"The state-dependent impact of changes in bank capital equirements" by Hannes Lang and Menno

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The paper in a nutshell

▶ Imagine that the capital constraint is binding for a bank, then, if (i) a bank's capital is constant (it cannot issue new capital), and (ii) its assets are short-term:

$$\frac{E}{\omega L_i} = R \Rightarrow \Delta \log R = -\Delta \log L_i.$$

▶ If all the banks face a binding capital constraint, then (quantity channel)

$$i^A = \frac{\lambda - \log \int L_i di}{\epsilon} \Rightarrow \Delta i^A = \frac{\Delta \log R}{\epsilon}.$$

▶ However, when banks can issue equity (or they all hold a voluntary capital buffer), banks solve the problem:
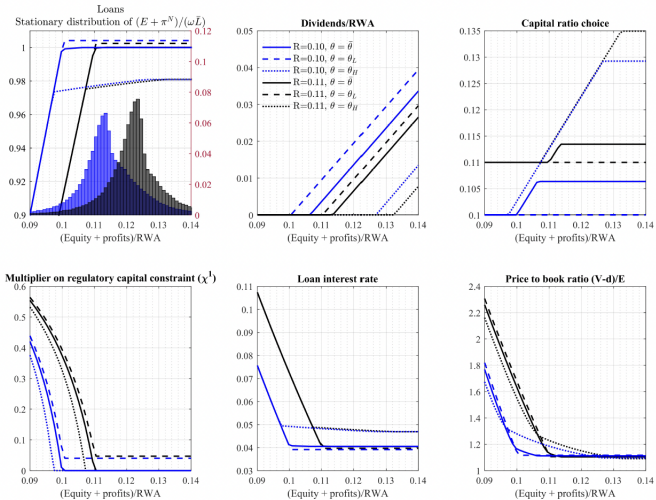
$$\max_{L',E'} d + \frac{1}{1+\rho} d'$$

s.t.

$$d = \overbrace{i^A L - i^D (L - E)}^{\text{Net interest income}} - \overbrace{(E' - E)}^{\text{Change in capital}} ,$$

$$\frac{E}{\omega L} \geq R.$$

▶ The first order conditions are (pricing channel)

$$\log L = \lambda - \epsilon \left[\left(\rho - i^D \right) \omega R \right] \Rightarrow \Delta \log L = -\epsilon \left[\left(\rho - i^D \right) \omega \Delta R \right].$$

Figure 7: Policy functions of the calibrated model

Comments

1. Do banks deleverage so fast?

2. Can bank heterogeneity help support the results?

3. How relevant is to miss endogenous deposit funding?

1. Do banks deleverage so fast?

- ▶ In the paper, banks do not default and can perfectly adapt their (short-term) asset structure → if a (large) negative shock arrives, they are forced to deleverage instantaneously.

- ▶ In reality, banks hold long-term assets (maturity transformation) → this suggests that, if a (large) negative shock arrives, they would be forced to default or deleverage over long periods of time.

2. Can bank heterogeneity help support the results?

CET1 Ratio Distribution 2021
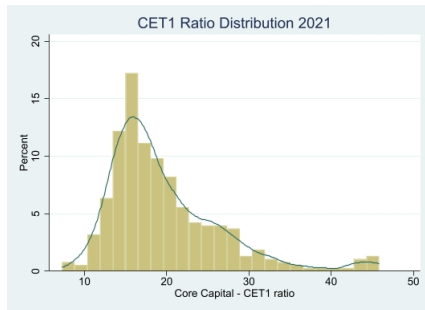
Banks are quite heterogeneous in their capital ratios → Do banks at/closer to the regulatory ratio experience a larger increase in loans when the regulatory constraint is relaxed?

3. How relevant is to miss endogenous deposit funding?

▶ Imagine the deposits rates are also endogenous

$$i^D = \frac{\mu - \log \int D_i di}{\eta}.$$

▶ A change in the regulatory ratio through this mechanism leads to

$$\uparrow R \rightarrow \uparrow E, \downarrow L \rightarrow \downarrow D \rightarrow \downarrow i^D \rightarrow \uparrow L, \uparrow E$$

so that the total impact through the pricing channel can be reversed for loans, right?

Final thoughts

▶ State-dependency in Jimenez et al. (2017) seems to be about credit demand and loan quality, not about banks at the regulatory constraint.

▶ Tension between a qualitative (theory) paper, and a quantitative (computational) one.

▶ Original paper, easy to read and well executed. Congratulations!