

1. Motivation

- ▶ No consensus regarding the relationship between bank concentration and risks.
 - Positive relationship: Boyd and De Nicolo (2005).
 - Negative relationship: Corbae and Levine (2018).
- ▶ Role of **Bank capital** in shaping the **concentration-risk relationship**:
 - Bank capital is positively correlated with bank concentration in U.S.
 - Bank capital matters for financial risks.

2. Research Questions

- ▶ How does bank capital affect the concentration-risk relationship?

3. Entrepreneurs' Problem

- ▶ Entrepreneurs choose between
 - Gambling project: return of αz with prob. of p , and nothing o.w.
 - Prudent project: return of z with prob. of 1.
- ▶ Limited liability for entrepreneurs.
- ▶ Entrepreneurs are financially constrained ($k \leq \lambda a$).
- ▶ Entrepreneurs' Decision: 4 types of entrepreneurs.

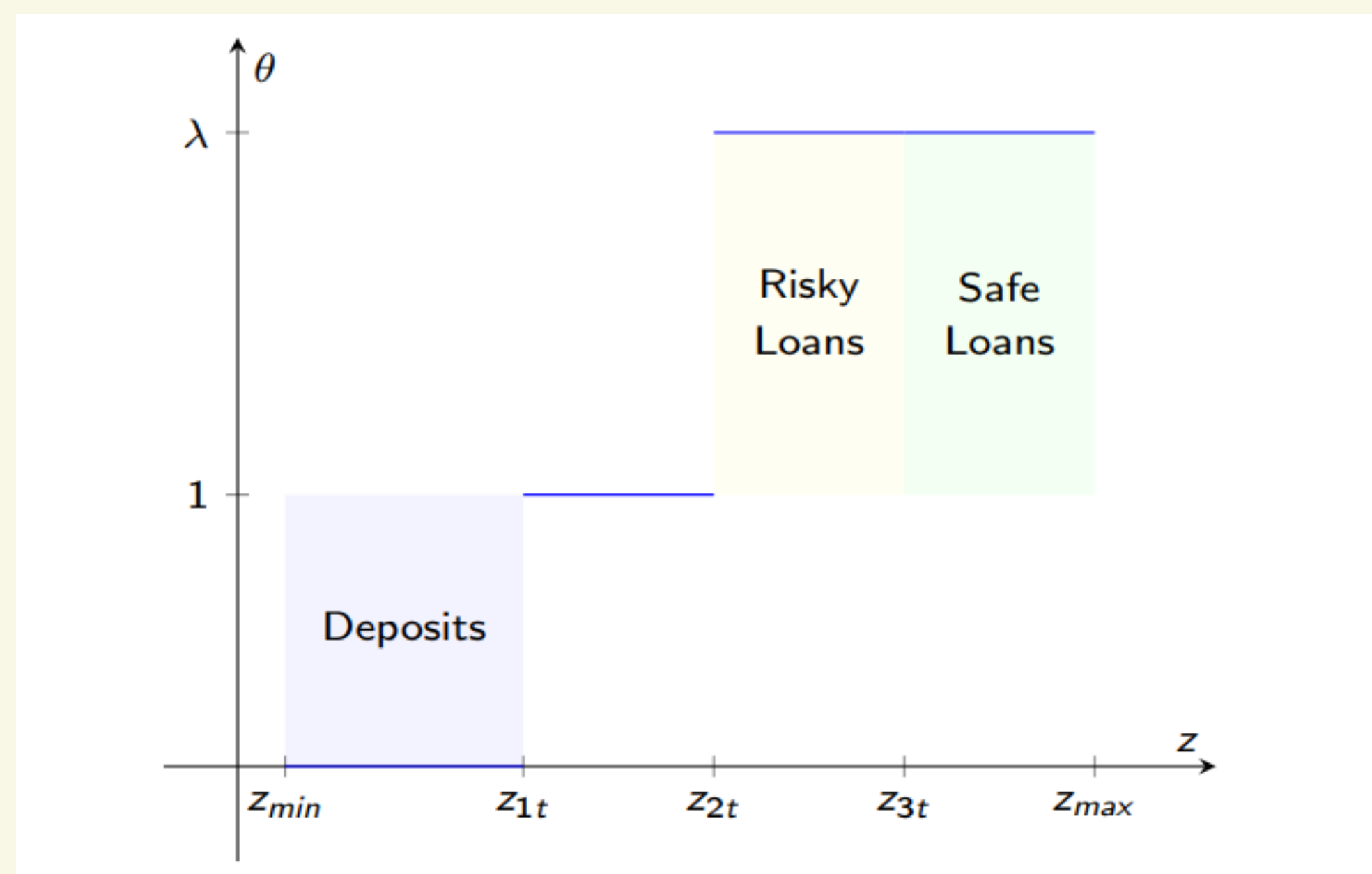


Figure: Productivity z and Leverage θ

4. Bankers' Problem

- ▶ M bankers compete for loans (Q^L) and deposits (Q^D) à la Cournot.
- ▶ Asymmetric information between bankers and entrepreneurs.
- ▶ Budget constraint:

$$c^b + q'N' \leq p^e(1 + r^b)qQ^L - (1 + r^d)qQ^D$$

where q is the price of capital, p^e is the expected repayment rate of loans, N is bank capital, and r^d and r^b are deposit and loan rates.

- ▶ Banker's balance sheet identity: $Q^L = Q^D + N$.
- ▶ Bank capital constraint: $N \geq \kappa Q^L$.
- ▶ **Risk shifting mechanism** in the partial equilibrium:

$$\frac{\partial p^e}{\partial r^b} < 0$$

5. Two Mechanisms

- ▶ **Risk shifting mechanism** in the general equilibrium \Rightarrow Positive or Negative concentration-risk relationship.
 - bank concentration $\uparrow \Rightarrow$ loan rate $\uparrow(\downarrow) \Rightarrow$ risks $\uparrow(\downarrow)$.
 - The direction of risk shifting mechanism in the general equilibrium depends on how bank concentration affects loan rate.
- ▶ **Net margin mechanism** \Rightarrow Negative concentration-risk relationship.
 - bank concentration $\uparrow \Rightarrow$ Net interest margin $r^b - r^d \uparrow \Rightarrow$ autarky entrepreneurs $\uparrow \Rightarrow$ loan size $\downarrow \Rightarrow$ risks \downarrow .

6. Bank Concentration and Loan Rate

- ▶ **Innovation: The relationship between bank concentration and loan rate is non-monotonic.**
 - Loan rate starts to decline when bank capital constraint is NOT binding.

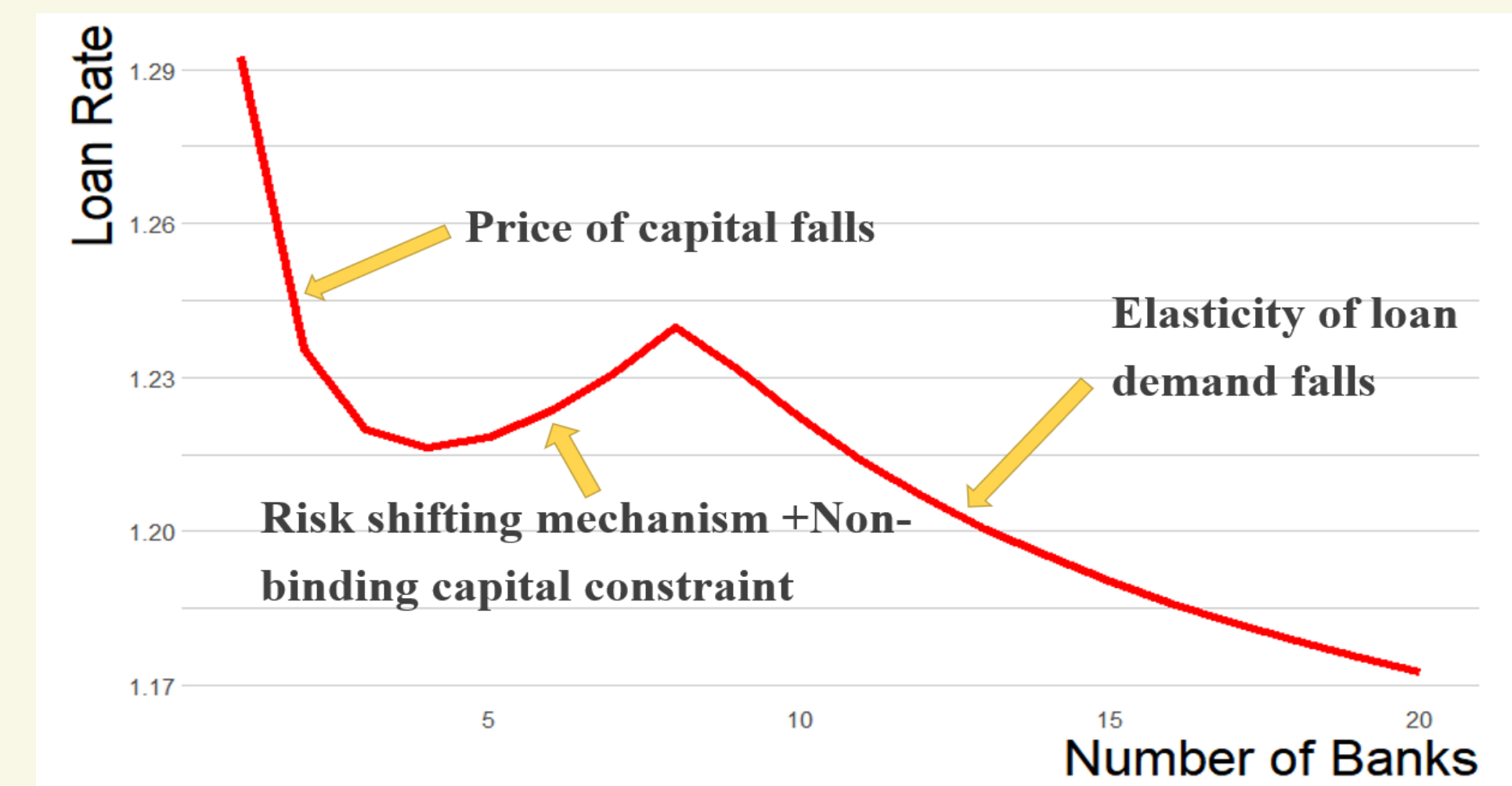


Figure: Number of Bankers (M) and Loan Rate r^b

- ▶ Bank concentration and loan rate in the data.

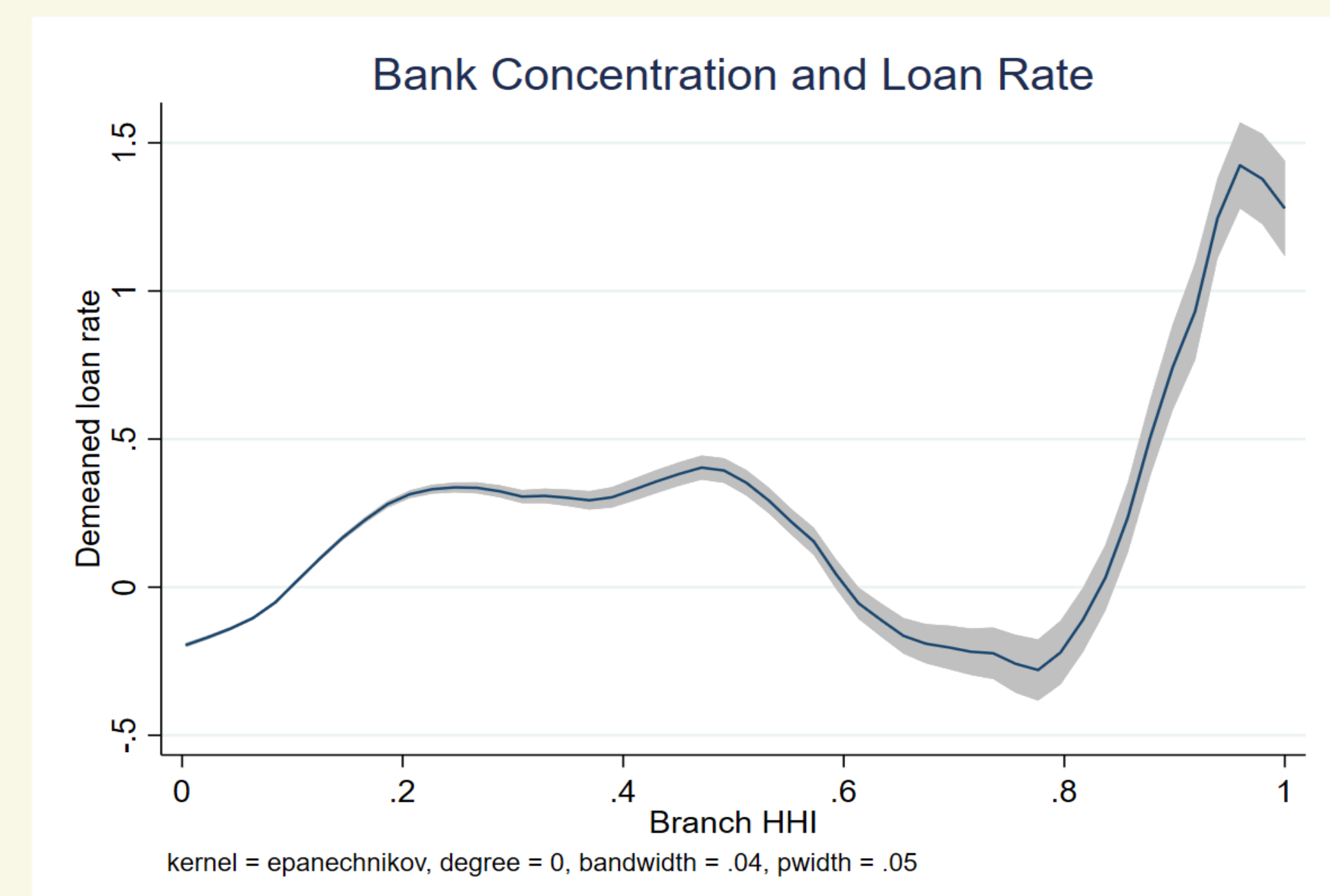


Figure: Bank HHI and Loan Rate

- ▶ Note: Bank HHI in the data inversely approximates the number of bankers in the model.
- ▶ More specific empirical analysis is provided in the paper!

7. Bank Concentration and Risks

- ▶ Risk measure: how much capital is used in gambling projects.

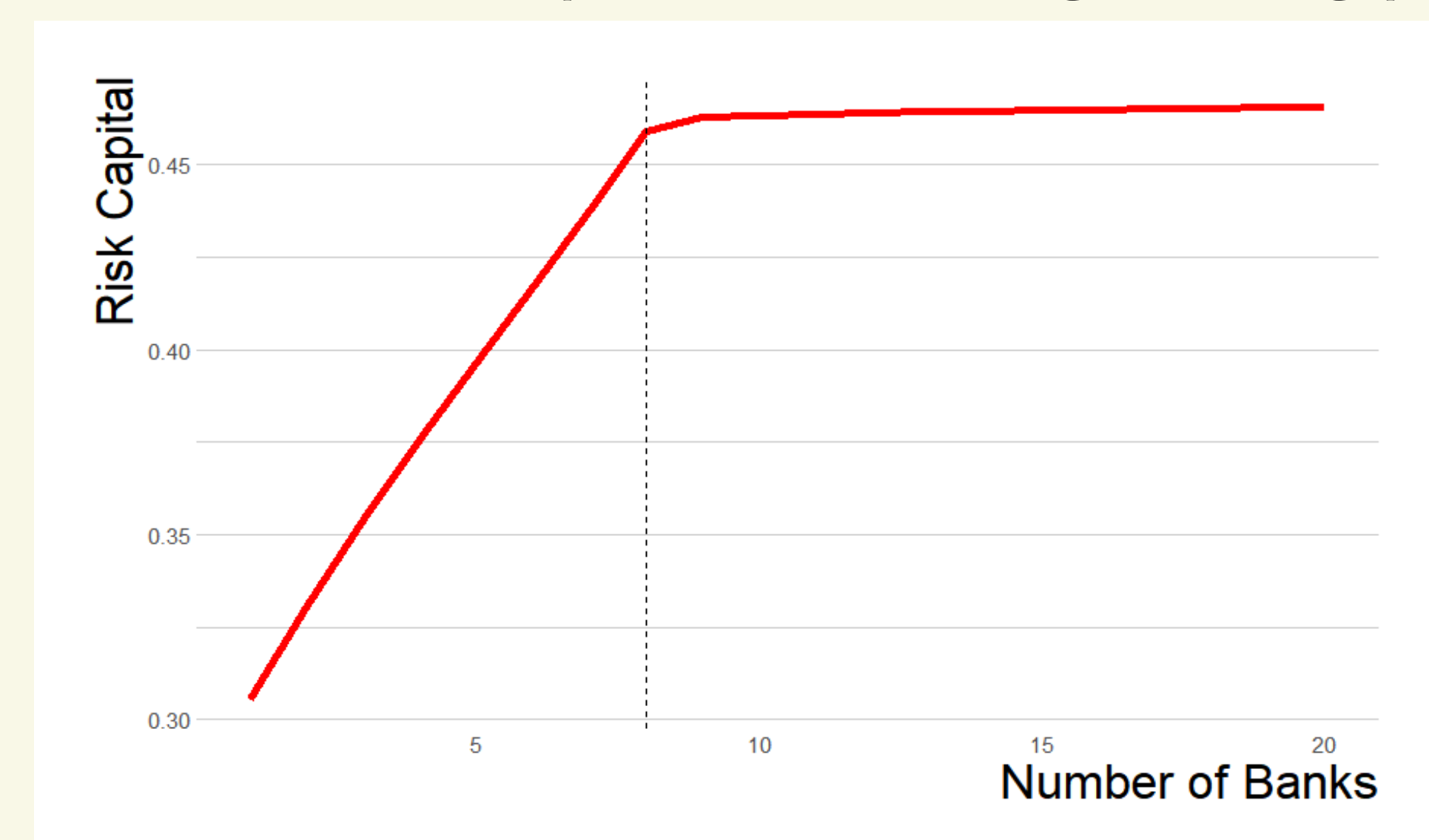


Figure: Bank Concentration and Risky Capital

8. Key Takeaways

- ▶ When bank capital constraint is binding \Rightarrow ambiguous relationship between bank concentration and risks.
 - The two mechanisms operate in an opposite direction.
- ▶ When bank capital constraint is non-binding \Rightarrow negative relationship between bank concentration and risks.
 - The two mechanisms operate in the same direction.

