

# Bank Capital Regulation, Lending Channel and Business Cycles

Longmei Zhang<sup>1</sup>  
Institute for Monetary and Financial Stability  
Goethe University, Frankfurt

Preliminary Draft  
March 2009

## Abstract

This paper develops a dynamic stochastic general equilibrium model to study how the instability of the banking sector can accelerate and propagate the business cycles. The model builds on Bernanke, Gertler and Gilchrist (1999), where credit demand friction due to agency cost is considered, but it deviates from BGG in that financial intermediaries have to share aggregate risk with entrepreneurs, and therefore bear uncertainty in their loan portfolios. After signing a loan contract based on two parties's expectation of the economic situation in the future, unexpected negative shock will lead to higher ex-post loan default rates, and the bank's capital faces larger write-offs because of unexpected loan losses. Given the bank capital regulation established by the Basel Accord (where banks have to hold a minimum capital to asset ratio), banks will face difficulty in the next period in raising capital because households perceive a higher bank default probability i.e., its capital level will fall below the regulatory threshold. Model simulation shows that instability of banking sector alone can create strong credit supply friction, and has a significant effect in accelerating short run cycles. In the long run, instability of the banking sector implies a lower capital stock in the economy and therefore a lower level of investment and output.

---

<sup>1</sup>The author thanks Deutsche Bundesbank for research support. Contact information: IMFS, Goethe University, Grueneburgplatz 1 (Box H 12), 60629 Frankfurt/Main, Germany, email: lozhang@wiwi.uni-frankfurt.de.