

Dissertation Defense

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"Banking Stress and Interest Rate Spreads in Macroeconomics"

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The broad objective of this dissertation is to investigate: “*how should monetary policy analysis account for shocks to the productivity of banking system and interest rate spreads?*” What is meant by *monetary policy analysis* is the standard modern macroeconomic framework famously called the New Neoclassical Syntheses (NNS) or New Keynesian. By *productivity of banking system*, it considers banking economic activities to supply transaction-facilitating deposits that constitute (broad) money in the economy. By *interest rate spreads*, differences among short-term common-maturity risk-less returns are meant. Specifically, these are spreads between four interest rates: the bank loan rate, the interbank rate, the government bond rate and the deposit rate. The dissertation contributes both theoretically and quantitatively.

The first chapter constructs the underlying framework used in other chapters with some variations. Previous research that studies the role of money and banking and interest rate spreads in standard NNS framework (as in the seminal work of Goodfriend and McCallum (2007)) has chiefly focused on the cost of creating deposits via extending loans to private nonbank borrowers that is reflected in the spread between the loan rate and the interbank rate. This chapter complements that research by incorporating banks’ behavior to provide payment services to depositors. To this end, it develops a model of interbank market, in which banks can use interbank credit to execute payment orders of depositors. Following previous literature, an interbank loan technology is introduced to overcome the informational asymmetries among banks. Moreover, banks are motivated to hold government debt on their balance sheets to mitigate the cost of monitoring by interbank creditors. This modification enriches prior research to explain spreads between the loan rate, the interbank rate, the government bond rate and the deposit rate in terms of the underlying activities of banks.

The second chapter applies the model to examine banking stress and in particular the three month EuroDollar–Treasury bill (TED) spread, which is commonly regarded as an indicator of stress in banking. The chapter decomposes variations in the TED spread to factors driven by shocks to banking and collateral. It particularly finds that fluctuation in collateral supply is the dominant driver of the TED spread. Moreover, scarcity of collateral elevates the sensitivity of TED with respect to banking shocks, which could explain the generally smaller spreads in 1990s relative to 1970s. Therefore, distinguishing between the collateral and banking shock effects provides a sharper interpretation of the TED spread as an indicator of banking stress.

The third chapter focuses on monetary policy analysis in the presence of shocks to banking. First, it uses historical observations to quantify and demonstrate the macroeconomic significance of aggregate shocks to productivity of banking under a standard Taylor rule. It then explores the performance of the economy with interest rate policy rule responsive to rate spreads in response to banking stress. The chapter’s analysis shows that banking shocks impact the aggregate economy by imposing a tax on aggregate consumption. To best mitigate real effects of banking shocks, monetary policy should react to an interest rate spread that best mimics variations in the banking tax. The paper finds that the loan-deposit spread is the best candidate among others.