The Unholy Trinity: Regulatory Forbearance, Government Banks and Zombie Firms

Anusha Chari
UNC-Chapel Hill
& NBER

Lakshita Jain
UNC-Chapel Hill

Nirupama Kulkarni*
CAFRAL
(Promoted by RBI)

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Regulatory Forbearance

- Loan concessions or temporary repayment relief to alleviate short-term liquidity stresses that borrowers face during financial crises or special economic or legal circumstances.

- <u>Dueling incentives</u>:

  A risk management tool to allow viable but solvent firms experiencing temporary liquidity problems to continue operations.

  <div align="center">vs.</div>

  Shield non-performing assets, a failure to appropriately provision & manage credit risk.

This Paper

- Examines the credit allocative efficiency impact of the asset quality forbearance measures enacted by the RBI during the GFC.

    - Identification facilitated by a predominantly government-owned banking system and the exogenously dictated timing of the policy during the GFC.

- Temporarily lowered provisioning requirements allowed banks to alter risk-weights attached to loans under liquidity stress but also to hide true asset quality.

- Reduced loan loss provisioning facilitated regulatory arbitrage by banks through asset-risk reclassification.

- Forbearance as fiscal dominance (Acharya (2020)): allowed the sovereign to postpone the costly recapitalization of government banks.

The Setting: Asset Quality Forbearance in India

RBI's 2008 "Special Regulatory Treatment" alters asset risk classification.

Asset Category	NPA Duration	Provisioning Rate
Standard		0.25%-1%
Sub-Standard	<12 months	10%
Doubtful	12 to 24 months	20%
	24 to 48 months	30%
	> 48 months	100%
Loss		100%

A new category of "Restructured Assets" to retain standard asset classification.

The Setting

- The government-owned banking system is a unique setting to examine how regulatory forbearance can exacerbate the misallocation of credit.

- An ambiguously-worded regulatory policy gave banks discretion to lower provisioning requirements for loans under "temporary liquidity stress."

- Forbearance functioned as an implicit subsidy that facilitated the build-up of stressed assets in the banking system.

Preview of findings:

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   - ...especially in industries and in bank portfolios with high proportions of failing firms.

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- ...especially in industries and in bank portfolios with high proportions of failing firms.

3 Links between government banks and inefficient firms persist following forbearance withdrawal, signaling the possibly irreversible lending distortions and sticky matches between government banks with weak firms.

4 A cautionary tale about the potentially long-lasting misallocation effects of temporary forbearance measures.

Existing Literature

- Peek and Rosengren (2005) → misallocation of credit in Japan by marginal banks to avoid losses on balance sheets. Blattner et al.(2019) → Europe. Flanagan & Puranandam (2019), Chopra, Nishesh, and Tantri, (2020), Chopra, Subrahmanian and Tantri (2021) → India.

- Gropp et al. (2017) → impact of recapitalization of distressed banks through TARP in the USA; frictions to creative destruction processes predict weak recovery (Caballero et al. (2008)).

- McGowan et al. (2018) → connection between zombie firms, bank health, and spillovers to productive firms.

- Highlight the role of state-ownership of banks in forbearance lending in an emerging market context .

Timeline of Policy Announcements

| Announcement Date	Content of Announcement
27-Aug-08	Special Regulatory Treatment Announced allowing forbearance
30-May-13	Announcement of withdrawal of Forbearance beginning April 1, 2015
26-Feb-14	Framework for Revitalising Distressed Assets in the Economy – Guidelines on Joint Lenders' Forum (JLF) and Corrective Action Plan (CAP)
15-Jul-14	Flexible Structuring of Long Term Project Loans to Infrastructure and Core Industries
1-Apr-15	Asset Quality Review Started
8-Jun-15	Strategic Debt Restructuring Scheme for conversion of debt to equity
13-Jun-16	Scheme for Sustainable Structuring of Stressed Assets
12-Feb-18	Resolution of stressed assets – Revised Framework
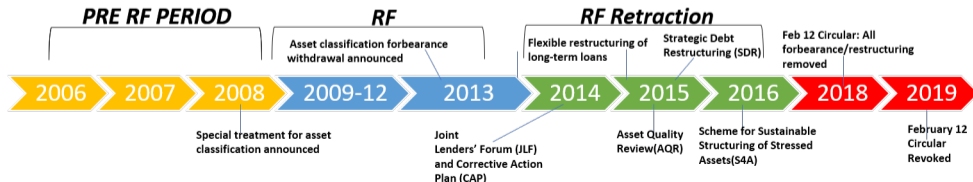
Distressed Assets

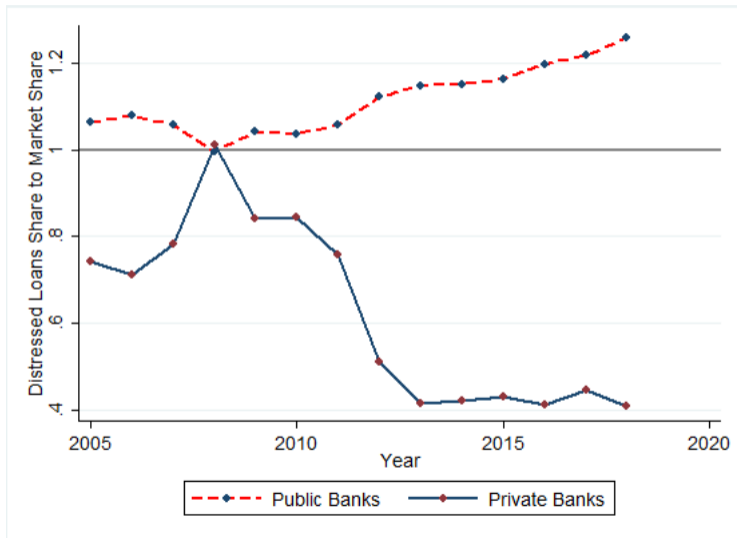= Non-performing Assetes (NPAs)+ Restructured Assets
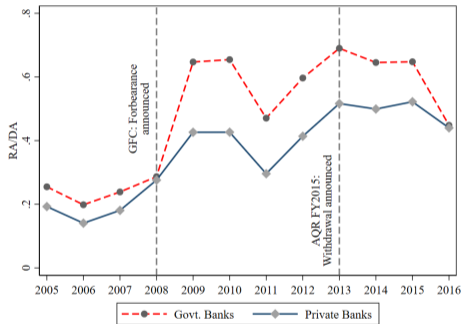
Hidden Assets Ratio $\left(\frac{RA}{DA}\right)$
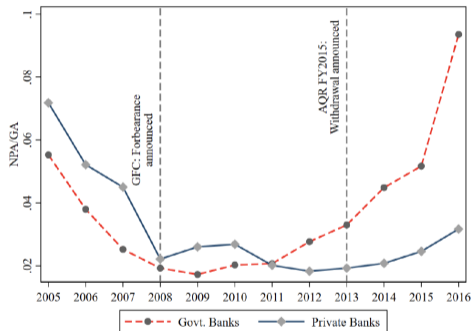
NPA Ratio $\left(\frac{NPA}{GA}\right)$

▸ More

Distressed Asset Share to Market Share

Data

1. **Borrower-level**: Sample of non-financial borrowers from Prowess CMIE between 2006-2016 based on standalone financial statements.
   - Lead Bankers: Assign total borrowings to **lead bankers** only since break-up of loan volumes from different banks is not available.

2. **Bank-level:** Publicly available BSR data (RBI website) aggregated at the bank-level.
   - Gross/restructured advances, NPAs for Government and Private banks

Summary:
- Banks in 2016: Public sector (27), private sector (21) & foreign banks (49).
- Market Share: Public sector (70%), Private (23%) & foreign (7%).

Measures

- **Zombie Firms**
  - A zombie firm is one that receives subsidized credit compared to the most creditworthy firms in the economy (Caballero et al. (2008)).

  - <u>Our measure:</u> Average interest rate $<$ Prime Lending Rate (PLR) of safest bank in India (State Bank of India), debt-to-assets ratio >0.15.
    Alternative Measures: Refine subsidized credit$+ ICR < 2$ condition,
    Speculative Credit Definition of IMF: $ICR < 4.1$ & Net debt to assets ratio > 0.25.

- **Low-Solvency Firms:** Above median debt-equity ratio in year t.

- **Low-Liquidity Firms:** Below median cash ratio in year t.

- **Bank ownership** - Lead bank in 2007 based on whether a govt. banks (public) or private sector banks.

- **Alternate Bank Measures:** Stressed Bank: Bank belongs to top two terciles of NPA ratio in 2007; Capital to Risk-Weighted Assets Ratio (CRAR).

Tabulating Firm Quality by Bank Type

	Private Banks				Government Banks		
		Zombie$_{j,t}$				Zombie$_{j,t}$	
		No	Yes	Overall		No	Yes	Overall
Solvency$_{j,t}$	High	51%	9%	60%	High	35%	9%	45%
	Low	10%	30%	40%	Low	12%	43%	55%
	Overall	62%	38%	100%	Overall	48%	52%	100%

	Private Banks				Government Banks		
		Zombie$_{j,t}$				Zombie$_{j,t}$	
		No	Yes	Overall		No	Yes	Overall
Liquidity$_{j,t}$	High	37%	16%	53%	High	27%	19%	46%
	Low	22%	25%	47%	Low	19%	35%	54%
	Overall	60%	40%	100%	Overall	47%	53%	100%

Forbearance and the Allocative Efficiency of Credit

Debt of Zombie and Non-Zombie firms
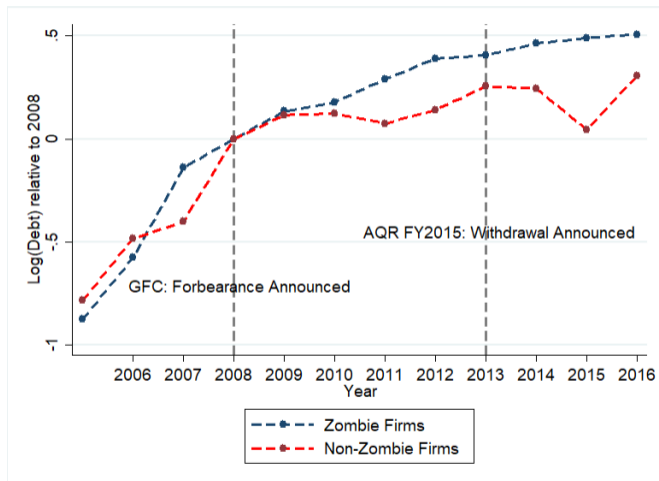
The Baseline Specification

$$Log(Debt_{j,t+1}) = \mu_b + \lambda_t + \gamma_j + \beta_1 * Govt. Bank^b * Zombie_{j,t}^F$$

$$+ \zeta_k \sum_{k=1}^{2} Govt. Bank^b * RF_t^k + \eta_k \sum_{k=1}^{2} Zombie_{j,t}^F * RF_t^k$$

$$+ \delta_k \sum_{k=1}^{2} Govt. Bank^b * Zombie_{j,t}^F * RF_t^k + \epsilon_{j,t+1} \quad (1)$$

- $Log(Debt_{j,t+1})$ is the Log of debt in period $t+1$ for a given firm j borrowing from lead bank b.

- For $k=1$, RF_t^1: **'regulatory forbearance increasing'** episode (≥ 2009), For $k=2$, RF_t^2: **'regulatory forbearance retraction'** episode (≥ 2014).

- λ_t, μ_b, and γ_j control for year (t),bank (b), and firm (j) fixed effects.

Government Banks and Zombie Lending

Dependent Variable: Log(Debt)$_{j,t+1}$	(1)	(2)	(3)	(4)
Govt. Bank$_{b,j}$	0.195		0.210	
	(0.131)		(0.131)	
Zombie$_{j,t}$	0.698***	0.703***	0.698***	0.702***
	(0.125)	(0.122)	(0.125)	(0.122)
Govt. Bank$_{b,j}$ × Zombie$_{j,t}$	-0.282**	-0.293**	-0.286**	-0.297**
	(0.131)	(0.129)	(0.131)	(0.129)
RF$_t^{\text{Post 2008}}$	0.428***		0.407***	
	(0.116)		(0.115)	
× Govt. Bank$_{b,j}$	-0.225*	-0.224*	-0.203*	-0.205*
	(0.123)	(0.121)	(0.122)	(0.120)
× Zombie$_{j,t}$	-0.208*	-0.238**	-0.214*	-0.244**
	(0.122)	(0.120)	(0.121)	(0.120)
× Govt. Bank$_{b,j}$ × Zombie$_{j,t}$	0.264**	0.278**	0.235*	0.254**
	(0.129)	(0.128)	(0.129)	(0.128)
RF$_t^{\text{Post 2013}}$			0.112	
			(0.080)	
× Govt. Bank$_{b,j}$			-0.094	-0.108
			(0.095)	(0.095)
× Zombie$_{j,t}$			0.008	0.022
			(0.085)	(0.086)
× Govt. Bank$_{b,j}$ × Zombie$_{j,t}$			0.138	0.132
			(0.100)	(0.101)
No. of Obs.	24126	24126	24126	24126
R^2	0.930	0.931	0.929	0.931
Borrower FE	Y	Y	Y	Y
Year FE	N	Y	N	Y
Bank FE	N	Y	N	Y

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

- Zombie lending increases by 26% for Government banks relative to Private banks (column 1).

- No reversal during retraction period.

Marginal Effects: Government vs. Private Bank Lending post-Forbearance

	Zombie Firms	
	Model (1)	Model (3)
	Margins Estimates	
Govt. Bank, Post RF (A)	0.472	0.462
Govt. Bank, Pre RF (B)	0.416	0.441
Private Bank, Post RF (C)	0.490	0.486
Private Bank, Pre RF (D)	0.698	0.699
	Triple Difference in Differences Calculations	
(A-B)	0.056	0.021
(C-D)	-0.208	-0.214
(A-B)-(C-D) (%)	26%	23%

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Credit Reallocation Mechanisms

Two main channels of credit reallocation

- "The Bank Lending Channel": Examine the impact on healthy firms at banks that lend predominantly to zombie firms.

- "The Demand Channel": An indirect channel consistent with Caballero, Hoshi, and Kashyap (2008) where zombie congestion depresses demand for credit.

Examine credit reallocation away from healthier firms

Specification we use is:

$$Log(Debt_{j,t+1}) = \lambda_t + \gamma_j + \alpha_{ind(j)} + \beta * Exposure\,Channel^b * Healthy_{j,t}$$

$$+ \zeta_k \sum_{k=1}^{2} Exposure\,Channel^b * RF_t^k + \eta_k \sum_{k=1}^{2} Healthy_{j,t} * RF_t^k$$

$$+ \delta_k \sum_{k=1}^{2} Exposure\,Channel^b * Healthy_{j,t} * RF_t^k + \epsilon_{j,t+1} \quad (2)$$

where additionally, from (1):

- $Exposure\,Channel \in \{Bank\,Frac\,Zombies_{b,t}, Industry\,Frac\,Zombies_{h,t}\}$
- $Bank\,Frac\,Zombies_{b,t}$ is defined as the fraction of firms in a bank classified as zombies in period t
- $Industry\,Frac\,Zombies_{h,t}$ is defined as the fraction of firms in an industry classified as zombies in period t
- $Healthy_{j,t}$ is a non-zombie firm

Direct and Indirect Channels of Credit Reallocation

Dependent Variable: Log(Debt)$_{j,t+1}$	(1)	(2)	(3)	(4)
RF$_t^{\text{Post 2008}}$	0.045		-0.069	
	(0.072)		(0.089)	
$\times$ Non-Zombie$_{j,t}$	0.582***	0.577***	0.381***	0.495***
	(0.203)	(0.206)	(0.135)	(0.152)
$\times$ BankFracZombie$_{b,t}$	0.580***			
	(0.167)			
$\times$ Non-Zombie$_{j,t}$ $\times$ BankFracZombie$_{b,t}$	-1.089***	-1.065***		
	(0.386)	(0.394)		
$\times$ IndustryFracZombie$_{h,t}$			0.342***	
			(0.118)	
$\times$ Non-Zombie$_{j,t}$ $\times$ IndustryFracZombie$_{h,t}$			-0.694***	-0.896***
			(0.246)	(0.274)
No. of Obs.	22984	22980	22984	22907
R-sq.	0.926	0.928	0.926	0.929
Borrower FE	Y	Y	Y	Y
Year FE	N	N	N	N
Bank FE	N	N	N	N
Industry X Year FE	N	N	N	Y
Bank X Year FE	N	Y	N	N

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Direct and Indirect Channels of Credit Reallocation
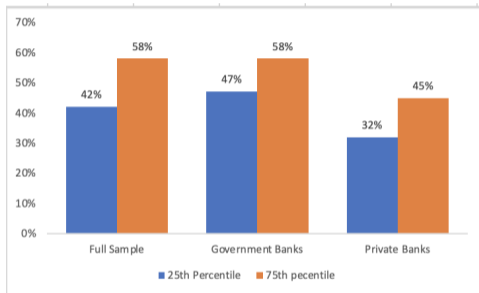
Fraction of Zombies in Bank Portfolios
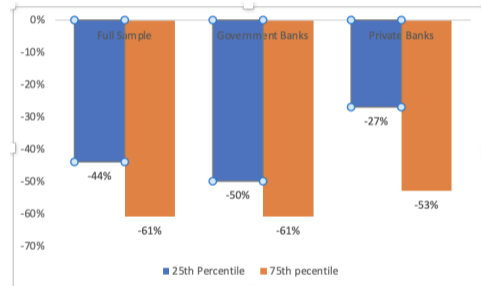
Decline in Lending to Healthier Firms

A Complicit Sovereign?

Government Ownership and Forbearance Motives

Banking sector fiscalization:*"As successive governments have found their capacity for further fiscal expansion becoming constrained, it has used the banks that it owns to fire up and pump-prime the economy. Hence, the term banking sector-fiscalization ... Backward-looking prudential norms, inertia in adjusting risk weights on loans by the regulator"*
— Urjit Patel, Ex-RBI Governor, "Overdraft: Saving the Indian Saver", 2020.

Fiscal dominance in default disclosure norms: *"(Disclosure) would increase the capital requirement of public sector banks and thus budgetary allocation from the government."*
— Viral Acharya, Ex-RBI Deputy Governor, "Quest for Restoring Financial Stability in India", 2020.

Robustness and Alternative Tests

- Restructured loan-level data: Disentangle the demand and supply-side channels comparing stressed vs. healthy bank loans to the same firm.

- Real Effects on Capex and Wages

- Firm Heterogeneity: Exporters and Infrastructure Firms

- Alternative Measures of Firm Quality: Low Solvency & Low Liquidity

- An Alternative Measure of Forbearance: Provisioning Rates

- An Alternative Definition of Bank Health: The Capital-To-Risk-Weighted Asset Ratio, Stressed Banks

- A Placebo Test: Foreign Banks

Conclusion

- Regulatory forbearance measures enacted by the RBI post-GFC effectively handed over a license for regulatory arbitrage.

- Forbearance measures provided an incentive to hide true asset quality—the build-up of stressed assets in the system is a by-product of accounting subterfuge.

- The results emphasize the possible persistent negative effects of prolonged phases of forbearance.

- It appears that the process of creative destruction is hindered as low-quality firms on life support of new credit continue to survive at the expense of healthy firms.

Thank You!

Appendix

Characteristics of Zombie firms

Dependent Variable: Zombie$_{j,t}$	(1)
Manufacturing firm	0.231***
	(0.0113)
Infrastructure firm	0.0407***
	(0.0144)
Young	-0.0791***
	(0.0143)
Listed firms	0.0819***
	(0.00963)
Size	0.121***
	(0.0198)
No. of Obs.	38324
R-sq.	0.0691

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Why are effects on lending during forbearance persistent?

Examine new banking relationships

Dependent Variable: New banking relationship$_{j,t+1}$	(1)	(2)	(3)
Private Bank$_{b,t+1}$ * Healthy$_{j,t}$ * Forbearance$_t^{\text{Post 2008}}$	0.0438***	0.0441***	0.0414***
	(0.0132)	(0.0132)	(0.0132)
Foreign Bank$_{b,t+1}$ * Healthy$_{j,t}$ * Forbearance$_t^{\text{Post 2008}}$	0.0978***	0.0987***	0.110***
	(0.0246)	(0.0247)	(0.0247)
Others$_{b,t+1}$ * Healthy$_{j,t}$ * Forbearance$_t^{\text{Post 2008}}$	0.0288	0.0292	0.0404
	(0.0316)	(0.0318)	(0.0316)
Private Bank$_{b,t+1}$ * Healthy$_{j,t}$ * Forbearance$_t^{\text{Post 2013}}$	-0.0169*	-0.0179*	-0.0154*
	(0.00909)	(0.00917)	(0.00911)
Foreign Bank$_{b,t+1}$ * Healthy$_{j,t}$ * Forbearance$_t^{\text{Post 2013}}$	0.00628	0.00545	0.0100
	(0.0186)	(0.0188)	(0.0188)
Others$_{b,t+1}$ * Healthy$_{j,t}$ * Forbearance$_t^{\text{Post 2013}}$	0.0590**	0.0580**	0.0455*
	(0.0290)	(0.0294)	(0.0244)
No. of Obs.	124170	124170	123999
R-sq.	0.131	0.133	0.161
Borrower FE	Y	Y	Y
Year FE	N	Y	Y
Bank FE	N	N	Y

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Healthy firms more likely to form new banking relationships with non-Govt. banks, and effects do not revert post-retraction.

Lending to Industry (Infrastructure)

Bank lending to Industry as a proportion of GDP

Public Sector Lending — Private Sector Lending
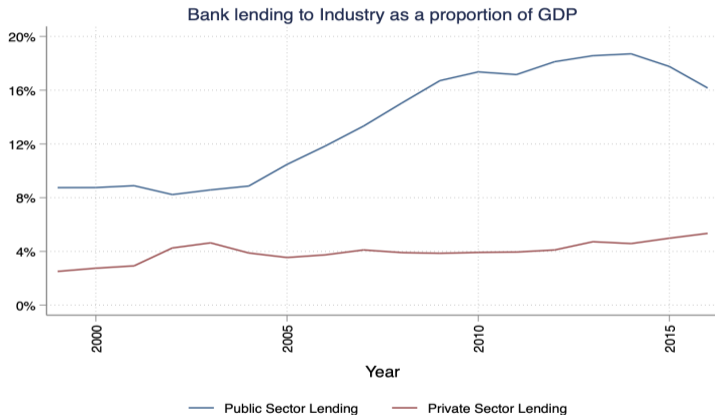
▸ Back

Lending to Industry
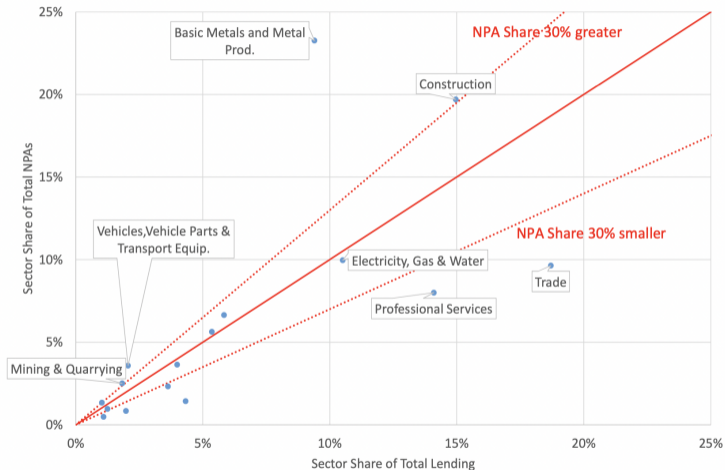
Source : Lahiri & Neelakantan (2019)

Abandoned Projects

Number of projects abandoned/shelved/stalled

Source : Bad Money by Vivek Kaul

Debt of Low-solvency & Solvent firms

Debt of Low-liquidity & Liquid firms

Low Liquidity Firms

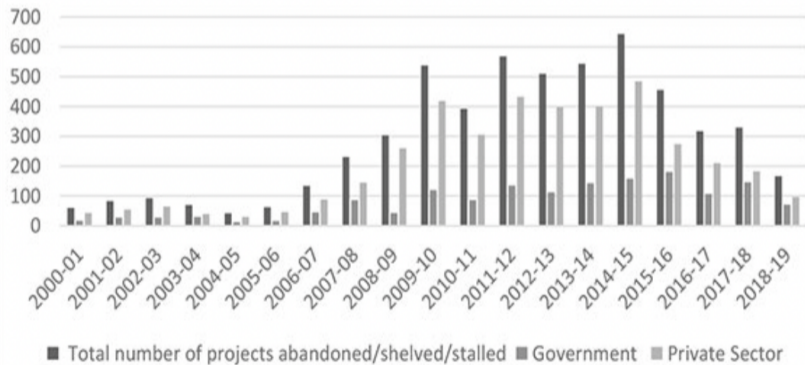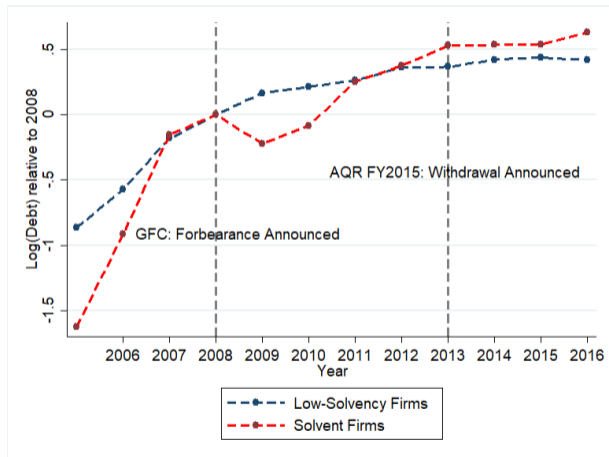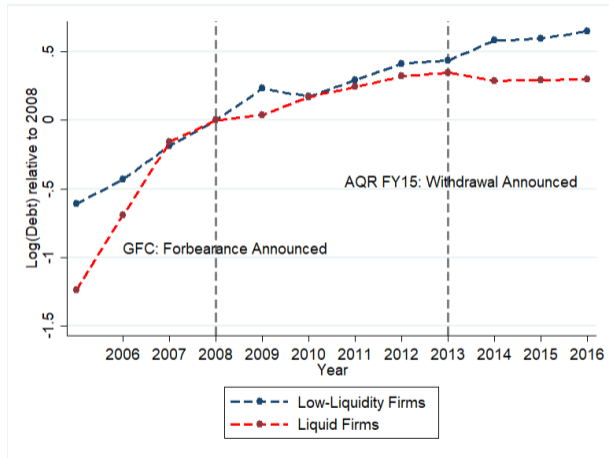| Dependent Variable:	$\text{Capex}_{j,t+1} = \frac{\Delta\text{GFA}_{j,t+1}}{\text{Total Assets}_{j,t+1}}$		$\text{Emp}_{j,t+1} = \frac{\text{Wages}_{j,t+1}}{\text{Total Expenses}_{j,t+1}}$	
	(1)	(2)	(3)	(4)
Govt. Bank$_b$	0.000768		0.00135	
	(0.00742)		(0.00558)	
Firm Quality$_{j,t}$	-0.0116	-0.0118	0.00113	0.00115
	(0.00791)	(0.00798)	(0.00733)	(0.00707)
Govt. Bank$_b$ × Firm Quality$_{j,t}$	0.00675	0.00688	-0.00136	-0.00130
	(0.00867)	(0.00875)	(0.00762)	(0.00737)
$\text{RF}_t^{\text{Post 2008}}$	-0.0154**		0.0130**	
	(0.00665)		(0.00524)	
× Govt. Bank$_b$	0.00329	0.00351	-0.00645	-0.00595
	(0.00722)	(0.00723)	(0.00559)	(0.00566)
× Firm Quality$_{j,t}$	0.00211	0.00329	-0.00775	-0.00816
	(0.00859)	(0.00853)	(0.00740)	(0.00725)
× Govt. Bank$_b$ × Firm Quality$_{j,t}$	-0.00484	-0.00575	0.00643	0.00664
	(0.00948)	(0.00943)	(0.00774)	(0.00763)
$\text{RF}_t^{\text{Post 2013}}$	-0.0117***		0.00719	
	(0.00417)		(0.00559)	
× Govt. Bank$_b$	0.00331	0.00324	0.00555	0.00603
	(0.00492)	(0.00491)	(0.00603)	(0.00605)
× Firm Quality$_{j,t}$	0.00435	0.00344	-0.000730	-0.000568
	(0.00630)	(0.00636)	(0.00656)	(0.00652)
× Govt. Bank$_b$ × Firm Quality$_{j,t}$	-0.00902	-0.00819	-0.00486	-0.00498
	(0.00706)	(0.00711)	(0.00704)	(0.00700)
No. of Obs.	24136	24136	27002	27002
R-sq.	0.436	0.439	0.850	0.852
Borrower FE	Y	Y	Y	Y
Year FE	N	Y	N	Y
Bank FE	N	Y	N	Y

Low Solvency Firms

Dependent Variable:	Capex$_{j,t+1} = \frac{\Delta \text{GFA}_{j,t+1}}{\text{Total Assets}_{j,t+1}}$		Emp$_{j,t+1} = \frac{\text{Wages}_{j,t+1}}{\text{Total Expenses}_{j,t+1}}$	
	(1)	(2)	(3)	(4)
Govt. Bank$_b$	-0.00452		0.00380	
	(0.00889)		(0.00842)	
Firm Quality$_{j,t}$	0.000180	-0.00107	0.000966	0.000749
	(0.0112)	(0.0113)	(0.00758)	(0.00739)
Govt. Bank$_b$ × Firm Quality$_{j,t}$	0.00918	0.00986	-0.00729	-0.00695
	(0.0117)	(0.0117)	(0.00813)	(0.00792)
RF$_t^{\text{Post 2008}}$	-0.0149**		0.0141*	
	(0.00721)		(0.00757)	
× Govt. Bank$_b$	0.00949	0.00956	-0.00834	-0.00768
	(0.00783)	(0.00791)	(0.00799)	(0.00803)
× Firm Quality$_{j,t}$	-0.00407	-0.00421	-0.00992	-0.00883
	(0.0107)	(0.0107)	(0.00826)	(0.00813)
× Govt. Bank$_b$ × Firm Quality$_{j,t}$	-0.0112	-0.0118	0.00986	0.00936
	(0.0115)	(0.0115)	(0.00868)	(0.00861)
RF$_t^{\text{Post 2013}}$	-0.00691**		0.00232	
	(0.00343)		(0.00551)	
× Govt. Bank$_b$	-0.00242	-0.00246	0.00762	0.00816
	(0.00406)	(0.00407)	(0.00593)	(0.00592)
× Firm Quality$_{j,t}$	-0.0150**	-0.0152**	0.00651	0.00658
	(0.00657)	(0.00660)	(0.00748)	(0.00741)
× Govt. Bank$_b$ × Firm Quality$_{j,t}$	0.0132*	0.0138*	-0.00782	-0.00836
	(0.00741)	(0.00744)	(0.00785)	(0.00779)
No. of Obs.	22144	22144	24678	24678
R-sq.	0.453	0.456	0.862	0.863
Borrower FE	Y	Y	Y	Y
Year FE	N	Y	N	Y
Bank FE	N	Y	N	Y

Robustness of Results & Alternative Tests

1. **Provisioning on restructured loans as a measure of forbearance:** Lower rates associated with more zombie lending by stressed banks.

2. Foreign banks as a placebo test.

3. Robust to alternative measures of zombie firms

Alternative Measure of Forbearance: Provisioning Rates

Dep Var: $\text{Log Debt}_{j,t+1}$	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Govt Bank}_b \times \text{Zombie}_{j,t} \times \text{Prov rate}_t$	-0.0177	-0.0212				
	(0.0145)	(0.0144)				
$\text{Non Zombie}_{j,t} \times \text{Industry Frac Zombie}_{h,t} \times \text{Prov rate}_t$			0.0685**	0.0917***		
			(0.0311)	(0.0345)		
$\text{Non Zombie}_{j,t} \times \text{Bank Frac Zombie}_{b,t} \times \text{Prov rate}_t$					0.0800*	0.0871*
					(0.0470)	(0.0498)
No. of Obs.	24866	24866	24866	24866	24866	24866
R-sq.	0.928	0.930	0.928	0.933	0.928	0.931
Borrower FE	Y	Y	Y	Y	Y	Y
Year FE	N	N	N	Y	N	Y
Industry X Year FE	N	N	N	Y	N	N
Bank FE	N	Y	N	Y	N	Y
Bank X Year FE	N	N	N	N	N	Y

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
The total number of firm-year observations in the full sample are 38,016.

Placebo: Foreign Banks

Dep Var: Log Debt$_{j,t+1}$	(1)	(2)	(3)	(4)	(5)	(6)
Stressed Foreign Bank$_b$ * Zombie$_{j,t}$ * Forbearance$_t^{\text{Post 2008}}$	-0.0401	-0.0912				
	(0.548)	(0.609)				
Stressed Foreign Bank$_b$ * Zombie$_{j,t}$ * Forbearance$_t^{\text{Post 2013}}$	-1.042	-1.058				
	(0.665)	(0.659)				
Industry Frac Zombie$_{h,t}$ * Non Zombie$_t$ * Forbearance$_t^{\text{Post 2008}}$			-0.0449	-0.310		
			(1.011)	(2.409)		
Industry Frac Zombie$_{h,t}$ * Non Zombie$_t$ * Forbearance$_t^{\text{Post 2013}}$			2.041	3.174		
			(2.079)	(4.401)		
Bank Frac Zombie$_{h,t}$ * Non Zombie$_t$ * Forbearance$_t^{\text{Post 2008}}$					0.448	2.617
					(1.850)	(3.400)
Bank Frac Zombie$_{h,t}$ * Non Zombie$_t$ * Forbearance$_t^{\text{Post 2013}}$					0.0523	-0.706
					(2.182)	(2.987)
No. of Obs.	1038	1038	1038	1038	1038	1038
R-sq.	0.913	0.919	0.913	0.949	0.913	0.949
Borrower FE	Y	Y	Y	Y	Y	Y
Year FE	N	Y	N	Y	N	Y
Industry X Year FE	N	N	N	Y	N	N
Bank FE	N	Y	N	Y	N	Y
Bank X Year FE	N	N	N	N	N	Y

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
The total number of firm-year observations in the full sample are 38,016.

Alternative Zombie Measure: IMF Speculative Credit Definition

Dep Var: Log Debt$_{j,t+1}$	(1)	(2)	(3)	(4)	(5)	(6)
Govt Bank$_b$ × Forbearance$_t^{\text{Post 2008}}$ × Zombie$_{j,t}$	0.268**	0.269**				
	(0.135)	(0.132)				
Govt Bank$_b$ × Forbearance$_t^{\text{Post 2013}}$ × Zombie$_{j,t}$	0.115	0.123				
	(0.0981)	(0.0977)				
Forbearance$_t^{\text{Post 2008}}$ × Healthy$_{j,t}$ × Bank Frac Zombie$_{b,t}$			-0.459	-0.183		
			(0.555)	(0.528)		
Forbearance$_t^{\text{Post 2013}}$ × Healthy$_{j,t}$ × Bank Frac Zombie$_{b,t}$			-0.776*	-0.723*		
			(0.406)	(0.410)		
Forbearance$_t^{\text{Post 2008}}$ × Healthy$_{j,t}$ × Industry Frac Zombie$_{b,t}$					-0.307	-0.543*
					(0.274)	(0.306)
Forbearance$_t^{\text{Post 2013}}$ × Healthy$_{j,t}$ × Industry Frac Zombie$_{b,t}$					-0.133	-0.178
					(0.280)	(0.314)
No. of Obs.	20609	20609	20609	20609	20609	20609
R-sq.	0.933	0.935	0.933	0.936	0.933	0.937
Borrower FE	Y	Y	Y	Y	Y	Y
Year FE	N	Y	N	N	N	N
Industry X Year FE	N	N	N	N	N	N
Bank FE	N	Y	N	N	N	N
Bank X Year FE	N	N	N	Y	N	N

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
The total number of firm-year observations in the full sample are 38,016.

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