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Monetary policy and financial (in)stability: An integrated micro–macro approach

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Abstract

Evidence on central banks' twin objective, monetary and financial stability, is scarce. We suggest an integrated micro–macro approach with two core virtues. First, we measure financial stability directly at the bank level as the probability of distress. Second, we integrate a microeconomic hazard model for bank distress and a standard macroeconomic model. The advantage of this approach is to incorporate micro information, to allow for non-linearities and to permit general feedback effects between financial distress and the real economy. We base the analysis on German bank and macro data between 1995 and 2004. Our results confirm the existence of a trade-off between monetary and financial stability. An unexpected tightening of monetary policy increases the probability of distress. This effect disappears when neglecting microeffects and non-linearities, underlining their importance. Distress responses are largest for small cooperative banks, weak distress events, and at times when capitalization is low. An important policy implication is that the separation of financial supervision and monetary policy requires close collaboration among members in the European System of Central Banks and national bank supervisors.

JEL classification: E42; E52; E58; G21; G28

Keywords: Financial stability; Stress-tests; Bank distress; Monetary policy

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1. Introduction

This paper investigates interactions between banking sector stability and the real economy. Thereby, we seek to contribute empirical evidence to the ongoing debate among policy makers (ECB, 2006; Deutsche Bundesbank, 2006), academics (Benink and Benston, 2005; Goodhart et al., 2006) and the public (The Economist, 2007), concerning the extent macroeconomic policies and the stability of financial systems depend on each other. Specifically, we investigate how monetary policy affects financial stability and quantify the importance of feedback mechanisms between the real and financial sector.

The twin objective of monetary and financial stability climbed the agenda of central bankers as witnessed by a rampant increase in the number of stability reports published by central banks (Oosterloo et al., 2007). This surging interest in twin stability is presumably owed to a fairly successful record to control inflation, but increasing concerns regarding financial stability in light of increasing competition and financial integration (Borio, 2006). In addition, if the financial stability of individual banks differs, this is likely to affect the transmission mechanism of monetary policy, too. For example, Kishan and Opiela (2000) demonstrate that loan supply of poorly capitalized banks reacts more sensitively compared to well-capitalized peers.

Empirical evidence on the intricate relation between monetary policy and financial stability is, however, still scarce due to a number of challenges. For starters, the definition of financial stability is surprisingly elusive (Poloz, 2006; Allen and Wood, 2006). Second, central banks' policies to ensure financial stability vary considerably across countries, thus reflecting both the term's ambiguity and related problems to measure stability (Oosterloo and de Haan, 2004). Third, a number of scholars emphasize the role of banks for financial stability (De Bandt and Hartmann, 2000; Padoa-Schioppa, 2003; Schinasi and Fell, 2005). But while the number of studies analyzing individual banks' probabilities of default is fairly abundant,[1] Jacobson et al. (2005) highlight that only few studies employ microeconomic indicators of financial stability of firms and/or banks to link it to monetary policy and resulting stability responses. Fourth, Goodhart et al. (2004, 2006) emphasize the interdependence of microeconomic agents and macroeconomic performance. Thus, allowing for feedback mechanisms is essential for models that could serve policy makers, for example for stress-testing purposes (ECB, 2006).

We aim to make two core contributions. First, we develop an integrated micro–macro approach that incorporates stability indicators at the bank level into the assessment of macroeconomic shocks and responses. Second, we allow explicitly for feedback mechanisms between both the macroeconomic stance and the microeconomic stability of banks. Contrary to extant research, our approach is agnostic about both the timing and direction of the feedback mechanisms.

To this end we use macroeconomic and individual data for all universal banks operating in Germany. We analyze which different types of distressed events occur more frequently following a monetary policy shock, as well as which banking groups are predominantly affected on the basis of confidential Bundesbank bank data between 1995 and 2004. Thus, we curb the measurement problem of financial stability, which most studies usually face. Financial stability is defined and measured as a bank's probability of distress according to the supervisor's definition of problem banks used for supervisory policy.[2]

[1] See, for example Cole and Gunther (1995), Wheelock and Wilson (2000), Estrella et al. (2000), Shumway (2001), Gan (2004), King et al. (2006) and Porath (2006).

[2] Note that the probability of bank distress really is a measure of a banks stability mirror image, i.e. fragility. We maintain throughout the terminology financial stability as to conform with the wording of policy makers' objectives.