Kicking the can down the road

Government interventions in the European banking sector

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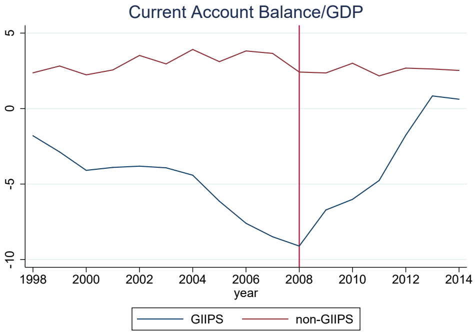
* The views expressed are those of the authors and do not necessarily represent the views of the Reserve Bank of India.

Motivation

- Eurozone sovereign debt crisis characterized by deteriorating banking sector health
  - NPLs/loans increase from 5.2% (2009) to 8.1% (2012)
  - Emergence of sovereign-bank doom-loop (Acharya et al., 2014, Brunnermeier et al., 2016, Farhi and Tirole, forthcoming)
- But: Problems mainly concentrated in GIIPS countries
  - DE: NPLs/loans decrease from 3.3% (2009) to 2.9% (2012)
  - GIIPS: NPLs/loans increase from 6.5% (2009) to 11.2% (2012)
- Why did GIIPS banks perform so much worse than non-GIIPS banks?

⇒ This paper: Deterioration of GIIPS banks as result of insufficient government support during the financial crisis

Current account deficits reduce fiscal capacity in fin. crisis



- Divergence in current account deficits in eurozone pre-2007

⇒ "Sudden stops" reduce fiscal capacity in financial crisis

Bailout decisions under fiscal constraints

- Sovereign fiscal capacity affects intervention decision
- Bailout decision: Gvt's trade off fin. stability vs. fiscal costs
  - High debt levels: Debt issuances threaten debt sustainability
- Sovereign debt overhang $\rightarrow$ regulatory forbearance (may seem) optimal
  - Postponing costly capital interventions as a gamble for resurrection
  - But: Distressed banks remain vulnerable to future shocks.

This paper

1. Did fiscally constrained eurozone governments delay necessary recapitalizations of distressed banks?

2. How does insufficient support affect bank performance post-2009?

3. Did this delay inhibit balance sheet clean-up and create risk-shifting incentives for insufficiently stabilized banks?

Institutional setting

- Treaty on the Functioning of the European Union (TFEU) generally prohibits State aid, unless justified "by reasons of general economic development" (Art. 107)
  - Exceptions reviewed and approved by European Commission
  - De facto very permissive: most cases were approved 2007-09

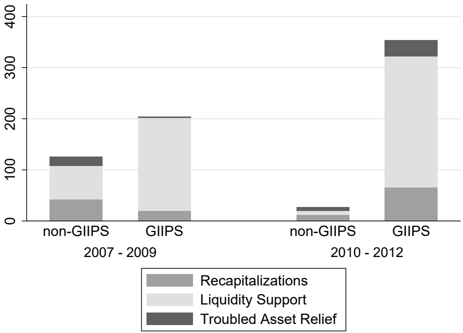
- Significant distress in eurozone banking sector
  - No insolvency regimes: no failures
  - 92 banks obtain at least one support measure 2007-09

- Interventions determined at national level
  - National decisions on supervision, interventions and resolutions
  - Sovereign's fiscal capacity determines bailout: "No bail-out clause" for sovereigns in the TFEU

Data

- All government interventions for eurozone banks 2007-12
  - Detailed information: (1) Recap's, (2) guarantees, (3) other liquidity support, (4) troubled asset relief (Laeven and Valencia, 2008)
- Matched with bank-level financial data: Bankscope
  - 830 banks: 134 obtain at least one support measure 2007-12
- Syndicated loan data: Dealscan
  - Loans hand-matched with firm-level data from Amadeus
- Macro-level data: Eurostat

Few recap's in GIIPS countries



- More interventions in GIIPS than non-GIIPS 2007-09
- But: Few recap's and troubled asset relief in GIIPS
- Sovereign debt crisis: fewer interventions in non-GIIPS, more in GIIPS

Do constrained governments delay interventions?

- Methodology: Hazard analysis
  - Estimate the instantaneous probability of obtaining $AID \in \{any, recap\}$ conditional on not having obtained AID to date

$$h_{AID,i}(t) = h_{AID,0}(t) \cdot \exp(\beta_0 X_{i,t-1} + \beta_1 m_{c,t-1})$$

where $h_{AID,0}(t)$ baseline hazard, $X_{i,t-1}$ lagged bank characterstics, $m_{c,t-1}$ lagged macro characteristics

- Main variable of interest: current account balances

Fiscally constrained governments delay recap's in 2007-09

VARIABLES	(1) any
Total Assets/GDP	0.03**
	(0.02)
Equity/TA	-0.33***
	(0.00)
ST funding/TA	0.05***
	(0.00)
ROAA	-0.00
	(0.99)
CA Balance	-0.15***
	(0.00)
Avg. Equity Ratio	-0.14
	(0.56)
...	...
Observations	45,631
N fail	83
Pseudo-R2	0.23

Table: Hazard model for interventions

- Fiscally constrained governments:
  prompt provision of government support overall. . .

Fiscally constrained governments delay recap's in 2007-09

VARIABLES	(1) any	(2) recap
Total Assets/GDP	0.03**	0.06***
	(0.02)	(0.00)
Equity/TA	-0.33***	-0.53**
	(0.00)	(0.03)
ST funding/TA	0.05***	0.09***
	(0.00)	(0.00)
ROAA	-0.00	-0.62**
	(0.99)	(0.01)
CA Balance	-0.15***	0.39***
	(0.00)	(0.00)
Avg. Equity Ratio	-0.14	0.77***
	(0.56)	(0.00)
...	...	...
Observations	45,631	22,276
N fail	83	36
Pseudo-R2	0.23	0.42

Table: Hazard model for interventions

- Fiscally constrained governments:
  prompt provision of government support overall...
- But recap's are delayed ...
  +1 pp CA deficit ⇒ -30% hazard

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Table: Hazard model for interventions

- Fiscally constrained governments:
  prompt provision of government support overall...
- But recap's are delayed ...
  +1 pp CA deficit ⇒ -30% hazard
- ...and smaller in size
  (Tobit regressions)

Measuring "insufficient stabilization"

- How does insufficient support affect bank performance post-2009?

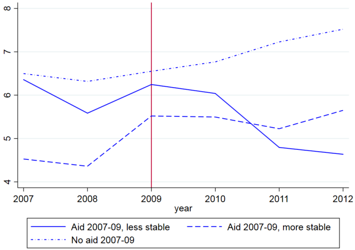
- Measure of insufficient stabilization
  - Insufficiency of support = change in propensity to require a recapitalization orthogonal to national gvt's capacity to provide it
  - "Change in the bank-specific hazard"

$$\Delta hazard_i = \beta'_{0,RC} X_{i,2009} + \beta'_{1,RC} m_{euro,2009} \\ - \beta'_{0,RC} X_{i,2007} + \beta'_{1,RC} m_{euro,2007}$$

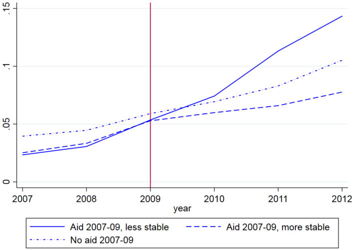
- Insufficiently stabilized banks mainly in fiscally constr. countries

Insufficiently stabilized banks deteriorate further post-2009

(a) Equity/TA



(b) NPLs/TA



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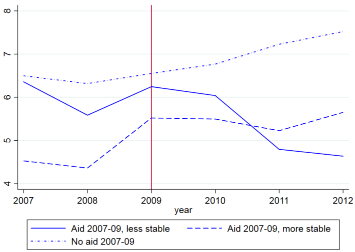
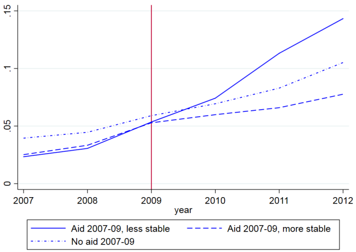
Insufficiently stabilized banks deteriorate further post-2009

(a) Equity/TA



(b) NPLs/TA



- Insufficiently stabilized banks deteriorate further post-2009
- Similar evidence for other indicators of bank health
  - Tier 1 Ratio, LLPs/Loans, ROAA, Net Interest Margin
  - Higher likelihood to require recapitalization post-2009 and to become insolvent

Understanding the poor performance of insufficiently recapitalized banks

- Do insufficiently stabilized banks fail to write down legacy assets from the financial crisis ("zombie-lending") and gamble for resurrection?

- Methodology: Cross-sectional lending regressions

$$
\begin{aligned}
\Delta Loan_{2007-10,i,c,j} = {} & \beta_1 \cdot Aid_{i,2007-09} \\
& + \beta_2 \cdot Aid_{i,2007-09} \cdot \Delta hazard_{i,2007-09} \\
& + \beta_3 \cdot borrower\ \ type_j \\
& + \beta_4 \cdot Aid_{i,2007-09} \cdot \Delta hazard_{i,2007-09} \cdot borrower\ \ type_j \\
& + \gamma \cdot X_{i,2007} + FE_j + FE_c + u_{ijc}
\end{aligned}
$$

Weak banks grant loans . . .

VARIABLES	(1) Δ Loan	(2) Δ Log Loan	(3) Loan Incr.	(4) Relation	(5) New
Aid 2007-09	-0.15**	-0.33**	-0.04**	-0.01	-0.06*
	(0.02)	(0.01)	(0.04)	(0.56)	(0.06)
Aid 2007-09 × Δ hazard	0.02**	0.04**	0.02***	0.00	0.01*
	(0.01)	(0.02)	(0.00)	(0.67)	(0.06)
Total Assets/GDP (%) (2007)	-0.00	-0.00	-0.00	0.00***	-0.00*
	(0.60)	(0.60)	(0.81)	(0.00)	(0.08)
Equity / Tot Assets (2007)	0.00	0.01	-0.00	-0.00	0.01
	(0.74)	(0.79)	(0.98)	(0.74)	(0.31)
Short-term funding (2007)	0.01**	0.02**	0.00*	0.00*	0.00
	(0.04)	(0.02)	(0.07)	(0.07)	(0.30)
ROAA (2007)	0.04	-0.00	0.02	0.05***	-0.03
	(0.67)	(0.98)	(0.41)	(0.01)	(0.38)
Observations	17,240	17,240	17,240	12,425	17,240
R-squared	0.81	0.80	0.78	0.74	0.80
SE	cluster bank	cluster bank	cluster bank	cluster bank	cluster bank
Firm-FE	YES	YES	YES	YES	YES
Country-FE	YES	YES	YES	YES	YES

- Banks with government support reduce loan supply.
- But: insufficiently stabilized banks reduce loan supply less than better stabilized banks.

... but to riskier borrowers

VARIABLES	(1) Δ Loan IC Ratio	(2) Δ Log Loan IC Ratio	(3) Loan Incr. IC Ratio	(4) Relation IC Ratio	(5) New IC Ratio
Aid 2007-09	-0.30**	-0.73**	-0.08*	-0.05**	-0.12**
	(0.02)	(0.01)	(0.05)	(0.04)	(0.04)
Aid 2007-09 × Δ hazard	0.00	-0.02	0.02***	-0.00	0.00
	(0.94)	(0.71)	(0.00)	(0.65)	(0.69)
Aid 2007-09 × IC low	0.04	0.22	-0.01	0.01	0.04
	(0.50)	(0.11)	(0.53)	(0.64)	(0.12)
Aid 2007-09 × Δ hazard × IC low	0.05***	0.11***	0.01**	0.01**	0.01**
	(0.00)	(0.00)	(0.02)	(0.03)	(0.02)
Observations	3,818	3,818	3,818	2,771	3,818
R-squared	0.73	0.70	0.73	0.62	0.71
SE	cluster bank	cluster bank	cluster bank	cluster bank	cluster bank
Firm-FE	YES	YES	YES	YES	YES
Country-FE	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES

- $IC\ Low_j$ = below median interest coverage ratio
- **Result:** Higher loan supply by less stabilized banks is driven by lending to low quality firms.

Weak banks maintain lending to "zombie" borrowers

VARIABLES	(1) Δ Loan zombie	(2) Δ Log Loan zombie	(3) Loan Incr. zombie	(4) Relation zombie	(5) New zombie
Aid 2007-09 $\times$ Δ hazard $\times$ zombie	0.06***	0.04	0.04***	0.03***	-0.01
	(0.00)	(0.37)	(0.00)	(0.00)	(0.21)
Observations	2,500	2,500	2,500	1,829	2,500
R-squared	0.73	0.70	0.73	0.66	0.72
SE	cluster bank	cluster bank	cluster bank	cluster bank	cluster bank
Firm-FE	YES	YES	YES	YES	YES
Country-FE	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES
Single/Interaction terms	YES	YES	YES	YES	YES

- *zombie* = firms with (rating < BB) & (interest < benchmark interest on loans to very safe, publicly traded firms)
- **Result:** Insufficiently stabilized banks continue lending to zombie borrowers.

Conclusion

- Regulatory forbearance sowed seeds for sovereign debt crisis.
  - Weaker governments practiced regulatory forbearance in the financial crisis 2007-09.
  - Insufficiently stabilized banks remained vulnerable as they increased risk-taking and evergreened defaulted loans.

- Implications for intervention frameworks in the eurozone
  - Limit discretionary decision-making of governments
  - Common fiscal backstop (+ strong fiscal rules)

Appendix

Insufficiently stabilized banks concentrated in GIIPS

Table: Rescued banks with largest increase in bank-specific hazard 2007-2009

	Name	Country
1.	INBS	IE
2.	Anglo Irish Bank	IE
3.	Agricultural Bank Of Greece	GR
4.	Abanka	SI
5.	Proton	GR
6.	Banco Pastor	ES
7.	Caja Castilla La Mancha	ES
8.	RCI Banque	FR
9.	Alpha Bank	GR
10.	Caixa Terrassa	ES
11.	Caja De Burgos	ES
12.	Dexia	BE
13.	Caixa Tarragona	ES
14.	Piraeus Bank	GR
15.	Commerzbank	DE
16.	Eurobank Ergasias	GR
17.	Allied Irish Banks	IE
18.	Caja De Avila	ES
19.	Caja Inmaculada	ES
20.	Österreichische Volksbanken	AT

⇒ Insufficiently stabilized banks mainly in fiscally constr. countries (back)

Literature

- Regulatory forbearance in the banking sector
  - Kroszner and Strahan (1996), Acharya and Yorulmazer (2007a,b), Brown and Dinç (2005, 2011), Liu and Ngo (2014), Gropp et al. (2017)
- Cost-benefit trade-off of government interventions in banking
  - Diamond (2001), Dam and Koetter (2012), Fischer et al. (2014), Bayazitova and Shivdasani (2012), Li (2013), Black and Hazelwood (2016)
- Sovereign debt capacity
  - Eaton and Gersovitz (1981), Bulow and Rogoff (1989a,b), Acharya and Rajan (2013), Crosignani (2017)
- Sovereign-bank doom-loop
  - Acharya et al. (2014), Brunnermeier et al. (2016), Cooper and Nikolov (2017), Farhi and Tirole (forthcoming)