Open Banking: Lending Market Competition and Resource Allocation Efficiency

by Goldstein, Huang, and Yang

Discussion by Cecilia Parlatore

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June 7, 2024

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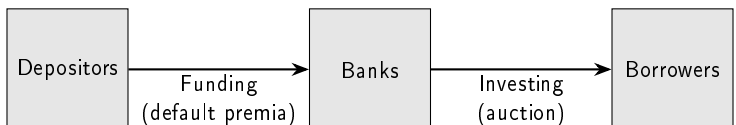

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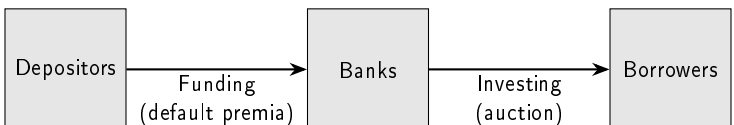

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1. Closed banking: one informed bank, one uninformed bank
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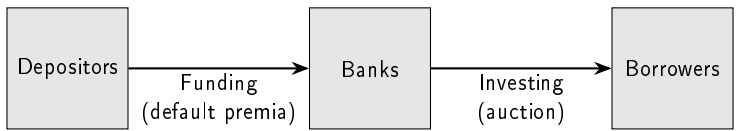

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Funding costs from rollover decisions:

1. Incorporate default premia: Respond to portfolio choices and competition - creditor's beliefs adjust!
2. Guaranteed return: Fixed

Model

- Borrower needs one unit of funds to invest in a risky projects with payoff

$$P = \begin{cases} R & \theta = 1 \\ 0 & \theta = 0 \end{cases} \quad \text{where} \quad q = \Pr(\theta = 1)$$

- Two banks compete for the borrower by simultaneously making a TIOLI offer based on their information

$$b^j \in \underbrace{[0, R]}_{\text{offer}} \cup \underbrace{\infty}_{\text{no offer}} \qquad j = 1, 2$$

  - If the borrower gets two offers, chooses the lowest

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- Bank can also invest in a risk-free asset with return R_a
- Short-term creditor supply funds to the banks, who can default
  - rollover after observing the bank's portfolios: require r_a if risk-free and r_b if risky
  - cost of loan is $\mathbb{E}(\theta|\text{information}) \times r_b$

Funding costs

- Required return for risk-free portfolio is fixed at r_a
- Return required to rollover debt when portfolio is risky:
  - With default premium: $r_b = \frac{r_a}{\xi(b)}$ where $\xi(b)$ is the expected success probability if the winning bid is b
  - Without default premium (guarantees for creditors): $r_b = r_a$.

Information Structure: Closed vs. Open Banking

- Closed banking:
  - Bank 1 has a signal $s^1 = \{L, H\}$ about θ with $\Pr(s^1 = H|\theta = 1) = \Pr(s^1 = L|\theta = 0) = \pi > 0.5$
  - Bank 2 is uninformed, i.e., $s^2 = \{L, H\}$ with $\Pr(s^2 = H|\theta = 1) = \Pr(s^2 = L|\theta = 0) = 0.5$
- Open banking
  - Both banks are symmetrically informed, i.e. $\Pr(s^2 = H|\theta = 1) = \Pr(s^2 = L|\theta = 0) = \pi > 0.5$
- Assumptions:
  - No offer if $s^i = L$
  - No offer if bank is uninformed and cannot transfer risk to creditors

Results

	Closed Banking	Open Banking
Default Premia	- Bank 1 is a monopolist if H - Bank 2 never participates - Funding costs $r_b = \frac{r_a}{\pi}$ - Good loans: π - Bad loans: $1 - \pi$ - Expected NPV $W^c > W^o$ - $b = R \rightarrow$ borrower welfare$= 0$	
Guaranteed Returns		

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a) Funding Costs and Lending Costs

- Expected profits when offering b for bank i

$$\left[\Pr(\text{comp})\Pr(\text{W})\,\mathbb{E}\left[\theta|\text{comp}\right] + \Pr(\text{no comp})\,\mathbb{E}\left[\theta|\text{no comp}\right]\right] b^i + \Pr(\text{comp})\Pr(\text{L})\,R_a$$
$$- \left[\Pr(\text{comp})\Pr(\text{W})\,\mathbb{E}\left[\theta|\text{comp}\right] + \Pr(\text{no comp})\,\mathbb{E}\left[\theta|\text{no comp}\right]\right] r_b - \Pr(\text{comp})\Pr(\text{L})\,r_a$$

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- Average lending cost

$$\lambda = \frac{\left[\Pr(\text{comp})\Pr(\text{W})\,\mathbb{E}\left[\theta|\text{comp}\right] + \Pr(\text{no comp})\,\mathbb{E}\left[\theta|\text{no comp}\right]\right] r_b}{\Pr(\text{comp})\Pr(\text{W}) + \Pr(\text{no comp})}$$

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$$\lambda = \mathbb{E}\left[\theta|\text{win with } b\right] r_b$$

- With guaranteed return: lower cost of lending $\Rightarrow$ transfer risk to creditors
- With default premium: cannot transfer risk, back to fixed average lending cost

$$r_b = \frac{r_a}{\mathbb{E}\left[\theta|\text{win with } b\right]}$$

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- In the literature, outside option in normalized to zero, i.e., $R_a = r_a = 0$.
- Paper focuses on $R \in \left(\frac{R_a}{\pi}, 2R_a\right)$ $\Rightarrow$inefficiency of uninformed lending and no participation under CB
- Ignoring outside options can have important implications for results on competition if R_a is large relative to R!

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