The Procyclical Effects of Basel II

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Objective and Results

• Analysis of loan-supply cyclicality: Basel II vs I
  – borrowers locked into lending relationships; as a result,
  – balance-sheet quality impedes access to equity market

• Endogenous capital structure under exogenous shocks
  – ambiguous impact of capital requirements: buffer effect vs.
    future lending capacity depends on loan-loss distribution
  – numerical calibration: banks hold 2% to 5% excess capital

• Tradeoff between loan supply and bank failure
  – capital/loans: Basel II more/less cyclical than I or laissez-faire
  – small adjustments to IRB rules have large effects: QIS 3 to 5
Procyclical Capital Standards

• The conjecture: capital now determines future lending
  – default risk positively correlated with business cycle
  – IRB approach explicitly links bank lending to capitalization
• The fear: Basel II amplifies lending cycles
  – built-in feedback effects exacerbate business cycles
• The (not so hidden) agenda: “say it ain’t so”
  – linkages between capitalization, lending, and business cycle
• The doubt: banks hold more capital than required
  – empirical fact: capital more stable than lending over cycle
Comments: Model

• Endogenous dynamic capital-structure design
  – tractability: stylized equity, deposit, and credit market

• Key assumption: limited access to capital market
  – OLG matching model between firms and banks
  – banks need to hoard capital for bad times or go bust

• Static cross-sectional model: any dynamics?
  – banks access capital with time-varying probability

• Competition: various barriers to (free) entry?
Numerical Assumptions

• Given ambiguous comparative statics, use Basel II’s IRB rules (1/3) for parameterization
  – regulatory assumptions frame numerical analysis
  – taking into account endogenous reaction by banks
• From failure rate to default probability and back
  – failure distribution: Vasicek (2002), default rates
  – calibrated to Basel I standards, not actual defaults
• AH (2006, 2007): 2.7% to 5.8% delinquent
  – why not use FDIC or QIS data on delinquency?
Comments: Numerical Results

• Very high capitalization: in excess of 11%
  – excess capital higher and more volatile under BII
• Initial capitalization higher under Basel II than I
  – reflection of IRB or inability to raise external funds?
• Loan pricing very similar under Basel I and II
  – free-entry equilibrium: number of banks should vary across the (i) two Basels, (ii) business cycle
  – capital standards as a barrier to entry?
A Timely Reinterpretation

- Banks face extreme funding constraints caused by variations in asset quality over the cycle
  - hard to value assets, common exposures: lock-in
  - interbank market seizes up due to adverse selection
- Downturn increases default risk: capital crunch
  - banks’ inability to raise funds leads to credit crunch
  - inefficient bank failures: depends on state
- Solvency or liquidity crisis?
  - consequences depend on scenario assumptions
Policy Conflict and Welfare Question

• Paper suggests tension between monetary policy and prudential supervision

  • Monetary policy makers
    – smooth out lending cycles
    – to avoid cyclical feedbacks

  • Prudential supervisors
    – smooth out capitalization
    – to avoid bank failures

• Time inconsistency

  “Those who would give up bank soundness to purchase a little temporary growth deserve neither soundness nor growth” (Benjamin Franklin)
More Suggestions

- Capitalization: aggregation across time and banks
  - lending cycles: availability of funds as a function of current default
  - capitalization cycles: access to other forms of funding?
- Equilibrium number of banks: what about fixed costs/barriers?
- Bank failures and rescues: function of transition probabilities
- Fishing the pond empty (Gehrig and Stenbacka on screening cycles)
  - what about time-varying lending opportunities along the cycle?
- Relative size and importance of effects: rationing vs pricing
  - interpretation: “equilibrium buffers insufficient to neutralize effects of recession”
  - extension: welfare tradeoff w/ bank failure
- Exposition: written in FNs
  - more of the derivation into the Appendix, focus on numerical results
  - do we really care about interest rates?
  - terminology: credit rationing, expansion-recession
  - index t vs s: abuse of notation suggestive of the true static nature of model