

Dissertation Proposal

Essays on Banking Stress and Interest Rate Spreads in Macroeconomics

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Risk-adjusted short-term interest rate spreads that could potentially reflect banking stress are predominantly absent from Macroeconomic models. A notable exception is Goodfriend and McCallum (2007) (GM-07) who develop a new Keynesian model with a costly money and banking sector. My work builds on their seminal work and extends their framework to investigate implications of banking shocks on money and banking and real economy.

My first paper is motivated by noting a counterfactual implication of the calibration of GM-07 for the interbank-government bond spread (also called the TED spread), who find steady-state TED is -125 basis points p.a. while the average observed TED from 1971 to 2006 is 105 basis points, which is persistently positive. I argue and show that this shortcoming could be resolved by extending the modeling of banking in GM-07. Specifically, to supply monetary services, banks issue deposits via loans to households (as in GM-07) and provide transaction services via interbank credit. Unlike GM-07 and conforming to observations, banks could hold government debt on their balance sheet, which defrays the cost of being monitored by other banks and provides more favorable interbank rate. I show that a positive TED is reflective of banking valuation of collateral services of government debt, which is determined in equilibrium by banking demand for government debt equaling total supply of government debt net of household absorption. I calibrate the parameters of the model to match observables for U.S. economy from 1971 to 2006, and analyze implications of the steady state model for historical observations of TED and policy exercises. The model finds that a policy exercise replicating open market purchase over long-run results in increased cost of banking, since the adverse collateral drain effect is stronger than liquidity supply effect. This result follows because the theory developed in this paper suggests a positive TED implies a loan to value of collateral in excess of unity.

My second paper challenges the common view among policy makers and researchers that considers the TED spread as an indicator of banking stress. To address this question, I construct the following exercise in a log-linearized version of the model of paper 1. I first estimate magnitude of various structural shocks to banking to generate a reasonable increase of 10 basis points p.a. in TED. I then evaluate and compare consequences of these shocks to costliness of banking and broad economy. The results interestingly show that depending on underlying nature of the shock, implied total marginal cost of banking (reflecting intensity of banking stress) changes differently. Moreover, shocks to productivity of monitoring have first order effect on consumption. I then demonstrate a surprising result by considering a combination of shocks which give rise to a 10 basis points elevation in TED but smaller banking stress. This finding implies that a central bank who is concerned about financial stability should not use TED in its policy design without precaution.

In my third paper, I intend to investigate welfare implications of banking stress. In my previous framework, I model costly supply of monetary services in details whereas demand for monetary services has a simple cash-in-advance form with a fixed velocity of money circulation. A theoretical extension would be to consider the demand for deposits that is responsive to total marginal cost of banking, which is the spread between the (risk-adjusted) shadow total yield and the deposit rate in the model. This extension would add a new channel through which costly banking could impact macroeconomy.