

Voluntary Support and Ring-Fencing in Multinational Banks

Gyöngyi Lóránth^{1,4} Anatoli Segura^{2,4} Jing Zeng³

¹University of Vienna

²Banca d'Italia

³University of Bonn

⁴CEPR

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Multinational Banks

- Banking activities become increasingly multinational
 - Share of foreign banks increased from 20 percent to 34 percent between 1995-2009 (Claessens and Van Hooren, 2015)
- Efficiency gains of cross-border internal capital market
 - Subsidiaries of strong foreign banks cut lending during a financial crises less than domestic banks (De Haas and van Lelyveld, 2010)
 - Multinational banks' subsidiaries ease aggregate liquidity shortages during local crises (Dinger, 2011)
 - Source of financial stability (Navaretti et al., 2010)

Supervision Frameworks

- National based supervisory incentives

National authorities tend to seek to ensure that their constituents, whether taxpayers or member institutions underwriting a deposit insurance [...], bear only those financial burdens that are necessary to mitigate the risks to their constituents.

— *BIS Cross-border Bank Resolution Group (2010)*

- Ring-fencing along national boundaries
 - Restrictions on intra-group capital or liquidity flow
 - e.g. German subsidiaries of UniCredit, Austrian banks with operations in central and Eastern Europe

Regulatory Debate

- EU commission (2010) identifies the legal restrictions on voluntary support of multinational banks, and studies the feasibility of removing them
- Bénassy-Quéré et al. (2018) stresses ring-fencing as an obstacle to a more integrated banking union
- Should countries coordinate their supervision of MNB's?
 - Protection of national interests vs. diversification benefit
 - Incentive effects on MNB's

This paper: Voluntary Support and Ring-Fencing

- A model of supervisory intervention in a multinational bank (MNB)
 - Voluntary support to its impaired unit using resources from its healthy unit
 - Authority may ring-fence the healthy unit to protect local interest
- Compare national and supranational architecture:
 - Effect on the intervention outcome of an impaired unit?
Supranational: Eliminates ring-fencing \Rightarrow Efficient intervention outcome
 - Effect on the bank's effort incentives outside of an intervention?
Supranational: Improves bank effort incentives only for weaker banks
 - National authorities' incentives to establish a supranational architecture?
National (supranational) supervision optimal for strongest (weaker) countries
Conflicting national interests can hinder establishment of efficient architecture

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Model setup

- Three dates: $t = 0, 1, 2$
- A multinational bank (MNB)
 - Two subsidiary units located in two countries A and B
 - Run by risk neutral owner (banker) to maximize expected equity value
- Each unit has existing assets and liabilities:
 - 1 unit of fully insured deposit
 - Risky asset detailed below

MNB Assets

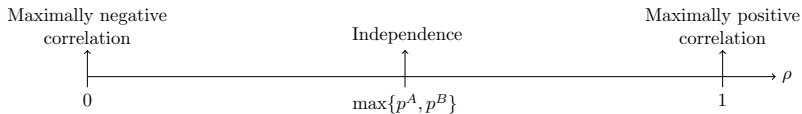
- Each unit $i \in \{A, B\}$ has ex ante identical assets:
 - $t = 1$ payoff $r > 0$
 - $t = 2$ payoff either $R > 1$ (success) or 0 (failure)
- Each unit's success probability $p^i \in \{p_h, p_\ell\}$ is realized at $t = 1$
 - Healthy (p_h) w.p. $\gamma + e^i$, impaired (p_ℓ) otherwise
 - γ : Financial strength
 - e^i : Bank effort chosen at $t = 0$, with convex cost $k(e^i)$

Cross-Country Correlation

- Joint distribution of the $t = 2$ payoffs given $t = 1$ health $p^A \geq p^B$

		Unit B	
		R	0
Unit A	R	ρp^B	$p^A - \rho p^B$
	0	$(1 - \rho)p^B$	$1 - p^A - (1 - \rho)p^B$

⇒ Correlation w.o.l.g. parametrized by $\rho \in [0, 1]$:



- ρ : Economic and financial integration between country pair

Supervisory Intervention

- An authority responsible for unit i within its jurisdiction
 - Authority's objective: Minimize deposit insurance cost
- Early intervention at $t = 1$
 - Each unit's health (healthy/impaired) realizes
 - Require recapitlaization or "liquidate" the bank's assets
 - Represents any risk-mitigating regulatory action, e.g. cease and desist orders, purchase and assumption operation, or the outcome of a resolution
- Parameter restrictions:
 - $p_\ell R > L$: Liquidation is inefficient
 - $p_h(1 - r) > L > p_\ell(1 - r)$: Liquidation of an impaired unit reduces deposit insurance cost

Recapitalization

- Each unit can be recapitalized in two ways
 - Internal resources (**voluntary support**): Intra-group (subordinated) loan (s, S)
 - External resources: Raise equity from competitive outside investors
 - Issue ϕ^i fraction of equity to raise x^i unit of funds
 - Cost of external equity $c > 1$ (forgone investment return)

Unit A		Unit B	
Assets	Liabilities	Assets	Liabilities
Asset A of quality p_A	Deposits (1)	Asset B of quality p^B	Deposits (1)
Intragroup loan to unit B (s, S)	Equity – External (ϕ^A) – BHC ($1 - \phi^A$)		Intragroup loan from unit A (s, S)
Cash ($r + x^A - s$)		Cash ($r + x^B + s$)	Equity – External (ϕ^B) – BHC ($1 - \phi^B$)

Figure: Bank sheet given recapitalization plan $(\{x^i\}_{i \in \{A,B\}}, \{\phi^i\}_{i \in \{A,B\}}, s, S)$

Institutional Architectures

- National architecture
 - Each authority $i \in \{A, B\}$ acts non-cooperatively to minimize own deposit insurance fund
- Supranational architecture
 - A supranational authority minimizes *total* costs to both funds

A Model of Supervisory (Early) Intervention at $t = 1$

- At $t = 1$, $\{p^A, p^B\}$ realizes
 - 1 Bank proposes a recapitalization plan
 - 2 Recapitalization plan implemented if approved
 - National architecture: Approval by each national authority $i \in \{A, B\}$
 - Supranational architecture: Approval by single supranational authority

Otherwise, each unit i may be liquidated by responsible authority

Timeline

- $t = 0$ MNB chooses effort e^i in each unit $i \in \{A, B\}$
- $t = 1$ Each unit i realizes payoff r , and may be healthy (p_h) or impaired (p_ℓ)
Early supervisory intervention game (detailed in previous slide)
- $t = 2$ Final payoffs in each unit $\{R, 0\}$ realize

$t = 1$ Liquidation Decision without Recapitalization

- Each authority $i \in \{A, B\}$ liquidates the unit if and only if

$$(1 - p^i)(1 - r) \leq 1 - L - r.$$

- Recall that $p_h(1 - r) > L > p_\ell(1 - r)$:
Liquidation threat for impaired (p_ℓ) unit but not for healthy (p_h) unit
- Interesting case: $p^A = p_h$ (healthy unit) and $p^B = p_\ell$ (impaired unit)

$t = 1$ Approval Decision for Recapitalization Plan

- National architecture: Unit B requires recapitalization

$$\underbrace{(1 - p_\ell) [1 - (r + x^B + s)]}_{DI \text{ cost under recap.}} \leq \underbrace{1 - L - r}_{DI \text{ cost under liq.}}$$

- Internal and external recapitalization are perfect substitutes
- National architecture: Unit A may require recapitalization

$$\underbrace{(1 - p_h) [1 - (r + x^A - s)] - (1 - \rho)p_\ell S}_{DI \text{ cost under recap. (inc. support provision)}} \leq \underbrace{(1 - p_h)(1 - r)}_{DI \text{ cost under no recap.}}$$

- Recapitalization required against **voluntary support** provision
 - Ring-fencing**: Obstacles on intra-group capital flow
- Intra-group loan perceived “riskier” if units are more correlated (ρ higher)

$t = 1$ Approval Decision for Recapitalization Plan

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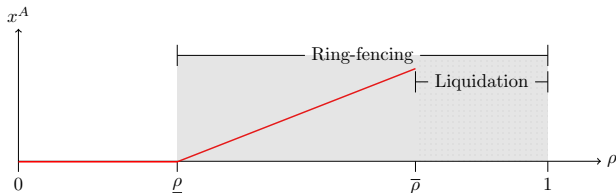
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$t = 1$ Outcomes under National Architecture

- Recapitalize impaired unit exclusively via **voluntary support** ($x^B = 0$)
- Ring-fencing** of the healthy unit ($x^A > 0$) for high correlation



- Severity of ring-fencing is increasing in ρ
 - Benefit of supporting foreign unit accrues less to domestic depositors
 - Ring-fencing can lead to inefficient liquidation of the foreign unit

$t = 1$ Outcomes under Supranational Architecture

- Supranational authority approves recapitalization plan

$$\underbrace{(1 - p_\ell) [1 - (r + x^B + s)] + (1 - p_h) [1 - (r + x^A - s)] - (1 - \rho)p_\ell S}_{DI \text{ cost under recap.}} \leq \underbrace{(1 - L - r) + (1 - p_h)(1 - r)}_{DI \text{ cost under liq.}}$$

- Voluntary support without ring-fencing
 - Internalizes the DI cost reductions in country B when approving support
 - Internal resources reallocated to impaired unit
 - Accrues to depositors with higher prob.

Results Recap I

- Ex post supervisory intervention ($t = 1$)
 - Supranational supervision eliminates ring-fencing
 - Improves outcomes of supervisory intervention in the impaired unit
- Ex ante bank risk taking incentives?

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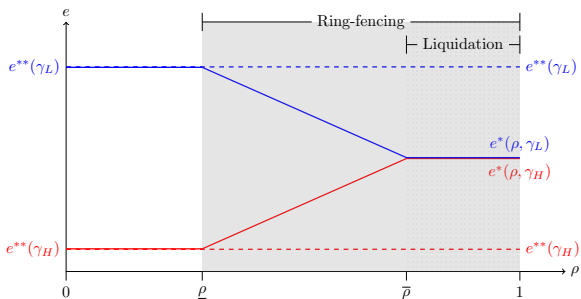
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$t = 0$ Bank Effort Decision

$$\Pi_0(e^A, e^B; x_h) \equiv \overbrace{\sum_{i \in \{A, B\}} (\gamma + e^i) p_h (R + r - 1) - k(e_i)}^{\text{Profit as stand-alone units}} + \underbrace{\left[\sum_{i \neq j \in \{A, B\}} (\gamma + e^i)(1 - \gamma - e^j) \right]}_{\text{Probability of voluntary support}} \underbrace{[(p_\ell R - L) - x_h c]}_{\text{Support gains}}.$$

- Eliminating ring-fencing has opposing effects on effort incentives
 - **Support giving eff.:** Unit i effort valuable since enables supporting unit j
 - **Support receiving eff.:** Unit i effort less valuable if can be supported by unit j

$t = 0$ Optimal Bank Effort



- High correlation: Supranational architecture eliminates $t = 1$ ring-fencing
 - **Weak banks** (low γ): **Support giving eff.** encourages effort ($e^{**} > e^*$)
 - **Strong banks** (high γ): **Support receiving eff.** disincentivizes effort ($e^{**} < e^*$)

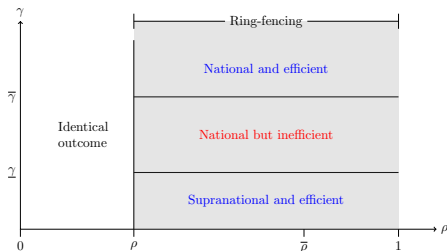
Results Recap II

- Supranational architecture
 - Eliminates ex post ring-fencing and improves intervention outcome
 - Improves (worsens) ex ante bank incentives for weaker (stronger) banks
- Establishing a supranational architecture
 - Incentive compatibility: Reduces expected national deposit insurance cost
 - Efficiency: Increases total welfare

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Optimal Supervisory Architecture



- Supranational architecture emerges for weaker countries ($\gamma < \underline{\gamma}$)
 - Ex post efficiency of intervention outcome, ex ante higher effort
- National architecture prevails for stronger countries ($\gamma > \underline{\gamma}$)
 - Ex post efficiency of intervention outcome vs. ex ante lower effort
- Conflicting national interests can hinder establishment of efficient institution
 - Ex post ring-fencing protects national authorities' interests

A Model of Multinational Bank Supervision

- Early intervention in multinational banks
 - Voluntary support of impaired unit
 - Ring-fencing of the healthy unit under national architecture for high ρ
 - Tension between cross-border integration and banking supervision
- Supranational supervision
 - Eliminates ex post ring-fencing and improves intervention outcome
 - Improves (worsens) ex ante bank incentives for weaker (stronger) banks
- Optimal institutional architecture
 - Supranational architecture emerges for countries with high ρ and low γ
 - Supervisory coordination follows cross-border integration for weaker economies
 - Conflicting national interests can hinder establishment of efficient institution

Supranational Coordination: Vienna Initiative

- Concerted by EBRD, European Commission, IMF, World Bank
 - during the 2008 financial crisis (Vienna Initiative 1)
 - during the 2011 sovereign debt crisis (Vienna Initiative 2)
- Objectives:
 - Ensure continued support of multinational banks to their Eastern European subsidiaries
 - Ensure national support packages to multinational banks benefit their subsidiaries, avoid “home bias”
- Effective: Significant difference in lending behaviour of subsidiaries of foreign banks in countries that were part of the Vienna Initiative and those that were not (de Haas et al., 2015)