

Prudential Policies in Good and Bad Times

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Motivations

- “Macropru” is hot in Washington DC
- Why?
- The global financial crisis
 - exposed the limits of the existing regulatory framework in avoiding an excessive accumulation of risk during booms
 - called for instruments that could limit financial sector procyclicality
- “Macropru” is hot in Ankara and Brasilia
- Why?
- Same reasons *and* abundant liquidity and low yields in advanced economies
 - EM need effective instruments to control credit in presence of speculative capital inflows

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- Vast literature discussing the purposes of macroprudential regulation in dealing with different kinds of externalities
- and a growing one looking at the effectiveness of macroprudential measures in smoothing the business cycle
- However, we need to know more
 - about the relative effectiveness of different prudential instruments in affecting the behavior of financial intermediaries in different moment of the business cycle
 - and on how the interaction between such instruments affects incentives

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- The policy literature highlights two reasons of why countercyclical regulation should be in place.
 - 1 avoiding individual banks' excessive risk taking during booms
 - incentives
 - risk measurement problems
 - 2 mitigating instability in the financial system as a whole
- To simplify
 - 1 focuses on cyclical risk (at the bank level) and is *microprudential*
 - 2 focuses on cross-sectional risk and is *macroprudential*

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- Basel III considers
 - the introduction of cyclical CARs
 - of liquidity requirements, and Net Stable Funding Ratios (NSFRs)
- How the introduction of each instrument affects risk taking and credit volumes?
- How do these instruments interact
 - between themselves?
 - with monetary policy?

Main Results

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- Capital and liquidity requirements (NSFRs) increase lending rates
- BUT while capital requirements make banks more prudent, NSFRs make them engaging in riskier behavior
- Looking at the trade-offs between risk and credit volumes, capital requirements should be anticyclical even from a microprudential perspective
- Optimal capital requirements are complements to both liquidity requirements and monetary policy

The Setup (I)

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- Monopolistic competitive banks face a demand for loans

$$L = (A - \beta R)$$

- R lending rate
- A measures the strength of credit demand
- Banks choose a level of monitoring effort q ($q \in [0, 1]$)
- q also represents the probability that the loan is repaid
- The cost of monitoring is $c(q) = \frac{cq^2}{2}$

The Setup (II)

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- Banks have the choice between
 - volatile demand deposits (r)
 - (stable) time deposits ($r + \tau$)
- Since both type of deposits are fully insured, banks choose demand deposit
 - with probability μ/λ a fraction λ of demand deposits are withdrawn from the bank
- Problem of the bank:

$$\text{Max}_{q,R} \Pi = \left(q(R - r) - \frac{cq^2}{2} \right) (A - \beta R)$$

Benchmark Case

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$$\text{Max}_{q,R} \Pi = \left(q(R - r) - \frac{cq^2}{2} \right) (A - \beta R)$$

- Three sources of regulatory concern
 - 1 Limited liability: banks take on excessive risk
 - 2 Deposit insurance: banks rely on short term financing
 - 3 Monopolistic power: banks set excessively high lending rates

Introducing Prudential Regulation

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- The regulator imposes
 - a capital requirement equal to a fraction $\phi \in [0, 1]$ of total loans,
 - capital costs $(r + \kappa)$
 - net stable funding ratios (NSFRs), γ , to cover expected withdrawals
 - $\gamma = \phi + (1 - \phi)\zeta$

$$\text{Max}_{q,R} \Pi = \left(q(R - \theta(\bar{\phi}, \gamma, r)) - \phi(r + \kappa) - \frac{cq^2}{2} \right) (A - \beta R)$$

Credit and Risk

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$$q^* = q(\overset{+}{A}, \overset{+/-}{r}, \overset{+}{\kappa}, \overset{+}{\phi}, \overset{-}{\gamma})$$
$$L^* = q(\overset{+}{A}, \overset{-}{r}, \overset{-}{\kappa}, \overset{-}{\phi}, \overset{-}{\gamma})$$

Remark

An increase in the cost of capital, κ , decreases the riskiness of the banks' loan portfolio, and the same does an increase in the quality of prospective loans, A . Credit volumes are also increasing in A , while they are decreasing in κ .

Remark

Both capital requirements, ϕ , NSFRs, γ , decrease the volume of credit in the economy; however, while capital requirements decrease the riskiness of the bank's loan portfolio, NSFRs increase it.



Good and Bad Times

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Result

The effectiveness of capital requirements, ϕ , in improving the quality, q , of banks' loan portfolio (i) increases with the cost of capital, κ , and (ii) with the quality of prospective loans, A

Result

The adverse affect of capital requirements, ϕ , on credit volumes, L , (i) increases with the cost of capital, κ , and (ii) decreases with the quality of prospective loans, A .

Welfare Analysis

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Assuming that NSFRs, γ , are set to cover expected withdrawals, the regulator:

$$\text{Max}_{\phi} W = \underbrace{\Pi}_{\text{Profits}} + \underbrace{(1 - q)\theta}_{\text{Limited liabilities cost}} + q \underbrace{\int_R^{A/\beta} (A - \beta x) dx}_{\text{Borrowers' surplus}}$$

$$\phi^* = \phi(A, \bar{\kappa})$$

Result

Optimal capital requirements are countercyclical

Countercyclical Capital Requirements

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Result

Optimal capital requirements are countercyclical

Intuition

The costlier is capital, the higher is the banks' skin in the game for any level of capital requirements. In bad times, a small reduction in capital requirement affects credit volumes (which are very depressed) without leading to excessive risk taking; the opposite is true when capital is cheap

Intuition

When there is abundance of good projects, capital requirements are more effective in improving lending standards and also have a less adverse affect on credit volumes (than in periods where good projects are scarce)

Capital Requirements and Monetary Policy

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Result

The effect of monetary policy tightening on banks' risk taking depends on the level of capital requirements. For low levels of capital requirements, an interest rate hike increases the riskiness of the banks' loan portfolio (decreases q), the opposite is true if capital requirements are sufficiently high.

Intuition

Monetary policy affects banks' incentives in two ways: (i) by decreasing the returns in the case of success, and (ii) by increasing the banks' skin in the game. When capital requirements are low, the first effect dominates, when capital requirements are sufficiently high, the second does.

Capital Requirements, Liquidity Requirements, and Monetary Policy

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Remark

The effectiveness of capital requirements, ϕ , in improving the quality, q , of banks' loan portfolio increases with the the monetary policy rate (r), and with the level of NSFRs (γ).

Remark

The adverse effect of capital requirements, ϕ , on credit volumes, L , (i) increases with the monetary policy rate, r , and (ii) with the level of NSFRs (γ).

Result

The optimal level of capital requirements increases with the monetary policy rate and with liquidity requirements.

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- Does the effectiveness of prudential instruments such as capital or liquidity requirements vary with the business cycle? YES
- Should microprudential instruments be made cycle dependent? YES
- And they contribute to the smoothing of the business cycle!
- Complementarity between micro and macro prudential policies.

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- Different prudential instruments have different effects on risk taking incentives.
- Capital requirements always promote safer behavior, liquidity requirements don't.
- It is important to look at the macro effects of microprudential measures, BUT one should also look at the micro effects of macroprudential policies.
- Policies that aim at reducing risk associated with financial externalities may, increase banks' risk appetite.
- Micro and macro prudential may not always go hand in hand!

THANK YOU