

BANK RESOLUTION IN PRACTICE – EMPIRICAL EVIDENCE

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TRADE-OFF BETWEEN MORAL HAZARD AND OPEN FRAGILITY ALSO KNOWN AS: BAIL-IN VS. BAIL-OUT



BAIL-OUT VS. BAIL-IN – THE TRADE-OFFS

Bail-in

- Align ex-post returns with ex-ante risk-taking decisions
- Avoid moral hazard (privatizing gains, socializing losses)
- Avoid mis-allocation of resources
- Question: who will be bailed-in?
- Question: is it credible?

Bail-out

- Reduce contagion risks
- Protect financial system from failure of one (important) institution or many at the same time
- Protect small savers and depositors
- Dampen impact of financial crisis and recession
- Question: are we setting wrong signal?

BAIL-OUT VS. BAIL-IN - EMPIRICAL EVIDENCE

Bail-in

- Explicit and more generous deposit insurance schemes can fuel higher risk-taking and undermine market discipline (work by Demirguc-Kunt and co-authors)
- Government guarantees can result in mis-allocation (Gropp et al.)

Bail-out

- Bank failures destroy lending relationships and negatively affect borrowers (numerous papers on U.S. and East Asia)
- Quick intervention and allocation of losses (including possible bail-out) can help countries move quicker out of crises (crisis literature)

AN ATTEMPT AT A CONCEPTUAL FRAMEWORK

THE BASIC TRADE-OFF

Minimizing external costs

Forbearance
Open bank assistance
BAIL OUT

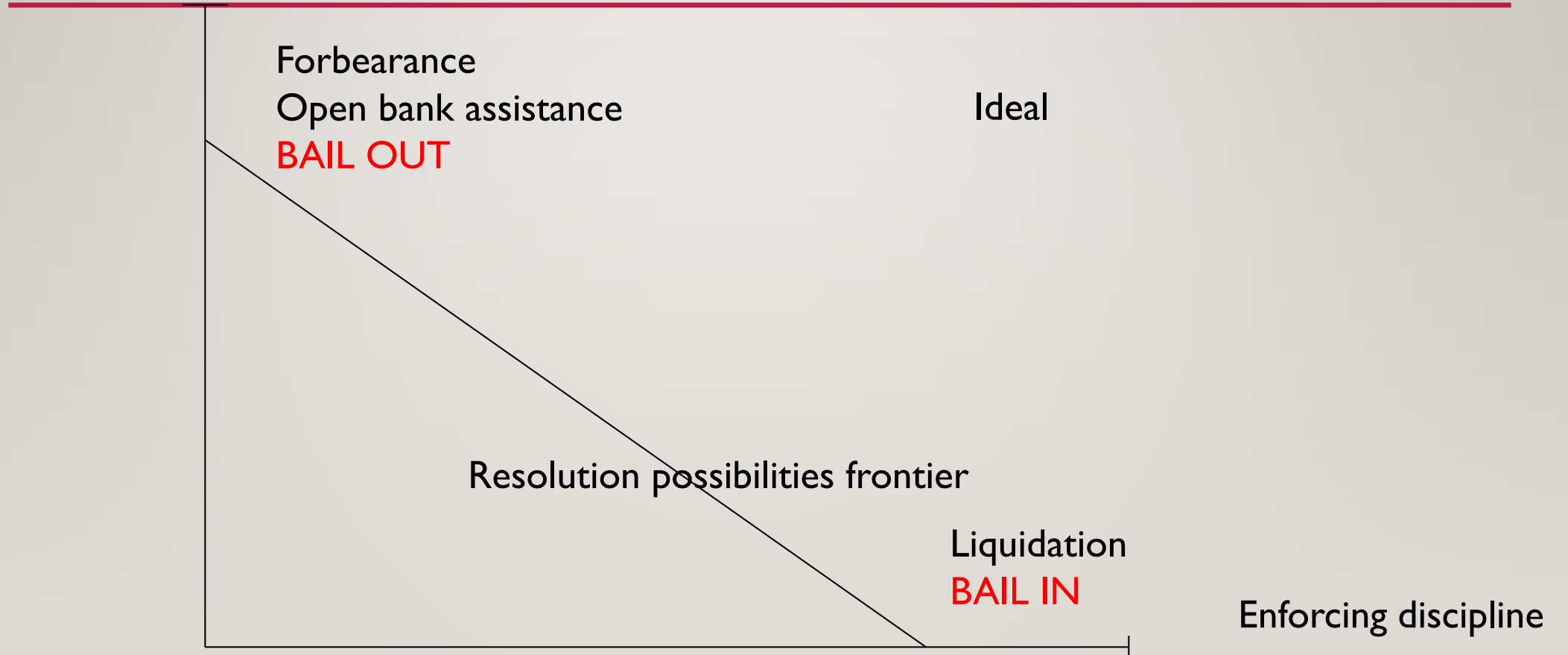
Ideal

Liquidation
BAIL IN

Enforcing discipline

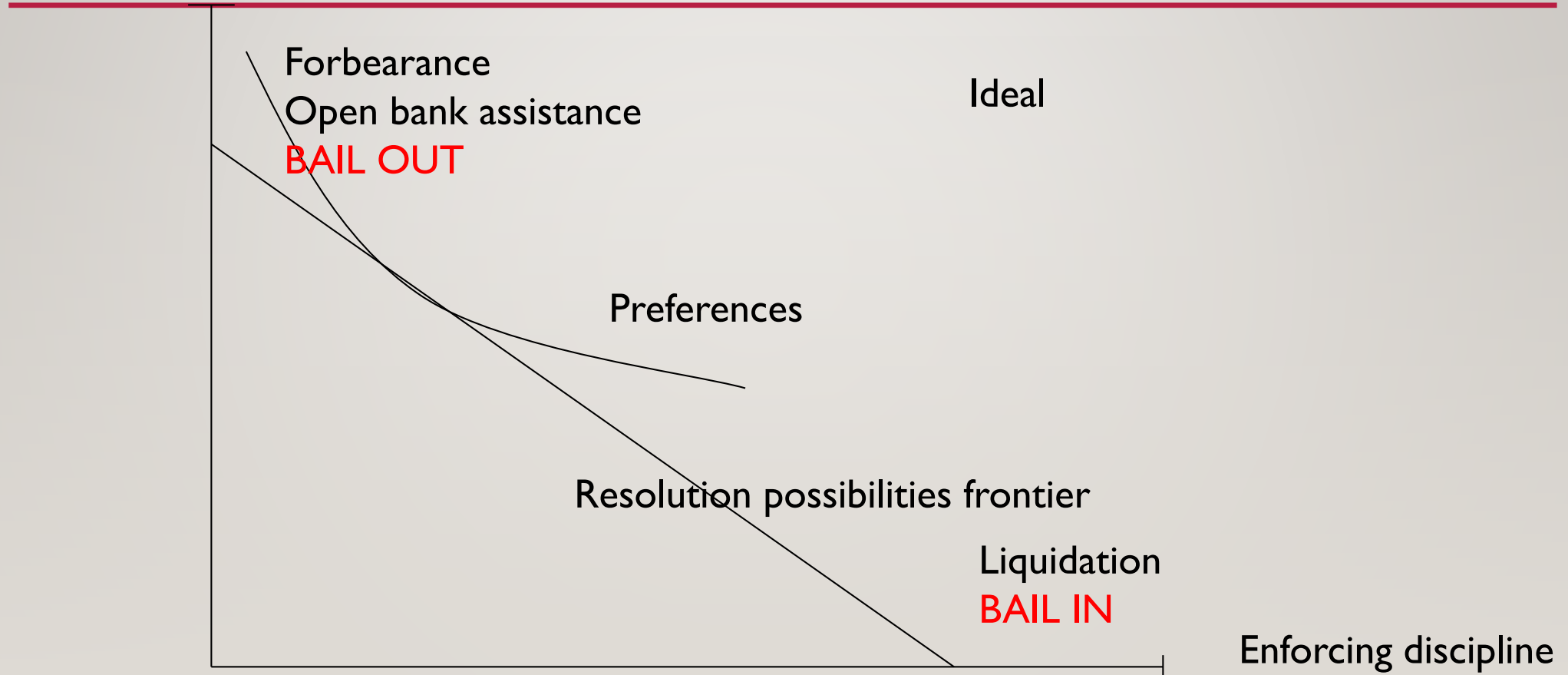
THE BASIC TRADE-OFF

Minimizing external costs

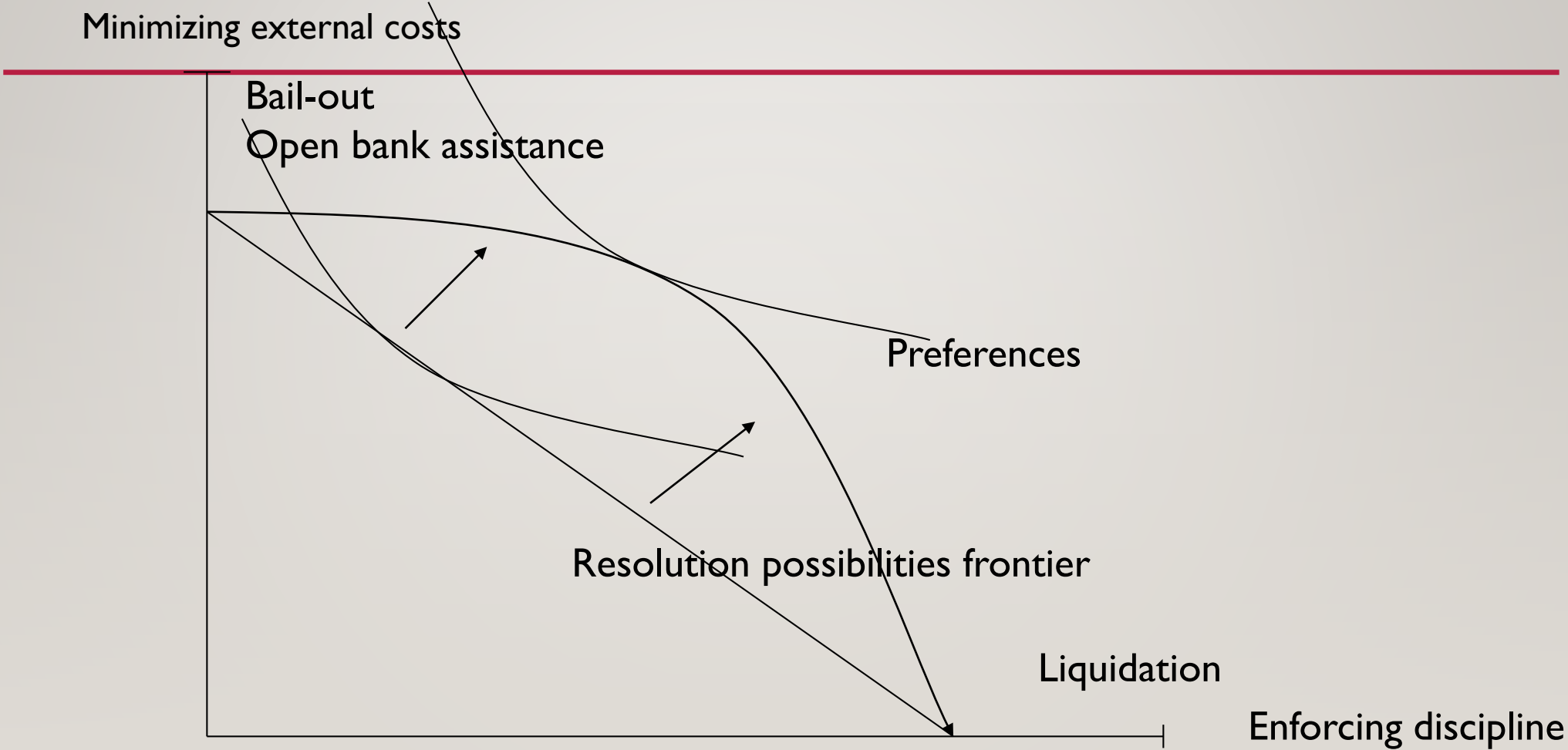


WHICH RESOLUTION METHOD?

Minimizing external costs

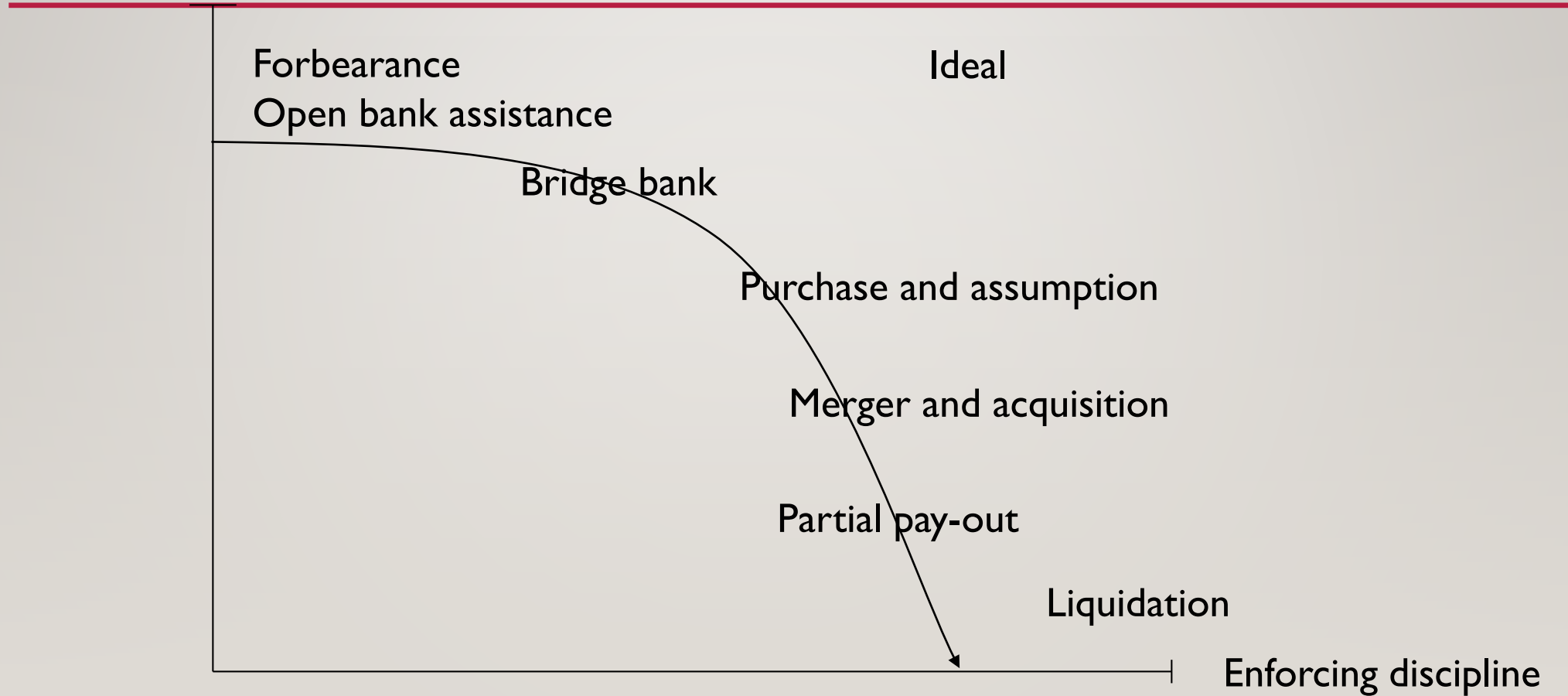


OBJECTIVE: MOVE OUT POSSIBILITIES FRONTIER

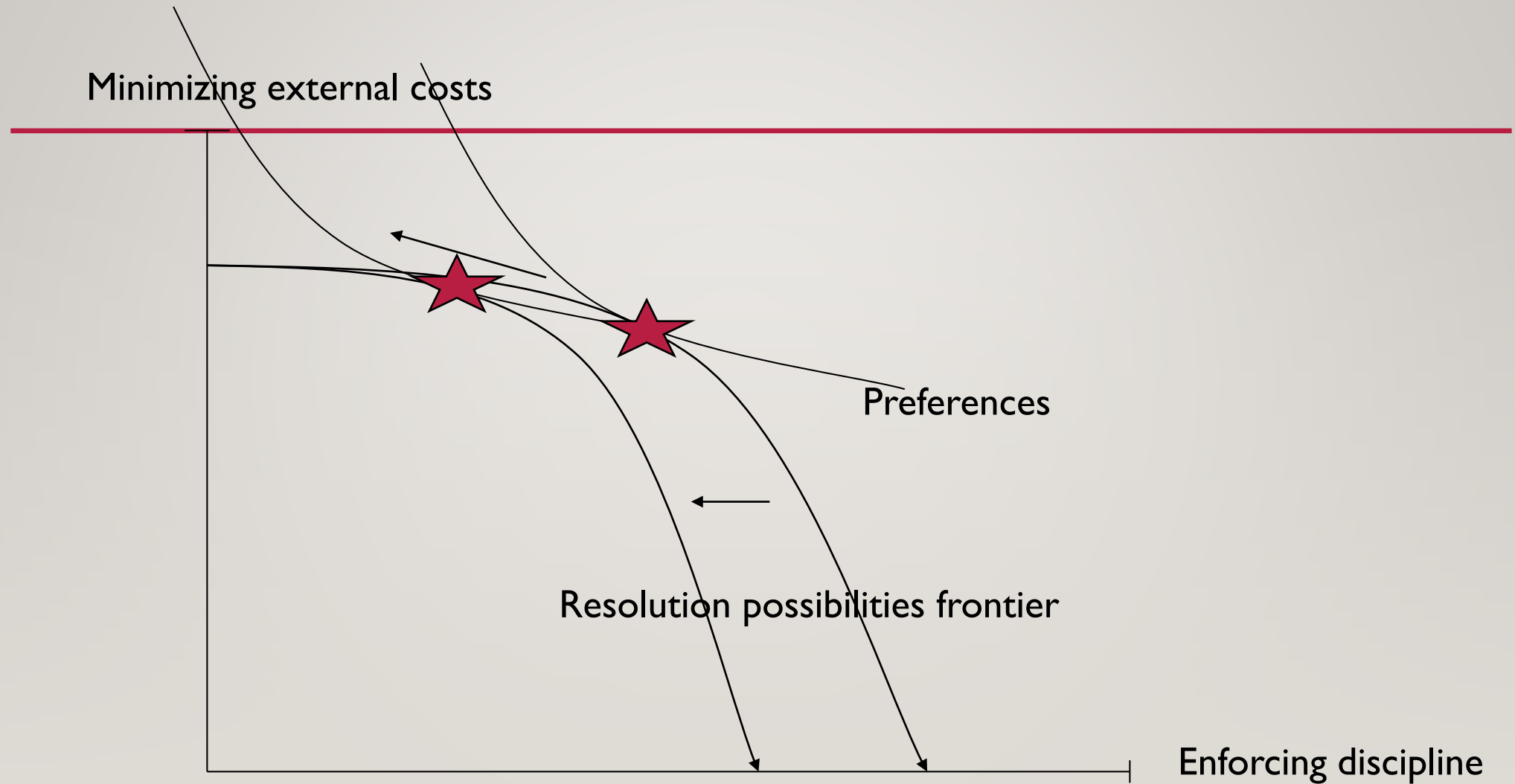


EXPANDING THE RESOLUTION POSSIBILITIES FRONTIER

Minimizing external costs



CHALLENGES IN A SYSTEMIC CRISIS



WHAT ABOUT THE NEW REALITY IN EUROPE?

What can BES Portugal tell us about the “new reality”?

- National supervisor missing long-standing deterioration
- Bail-in as envisioned
- But: needed to rely on external funding (IMF) for resolution (though repaid)

What can Greek stand-off in 2015 tell us about the “new reality”?

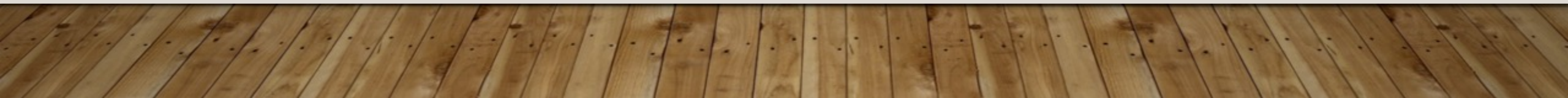
- Sovereigns and banks still closely connected
- Is Italy next?

What can Italian banks in 2016 tell us about the “new reality”?

- Bail-in of retail investors?
- How to recapitalise banks (legacy problems or on-going problems?)

What can the Deutsche Bank “rumours” tell us about the “new reality”?

- Bail-out by German government?

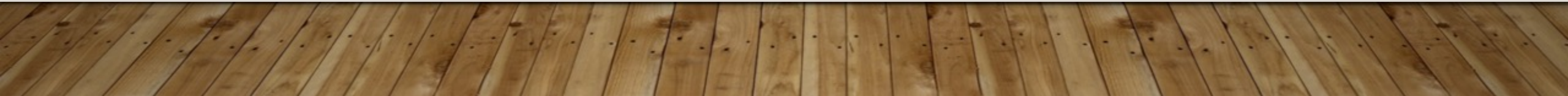


SHARING THE PAIN? CREDIT SUPPLY AND REAL EFFECTS OF BANK BAIL-INS

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ANDRE SILVA



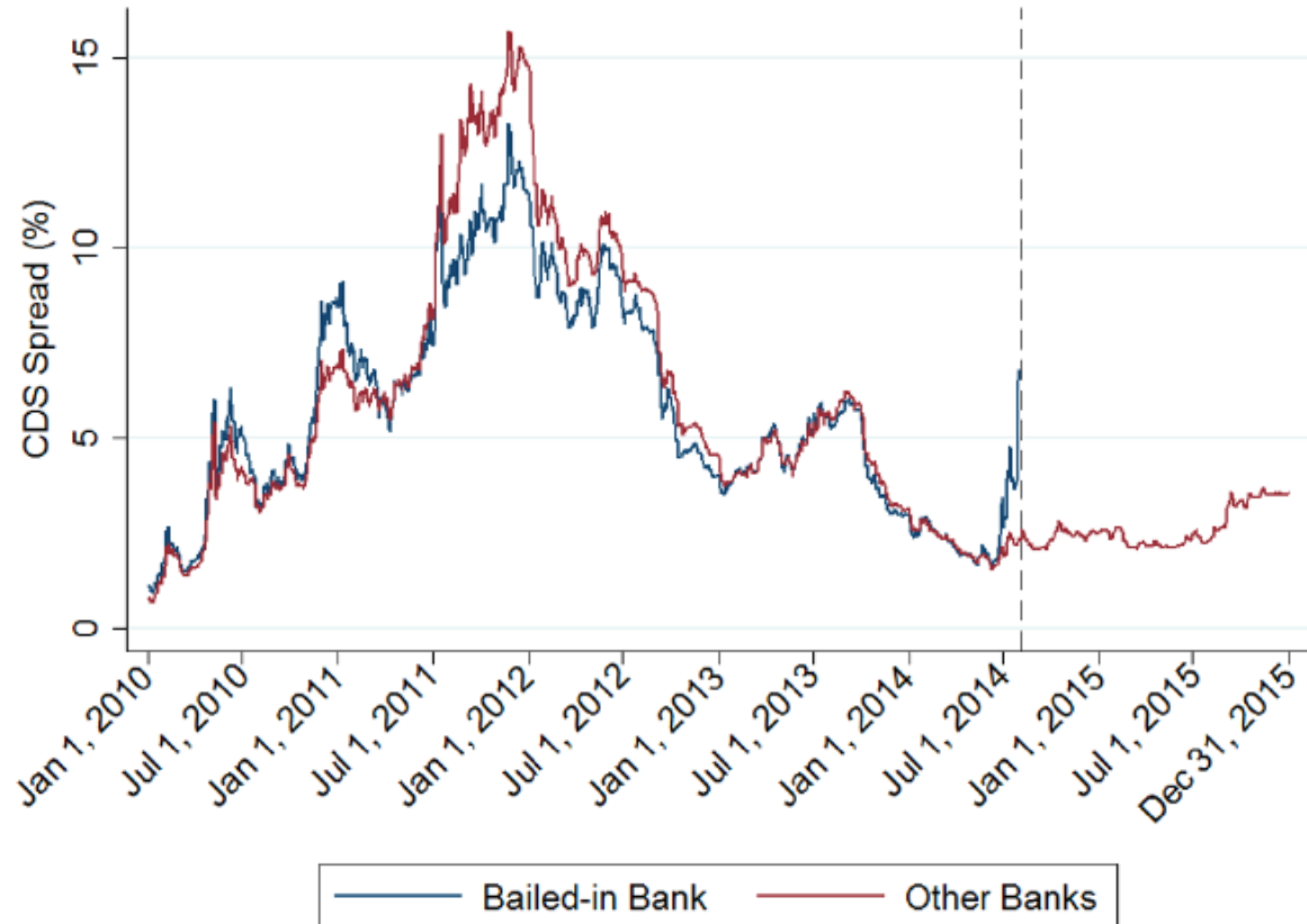
MOTIVATION AND QUESTIONS

- Bail-out preferred solution during the crisis, but at large costs for taxpayers
 - In the euro area, accumulated financial sector assistance reached 8% of GDP between 2008-2014 (ECB, 2015)
 - Public guarantees also lead to increased risk-taking (Gropp et al., 2011; Dam and Koetter, 2012)
- Regulatory response: introduction of formal bank bail-in regimes
- **Are bank bail-ins also effective in preventing a credit crunch?**
- **What are the effects of this resolution tool on the real economy?**

SETTING

- Unexpected collapse of a major Portuguese bank (BES) in August 2014; “one of Europe’s biggest financial failures” (FT, 2014)
 - 3rd largest bank operating in Portugal: 81bn Euros assets in 2013:Q4
 - Considered a Significant Credit Institution by the ECB
 - Market share of 19% of credit granted to non-financial corporations
- Resolution implied that:
 - Sound activities and assets were transferred to a “good bank”
 - Shareholders and junior bondholders were left with the toxic assets in a “bad bank” which is in liquidation
 - 4.9bn Euro of capital of newly-created bank fully provided by Portugal’s Bank Resolution Fund
- Portuguese resolution regime in force at the time “was already, in substance, very similar to the BRRD” (World Bank, 2016)

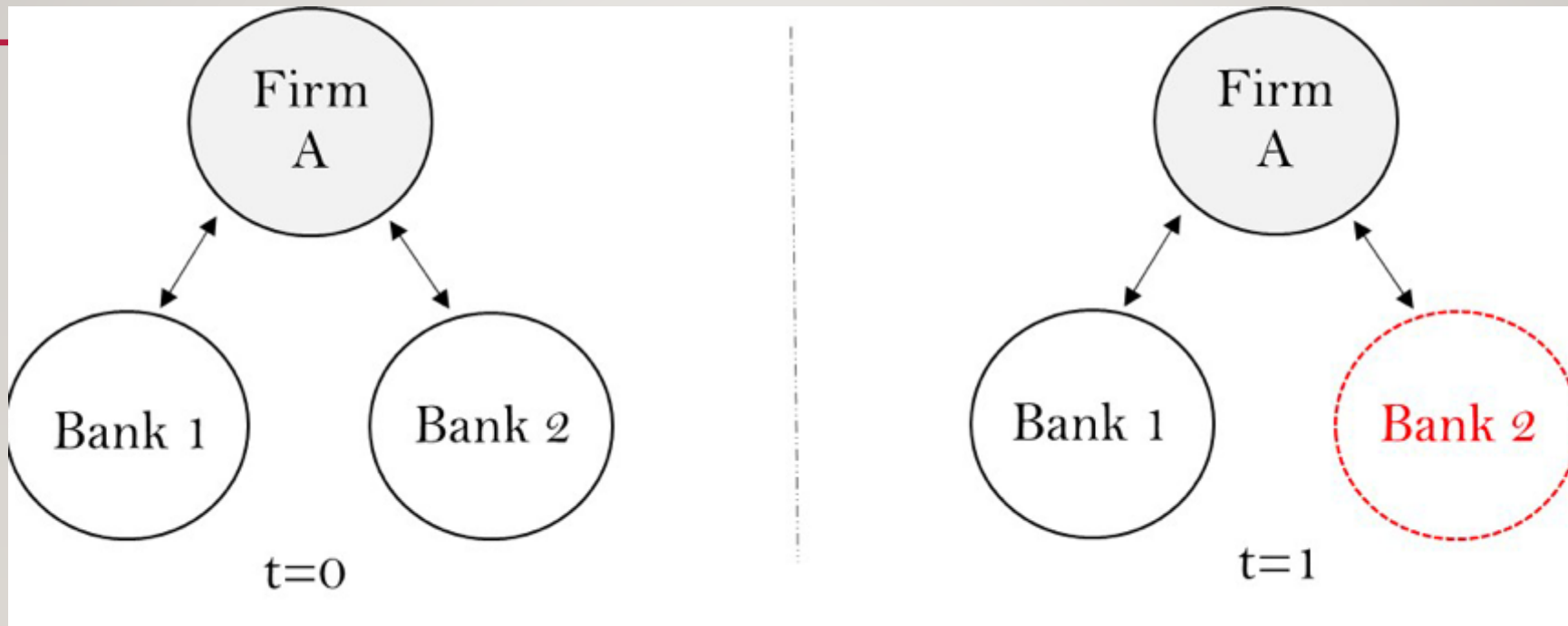
BANK FAILURE WAS IDIOSYNCRATIC, NO CONTAGION ON OTHER BANKS



DATA

- Portuguese Credit Register: quarterly information on credit exposures above 50 euros between all banks and all non-financial firms operating in Portugal
- Individual Information of Interest Rates: matched firm-bank interest rate information on all new loans from June 2012
- Firm and Bank Balance Sheet Data: financial information with annual frequency for virtually all Portuguese firms and banks
- 40,927 firms, 98 banks
- 116,245 firm-bank lending relationships
- Period: 2013 to 2015

IDENTIFICATION STRATEGY



- Following Khwaja and Mian (2008), we isolate credit supply (from credit demand) by comparing the change in lending by banks more and less exposed to the shock within the same firm

WITHIN-FIRM ANALYSIS

$$\Delta \log(\text{Credit})_{bi} = \beta(\text{BankExposure}_b) + \delta' X_{bi} + \alpha_i + \varepsilon_{bi}$$

- $\Delta \log(\text{Credit})_{bi}$ change in log (committed) credit from bank b to firm i, between 2013Q4-2014Q2 and 2014Q3-2015Q3
- Standard errors clustered at bank-level
- Bank exposure: percentage assets of each bank exposed to bail-in:
 - % assets effectively bailed in at BES
 - Specific contribution to the ad-hoc loan granted to the Bank Resolution Fund for 8 participating banks (% assets)
 - 0 for all other banks

SIGNIFICANT REDUCTION IN CREDIT FROM BANKS MORE EXPOSED TO BAIL-IN

	$\Delta \log Total Credit_{bi}$				$\Delta \log Credit Lines_{bi}$	
	(1)	(2)	(3)	(4)	(5)	(6)
Bank Exposure	-0.989*** (0.311)	-1.143*** (0.320)	-1.520* (0.824)		-2.723*** (0.863)	
Bank Exposure \times SMEs				-1.441* (0.829)		-2.659*** (0.881)
Bank Exposure \times Large Firms				-3.133*** (0.836)		-4.048*** (0.866)
No. Observations	116,245	116,245	116,245	116,245	39,573	39,573
No. Firms	40,927	40,927	40,927	40,927	14,320	14,320
Adj. R^2	0.001	0.047	0.049	0.050	0.103	0.103
Bank Controls	N	N	Y	Y	Y	Y
Firm FE	N	Y	Y	Y	Y	Y
No. Bank Relationships > 1	Y	Y	Y	Y	Y	Y
Credit Lines with \neq Banks	N	N	N	N	Y	Y

CROSS-SECTIONAL ANALYSIS

$$\Delta \log(Y)_i = \beta(\text{FirmExposure}_i) + \tau' F_i + \delta' \bar{X}_i + \hat{\alpha}_i + \varepsilon_i$$

- Firm Exposure: weighted average of Bank Exposure across all banks lending to a firm, using as weights pre-period shares of each bank
- F: firm characteristics measured in pre-period
- X: bank controls averaged at firm level according to the share of total credit granted by each bank in pre-period
- We control for credit demand by including the vector of firm dummies estimated in within-firm regression (Bonacorsi di Patti and Sette, 2016; Cingano et al., 2016)

NO REDUCTION IN CREDIT, BUT IN CREDIT LINES FOR SMES

	$\Delta \log Total Credit_i$		$\Delta \log Credit Lines_i$	
	(1)	(2)	(3)	(4)
Firm Exposure	-0.374 (0.352)		-1.785*** (0.485)	
Firm Exposure \times SMEs		-0.378 (0.355)		-1.839*** (0.572)
Firm Exposure \times Large Firms		-0.267 (0.607)		-0.526 (1.135)
Firm Size	-0.008*** (0.001)	-0.008*** (0.002)	-0.006 (0.008)	-0.007 (0.009)
Firm Age	-0.058*** (0.004)	-0.058*** (0.004)	-0.042*** (0.012)	-0.042*** (0.011)
Firm ROA	0.228*** (0.043)	0.228*** (0.046)	0.575*** (0.133)	0.575*** (0.132)
Firm Capital Ratio	0.039*** (0.009)	0.039*** (0.010)	0.024 (0.029)	0.024 (0.031)
Firm Current Ratio	-0.002** (0.001)	-0.002** (0.001)	0.003 (0.004)	0.003 (0.004)
Credit Demand	0.530*** (0.013)	0.530*** (0.018)	0.510*** (0.020)	0.510*** (0.017)
No. Observations / Firms	40,927	40,927	14,320	14,320
Adj. R^2	0.378	0.378	0.175	0.175
Bank Controls	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
District FE	Y	Y	Y	Y
No. Bank Relationships $>$ 1	Y	Y	Y	Y
Credit Lines with \neq Banks	N	N	Y	Y

MORE CREDIT FROM OTHER BANKS, BUT NO NEW RELATIONSHIPS

	<i>NewLending Relationship_i</i>			<i>ΔlogCredit_i</i> (Except Bailed-in Bank)		
	(1)	(2)	(3)	(4)	(5)	(6)
Firm Exposure	0.535 (0.352)	-0.659 (0.423)		4.020*** (0.518)	4.566*** (0.558)	
Firm Exposure × SMEs			-0.674 (0.433)			4.540*** (0.585)
Firm Exposure × Large Firms			-0.220 (0.809)			5.359*** (1.042)
No. Observations / Firms	40,927	40,927	40,927	40,927	40,927	40,927
Adj. <i>R</i> ²	0.012	0.058	0.058	0.018	0.342	0.342
Firm Controls	N	Y	Y	N	Y	Y
Bank Controls	N	Y	Y	N	Y	Y
Credit Demand	N	Y	Y	N	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
No. Bank Relationships > 1	Y	Y	Y	Y	Y	Y

RESULTS SO FAR

- Banks more exposed to bail-in tightened credit supply at the intensive margin
- Firms borrowing from more exposed banks could make more by borrowing more from other banks they had a relationship with
- But binding constraints for SMEs in terms of credit lines
- **Did resolution have any effect on real sector outcomes?**

LOWER INVESTMENT AT MORE EXPOSED SMES

	$\Delta \log Tangible Assets_i$			$\Delta \log Fixed Assets_i$		
	(1)	(2)	(3)	(4)	(5)	(6)
Firm Exposure	-1.680*** (0.312)	-1.497*** (0.327)		-1.349*** (0.249)	-1.000** (0.396)	
Firm Exposure \times SMEs			-1.531*** (0.337)			-1.018** (0.394)
Firm Exposure \times Large Firms			-0.489 (1.322)			-0.460 (1.242)
No. Observations / Firms	14,320	40,927	40,927	14,320	40,927	40,927
Adj. R^2	0.045	0.041	0.041	0.043	0.039	0.039
Firm Controls	Y	Y	Y	Y	Y	Y
Credit Demand	Y	Y	Y	Y	Y	Y
Bank Controls	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
No. Bank Relationships > 1	Y	Y	Y	Y	Y	Y
Credit Lines with \neq Banks	Y	N	N	Y	N	N

LESS EMPLOYMENT AT MORE EXPOSED SMES

	$\Delta \log \text{No. Employees}_i$			$\Delta \log \text{No. Worked Hours}_i$		
	(1)	(2)	(3)	(4)	(5)	(6)
Firm Exposure	-1.183** (0.410)	-0.945*** (0.182)		-1.644*** (0.326)	-1.154*** (0.163)	
Firm Exposure \times SMEs			-0.971*** (0.180)			-1.182*** (0.169)
Firm Exposure \times Large Firms			-0.190 (0.501)			-0.325 (0.525)
No. Observations / Firms	14,320	40,927	40,927	14,320	40,927	40,927
Adj. R^2	0.080	0.041	0.041	0.054	0.047	0.047
Firm Controls	Y	Y	Y	Y	Y	Y
Credit Demand	Y	Y	Y	Y	Y	Y
Bank Controls	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
No. Bank Relationships > 1	Y	Y	Y	Y	Y	Y
Credit Lines with \neq Banks	Y	N	N	Y	N	N

LOW LIQUIDITY SMES MORE EXPOSED TO BAIL-IN REDUCED INVESTMENT AND EMPLOYMENT TO OFF-SET REDUCTION IN CREDIT LINES

	$\frac{\Delta \log \text{CashHoldings}_i}{(1)}$	$\frac{\Delta \log \text{TangibleAssets}_i}{(2)}$	$\frac{\Delta \log \text{No. Employees}_i}{(3)}$
<i>Panel A: SMEs</i>			
Firm Exposure \times High Liquidity Firms	-13.579*** (3.899)	-0.093 (0.861)	-0.113 (0.309)
Firm Exposure \times Low Liquidity Firms	13.416*** (4.249)	-1.680*** (0.420)	-1.644*** (0.135)
No. Observations / Firms	40,234	40,234	40,234
Adj. R^2	0.022	0.040	0.067
<i>Panel B: Large Firms.</i>			
Firm Exposure \times High Liquidity Firms	-11.885** (5.477)	-1.485 (2.422)	2.106 (2.451)
Firm Exposure \times Low Liquidity Firms	1.735 (2.023)	-3.870 (2.342)	-0.631 (1.705)
No. Observations / Firms	689	689	689
Adj. R^2	0.075	0.083	0.094
Firm and Bank Controls	Y	Y	Y
Credit Demand	Y	Y	Y
Industry and District FE	Y	Y	Y
No. Bank Relationships > 1	Y	Y	Y

SUMMARY

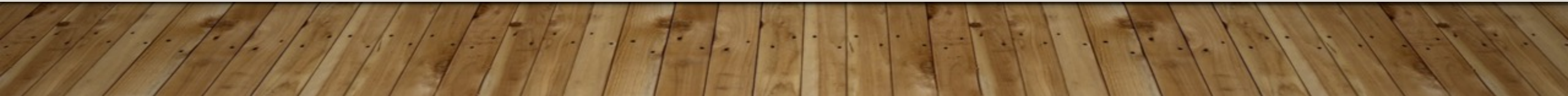
- No reduction in credit supply after bail-in of bank subject to idiosyncratic fragility
- But reduction in credit lines led to reduction in liquidity-constraints SMEs in investment and employment
- Bail-in no silver bullet
- Results also show importance of lending relationships

BANK RESOLUTION REGIMES AND SYSTEMIC RISK

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MOTIVATION

- Experience of Global Financial Crisis resulted in introduction/reforms of bank resolution regimes across the globe
- Objectives of bank resolution
 - Orderly and swift resolution of banks without destabilizing the remaining financial system
 - Bail-in of creditors in order to avoid the need of using taxpayers' money
 - Many resolution procedures do not lead to a closure of banks
- **How does the presence of bank resolution regimes affect systemic risk, once a crisis hits?**

BANK RESOLUTION AND SYSTEMIC RISK

- Bank resolution regimes may reduce bailout expectations and thereby improve ex-ante incentives
 - This could reduce the probability of financial crises and hence systemic risks
- They could also reduce spill-overs to the financial system at the time of resolution
 - Only then it will be credible that banks are not bailed out in crisis times
- BUT: bank resolution procedure may have destabilizing effects in crisis times if other banks' investors fear resolution
 - This may also put in question the positive ex-ante effects because bail-in is no longer credible

OUR APPROACH

- Analyze the relationship between systemic risk and bank resolution regimes around “exogenous” crisis events (“shocks”)
- Focus on market perceptions about systemic risk of individual banks: CoVaR (Adrian and Brunnermeier, 2016)
- Capture differences of resolution regimes, while controlling for other differences across banks/countries
- Use an event-study/difference-in-differences estimation framework

THE FINANCIAL STABILITY BOARD'S KEY ATTRIBUTES FOR AN EFFECTIVE BANK RESOLUTION REGIME

(SERVED AS BLUEPRINT FOR BRRD IN EU)

KA 1	Scope	Resolution regimes should apply to all potentially systemically important financial institutions, i. e., banks, financial holding and insurance companies, non-regulated entities within conglomerates, branches of foreign firms and financial market infrastructures.
KA 2	Resolution authority	Each country should designate an entity responsible for resolution that is operationally independent. If several agencies are responsible for resolution (e. g., for different sectors), roles and cooperation mechanisms should be clearly stated.
KA 3	Resolution powers	RAs should have a broad set of resolution tools available, including powers to replace the management, the transfer of assets, the establishment of a bridge bank or an asset management company or bail-in powers.
KA 4	Set-off, netting, collateralization, segregation of client assets	Provisions shall remain in place and entry into resolution should not trigger set-off or early termination rights.
KA 5	Safeguards	Creditors should never be worse off than in liquidation and the RA may need to compensate creditors if it departs from the general hierarchy of claims. The pari passu principle should apply, i. e. creditors within the same class should be treated equally and without preferences, provisions of public funds only being used after a bail-in. Actions should be subject to legal review.
KA 6	Funding of firms in resolution	The use of public funds for resolution should be kept to a minimum and respective mechanisms must be in place.
KA 7	Legal framework conditions for cross-border cooperation	Cooperation should be encouraged and facilitated. Automatic initiation of resolution activities in other countries should be avoided and creditors from different jurisdictions should be treated equally. Branches should be subjected to host country law.
KA 8	Crisis Management Groups (CMGs)	RAs in home and host countries of G-SIFIs should ensure preparedness for crises and resolution via CMGs that comprise representatives of institutions involved in resolution such as of the respective supervisory and resolution authority, the central bank, the finance ministry and the deposit insurance scheme.
KA 9	Institution-specific cross-border cooperation agreements	Agreements should be made for all G-SIFIs, regarding inter alia the establishment of CMGs as well as responsibilities for the different actors involved and information sharing.
KA 10	Resolvability assessments	RAs should assess the feasibility of resolution strategies for G-SIFIs on a regular basis. They may require changes to business practices or structures.
KA 11	Recovery and resolution planning	Recovery plans, entailing recovery options to mitigate possible shocks, are to be developed by the banks, while the competent resolution authority shall develop resolution plans for banks under its radar to familiarize with legal and operating structures.
KA 12	Access to information and information sharing	Legal impediments to information sharing should be dismantled. Firms should be required to introduce Information Management Systems that provide information on regular basis.

COMPONENTS OF BANK RESOLUTION INDEX

Subindex 1. General framework

- 1.1. Specific bank resolution framework
- 1.2. Specifically designated bank resolution authority
- 1.3. Another authority has powers to restructure/resolve banks

Subindex 2. The resolution authority has the power to...

- 2.1. Remove and replace management
- 2.2. Appoint an administrator
- 2.3. Operate and resolve the firm
- 2.4. Ensure continuity of essential services and functions
- 2.5. Override rights of shareholders when applying resolution powers
- 2.6. Temporarily stay the exercise of early termination rights
- 2.7. Impose a moratorium with a suspension of payments to unsecured, creditors and customers plus creditor stay
- 2.8. Liquidate the bank without the need of court decision

Subindex 3. Resolution tools available to the resolution authority

- 3.1. Transfer or sell assets and liabilities, legal rights and obligations
- 3.2. Establishment of a bridge institution
- 3.3. Establishment of an asset management vehicle
- 3.4. Bail-in tool

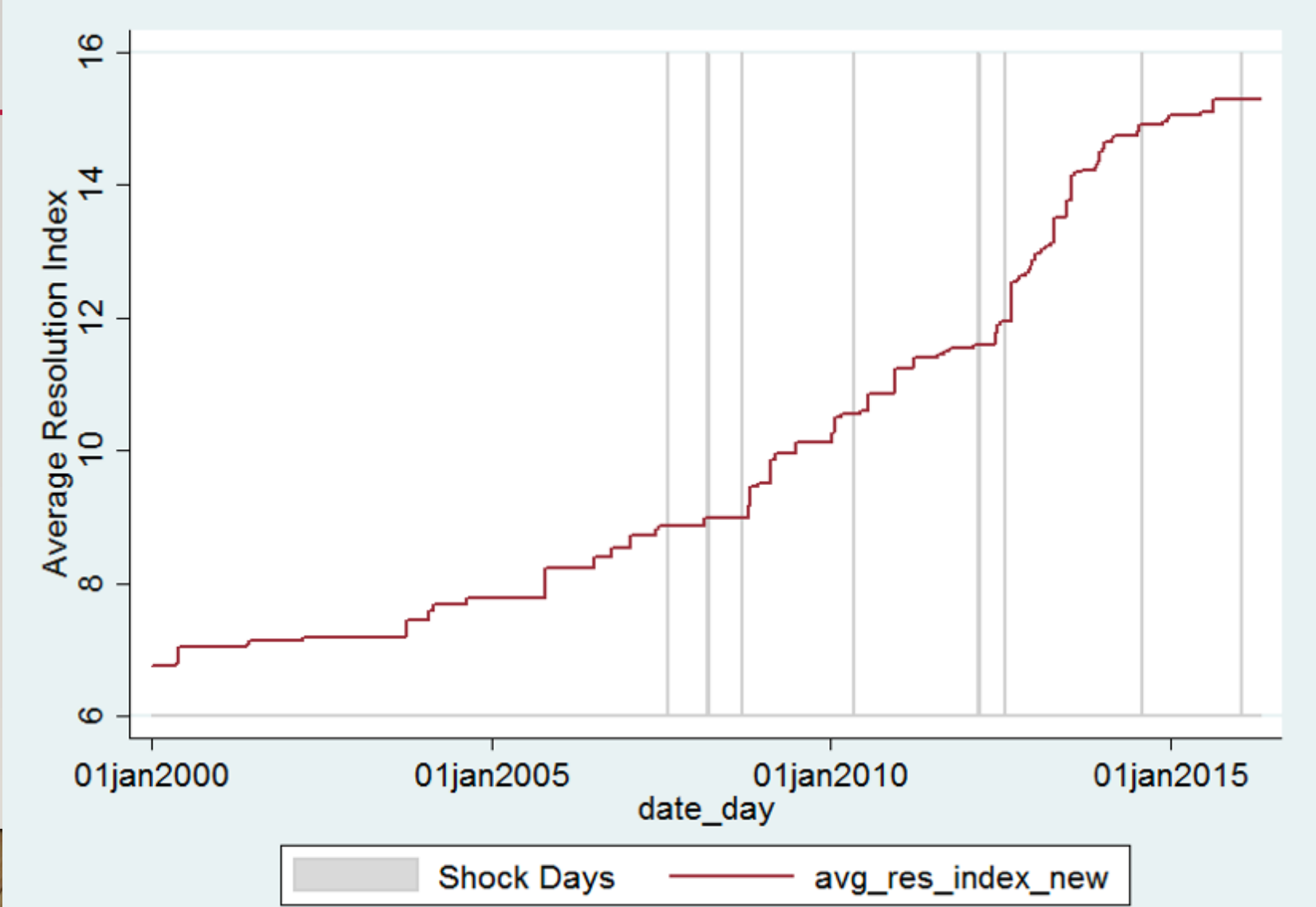
Subindex 4. The bail-in framework includes...

- 4.1. A minimum requirement of eligible liabilities (i. e., bail-inable debt)
- 4.2. Provisions to respect the hierarchy of claims while providing flexibility to depart from the general principle of equal (pari passu) treatment of creditors of the same class
- 4.3. Provisions constituting that public resources may only be used if private ones are not available and a bail-in was conducted

Subindex 5. The following supporting measures/features exist:

- 5.1. Implementation of Basel III
- 5.2. Resolution powers/tools can be used fast and flexibly. Proxy: court decision needed or not? (1 = No court decision needed)
- 5.3. Mandatory development of resolution and recovery plans
- 5.4. Resolution fund (publicly and privately financed)

BANK RESOLUTION INDEX – AVERAGE ACROSS 22 COUNTRIES



ΔCOVAR METHODOLOGY

- VaR_q^i is defined as the $q\%$ -quantile of X^i where X^i is the growth rate of the market value of a bank's assets, i. e.,

$$\text{Prob}(X^i \leq \text{VaR}_q^i) = q\%$$

- $\text{CoVaR}_q^{j|i}$ is the VaR of institution j , conditional on $X_i = \text{VaR}_q^i$ of institution i :

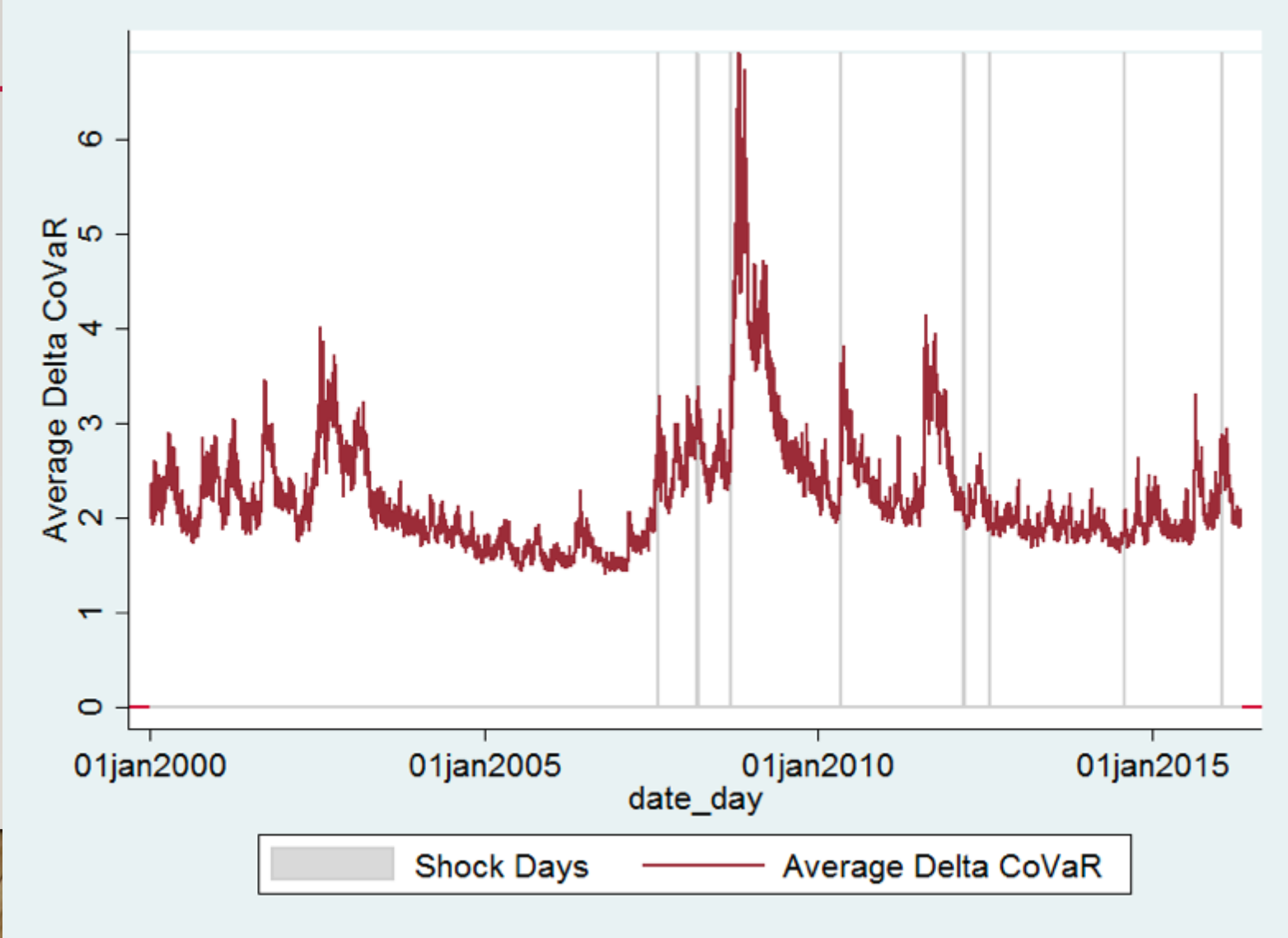
$$\text{Prob}(X^j \leq \text{CoVaR}_q^{j|i} \mid X^i = \text{VaR}_q^i) = q\%$$

- Institution i 's contribution to the risk of the system is defined as

$$\Delta \text{CoVaR}_q^{\text{system}|i} = \text{CoVaR}_q^{\text{system}|X^i = \text{VaR}_q^i} - \text{CoVaR}_q^{\text{system}|\text{median}}$$

- We take $q = 99\%$

Δ COVAR OVER TIME



SHOCKS

System-wide events

- Outbreak of the subprime crisis: August 9-11, 2007
- Bear Stearns' collapse: March 14-17, 2008
- Lehman Brothers' collapse: September 15, 2008
- Greece's bailout: May 5, 2010 - Announcement of the 1st Bailout Package and the 3rd Austerity Package (followed by riots in Greece)
- Greece's sovereign debt swap (PSI): March 9, 2012
- Draghi's "Whatever it takes" announcement: July 26, 2012

Bank-specific events

- Start of resolution of Portuguese Banco Espírito Santo: August 4, 2014
- Deutsche Bank's announcement of AC6.8 billion losses: January 21, 2016

METHODOLOGY

$$\begin{aligned}\Delta CoVaR_{i,c,t} = & \gamma_i + \beta_1 \cdot Event_t \\ & + \beta_2 \cdot Resolution\ Index_{c,pre-estimation\ period} * Event_t \\ & + \beta_3 \cdot Bank\ Controls_{i,c,year-1} * Event_t \\ & + \beta_4 \cdot Macro\ Controls_{i,c,year-1} * Event_t + \epsilon_{i,c,t},\end{aligned}$$

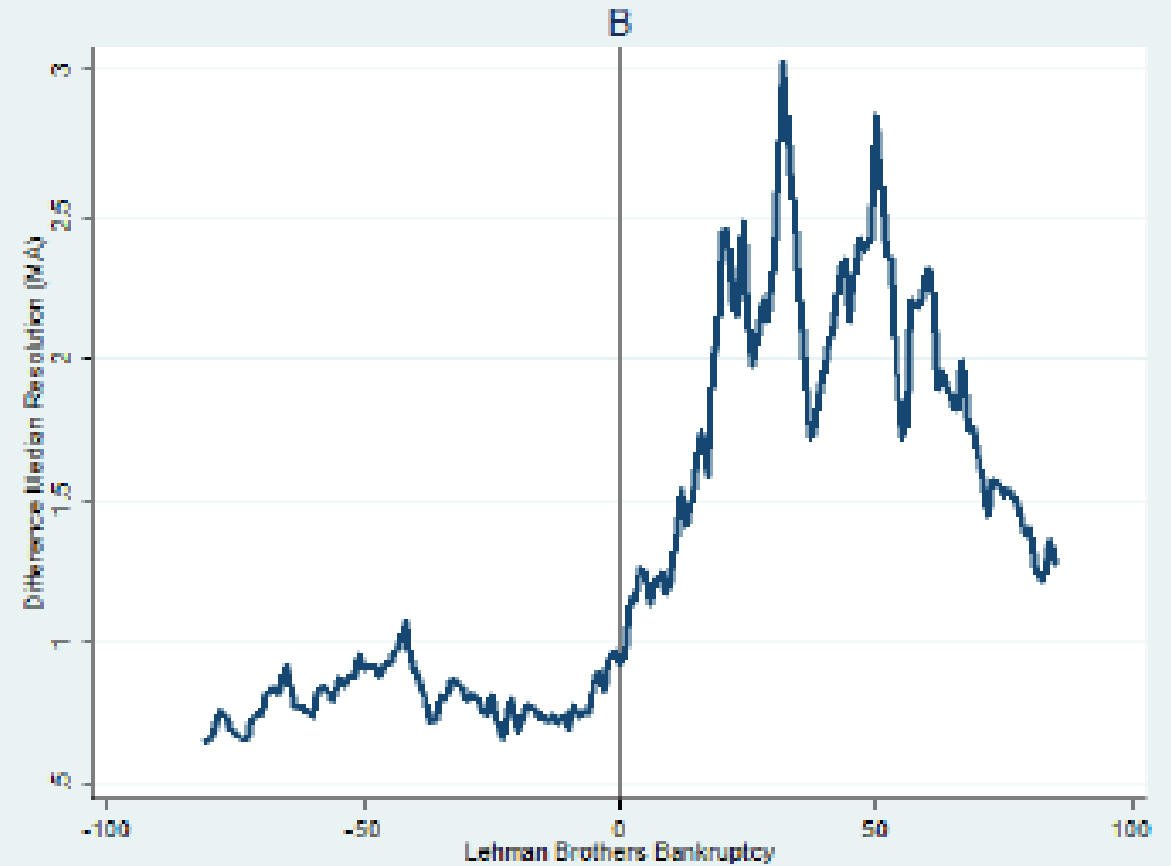
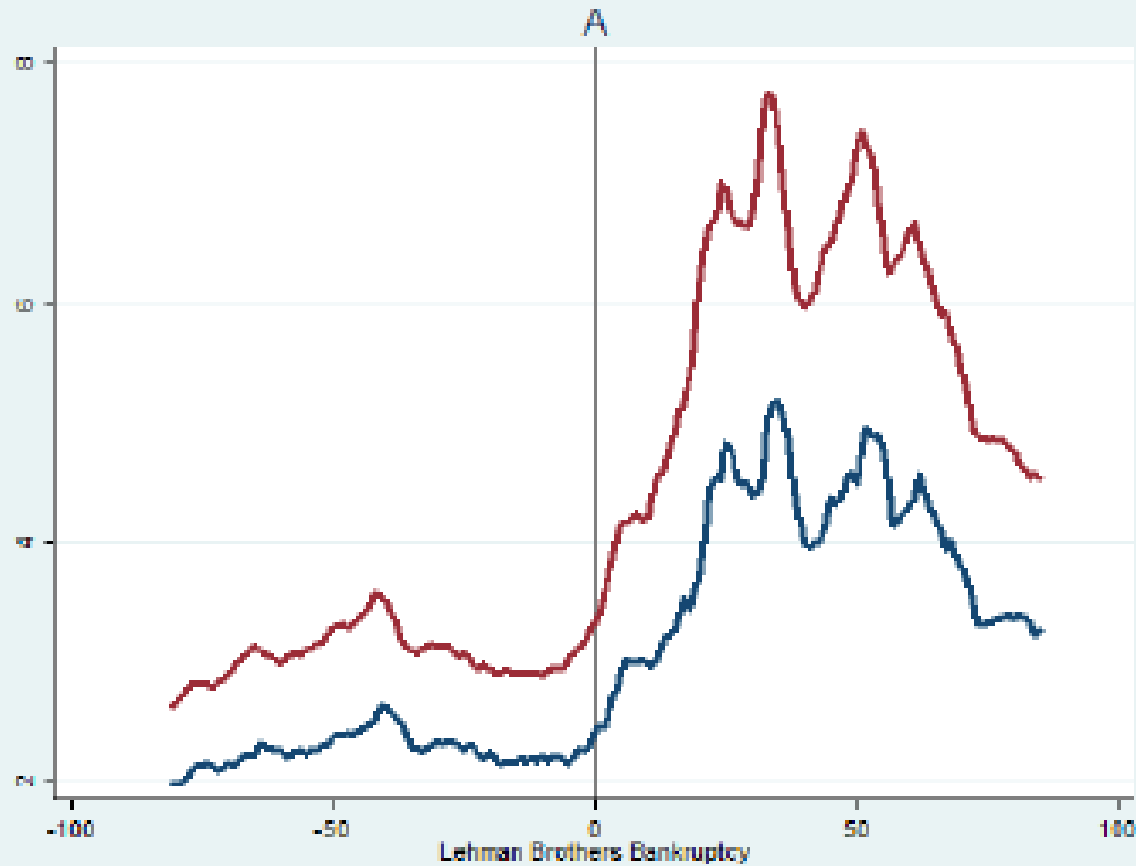
- Focus on a period of 80 days before the event (“normal times”) and 7 days after the event
- Two-way clustering at day and bank-level

NEGATIVE SHOCKS RESULT IN HIGHER SYSTEMIC RISK IN COUNTRIES WITH MORE COMPREHENSIVE BANK RESOLUTION

	7 days after the shock					
	All Banks					
	Subprime (1)	Bear Stearns (2)	Lehman (3)	Greek Bailout (4)	Bear Stearns (No BS) (5)	Lehman (No Lehman) (6)
Shock	0.8976*** (0.000)	0.4383*** (0.000)	0.7706*** (0.000)	0.6635*** (0.000)	0.4388*** (0.000)	0.7691*** (0.000)
Shock * Resolution	0.0424*** (0.001)	0.0434*** (0.000)	0.0338* (0.059)	0.0488*** (0.000)	0.0435*** (0.000)	0.0335* (0.058)
Shock * Size	0.1816*** (0.000)	0.0461*** (0.005)	0.1658*** (0.000)	0.1469*** (0.000)	0.0463*** (0.005)	0.1650*** (0.000)
Shock * Leverage	-0.0208*** (0.000)	-0.0072*** (0.002)	-0.0161*** (0.000)	-0.0157*** (0.001)	-0.0071*** (0.002)	-0.0163*** (0.000)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Macro Controls * Shock	No	No	No	No	No	No
Observations	63008	62920	64944	64504	62832	64856
R-squared	0.8945	0.9234	0.9187	0.9206	0.9232	0.9190
Adjusted R-squared	0.8933	0.9225	0.9177	0.9197	0.9224	0.9180
Within R-Squared	0.2582	0.0548	0.1404	0.1816	0.0548	0.1399
Number of Banks	716	715	738	733	714	737

ΔCOVAR AFTER LEHMAN SHOCK

(RED: ABOVE MEDIAN, BLUE: BELOW MEDIAN, RESOLUTION INDEX)



...EVEN CONTROLLING FOR OTHER COUNTRY FACTORS

7 days after the shock						
	All Banks					
	Subprime (1)	Bear Stearns (2)	Lehman (3)	Greek Bailout (4)	Bear Stearns (No BS) (5)	Lehman (No Lehman) (6)
Shock	0.8977*** (0.000)	0.4383*** (0.000)	0.7706*** (0.000)	0.6632*** (0.000)	0.4390*** (0.000)	0.7694*** (0.000)
Shock * Resolution	0.0240** (0.013)	0.0036 (0.569)	0.0414*** (0.000)	0.0549*** (0.000)	0.0036 (0.571)	0.0414*** (0.000)
Shock * Size	0.1929*** (0.000)	0.0635*** (0.000)	0.1617*** (0.000)	0.1475*** (0.000)	0.0637*** (0.000)	0.1610*** (0.000)
Shock * Leverage	-0.0199*** (0.000)	-0.0064*** (0.003)	-0.0096*** (0.001)	-0.0162*** (0.000)	-0.0063*** (0.003)	-0.0097*** (0.001)
Shock * GDP Growth	-0.0653*** (0.001)	-0.0006 (0.962)	-0.1038*** (0.003)	-0.0250* (0.057)	-0.0007 (0.950)	-0.1033*** (0.003)
Shock * Inflation	0.0803*** (0.000)	0.0304** (0.038)	0.1615*** (0.000)	0.0079 (0.608)	0.0304** (0.038)	0.1612*** (0.000)
Shock * Fin. Dev.	-0.0009 (0.620)	-0.0043*** (0.001)	0.0021 (0.527)	0.0010* (0.063)	-0.0043*** (0.001)	0.0022 (0.521)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank Controls * Shock	Yes	Yes	Yes	Yes	Yes	Yes
Macro Controls * Shock	Yes	Yes	Yes	Yes	Yes	Yes
Observations	63008	62920	64944	64504	62832	64856
R-squared	0.8961	0.9241	0.9198	0.9211	0.9240	0.9201
Adjusted R-squared	0.8948	0.9232	0.9189	0.9201	0.9231	0.9191
Within R-Squared	0.2690	0.0638	0.1520	0.1861	0.0638	0.1514
Number of Banks	716	715	738	733	714	737

POSITIVE SHOCKS LEAD TO LESS OF A REDUCTION IN SYSTEMIC RISK IN COUNTRIES WITH MORE COMPREHENSIVE BANK RESOLUTION

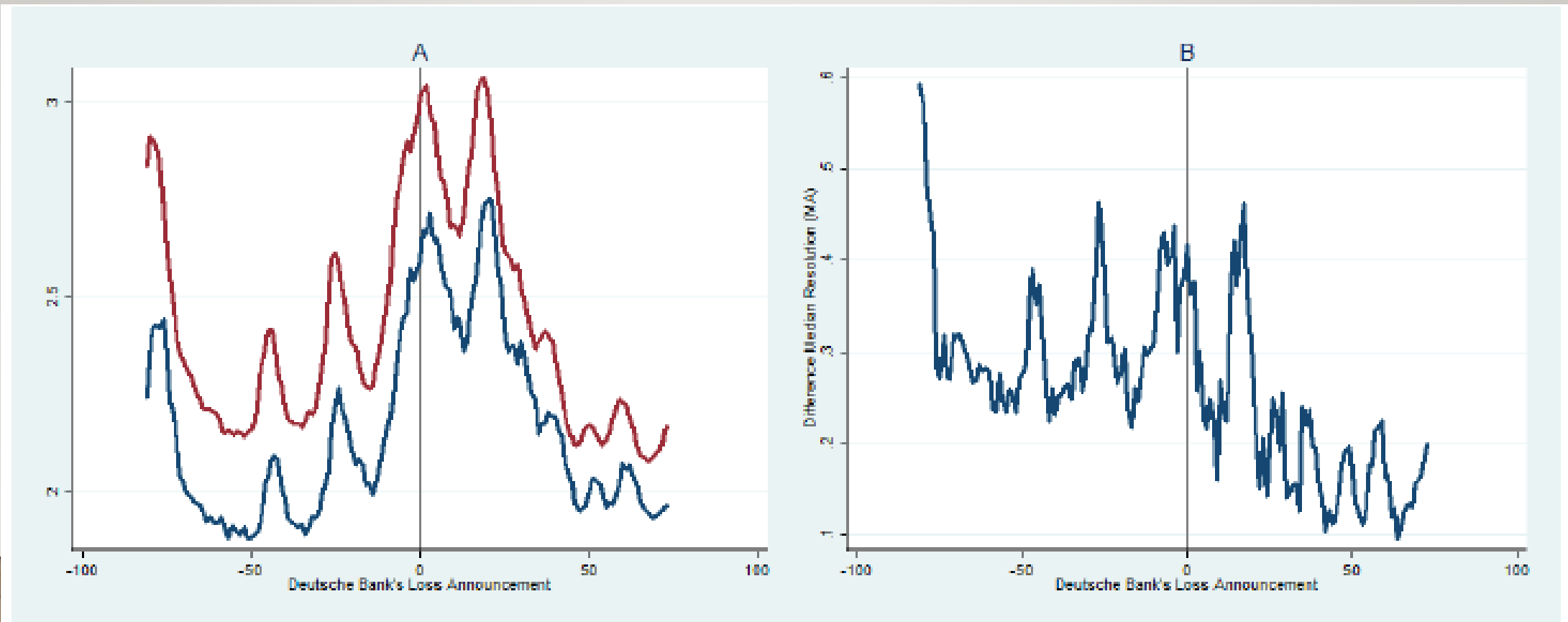
	7 days after the shock				30 days after	
	All Banks					
	Greek Restructuring		Draghi		Draghi (30 days)	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-0.4103*** (0.000)	-0.4102*** (0.000)	-0.0613 (0.139)	-0.0612 (0.139)	-0.2057*** (0.000)	-0.2056*** (0.000)
Shock * Resolution	-0.0466*** (0.000)	-0.0440*** (0.000)	-0.0099** (0.011)	-0.0086** (0.030)	-0.0231*** (0.000)	-0.0217*** (0.000)
Shock * Size	-0.0829*** (0.000)	-0.0864*** (0.000)	-0.0101 (0.246)	-0.0108 (0.224)	-0.0366*** (0.000)	-0.0381*** (0.000)
Shock * Leverage	0.0092*** (0.000)	0.0094*** (0.000)	0.0010 (0.348)	0.0010 (0.336)	0.0043*** (0.000)	0.0040*** (0.000)
Shock * GDP Growth		0.0193** (0.028)		0.0100* (0.059)		0.0159 (0.101)
Shock * Inflation		-0.0088 (0.113)		-0.0109*** (0.007)		-0.0206*** (0.002)
Shock * Fin. Dev.		-0.0003 (0.446)		0.0000 (0.915)		-0.0002 (0.449)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Macro Controls * Shock	No	Yes	No	Yes	No	Yes
Observations	65912	65912	66880	66880	84360	84360
R-squared	0.8890	0.8890	0.9454	0.9454	0.9443	0.9444
Adjusted R-squared	0.8877	0.8877	0.9447	0.9447	0.9438	0.9439
Within R-Squared	0.0575	0.0582	0.0042	0.0045	0.0937	0.0954
Number of Banks	749	749	760	760	760	760

MORE COMPREHENSIVE BANK RESOLUTION CAN LOWER SYSTEMIC RISK AFTER BANK-SPECIFIC SHOCK

	7 days after the event					
	B. Esp. Santo		Deutsche Bank		Deutsche Bank (No DBank)	
	(1)	(2)	(3)	(4)	(5)	(6)
Event	0.2088*** (0.000)	0.2088*** (0.000)	0.4243*** (0.000)	0.4243*** (0.000)	0.4246*** (0.000)	0.4251*** (0.000)
Event * Resolution	-0.0075 (0.228)	0.0130 (0.205)	-0.0265** (0.030)	-0.0191* (0.099)	-0.0265** (0.030)	-0.0191* (0.099)
Event * Size	0.0460*** (0.000)	0.0482*** (0.000)	0.1022*** (0.000)	0.1066*** (0.000)	0.1025*** (0.000)	0.1072*** (0.000)
Event * Leverage	-0.0047*** (0.003)	-0.0034** (0.031)	-0.0077 (0.132)	-0.0057 (0.300)	-0.0077 (0.134)	-0.0056 (0.308)
Event * GDP Growth		0.0041 (0.729)		0.0409 (0.122)		0.0413 (0.120)
Event * Inflation		0.0729*** (0.000)		0.0484 (0.374)		0.0490 (0.369)
Event * Fin. Dev.		0.0005 (0.494)		-0.0021 (0.206)		-0.0021 (0.200)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Macro Controls * Event	No	Yes	No	Yes	No	Yes
Observations	21296	21296	15928	15928	15840	15840
R-squared	0.9557	0.9562	0.8683	0.8689	0.8689	0.8695
Adjusted R-squared	0.9552	0.9557	0.8668	0.8673	0.8674	0.8679
Within R-Squared	0.1655	0.1747	0.1266	0.1305	0.1257	0.1297
Number of Banks	242	242	181	181	180	180

Δ COVAR AFTER DT. BANK ANOUNCEMENT

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SUMMARY

- Bank resolution regimes lowered systemic risk for bank-specific shocks
- But they raised systemic risk in response to system-wide shocks
- Results warn against too high expectations of the power of resolution regimes in system-wide crises

CONCLUSIONS

- Significant changes in how we think and go about bank resolution over past 10 years
- Bail-in with specific resolution measures works in case of bank-specific failures
- Limitations of bank resolution framework for systemic distress very clear!

- Bail-in vs. bail-out?



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