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When is supranational supervision optimal?

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Motivation

- Following recent crisis, policy debate on regulation and supervision of international banks
- Triggered by experience with internationally active banks: Lehman, Fortis and Dexia, Icelandic Banks
- Growing recognition that national approach cannot deal well with international banks
  - Eurozone: discussion on banking union with supranational supervision authorities
- However, also significant costs (and barriers) to moving to supranational approach
  - Forces a common approach onto different financial systems
  - Political obstacles
  - …

The **Externality – Heterogeneity** trade-off

Complex debate on whether regulation should be supranational can at first approximation be broken down into two factors:

1. Cross-border externalities from bank failures
2. Heterogeneity across countries

(Beck and Wagner, 2013, "Supranational regulation – how much and for whom?")

1. Cross-border externalities

Note: purely domestic externalities do not provide rationale for supranational regulation

Cross-border externalities arise because of

- Cross-border activities of financial institutions
- Spill-overs from bank failures: fire-sale externalities, informational contagion, direct interbank exposures, counterparty risk…
- Regulatory arbitrage: banks have incentives to move to jurisdictions with lighter regulation, this will cause negative externalities for other countries

(Net) Cross-border externalities distort decision of national regulators

Example: externalities due to cross-border activity of international bank (Beck, Todorov, Wagner, *Economic Policy* 2013)

Consider intervention decision of domestic supervisor into international bank:

- No intervention: bank asset returns R with prob. λ and zero with prob. 1- λ
  - In the latter case there also external costs c to the economy (eg, costs of firms that were financed by the bank)
- Intervention: bank is liquidated and pay-off is 1
- Cross-border activities: γ_D - share of domestic deposits, γ_E - share of domestic equity, γ_A - share of domestic assets

Intervention decision by domestic regulator

Benefit from continuation:

$$\lambda(\gamma_D d + \gamma_E(R-d)) - (1-\lambda)\,\gamma_A c$$

Benefit from liquidation:

$$\gamma_D d + \gamma_E\,(1-d)$$

This implies following cut-off point for λ

$$\lambda^* = [\gamma_D d + \gamma_E\,(1-d) + \gamma_A\,c]/[\gamma_D d + \gamma_E(R-d)+\gamma_A c]$$

Comparative statics for intervention threshold of domestic regulator

The intervention threshold of domestic regulator λ^* :

1. Increases in share of foreign equity 1- γ_E
2. Decreases in share of foreign deposits 1- γ_D
3. Decreases in share of foreign assets 1- γ_A

Intuition

- equity tends to profit from continuation of bank (option value of equity)
- Thus, a higher share of foreign equity increases incentives of domestic supervisor to intervene (supervisor becomes stricter)
- Vice versa for deposits and assets

Welfare losses due to domestic supervision

- Welfare maximizing (global) cut-off not affected by cross-border activities
- If only foreign equity ($\gamma_E<1$, $\gamma_D = \gamma_A = 1$): domestic regulator is *too strict* (there is a range of success probabilities for which it is inefficient to liquidate but domestic regulator liquidates)
- If only foreign deposits or assets: domestic regulator is *too lenient*

However, when cross-border activity across all three dimensions, balance of activities matters

- If bank is balanced across all dimensions, then potentially low inefficiencies even though cross border bank
- In particular, when $\gamma_D = \gamma_E = \gamma_A$ then no bias in intervention decision

Evidence for distortions arising from cross-border activities

- Test theory using sample of intervened banks during crisis
- In reality, bank health (success probability lambda) will evolve continuously
- Regulator should intervene when bank health has deteriorated to the point where it reaches a critical level
- Bank health (at time of intervention) is thus measure of regulatory strictness
- Model predicts that bank health (at intervention) is i) increasing in foreign equity and ii) decreasing in foreign deposits and assets
- Inverse measure of bank health (probability of survival): CDS spread of bank prior to intervention
  - CDS spread is measure of regulatory leniency

Empirical strategy: We will regress CDS spread of intervened banks prior to intervention on foreign activity shares (and control variables)

Data

- 55 cross-border banks from Europe and U.S. intervened between 2007 and 2009
- Hand-collected data on foreign activities
  - Net foreign balance: foreign equity share minus average of foreign deposit and asset share
- Leniency measure: (log of) CDS spread 3 days prior to intervention
- Bank and country-level control variables:
  - Bank-level: size, state ownership, Tier-1 ratio, Liquidity
  - Country-level: multiple supervisors dummy, central bank as bank supervisor
  - Post-Lehman period dummy

Leniency and Cross-Border Activities

	CDS spread				CDS spread relative to index			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign ownership	-0.919***	-0.981***	-0.983***	-0.857**	-0.744***	-0.813**	-0.800***	-0.940***
	0.279	0.337	0.302	0.416	0.268	0.308	0.285	0.308
Foreign deposits	0.931**				0.630*			
	0.363				0.335			
Foreign assets		0.780*				0.647*		
		0.425				0.361		
Average foreign asset and deposit share			1.015**	1.305***			0.758**	1.102***
			0.410	0.400			0.359	0.320
Size	-0.293***	-0.313***	-0.305***	-0.207**	-0.345***	-0.361***	-0.354***	-0.288***
	0.0735	0.0830	0.0797	0.0888	0.0632	0.0663	0.0648	0.0692
Post-Lehman period	-0.888***	-0.841***	-0.876***	-0.609*	-0.828***	-0.804***	-0.826***	-0.850***
	0.197	0.205	0.202	0.311	0.179	0.176	0.178	0.218
State ownership	-0.651**	-0.702**	-0.697**	-0.435	-0.336**	-0.388**	-0.374**	-0.299*
	0.273	0.296	0.280	0.293	0.159	0.181	0.166	0.177
Single Agency	0.00876	-0.118	-0.0349	-0.0932	-0.215	-0.290**	-0.234	-0.214
	0.209	0.213	0.210	0.184	0.146	0.142	0.142	0.145
Central bank	-0.00760	-0.0292	-0.0134	0.0553	0.0964	0.0849	0.0950	0.125
	0.184	0.196	0.186	0.184	0.142	0.147	0.142	0.153
Tier 1 ratio				0.419				0.411
				0.547				0.461
Liquid asset share				-2.264***				-1.330**
				0.832				0.541
Constant	9.839***	10.20***	10.00***	9.864***	5.387***	5.631***	5.484***	5.876***
	0.983	1.080	1.044	1.726	0.867	0.900	0.891	1.310
Observations	55	55	55	49	55	55	55	49
R-squared	0.501	0.483	0.501	0.488	0.601	0.603	0.608	0.678

Leniency and Net Foreign Balance

	CDS spread		CDS spread relative to index	
	(1)	(2)	(3)	(4)
Net foreign balance	-0.997***	-1.053***	-0.782***	-1.011***
	0.254	0.353	0.245	0.249
Size	-0.305***	-0.203**	-0.354***	-0.286***
	0.0779	0.0843	0.0653	0.0674
Post-Lehman period	-0.876***	-0.610*	-0.827***	-0.850***
	0.200	0.306	0.178	0.213
State ownership	-0.695**	-0.414	-0.376**	-0.291
	0.278	0.299	0.162	0.175
Single Agency	-0.0160	0.0282	0.0985	0.116
	0.184	0.181	0.128	0.142
Central bank	-0.0397	-0.139	-0.228*	-0.231*
	0.203	0.185	0.136	0.136
Tier 1 ratio		0.591		0.473
		0.549		0.456
Liquid asset share		-2.138**		-1.285**
		0.909		0.574
Constant	10.01***	10.42***	5.470***	6.077***
	1.020	1.539	0.853	1.152
Observations	55	49	55	49
R-squared	0.501	0.480	0.608	0.676

Summary

- Evidence for distortions arising from cross-border externalities:
  - Regulatory leniency decreases in foreign equity but increases in foreign deposits and assets
  - Regulatory leniency decreases in Net Foreign Balance
- Results also extend to the *likelihood* of intervention

2. Heterogeneity across Countries

- Countries differ in their legal systems (and culture). This makes it hard to specify a common set of rules and standards, forcing cumbersome adaptation of general principles to local circumstances.
- Differences in preferences. Countries may differ in how they view the role of the government in the economy (one consequence being differences in state ownership), focus on fiscal independence or with respect to their risk tolerance.
- Countries differ in their dependence on banks and their market structures in general. This influences the ease with which banks can be resolved.

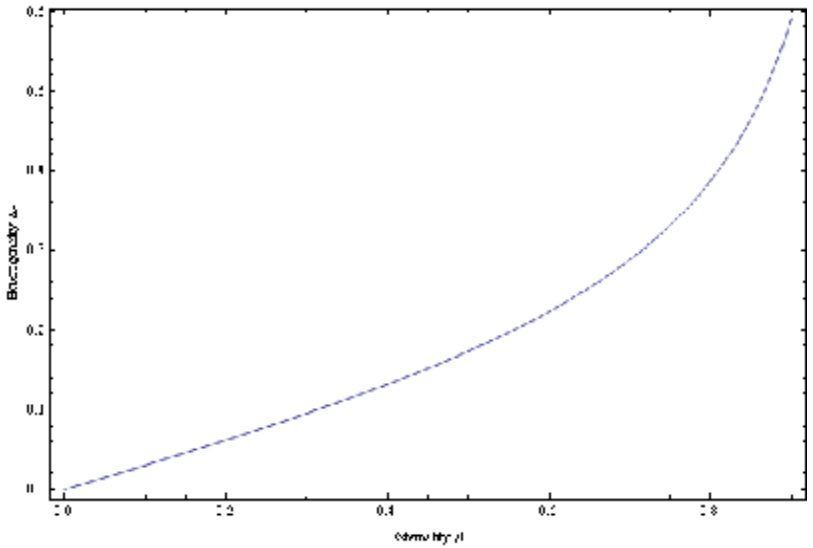
Heterogeneity is a cost (and a barrier) to supranational regulation

- Heterogeneity makes it more difficult to implement common set of standards
- Supranational regulation cannot easily be tailored to domestic specificities (e.g., difference in failure costs, different structure of financial system)
- Political obstacles are heterogeneities in "disguise"

The trade-off

Supranational regulation is more likely to be welfare enhancing when:

1. Cross-border externalities are high
2. Country heterogeneity is low.



The figure (Beck and Wagner, 2013) shows an *indifference curve*: above curve national supervision is optimal, while below supranational is optimal (heterogeneity is difference in bank failure costs and externality is share of foreign assets)

Note: reminiscent of fiscal decentralization debate (Oates, 1972)

One size fits all?

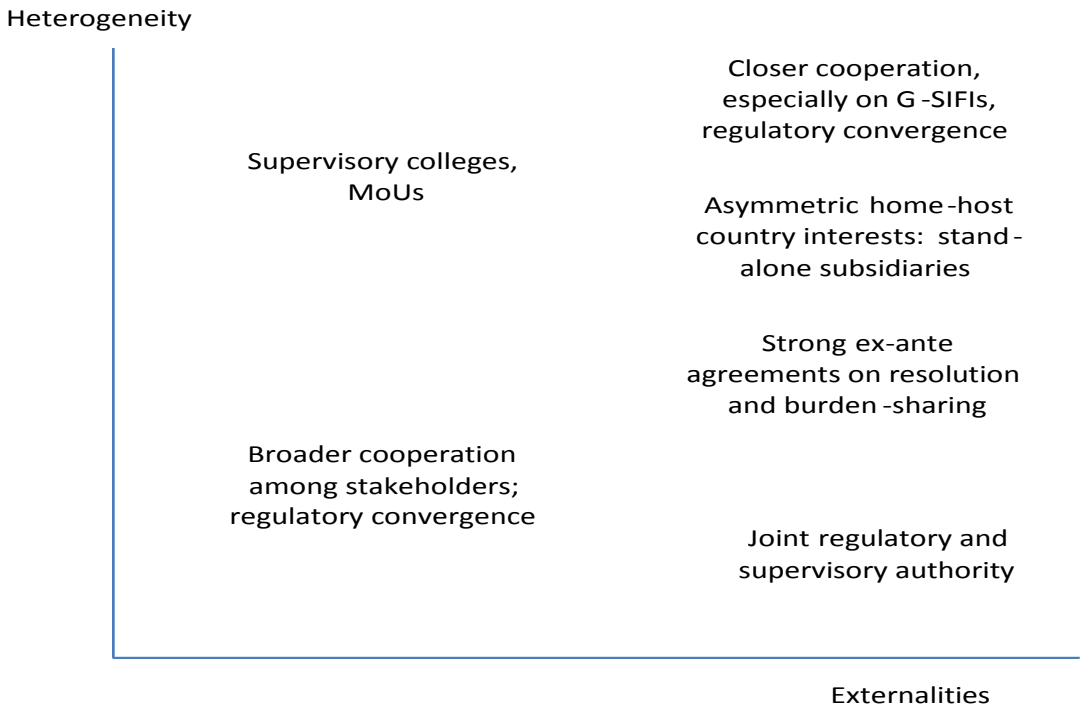
- Countries differ with respect to their externalities and degree of heterogeneity

1. Eurozone countries: very high externalities (interlinked financial system, monetary union) but modest heterogeneity
2. India vis-a-vis RoW: limited international financial integration and low cross-border activities; at same time financial system that is fairly unique
3. U.S. versus continental Europe: large externalities but heterogeneous financial system (bank versus market-based)

Different trade-offs require different solutions

1. High externality – modest heterogeneity: supranational regulation and supervision
2. Low externality: joint crisis simulation exercises and crisis management plans
3. High externality – significant heterogeneity: focus on removing the largest externalities and achieve some convergence (minimum standards)
   - Solutions on an institution-specific basis (SIFIs)

The Externality – Heterogeneity Grid



Conclusions

- It is useful to break down complex discussion on the desirability of supranational regulation and supervision into two factors:

1. Cross-border externalities from bank failures
2. Country heterogeneity

- Benefits from supranational regulation are the highest when externalities are large and heterogeneity is low
- When heterogeneity is low, in addition political obstacles are limited
- This view suggests that there may not be a uniformly desirable degree of supranational regulation across countries => different cases need different solutions