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Inside the crisis: An empirical analysis of banking systems in distress

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Abstract

Using aggregate and bank-level data for several countries, the paper studies what happens to the banking system following a banking crisis. Crises are not accompanied by a significant decline in aggregate bank deposits relative to GDP, although depositors leave weaker banks for stronger ones. Credit slows substantially, but the credit-to-GDP ratio is higher after the crisis. Output recovery begins in the second year after the crisis while credit still stagnates. Banks, including healthier ones, reallocate their asset portfolio away from loans, suggesting a lack of loan demand or collateral. Banks also improve their cost efficiency.

JEL classification: G21, E44

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1. Introduction

After the proliferation of banking problems around the world in the 1980s and 1990s, several studies have used cross-country data to study the factors associated with the onset of crises, to identify the determinants of the crises or to look for "early warning indicators" of trouble.[1]

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[1] Among the first studies are Demirgüç-Kunt and Detragiache (1998,2002), Eichengreen and Rose (1998), and Glick and Hutchison (2000); among the second, see Kaminsky and Reinhart (1999) and Demirgüç-Kunt and Detragiache (2000).

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Less attention has been devoted to what happens to the economy and the banking sector *after* a banking crisis breaks out.[2] This paper attempts to fill this gap by studying the aftermath of banking crises using both aggregate and bank-level data. To identify the characteristics of the post-crisis period, we construct a cross-section of banking crises and test whether a number of banking and macroeconomic variables significantly change their behavior in the years following a crisis.

Much of the theory of banking crises, inspired by the experience of the 1880s and early 1900s, assigns a central role to depositor runs. Runs may be self-fulfilling (Diamond and Dybvig, 1983), may be caused by incomplete information on the part of depositors (Chari and Jagannathan, 1988), or may originate in weak bank "fundamentals" (Allen and Gale, 1998). Vulnerability to depositor runs is also viewed as a basic characteristic of banks as financial intermediaries.[3] However, systemic banking crises in which large segments of the banking system become financially distressed may occur even when depositors do not withdraw their deposits, if it is other bank creditors who "rush for the exit" or if banks simply become insolvent because of a deterioration in the quality of their assets. So the first question that we take up is whether banking crises are characterized by large declines in deposits.

A second question is whether bank distress has contributed to propagate adverse economic shocks, thereby prolonging recessions. Bernanke (1983) argued that a contraction in credit brought about by banking problems was instrumental in the propagation of the Great Depression in the US. Mishkin (1996) warned of potential similar effect of banking crises in emerging markets.[4] Identifying the effect of bank distress on economic activity, however, is notoriously difficult, because a decline in bank credit may reflect a lack of demand as much as problems on the supply side. In addition, the adverse shocks that accompany bank distress are often also plausible negative shocks to loan demand. Combining both aggregate and bank-level cross-country evidence, we will attempt to shed light on this complex issue.

Bank-level evidence will also allow us to study how banks perform during a crisis: is there evidence of poor asset quality? Does the structure of assets and liabilities change? Do bank balance sheets contract? Can banks improve their operating efficiency following a crisis?

The paper is organized as follows: Section 2 discusses sample selection and methodology. The evidence from the aggregate data is in Section 3. Section 4 discusses foreign exchange valuation effects, while Section 5 presents the analysis of bank-level data. Section 6 concludes.

2. Sample selection and methodology

2.1. The sample

We define a banking crisis as a period in which significant segments of the banking system become illiquid or insolvent. To identify systemic crisis episodes, we look at evidence of large-scale bank failures, the adoption of emergency measures by the government (deposit freezes,

[2] Eichengreen and Rose (1998) and Kaminsky and Reinhart (1999) are exceptions, as discussed in Sections 2 and 3. In contrast to ours, their analysis relies exclusively on aggregate data.

[3] See, for instance, Calomiris and Kahn (1991), Flannery (1994), and Diamond and Rajan (2000).

[4] The banking crises in Mexico in 1995 and East Asia in 1997–1998 were accompanied by a strong but short-lived downturn in output, with the recovery in economic activity taking place while problems still plagued the banking system. On Mexico, see for instance Krueger and Tornell (1999). On the Asian crises, see IMF (1999). Attempts to test for a credit crunch effect in East Asia include Ding et al. (1998), Ghosh and Ghosh (2000), and Borensztein and Lee (2002).