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Reinvented markets and financial intermediation

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Traditional story

“Traditional” approach to Fintech

What if some banks innovate?

Liabilities/ Depositors

Assets/ Borrowers

Important questions

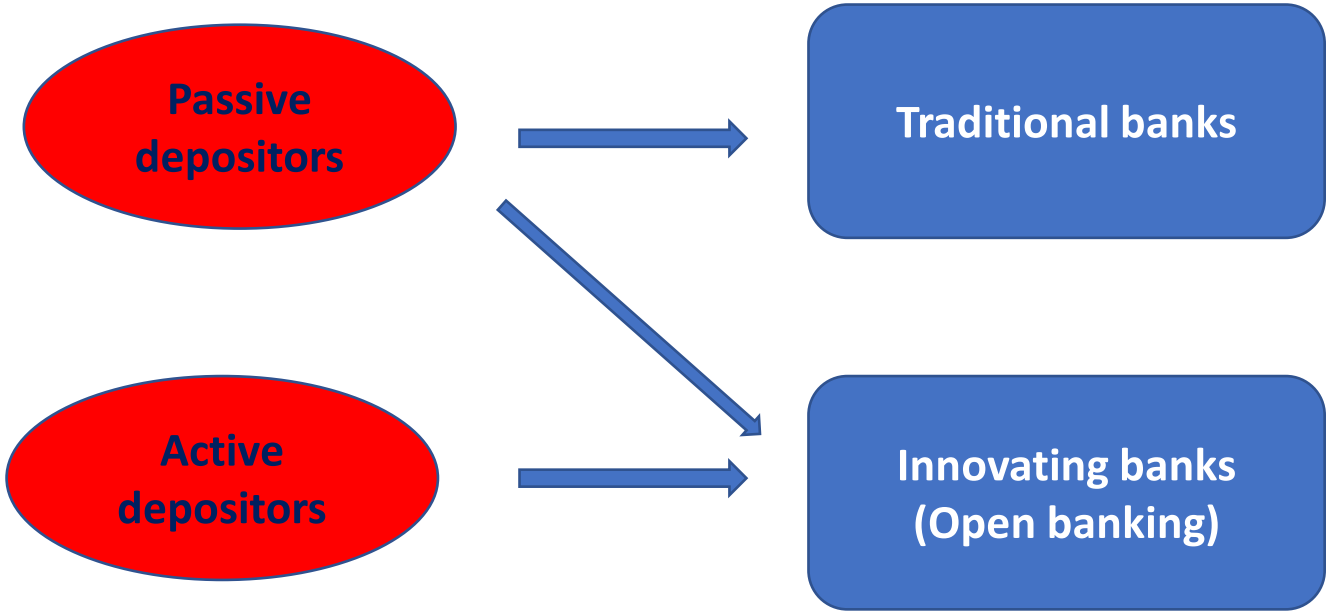
- How effective is “traditional” regulation of banks in maintaining banking stability?
  - Capital requirements
  - Deposit rate ceilings

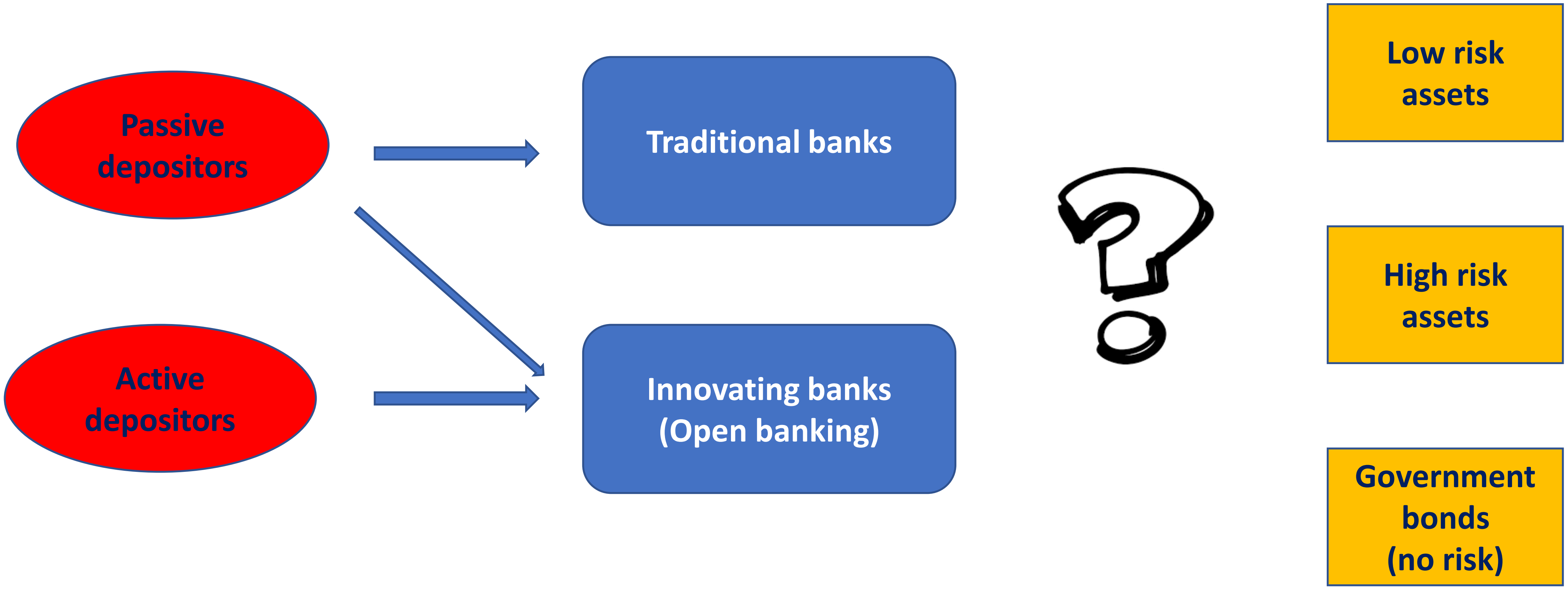
- Is financial innovation beneficial? If yes, to whom?
- How does financial innovation affect the risk taking by banks?
- How does financial innovation affect market structure?

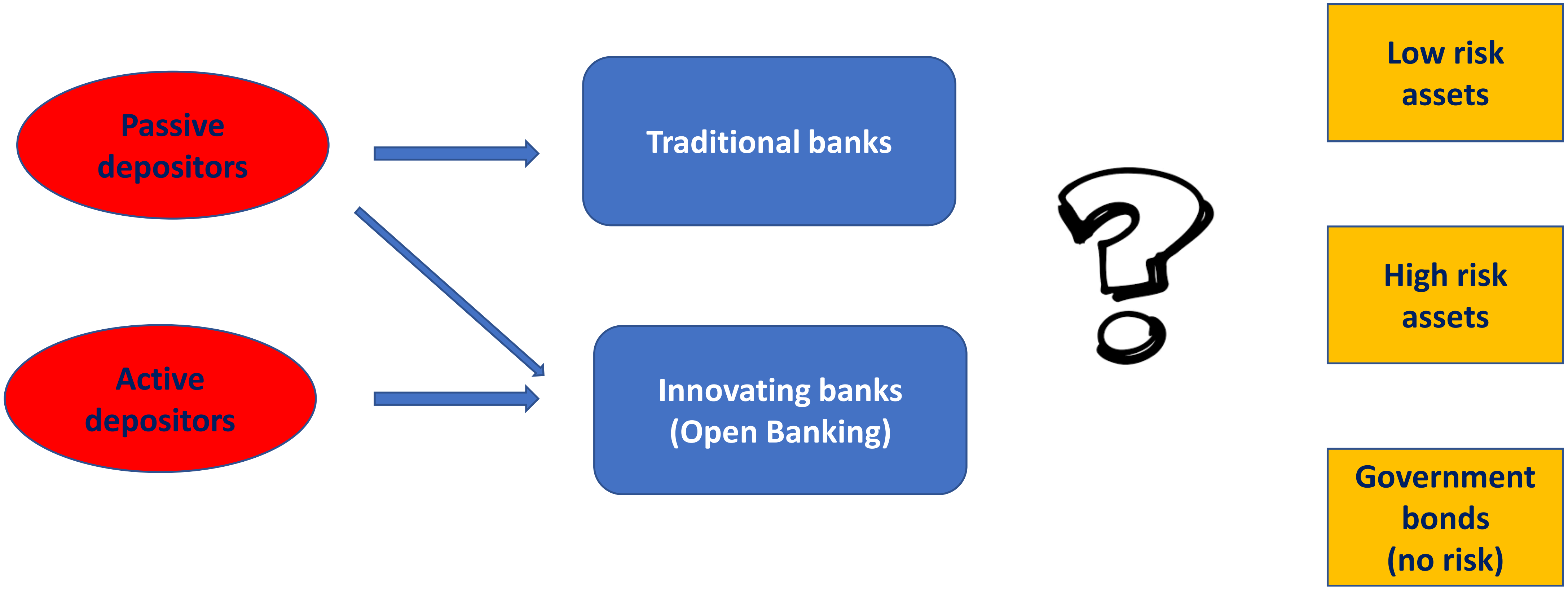
- Eccles, P., P.A. Grout, P. Siciliani and A. Zalewska (2023) Open banking, shadow banking and regulation, Bank of England Staff Working Paper 1039 https://www.bankofengland.co.uk/working-paper/2023/open-banking-shadow-banking-and-regulation

- Eccles, P., P.A. Grout, P. Siciliani and A. Zalewska (2021) The impact of machine learning and big data on credit markets, Bank of England Staff Working Paper 930 https://www.bankofengland.co.uk/working-paper/2021/the-impact-of-machine-learning-and-big-data-on-credit-markets

When banks compete for borrowers …


Passive depositors
Active depositors
Traditional banks
Innovating banks (Open banking)


Passive depositors
Active depositors
Traditional banks
Innovating banks (Open banking)
Low risk assets
High risk assets
Government bonds (no risk)



- Traditional banks set low deposit rates
- Innovative banks set higher deposit rates to compete for depositors using OB
- At the margin, profits of traditional and innovating banks are the same

A capital requirement increases

- Traditional banks
  - cannot lower deposit rates
  - profits are reduced
- Innovating banks
  - competition lowers deposit rates
  - profits are unaffected

- traditional banks become innovative banks
- risk of the banking sector increases

If a capital requirement is high enough

- Traditional banks
  - cannot lower deposit rates
  - profits are reduced so much that to avoid CR biting, invest in sovereign debt
- Innovating banks
  - risky projects are unattractive

All banks invest in sovereign debt since it does not carry a capital requirement (no investment in the private sector)

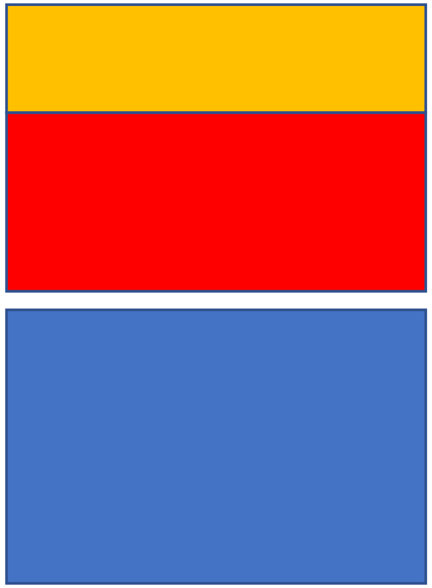
Also …

- Deposit rate ceiling:
  - A decrease in DRC increases profitability of innovating banks making them more attractive
  - The risk of the sector increases
- Shadow banking:
  - An increase in shadow banking benefits traditional banks (i.e., they benefit more than innovating banks from depositors who do not move to shadow banking)
  - The risk of the sector decreases

When banks compete for lenders…

The starting point

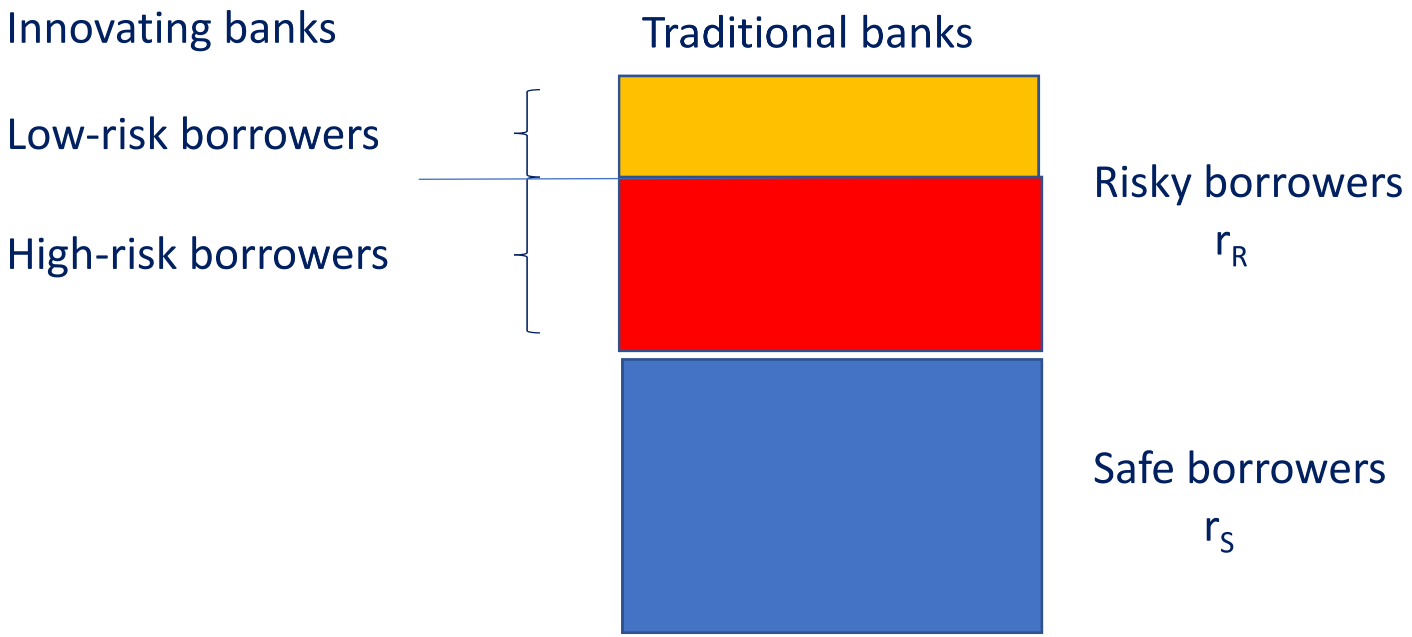
Traditional banks



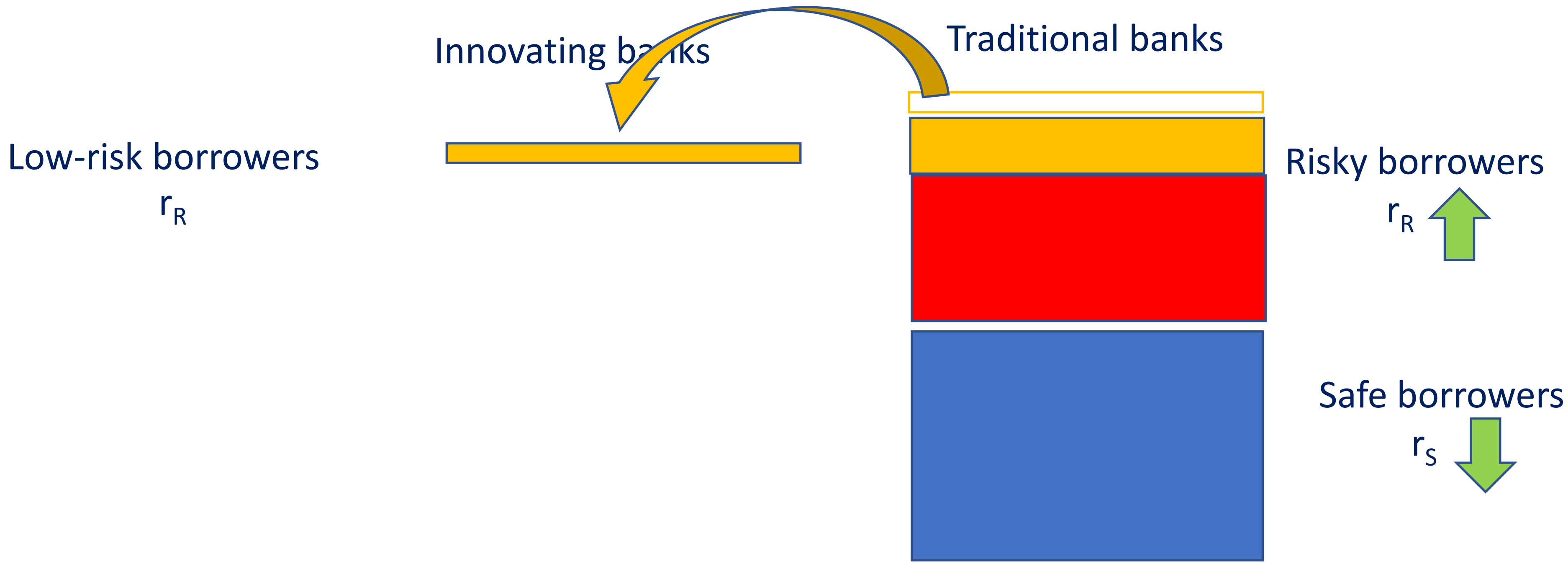
Risky borrowers
r_R

Safe borrowers
r_S

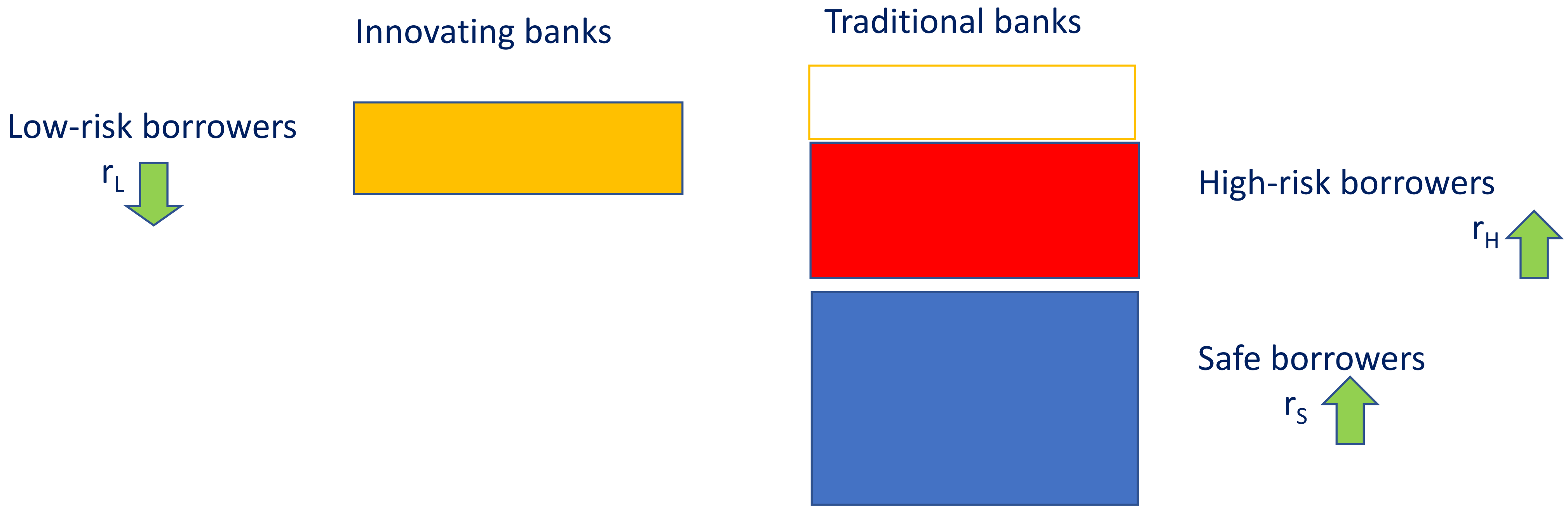
The starting point

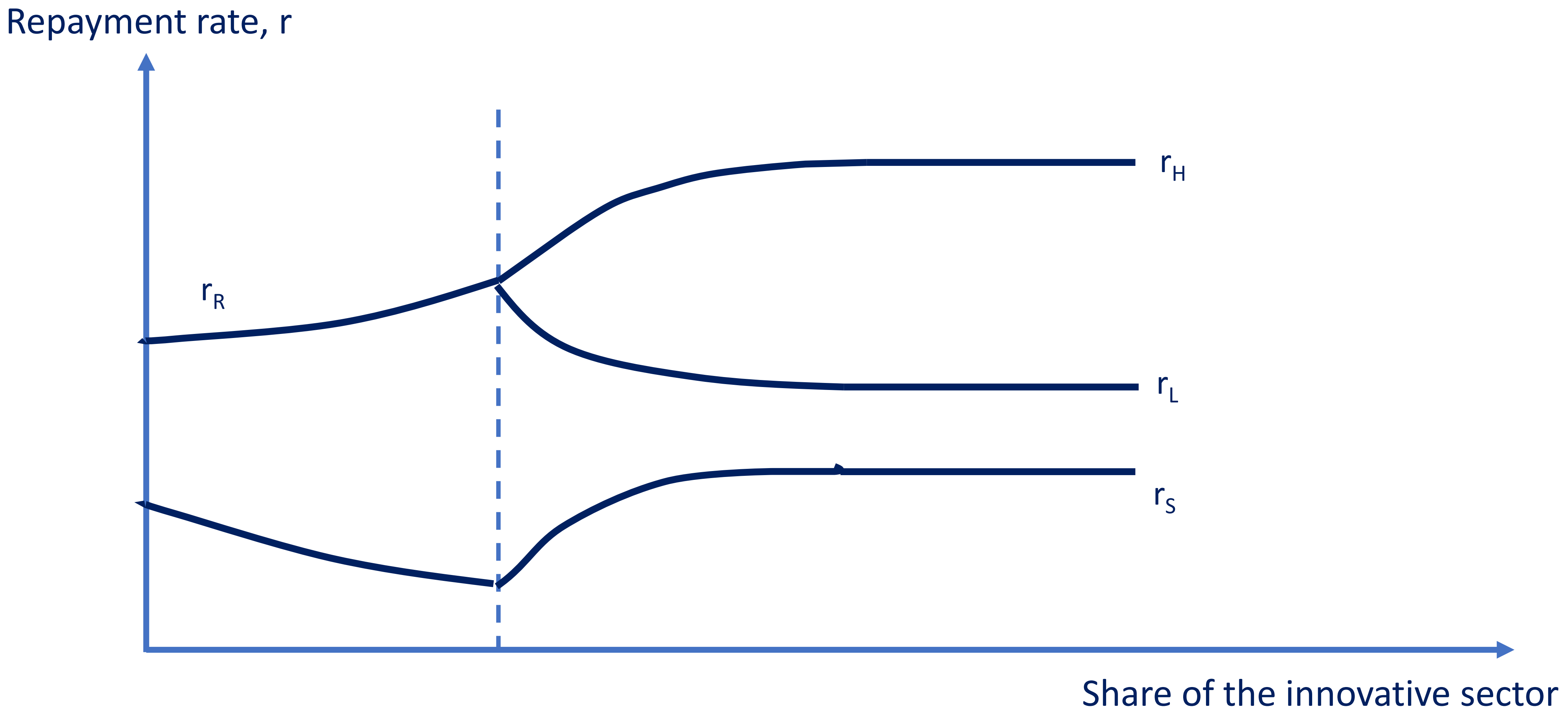


The increasing risk premia scenario

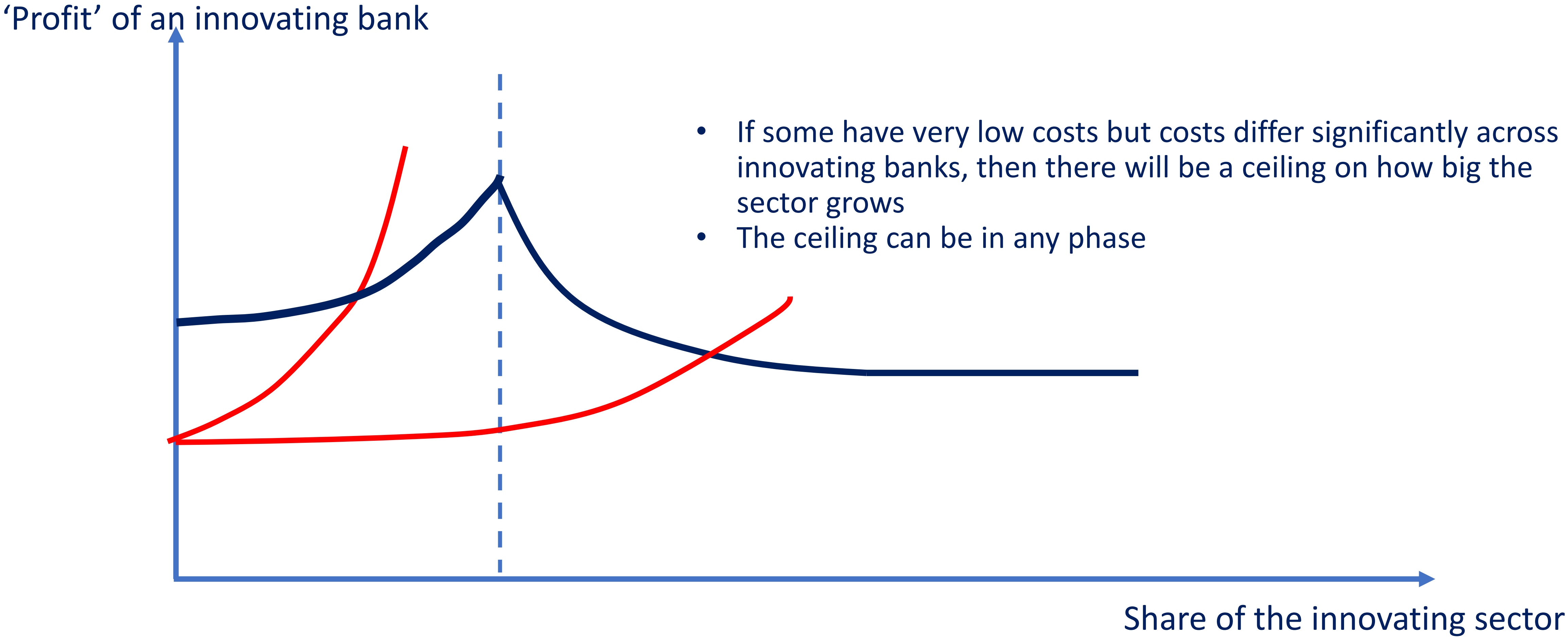


The segregated scenario



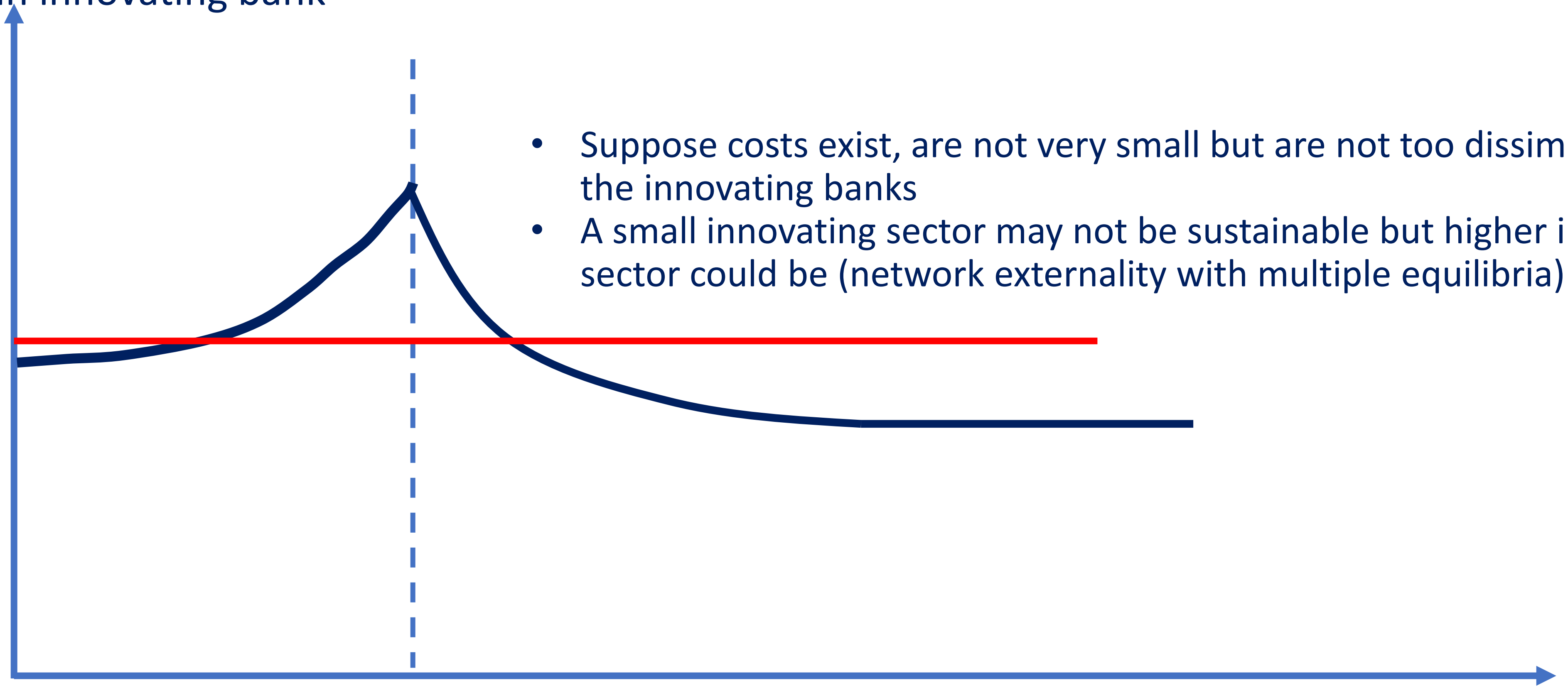

Repayment rate, r
r_H
r_R
r_L
r_S
Share of the innovative sector

When the cost of innovation differs across banks



- If some have very low costs but costs differ significantly across innovating banks, then there will be a ceiling on how big the sector grows
- The ceiling can be in any phase

Possible multiple equilibria



- Suppose costs exist, are not very small but are not too dissimilar across the innovating banks
- A small innovating sector may not be sustainable but higher innovating sector could be (network externality with multiple equilibria)

Imperfect ML technology

- If the ML technology is not perfect (but still very accurate), then it makes sense for innovativng banks to lend to low-risk borrowers
  - ‘Cream skimming’

- If the ML technology is not perfect (and quite poor), then if there are many type high-risk borrowers in comparison with low-risk borrowers, it is possible, then innovating banks may prefer lending to high-risk borrowers
  - ‘Bottom fishing’

Conclusions

- "Traditional" regulatory tools designed to lower risk taking by banks can increase the risk of the banking sector (even if risk of a typical bank does not increase)
- Fintech can bring benefits but they are not guaranteed
  - Quality of Fintech
  - Cost of Fintech adoption
  - Structure of the market

Policy implications

- One-size-fits-all regulation can be counterproductive
- Sovereign debt should have a positive weight (even when sovereign debt is risk free)
- ML based sector needs to be sizable to bring benefits (too small benefits individual banks but not borrowers), so some form of government support may be needed