Andreas Krause

Chapter 3.1

Negotiation costs

Outline

- Problem and model assumptions
- Direct lending only
- Bank lending only
- Direct and bank lending
- Market structure
- Summary

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Cost advantage of banks

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Nash bargaining

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- Negotiating between borrowers and lenders directly imposes costs C

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Profit functions

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- Company and 'depositor' face negotiation costs of C each
- Company profits: $\hat{\Pi}_C =$ $- C$

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- Company profits: $\hat{\Pi}_C = \pi\left(\left(1+R\right)L - \left(1+r_C\right)L\right) - C$

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Optimal loan rate

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- Loan rate fulfilling this: $\pi\left(1 + r_C\right)L = \frac{1}{2}\left(\pi\left(1 + R\right) + 1\right)L$

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Profits of company and depositor

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Feasibility of direct lending

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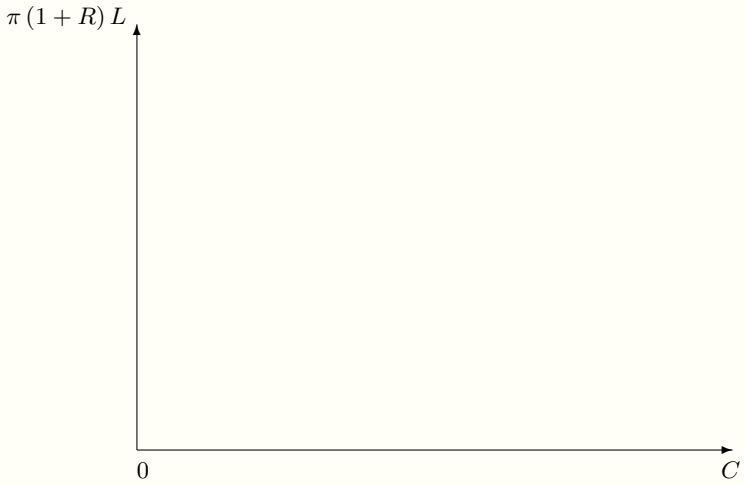

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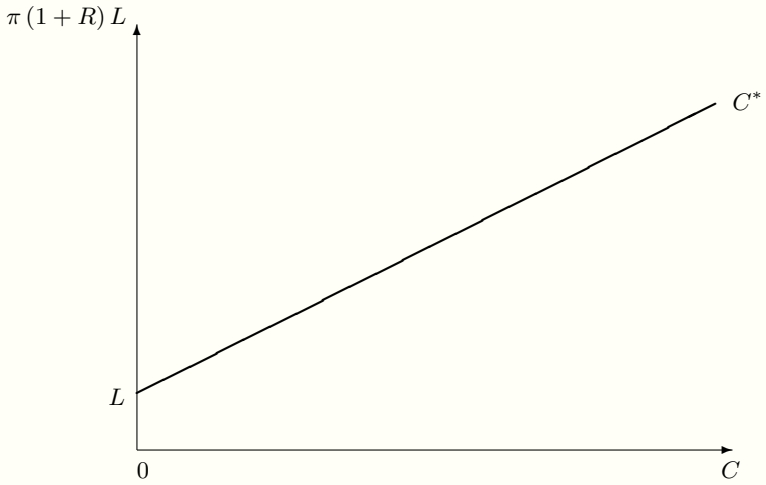

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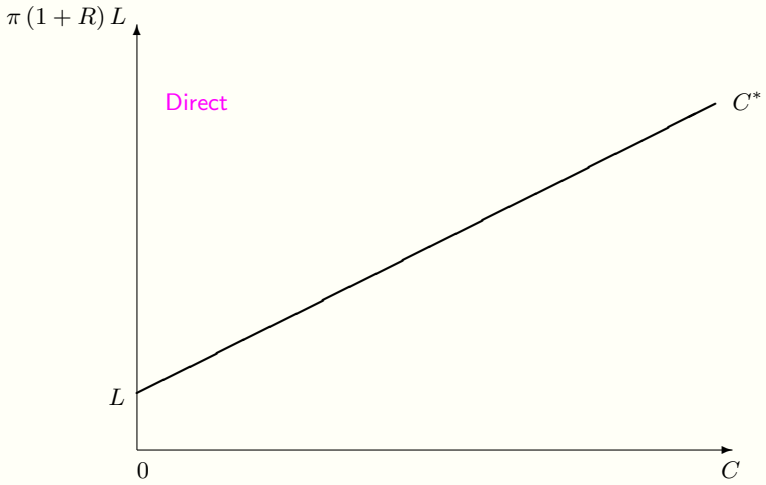

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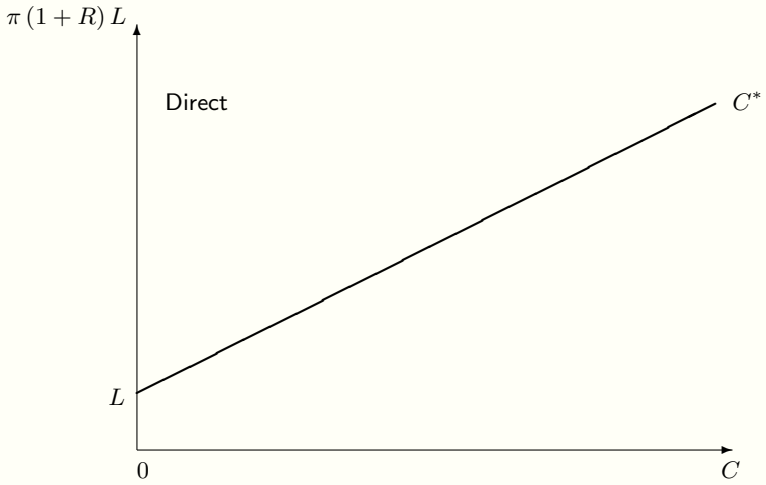

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- Company and depositor profits are as before

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- Company and depositor profits are as before, without negotiation costs

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- Banks can only repay deposits if the loan is repaid:
  $\Pi_B = \pi \left((1 + r_L) L - (1 + r_D) L \right)$

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Nash bargaining

- Bargaining happens between the bank/company and bank/depositor

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- If the parties do not agree, they do not face any costs

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Optimal loan and deposit rates

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- The profits are $\Pi_B = \Pi_C = \Pi_D$

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Optimal loan and deposit rates

- The profits are $\Pi_B = \Pi_C = \Pi_D$

$\Rightarrow$ Loan rate: $\pi\,(1 + r_L)\,L = \frac{2}{3}\pi\,(1 + R) + \frac{1}{3}$

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- Bank lending is only feasible if $\Pi_B = \Pi_C = \Pi_D \geq 0$

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Feasibility of bank lending

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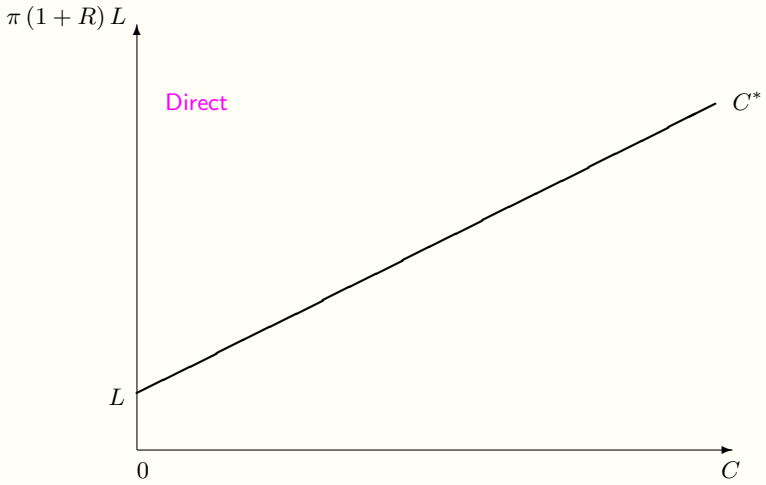

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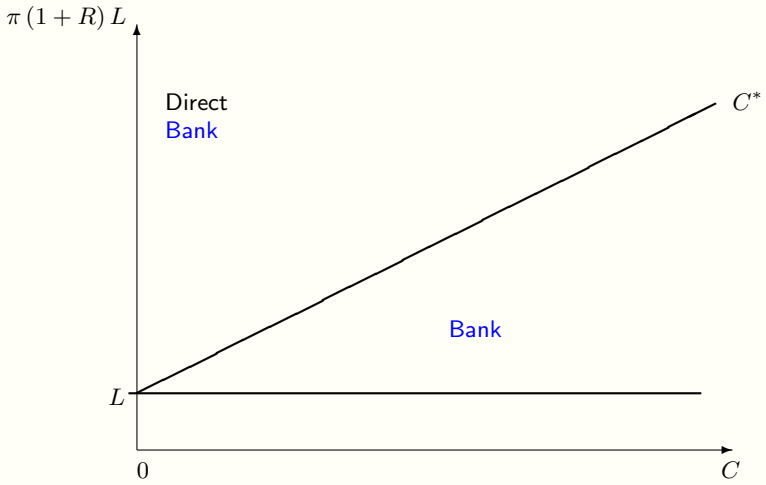

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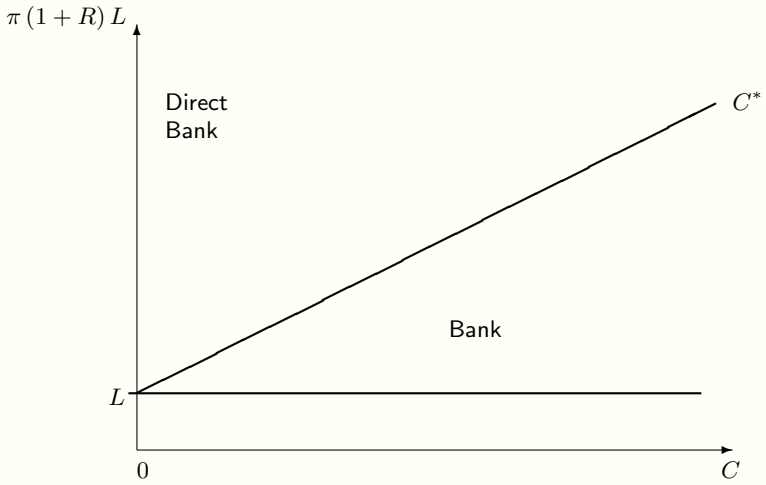

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Outside options

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$\Rightarrow \mathcal{L} = \Pi_B \left(\Pi_D - \hat{\Pi}_D \right)$

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Optimal loan, deposit and direct lending rates

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- Optimization yields $\Pi_C - \hat{\Pi}_C = \Pi_D - \hat{\Pi}_D = \Pi_B$

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Optimal loan, deposit and direct lending rates

- Optimization yields $\Pi_C - \hat{\Pi}_C = \Pi_D - \hat{\Pi}_D = \Pi_B$

$\Rightarrow$ Loan rate: $\pi\left(1 + r_L\right) L = \pi\left(1 + r_D\right) L + \frac{2}{3} C$

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Direct lending rate: $\pi\left(1 + r_C\right) L = \pi\left(1 + r_D\right) L + \frac{1}{3} C$

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Profits of market participants

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Profits of market participants

- $\Pi_B = \frac{2}{3}C > 0$

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Profits of market participants

- $\Pi_B = \frac{2}{3}C > 0$: banks are always willing to lend

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- $\hat{\Pi}_C = \Pi_C - \frac{2}{3}C < \Pi_C$: companies prefer banks

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Profits of market participants

- $\Pi_B = \frac{2}{3}C > 0$: banks are always willing to lend
- $\Pi_D = \pi\left(1 + r_D\right)L - L$
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Participating in the market

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Feasibility of co-existence of direct and bank loans

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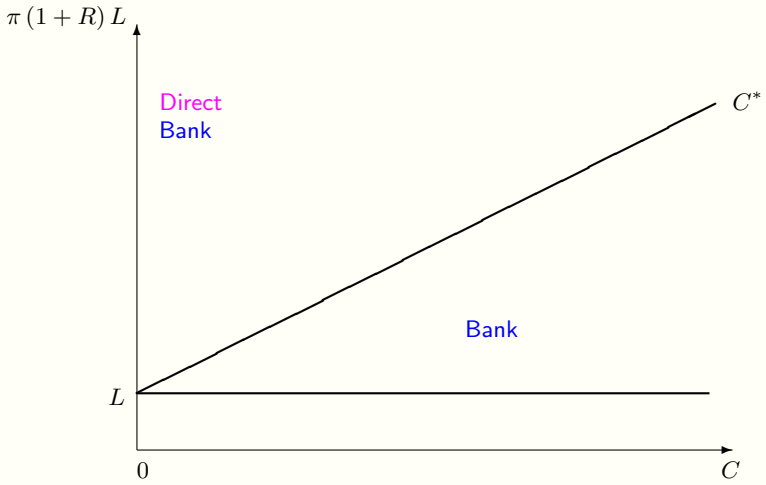

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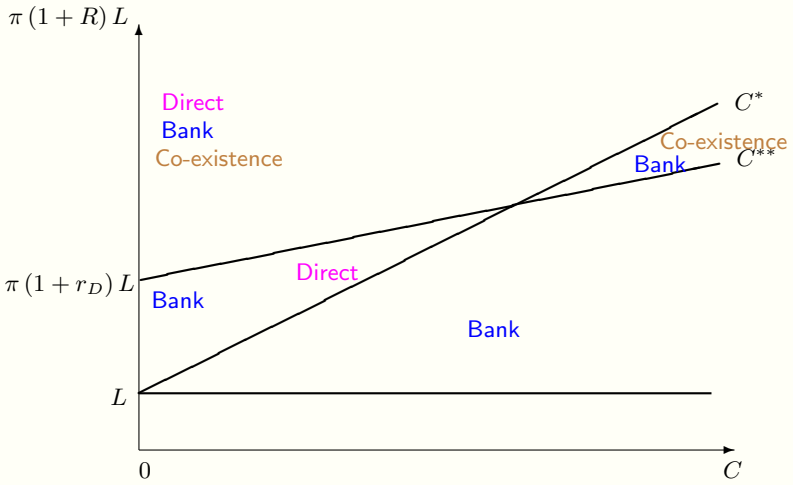

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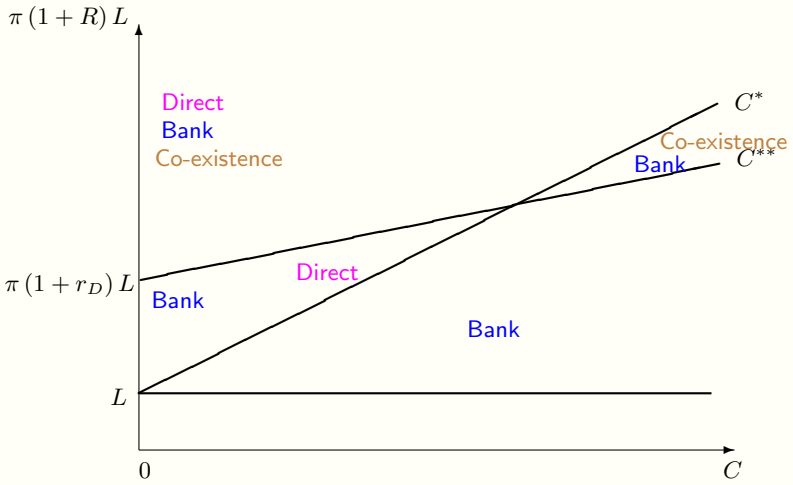

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- Problem and model assumptions
- Direct lending only
- Bank lending only
- Direct and bank lending
- Market structure
- Summary

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Preferred market structure

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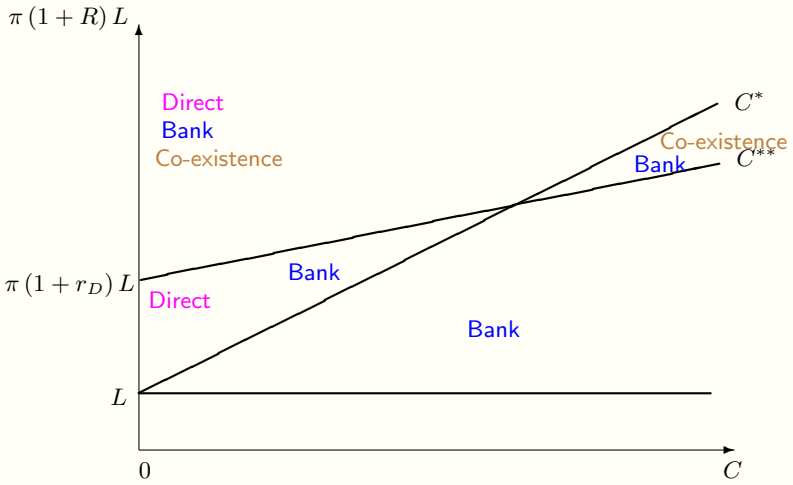

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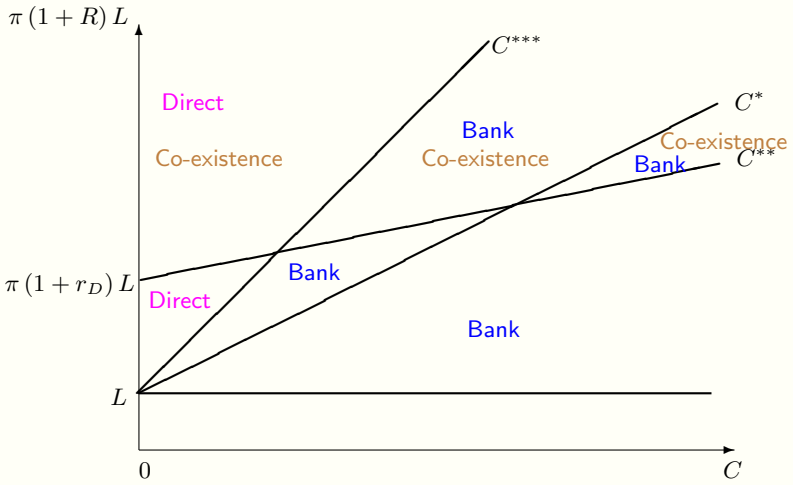

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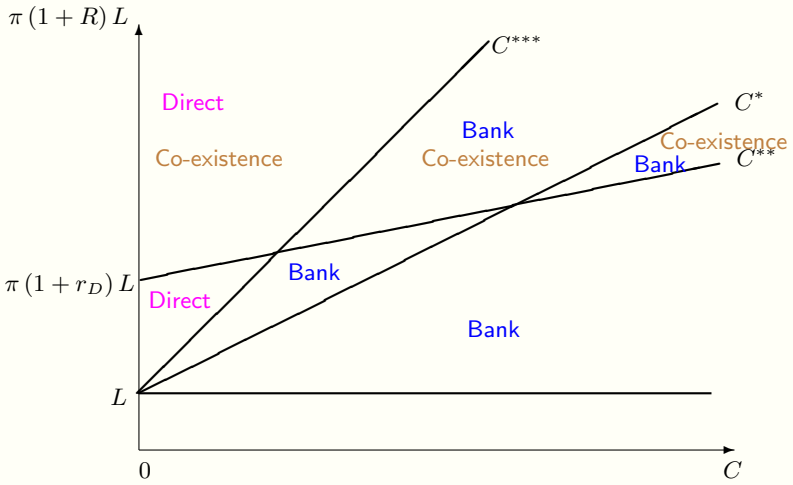

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Preferred market structure of depositors and companies

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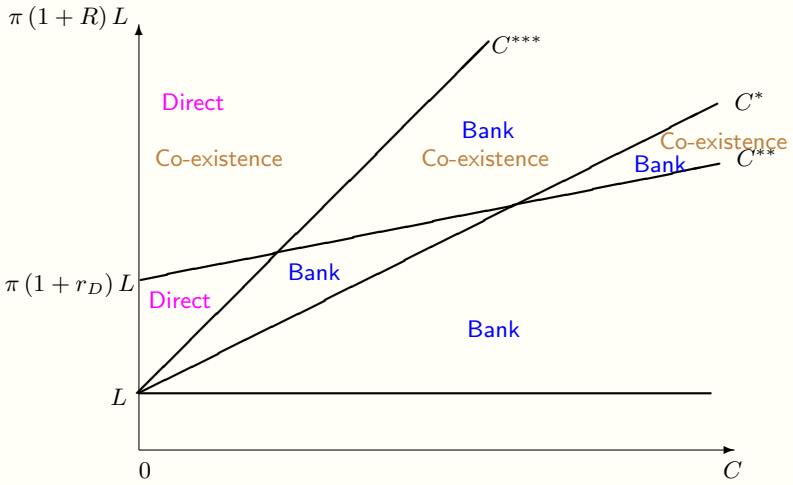

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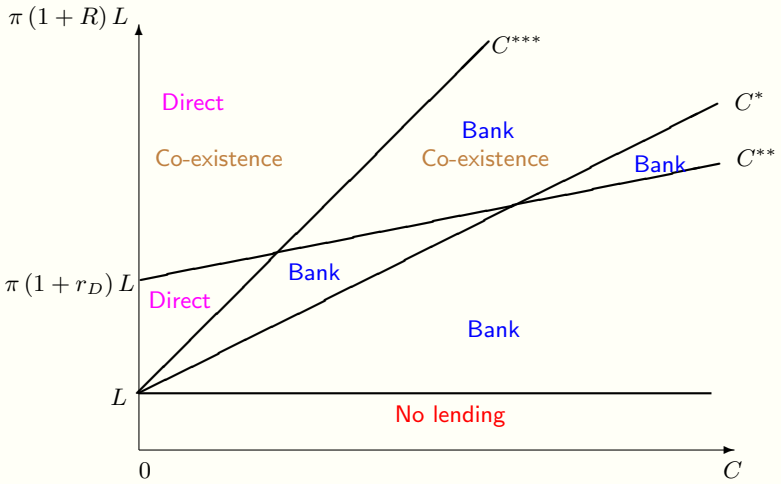

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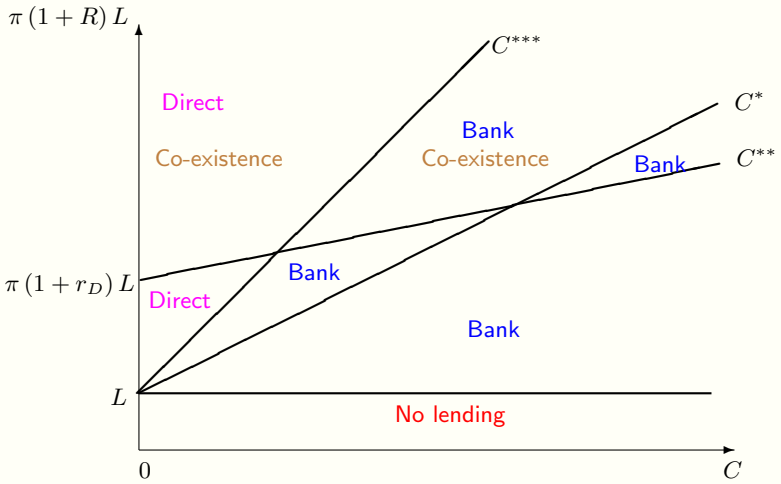

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Widespread preference for banks

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Observed lending

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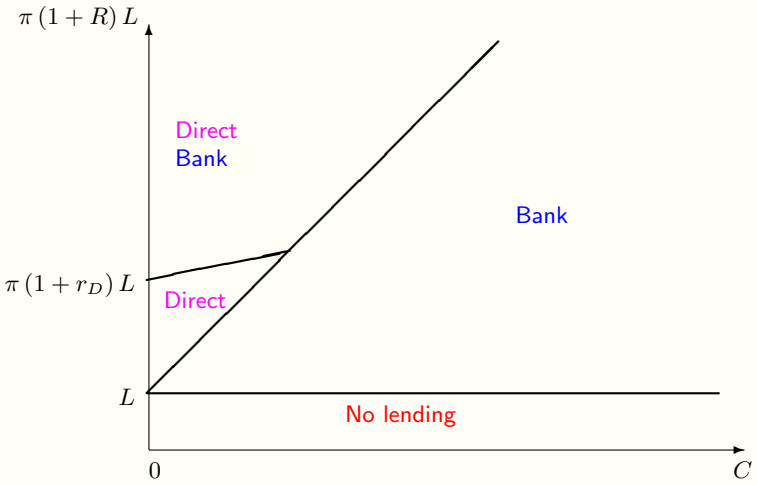

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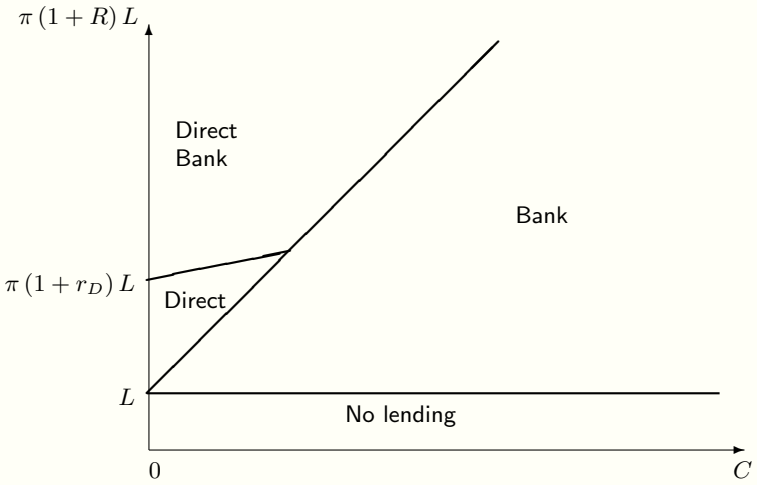

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Advantage of banks

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