Discussion of: "Transparency and Bank Runs"*

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*The analyses, opinions and findings of this paper represent my own views, and are not necessarily those of Banco de Portugal or the Eurosystem.

Plan of the Presentation

- Introduction
- Recap and comments
- Comments on policy implications

Introduction

Question

- How does transparency affects the fragility and the efficiency of the financial system?

Motivation

- Hot topic in the policy agenda as well as in academia

Methodology

- A Diamond-Dybvig model with asymmetric information
- The agents receive a signal about the aggregate state of the economy, with some degree of "transparency"

Punchline

- Transparency has two effects:
  - Ex post: it increases the incentives to run
  - Ex ante: it reduces risk sharing

Recap: Preferences and Technology

- The preferences of the agents are:

$$U_i(c_1, c_2) = \rho_i u(c_1) + (1-\rho_i)(c_1 + c_2)$$

where:

$$\rho_i = \begin{cases} 0 & \text{with prob. } 1-\lambda \quad \text{``Late consumer''} \\ 1 & \text{with prob. } \lambda \quad \text{``Early consumer''} \end{cases}$$

- A long-term asset, yielding $\{\theta^H, \theta^L\}$ with probability $\{\nu^H, \nu^L\}$ at date 2, and $\{\theta^H, r\theta^L\}$ at date 1, for every $j = H, L$

Recap: Information

- The agents do not observe the realization of the state, but only a signal $\tilde{\theta}_i$ with some precision:

$$p \equiv prob\left\{\tilde{\theta}_i = \theta^j | \theta = \theta^j\right\} \geq \frac{1}{2} \qquad \forall j = H, L$$

- Using Bayes' Law, the agents calculate their posterior belief:

$$q^j \equiv prob\left\{\theta = \theta^j | \tilde{\theta}_i = \theta^j\right\} = \frac{p\nu^j}{p\nu^j + (1-p)(1-\nu^i)} \quad \forall j = H, L \text{ and } j \neq i$$

Recap: Withdrawal Game

- Define $\alpha^j \equiv$ prob. that a late consumer with signal $\tilde{\theta} = \theta^j$ withdraws early
- Then, the fraction of agents who withdraws early in state j is:

$$\mu^j = \lambda + (1-\lambda)(p\alpha^j + (1-p)\alpha^i) \qquad i \neq j$$

- μ^j affects the ex-post gains of withdrawing early $h(\theta^j)$, through a strategic complementarity
  - Before bankruptcy, the gains from withdrawing early $h(\theta^j)$ are increasing in μ^j
  - After bankruptcy, equal service $\Rightarrow$ the higher μ^j, the less each agent gets
- NB: The gains from withdrawing early $h(\theta^j)$ are function of the banking contract $\{c, L\}$

Recap: Withdrawal Game

- A late consumer with signal θ^j withdraws early iff:

$$\Delta(\theta^j) = q^j h(\theta^j) + (1 - q^j) h(\theta^i) > 0 \qquad i \neq j$$

- $\Delta(\theta^L)_{p=1} > \Delta(\theta^L)_{p<1}$: lack of transparency lowers the incentive to run for the agents with low signal
- $\Delta(\theta^H)_{p=1} \lesseqgtr \Delta(\theta^H)_{p<1}$: not clear

Recap: Withdrawal Game

- (Tentative) Comparative Statics:

$$\frac{\partial \Delta(\theta^L)}{\partial p} = [h(\theta^L) - h(\theta^H)] + p\frac{\partial h(\theta^L)}{\partial \mu^L}\frac{\partial \mu^L}{\partial p} + (1-p)\frac{\partial h(\theta^H)}{\partial \mu^H}\frac{\partial \mu^H}{\partial p} =$$

$$= \underbrace{[h(\theta^L) - h(\theta^H)]}_{\text{claim} > 0} + (1-\lambda)\underbrace{(\alpha^L - \alpha^H)}_{>0 \text{ by corollary 1}}\underbrace{\left[p\frac{\partial h(\theta^L)}{\partial \mu^L} - (1-p)\frac{\partial h(\theta^H)}{\partial \mu^H}\right]}_{\text{claim} > 0}$$

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Recap: Fragility

- Proposition 1 shows that there are banking contracts $\{c, L\}$ inducing multiple equilibria in the withdrawal game
- Introduce a sunspot equilibrium with pdf $f(s)$
- Define the banking problem as:

$$\max_{c,L} \int_{A(c,L)} f(s) EU(c, L, \alpha) d\alpha ds$$

subject to:

$$c \geq 0$$
$$L \in [0, 1]$$

Recap: Fragility

- How does transparency affect the fragility of the system? By affecting the possibility of making the contract run-proof
- Mechanism: as $p \uparrow$, coordination motives are stronger, and the bank must promise lower risk sharing (i.e. lower c) to avoid runs
- Based on the ex-ante incentive compatibility constraint:

$$c \leq \mathbb{E}_p(c_2(\theta)|\theta^j) \qquad \forall j = H, L$$

- The contract is run-proof iff:

$$\Delta(\theta^j) < 0 \qquad \forall j = H, L$$

- Need to impose this and fully characterize the equilibrium

Policy Implications: Optimal Transparency?

- The optimal level of transparency is $p^* < 1$
- Two caveats:
  1. Moral hazard
  2. Regulator in full control of transparency (impossible?)
- No failure of the first theorem of welfare economics
- Difficult to draw normative conclusions
- Two ways out:
  1. Introduce a regulator that values transparency (time consistency: Bouvard et al., 2015)
  2. A positive perspective: a rationale for banks' opaqueness in times of financial turmoil (supporting empirical evidence by Flannery et al., 2013)

Summary of the Comments

- Clarify the issue of one-sided strategic complementarities
- Run comparative statics
- Impose the run-proof constraint and characterize the equilibrium
- Interpret your results as a way to rationalize opaqueness
- Introduce a regulator and analyze time consistency