Bank resolution and the mutualization of the public backstop in an asymmetric banking union

Anatoli Segura and Sergio Vicente

Bank of Italy and Universidad Carlos III

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Disclaimer

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The euro area banking union project

- Euro area banking union project born in June 2012 "to break the vicious circle between banks and sovereigns"
- Two elements to weaken bank-sovereign nexus:

1. Enhancement and centralization of resolution powers
2. Creation of a common fiscal backstop during crises

Progress on resolution and common public backstop

Bank resolution

- Common framework for bank resolution with bail-in powers (BRRD)
- New central resolution authority: Single Resolution Board (SRB)
- Yet, SRB works with domestic authorities that may have better information or knowledge of local legal system

Common public backstop

- Bail-in is the norm, but senior debtholders can be bailed out when bail-in would endanger stability
- Partial mutualization of the public backstop via European Stability Mechanism (ESM) for failing banks in distressed countries
- Yet, IMF and European Commission consider agreement insufficient "to sever effectively sovereign-bank links"
- Reluctance from "core" countries to proceed further

This paper: Questions

- How much mutualization in the funding of public backstop is feasible?
- And how does it affect bail-in/bail-out resolution decisions in each country?

- In a banking union with:

1. *Country asymmetry:* Strong and weak countries
2. *Information asymmetry*: Private information of local authorities

This paper: Ingredients & takeaways

Ingredients

- Banking union as risk-sharing arrangement to mutualize public support to failing banks in distressed countries
- Mechanism design approach to extract home authority information
- Endogenous country participation

Takeaways

- Cofunding of bail-outs to limit home authorities' incentives to overstate need of bail-out
- Need of country specific resolution & public support policies that increase probability of bail-outs of banks in strong country

The model

- Two dates $t = 0, 1$, two countries $i = 1, 2$, with a domestic bank and a resolution authority that maximizes domestic welfare
- At $t = 1$ each bank may fail with identical probability
- At $t = 1$ each country can be stable (S) or in sovereign crisis (C)
  - Four pairs of states of public finances $\sigma \in \{SS, SC, CS, CC\}$and probability q^{σ}
- *Country asymmetry:* Country 1 is strong & Country 2 is weak

$$\text{Prob of crisis in country 1} < \text{Prob of crisis in country 2}$$

$$\Leftrightarrow$$

$$q^{CS} < q^{SC}$$

Resolution decisions and costs

Bail-in: Loss absorption by senior debtholders

- Generates random local contagion costs k with distribution G
- *Information asymmetry:* k is observable by local authority only

Bail-out: Use public funds to repay senior debtholders

- Requires one unit of public funds whose deadweight cost is:
  - λ_S if the country is stable
  - λ_C if the country is in a crisis, with $\lambda_C > \lambda_S$

- $\Rightarrow$Gains from risk-sharing in provision of public backstop to
  1. Avoid very disruptive bail-ins
  2. Reduce social cost of bail-outs

Banking union

- Countries can create at $t = 0$ a banking union that specifies how a central authority decides at $t = 1$:
  1. If a failing bank is bailed-in or bailed-out
  2. How much each country contributes to fund a bail-out
- Central authority's problem: design aggregate welfare maximizing banking union taking into account the two asymmetries
  1. Countries benefit differently from risk-sharing and participation in union at $t = 0$ is voluntary
  2. Home authorities have incentives to overstate need of a bail-out to obtain transfers at $t = 1$

Banking union: Formal description and problem

Mechanism design $\Rightarrow$

- Resolution policies characterized by required *home contribution* to bail-outs $x \in [0,1]$
- Resolution decision delegated to home authority: bail-out if bail-in cost k *above threshold* $\overline{k}(x)$
- Banking union: vector $\mathbf{x} = (x_{i,\sigma})$ of home contribution to bail-out of bank $i \in \{1,2\}$ when public finances are $\sigma \in \{SS, SC, CS, CC\}$.
- Otimal banking union satisfies

$$\begin{array}{ll} \max_{\mathbf{x}} & U_1(\mathbf{x}) + U_2(\mathbf{x}) \\ \text{s.t.} & U_i(\mathbf{x}) \geq \overline{U}_i \ (PC_i) \text{ for } i = 1,2 \end{array}$$

  - $[\overline{U}_i, U_i(\mathbf{x})$ is country utility in autarky and in banking union $\mathbf{x}$, resp.$]$

Ex-post optimal resolution policies

Consider bank failure in country suffering crisis while foreign country is stable (i.e., state $(1, CS)$ or $(2, SC)$)

- *Ex-post optimal* resolution policy: aggregate resolution costs minimizing policy with no *PCs*

$$\min_x \Pi(x) = \underbrace{\int_0^{\overline{k}(x)} k dG(k)}_{\text{Bail-in cost}} + \underbrace{(\lambda_S + (\lambda_C - \lambda_S)x)(1 - G(\overline{k}(x)))}_{\text{Bail-out cost}}.$$

- Trade-offs:
  - *Cost effect:* $x \uparrow$ increases funding cost of bail-outs (-)
  - *Overstatement effect:* $x \uparrow$ reduces the costs associated with local authorities' incentives to overstate contagion costs $(+)$
- (Prop) Ex-post optimal home contribution $x^*_{1,CS} = x^*_{2,SC} \equiv x^*$ satisfy

$$\Pi'(x^*) = 0 \Rightarrow$$
$$1 = x^{Autarky} > x^* > x^{First\ Best} = 0$$

Ex-post optimal resolution policies

- $\longrightarrow$ The home contribution x^* is interior and provides some risk-sharing that reduces resolution costs despite information frictions
- Intuition:
  - Overstatement effects negligible when x is large because home country internalizes most of bail-out costs
  - Bail-out cost effect dominates and calls for some foreign aid

Consider any other bank failure state (i, σ)

- Ex-post optimal home contribution is $x^*_{i,\sigma} = 1$
- Intuition:
  - Bail-out cost effect weakly calls for bail-out entirely funded at home, same as overstatement effect

Feasibility of ex-post optimal resolution policies

- The strong country enters the ex-post optimal banking union $\mathbf{x}^*$ iff

$$U_1(\mathbf{x}^*) \geq \overline{U}_1 \Leftrightarrow$$

$$\underbrace{(1-p)q^{CS}\left(\Pi(1)-\Pi(x^*)\right)}_{\textit{Reduction of aggregate resolution costs}} \geq \underbrace{(1-p)\left(q^{SC}-q^{CS}\right)t(x^*)}_{\textit{Net cost of cross-country transfers}(>0)}$$

- (Prop) Ex-post optimal banking union is feasible only if low country asymmetry, that is if

$$q^{CS} \geq aq^{SC} \text{ for some } a \in (0,1)$$

- Intuition: two effects from entering banking union for strong country
  - Reduction in resolution costs proportional to q^{CS} (+)
  - Net transfer of funds to weak country proportional to $q^{SC}-q^{CS}$ (-)
  - [For weak country the two effects are positive]

Banking union with large country asymmetry

- How to modify the ex-post optimal banking union when country asymmetry is large to ensure participation of strong country?
- Reductions (increases) in the $x_{1,\sigma}$ ($x_{2,\sigma}$) relax PC_1 *but* increase aggregate resolution costs
- (Prop) When country asymmetry is large home contributions in optimal feasible banking union $\widehat{\mathbf{x}} \equiv (\widehat{x}_{i,\sigma})$ satisfy

Strong	Stable	Crisis
Stable	$\widehat{x}_{1,SS} < 1$	$\widehat{x}_{1,SC} = 1$
Crisis	$\widehat{x}_{1,CS} < x^*$	$\widehat{x}_{1,CC} < 1$

Weak	Stable	Crisis
Stable	$\widehat{x}_{2,SS} = 1$	$x^* < \widehat{x}_{2,SC} < 1$
Crisis	$\widehat{x}_{2,CS} = 1$	$\widehat{x}_{2,CC} = 1$

Comments and intuitions

- Distortions in home contributions trade-off softening of PC_1 with increases in resolution costs
- Optimal to provide some aid to strong country when its bank fails in state $\sigma = SS$
  - No cost effect of changes in $x_{1,SS}$ and overstatement effect is negligible when $x_{1,SS}$ large
  - [Same arguments apply in state $\sigma = CC$]
- $\rightarrow$A banking union is feasible even if strong country always stable
- Ex-post: the banking union favors strong country (and its bank):

$$\widehat{x}_{1,CS} < \widehat{x}_{2,SC}, \ \widehat{x}_{1,SS} < \widehat{x}_{2,SS}, \ \widehat{x}_{1,CC} < \widehat{x}_{2,CC}$$

- Ex-ante: the banking union benefits weak country! (PC_1 is binding)

Extensions

Direct vs indirect foreign aid

- ESM has established direct and indirect recapitalization instruments, but direct recapitalization is conceived as last resort instrument
- When the two types of foreign aid are possible, some foreign direct aid in optimal banking union because it is less costly option from aggregate perspective

Fiscal neutrality

- Political economy barriers to arrangements that lead to net transfers of funds across countries
- The restriction of no net transfers across countries reduces welfare in the banking union in a Pareto sense

Cross border liabilities & contagion

- Presence of cross border liabilities and/or bail-in spillovers easens feasibility of ex-post optimal banking union

Conclusions

- Simple model to analyze optimal resolution decisions and funding of fiscal backstop in a banking union with country and information asymmetries
- Private information requires cofunding of bail-outs, which reduces risk-sharing
- Dealing with country asymmetry requires country specific resolution policies that increase (reduce) the foreign aid the strong country receives (provides)...
- and increase the probability that its bank is bailed-out