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Banking crises and market discipline: International evidence

Elena Cubillas *, Ana Rosa Fonseca, Francisco González

Department of Business Administration, University of Oviedo, Avenida del Cristo s/n, 33071 Oviedo, Spain

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ABSTRACT

This paper analyzes the effect of banking crises on market discipline in an international sample of banks. We also evaluate how bank regulation, supervision, institutions, and crisis intervention policies shape the effect of banking crises on market discipline. We control for unobservable bank, country, and time specific effects using a panel data set of banks from 66 countries around 79 banking crises. The results suggest that on average market discipline weakens after a banking crisis. This weakening is higher in countries where bank regulation, supervision, and institutions promoted market discipline before the banking crisis, and where a more accommodative approach is adopted to resolve it.

1. Introduction

Market discipline is one of the three pillars generally accepted by regulators and scholars to limit the bank risk-shifting incentives that are exacerbated by financial safety nets. Basel II explicitly emphasizes the strengthening of market discipline (Pillar 3) as well as official supervision (Pillar 2) and capital requirements (Pillar 1) as tools to improve bank stability. The current global financial crisis and adoption of accommodative interventions, however, prompt a debate on the incentives depositors have to discipline bank risk-taking after a crisis. We address this issue by asking three questions: How does a banking crisis change the market discipline that depositors impose to control bank risk-taking? To what extent do variations in market discipline after a banking crisis depend on a country's bank regulation, supervision, and institutions? Do the types of intervention and resolution policies that governments adopt during a banking crisis change market discipline?

To respond to these questions, we provide empirical evidence on changes in depositor market discipline in a cross-country sample of banking crises over the 1989–2007 period. As market discipline can be described as a situation in which depositors penalize riskier banks by requiring higher interest rates or by withdrawing deposits, we focus on how the relation between bank risk and the cost of bank deposits changes after a banking crisis. We check that results do not vary with respect to the relation between bank risk and the growth of uninsured bank deposits. We also analyze how regulation, official supervision, institutions, and crisis intervention policies shape changes in market discipline following a banking crisis.

The literature on market discipline has mainly analyzed whether there is market discipline in a particular country during a given period. Cross-country analysis, however, is necessary to see whether market discipline varies with the particular regulatory, supervisory, and institutional environment. To our knowledge, three empirical papers analyze country-level determinants of market discipline. Using cross-country information on deposit insurance, Demirgüç-Kunt and Huizinga (2004) show that the presence and the generosity of explicit deposit insurance weakens market discipline. Nier and Baumann (2006) and Fonseca and González (2010) provide evidence that market discipline has a positive influence on capital buffers. None of these papers, however, analyzes whether market discipline changes after a banking crisis and, if so, how regulation, institutions, or intervention shape the change.

Two previous papers analyze the sensitivity of depositors to bank risk after a banking crisis. Martinez Peria and Schmukler

* Corresponding author. Tel.: +34 985103794.
E-mail addresses: cubillaselena@uniovi.es (E. Cubillas), arfon@uniovi.es (A.R. Fonseca), fgonzale@uniovi.es (F. González).

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(2001) study the experiences of Argentina, Chile, and Mexico during the 1980s and 1990s. They find that depositors punish banks for risky behavior, by both withdrawing their deposits and requiring higher interest rates. Market discipline becomes more important after crises and deposit insurance does not appear to diminish the extent of market discipline. Hadad et al. (2011) analyze changes in the deposit guarantee scheme and capital regulation in Indonesian banks following the 1997–1998 financial crisis. They find that the adoption of a blanket guarantee scheme weakens market discipline, although market discipline works better in listed banks than unlisted banks and in foreign banks than domestic banks.

Our broader work makes several contributions. First, we provide systematic evidence on the influence of regulation, supervision, and institutions on changes in market discipline after a banking crisis. We analyze how bank entry requirements, restrictions on non-traditional bank activities, official supervision, government bank ownership, and institutional quality in a country shape changes in market discipline.

Second, we examine how crisis intervention policies influence changes in market discipline after a banking crisis. The policies include blanket depositor protection, prolonged and extensive liquidity provision, forbearance, government recapitalization, and nationalization.

Third, we provide information on a large number of crises and countries. The initial sample covers 79 banking crises in 66 countries, with bank-level data from up to 2593 banks over 1989–2007. Even with missing information on country characteristics and intervention policies, we can analyze the influence of regulation, supervision, and institutions in a minimum of 54 countries and the influence on intervention policies in 18 countries.

Finally, we account for dynamic processes in deposit interest rates by using the generalized-method-of-moments (GMM) estimators developed by Arellano and Bond (1991) for dynamic panel data. GMM models are specifically designed to handle autoregressive properties in the dependent variable (cost of bank deposits) when lagged values are introduced as explanatory variables and endogeneity in the explanatory variables (other bank-specific characteristics) must be controlled for. The availability of an international panel data set allows us to control for unobserved bank-, country-, and time-specific effects. Although Maechler and McDill (2006) and Hadad et al. (2011) use GMM to analyze market discipline in the US and Indonesia, respectively, it has not yet been applied in studies of market discipline with an international database.

Our results indicate that market discipline weakens on average after a banking crisis, but to varying degrees across countries. The weakening is greater in countries where bank regulation, supervision, and institutions work to enhance market discipline before the crisis. A banking crisis, however, does not change market discipline in countries where discipline rarely exists before the crisis. Market discipline weakens more in countries with less stringent barriers to bank entry and non-traditional bank activities, less official supervisory power, and better-quality institutions.

Our results also show that accommodative intervention policies during a crisis weaken market discipline. The adoption of an explicit blanket guarantee, forbearance, and government recapitalization and nationalization programs make deposit interest rates less sensitive to bank risk. We do not see, however, that the provision of liquidity support to banks has a negative effect on market discipline after a crisis. Our results are robust to alternative estimation techniques, proxies of bank risk, and definitions of the crisis windows.

The rest of the paper is organized as follows. Section 2 describes the theoretical background and discusses the hypotheses. Section 3 describes the data, variables, and methodology. Section 4 discusses the empirical results. Section 5 concludes the paper.

2. Theoretical background and hypotheses

The literature on market discipline is extensive, with a focus mostly on US commercial banks. Typical findings show that bank risk is positively related to yields on deposits (Ellis and Flannery, 1992; Cook and Spellman, 1994); interest rates for uninsured deposits (Flannery and Sorescu, 1996; Hancock and Kwast, 2001); and risk premiums on subordinated notes and debentures (Flannery and Sorescu, 1996). Other authors on market discipline concentrate on the level of deposits (Calomiris and Wilson, 2004) or capital buffers held by banks (Flannery and Rangan, 2008). Park and Peristiani (1998) combine several of these approaches.

A limited research analyzes differences in market discipline across countries and how it relates to regulatory discipline, official supervision, or institutions. An important exception is Demirgüç-Kunt and Huizinga (2004). They use an international database of banks in 51 countries to show that explicit deposit insurance makes depositors less likely to monitor banks, weakening the degree of market discipline. The more generous the deposit insurance, the greater the weakening of market discipline. Nier and Baumann (2006) and Fonseca and González (2010) also use an international sample of banks to provide evidence that market discipline strengthens banks' incentives to hold capital buffers. Market discipline is enhanced with accounting disclosure and institutional quality but weakens with the extent of government safety nets, restrictions on bank activities, and official supervision.

The influence of banking crises on market discipline has been analyzed very little and theory does not provide clear predictions. It is possible that following bank interventions and failures, depositors may become more aware of the risk of losing deposits, so they may start exercising stricter market discipline. Then again, governments usually respond to banking crises with containment and resolution policies that strengthen bank safety nets and depositor protection. As a consequence, depositors may be more relaxed if a new banking crisis occurs and have fewer incentives to exercise discipline (Honohan and Klingebiel, 2003). Empirical evidence is not conclusive. Martinez Peria and Schmukler (2001) find in Argentina, Chile, and Mexico during the 1980s and 1990s that the relative importance of market discipline increases after crises and that deposit insurance does not appear to diminish the extent of market discipline. Hadad et al. (2011) find that adoption of a blanket guarantee scheme and the reduction in minimum capital adequacy ratios weaken market discipline in Indonesia following the 1997–1998 financial crisis. As either result for market discipline is theoretically possible, and empirical evidence is not conclusive, we make no *a priori* forecast as to changes in market discipline after banking crises, and treat the question as an empirical issue.

2.1. Bank regulation, official supervision, and institutions

Differences in bank entry barriers, restrictions on non-traditional bank activities, official supervision, government bank ownership, and institutions all may be responsible for differences across countries in changes in market discipline after a banking crisis. As these variables may influence the extent of market discipline both before and after a crisis, they may also affect a change in market discipline. In countries where bank regulation, official supervision, and institutions do not promote market discipline before the crisis, there is not so great a margin for changes in discipline afterward. One would expect more changes in market discipline in environments where bank regulation, official supervision, and institutions promote market discipline in the first place.

We discuss the potential influence of each country variable in turn. The first regulatory variable is barriers to bank entry. Entry restrictions may increase banks' charter value and provide established banks incentives to behave prudently (Keeley, 1990). This