)	0.019** (0.008)	0.025*** (0.008)	0.027*** (0.008)	0.020** (0.008)	0.024*** (0.007)	0.027*** (0.008)
Post*Log Sales _{t-1}					-0.007** (0.003)		
Post*Tangibility _{t-1}					-0.062*** (0.019)		
Post*Profitability _{t-1}					-0.158*** (0.050)		
Post*Z-Score						0.002 (0.002)	
Observations	10,951	10,951	10,951	10,951	10,951	10,951	10,951
Adjusted R ²	0.005	0.140	0.698	0.703	0.706	0.728	0.703
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Industry Year FE	No	No	No	Yes	Yes	Yes	Yes

Note:

*p<0.1; **p<0.05; ***p<0.01

Cross-Sectional Evidence—Differences in Prob. of Financial Distress

$$\text{Liquidation Risk} = f(\cdot, \text{Prob. of Default}_{\text{SubSample}})$$

	<i>Dependent variable: Secured Debt/Total Assets</i>					
	Profitability		Size		Group	
	High	Low	Big	Small	Affiliated	Standalone
Post*GOB	0.005 (0.011)	0.061*** (0.018)	0.014 (0.011)	0.058*** (0.020)	−0.007 (0.015)	0.056*** (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

Debt/Total Assets

	<i>Dependent variable:</i>						
	Debt/Total Assets						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Sales _{<i>t</i>-1}		0.032*** (0.002)	0.016*** (0.004)	0.015*** (0.004)	0.018*** (0.005)	0.013*** (0.004)	0.012*** (0.004)
Tangibility _{<i>t</i>-1}		0.302*** (0.018)	0.061*** (0.020)	0.060*** (0.021)	0.093*** (0.022)	0.033* (0.020)	0.060*** (0.021)
Profitability _{<i>t</i>-1}		-0.386*** (0.037)	-0.380*** (0.031)	-0.374*** (0.032)	-0.254*** (0.040)	-0.209*** (0.029)	-0.368*** (0.032)
Z-Score						-0.029*** (0.002)	
# Banks							0.005*** (0.001)
Post*GOB	0.020** (0.009)	0.018** (0.009)	0.025*** (0.008)	0.027*** (0.008)	0.022*** (0.008)	0.024*** (0.008)	0.029*** (0.008)
Post*Log Sales _{<i>t</i>-1}					-0.004 (0.003)		
Post*Tangibility _{<i>t</i>-1}					-0.068*** (0.021)		
Post*Profitability _{<i>t</i>-1}					-0.228*** (0.053)		
Post*Z-Score						0.001 (0.002)	
Observations	10,951	10,951	10,951	10,951	10,951	10,951	10,951
Adjusted R ²	0.005	0.165	0.722	0.728	0.732	0.754	0.729
Firm FE	No	No	Yes	Yes	Yes	Yes	Yes
Industry Year FE	No	No	No	Yes	Yes	Yes	Yes

Note:

*p<0.1; **p<0.05; ***p<0.01

Investments

	<i>Dependent variable:</i>				
	Investments				
	(1)	(2)	(3)	(4)	(5)
Cashflow		0.148*** (0.021)	0.121*** (0.023)	0.121*** (0.023)	0.066** (0.032)
Log Total Assets		0.013*** (0.001)	0.058*** (0.005)	0.068*** (0.006)	0.077*** (0.007)
(Debt/Total Assets) _{t-1}		-0.001 (0.009)	-0.129*** (0.019)	-0.123*** (0.019)	-0.133*** (0.023)
Post*GOB	0.021*** (0.005)	0.020*** (0.005)	0.028*** (0.006)	0.027*** (0.006)	0.018** (0.007)
Post*Cashflow					0.094** (0.039)
Post*Log Total Assets					-0.011*** (0.002)
Post*(Debt/Total Assets) _{t-1}					0.027 (0.019)
Observations	10,951	10,951	10,951	10,951	10,951
Adjusted R ²	0.002	0.045	0.184	0.203	0.207
Firm FE	No	No	Yes	Yes	Yes
Industry Year FE	No	No	No	Yes	Yes

Note:

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Falsification Tests–Unsecured Debt

	<i>Dependent variable: Unsecured Debt/Total Assets</i>			
	(1)	(2)	(3)	(4)
Post*GOB	−0.00003 (0.005)	0.0005 (0.005)	0.001 (0.005)	0.001 (0.005)
Observations	8,809	8,809	8,809	8,809
Adjusted R ²	0.005	0.020	0.498	0.509
Controls	No	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes
Industry Year FE	No	No	No	Yes

Note:

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Falsification Tests–Placebo Sample–1995 to 2001

	<i>Dependent variable:</i>					
	Debt/Total Assets		Secured Debt/Total Assets		Investments	
	(1)	(2)	(3)	(4)	(5)	(6)
Post*GOB	−0.004 (0.008)	−0.001 (0.007)	−0.001 (0.008)	0.003 (0.007)	−0.003 (0.009)	0.003 (0.009)
Observations	5,861	5,861	5,861	5,861	5,861	5,861
Adjusted R ²	0.779	0.816	0.747	0.786	0.160	0.191
Controls	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note:

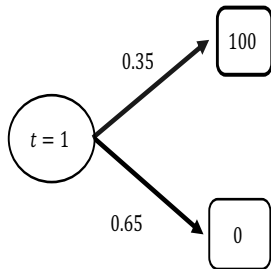
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Differences in liquidation value matters

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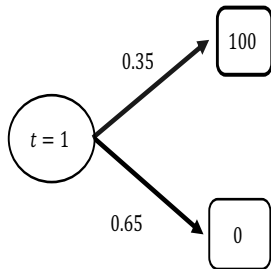


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- $E[Owner] = (60 * 0.35) = 21$

Falsification Tests—Above Median Tangibility Sample

	<i>Dependent variable:</i>					
	Debt/Total Assets		Secured Debt/Total Assets		Investments	
	(1)	(2)	(3)	(4)	(5)	(6)
Post*GOB	0.030*** (0.012)	0.031*** (0.010)	0.028*** (0.010)	0.029*** (0.010)	0.031*** (0.009)	0.035*** (0.009)
Observations	5,555	5,555	5,555	5,555	5,555	5,555
Adjusted R ²	0.682	0.739	0.664	0.714	0.139	0.225
Controls	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note:

*p<0.1; **p<0.05; ***p<0.01

Falsification Tests–Below Median Tangibility Sample

	<i>Dependent variable:</i>					
	Debt/Total Assets		Secured Debt/Total Assets		Investments	
	(1)	(2)	(3)	(4)	(5)	(6)
Post*GOB	0.012 (0.014)	0.007 (0.013)	0.014 (0.012)	0.009 (0.011)	−0.001 (0.008)	0.004 (0.008)
Observations	3,733	3,733	3,733	3,733	3,733	3,733
Adjusted R ²	0.676	0.707	0.661	0.690	0.212	0.227
Controls	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note:

*p<0.1; **p<0.05; ***p<0.01

Conclusion

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

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

The Rescue Act

IBA CIRCULATED A COMPREHENSIVE PLAN TO ALL BANK CHIEFS ON AUG 1

It includes types of cases to be covered, the extent and nature of assistance to be given

A bank will take anticipatory bail to prevent employee's arrest

Step in to obtain bail in case of arrest or imprisonment

Banks will bear legal expenses such as court fee, advocate fee

Such support would be extended to family members of staff

Depending on a case, a bank can even hire a top-notch lawyer to defend an employee


An illustration of a man in a suit standing in front of a classical building facade with columns and a pediment. The man is depicted in a stylized, angular manner with a yellow face and a black suit. The building behind him has a pediment with a circular emblem in the center and two columns on either side.

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

Could make reorganization difficult, & create liquidation bias

Consistent with Recent 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 one” –Papia Sengupta, ED, BOB

Thank You...

Switching Behaviour

Count	Switch	PBITDA/ Total Assets	Debt/ Total Assets	Log Total Assets	TobinQ	Interest Cov Ratio	Cashflow	Investments	Group
<i>Panel A–Non-GOB Switch To GOB</i>									
47	Yes	0.114	0.377	6.373	0.806	3.251	0.055	0.060	0.426
320	No	0.122	0.371	7.091	0.944	3.287	0.068	0.079	0.519
	Difference	-0.009	0.005	-0.718	-0.138	-0.036	-0.013	-0.019	-0.093
<i>Panel B–GOB Switch To Non–GOB</i>									
145	Yes	0.121	0.315	6.220	0.728	3.801	0.067	0.064	0.366
430	No	0.095	0.351	5.878	0.762	2.699	0.055	0.051	0.267
	Difference	0.026	-0.036	0.342	-0.035	1.102	0.012	0.012	0.098

Estimates Are Lower Bounds

- 1 Only transaction relationship with non-GOB

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

- 2 Long term relationship less likely to be only transactional
- 3 Comparatively higher positive supply effect hides negative demand effect to some extent

Falsification Tests

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

Falsification Tests

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

Falsification Test–1–Year of Act as 2000

	<i>Dependent variable:</i>					
	Debt/Total Assets		Secured Debt/Total Assets		Investments	
	(1)	(2)	(3)	(4)	(5)	(6)
Post*GOB	−0.004 (0.008)	−0.001 (0.007)	−0.001 (0.008)	0.003 (0.007)	−0.003 (0.009)	0.003 (0.009)
Observations	5,861	5,861	5,861	5,861	5,861	5,861
Adjusted R ²	0.779	0.816	0.747	0.786	0.160	0.191
Controls	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note:

*p<0.1; **p<0.05; ***p<0.01

Falsification Test–3–Unsecured Debt

	<i>Dependent variable: Unsecured Debt/Total Assets</i>			
	(1)	(2)	(3)	(4)
Post*GOB	-0.00003 (0.005)	0.0005 (0.005)	0.001 (0.005)	0.001 (0.005)
Observations	8,809	8,809	8,809	8,809
Adjusted R ²	0.005	0.020	0.498	0.509
Controls	No	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes
Industry Year FE	No	No	No	Yes

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
 - Low probability of liquidating by GOBs

	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

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

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