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Bank market power after a banking crisis: Some international evidence

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ABSTRACT

This paper analyzes the influence of banking crises on bank market power across a sample of 64 countries and 66 episodes of banking crises during the 1989–2007 period. We provide evidence from country- and bank-level data supporting that, after a systemic banking crisis, there is an increased level of bank market power consistent with higher levels of bank market concentration. Moreover, the higher the severity of the banking crisis the higher the increase in bank market power. However, whereas institutional quality fosters the positive impact of banking crises on market power, stricter regulation on banking activities and on new entries into the bank market seems to reduce the effect of the crisis on market power.
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1. Introduction

The aim of this paper is to analyze how banking crises affect the level of competition in the banking industry and to examine how bank regulation and institutional development in a country shape the influence of crises on bank competition. The degree of competition in the bank market matters for overall financial functioning and for the economic performance of the country. Previous literature has shown that bank competition influences efficiency in bank management (Berger and Hannan, 1998), firms' and industries' access to external sources of financing (Beck et al., 2004), financial stability (Beck et al., 2006, 2013) and firms' and industries' economic growth (Cetorelli and Gambera, 2001; Claessens and Laeven, 2005; Fernández et al., 2010).

However, most papers have dealt with these questions using a model based on market structure instead of applying an analysis based on the industrial organization theory, which in fact allows accurate measurement of the level of competition in the bank market. The industrial organization theory has shown that competition in an industry cannot be measured by market structure indicators alone. Rather, establishing the degree of effective competition requires a structural model to overcome the concerns raised by the contestability literature. This organizational-based approach has taken into account microeconomic models with market equilibrium conditions and has developed different measures of market competition based on the measure of bank market power developed by Lerner (1934), calculated as the difference between the price and marginal cost expressed as a percentage of price; and the *H*-index developed by Panzar and Rosse (1987).

Another set of recent cross-country studies have examined the effect of the regulatory, supervisory, and institutional environment on competition in the bank market, using samples of banking sectors with different levels of development. Demirgüç-Kunt et al. (2004) examine the impact of bank-specific characteristics, bank regulations, market structure, and institutional environment on bank margins using bank-level data from 72 countries. Barth et al. (2004, 2006) examine the relationship between different aspects of bank regulations and supervisory practices and bank development, performance and stability, using a cross-country database. Claessens and Laeven (2004) examine the determinants of banking competition. The results obtained in the above studies show that more strictly regulated banking markets are less developed, less stable, and less competitive.

However, all the above-mentioned papers focus on analysis of bank market competition during normal times and there is no empirical evidence on how bank competition changes after a banking crisis or on how bank regulation and institutions influence the final effect of crises on bank market power. Our paper attempts to fill this gap by analyzing how banking crises affect the level of market power in a sample of 2290 banks from 64 developed and developing countries that have experienced at least one systemic banking crisis during the period 1989–2007. We use cross-country

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differences in bank regulation and institutions to assess the extent to which banking crises may impact bank market competition differently across countries.

Our paper makes several contributions to the literature. First, we provide direct evidence on the change in bank market competition after a systemic banking crisis, providing a bank- and country-level analysis in a sample of 64 developed and developing countries and 66 systemic banking crises over the 1989–2007 period. We also note that the severity of the crises in terms of output losses and fiscal costs may also explain the extent to which the crisis affects bank competition across countries. Moreover, the use of both datasets, at country- and bank-level, allows us to analyze differences in the impact of banking crises on the degree of bank market competition using different measures of bank market power.

Second, we consider that the impact of a systemic banking crisis on bank market power may be different across countries depending on bank market regulation and institutional development. We focus on legal restrictions on non-traditional banking activities and on bank requirements for entering the banking industry, as characteristics of bank regulation. As measures of institutional development we consider an index of efficiency of the legal system (rule of law) and a global measure of the quality of the institutional environment (the KKZ index). The availability of an international database allows us to incorporate these cross-country characteristics in the study.

Finally, we account for dynamic processes in banks' and countries' market power during periods of banking crises. We use a version of the generalized method of moments (GMM) for dynamic panel data models. Specifically, we use the system-GMM estimator developed by Blundell and Bond (1998). This method allows us to handle autoregressive properties in the dependent variable (country- and bank-level market power) as lagged values are included in the estimations. It also allows us to control for endogeneity in the explanatory variables and for any country- and bank-specific effects omitted from our specifications.

The results obtained indicate an increase of market power in the banking sector in both samples of countries and banks after a systemic banking crisis. We find that the positive effect of banking crises on bank market power is stronger in countries with less regulated bank markets and in more institutionally developed countries. Our results have important policy implications and reveal the relevance of bank regulation and institutions for shaping the influence of banking crisis episodes on bank market competition.

The rest of the paper is organized as follows. Section 2 presents in more detail the theory behind our empirical study. Section 3 describes the sample and the methodology used in the empirical analysis. Section 4 presents the empirical results and robustness tests, and Section 5 concludes.

2. Theoretical background and hypotheses

Following the developments of the New Industrial Organization theory, the degree of competition in a market requires the construction of a structural model and cannot be measured by market structure indicators (such as the number of institutions, concentration indexes, or ownership structure). Banking research examining the effects of banking competition on bank performance, bank risk, financial stability, firms' access to finance, and economic growth, has been concerned about the differences between competition measures based on the market-structure approach and those based on structural models.

Fernández de Guevara and Maudos (2004), Fernández de Guevara et al. (2007), and Carbó and Rodríguez (2007), among others, used the Lerner index in the banking sector as a proxy inversely related with the level of competition. The results obtained in these papers indicate a reduction in bank competition during the 1990s, as the Lerner indexes increased during those years. Maudós and Fernández de Guevara (2004) show a reduction in the Lerner index in 10 of the 14 European banking markets analyzed during the 1993–2002 period. However, they find opposite results when they consider traditional and non-traditional banking activities separately. Their results suggest that the increase in market competition took place because of the traditional banking activities (in which the Lerner index decreased). In general terms, when other sources of interest revenues are considered (non-traditional activities), their results seem to indicate an increase in the Lerner index, consistent with lower levels of bank competition.

An alternative measure of bank competition is the H index developed by Panzar and Rosse (1987). This variable measures the extent to which changes in the different prices of inputs cause changes in the price of the final good or service. Using this measure, Molyneux et al. (1994), Bikker and Groeneveld (2000), De Bandt and Davis (2000) and Weill (2003) show the existence of monopolistic competition in different European bank markets. Claessens and Laeven (2004) show the determinants of the Panzar and Rosse (1987) index in a sample of 50 European bank markets. Most of the bank markets analyzed show situations of monopolistic competition and that there is not a clear relationship between the bank competition indicated by the *H*-index and the situation described by the assets ratio for bank market concentration.

In a more recent study, Carbó et al. (2009) compare the most traditional indicators of market competition in a sample of 14 European countries during the 1995–2001 period. They specifically consider the net interest margin, the Lerner index, the ROA, the *H*-statistic, and the Hirschman–Herfindahl index of bank market concentration (HHI index). Their results indicate the existence of important differences among these indicators across countries and years. Although previous literature also used these measures to estimate bank competition, they are, in fact, measuring different concepts. Moreover, the authors point to the importance of specific country-level factors to calculate the degree of competition in the banking sector. They indicate the need to control for country-level characteristics to analyze competition in European banking in comparative terms.

In this paper we analyze the extent to which banking crises influence bank market competition by using the Lerner index, constructed both at country- and at bank-level, as the industrial-organization variable, since previous literature has shown its relevance for accurately measuring the degree of bank market power.

2.1. Banking crises and competition

The literature has traditionally analyzed the effects of bank competition on financial stability but not how banking crises modify bank competition. However, the current global financial crisis highlights the relevance of reducing the negative real effect of systemic banking crises and opens a debate on the consequences of the consolidation process, as a result of mergers or acquisitions of failed banks, for the level of competition in the bank market.

Previous literature is not conclusive about the relationship between bank competition and financial stability. On the one hand, less competition could mean greater market power and profits for banks. Higher profits provide a "buffer" against adverse shocks and increase the bank's franchise value, which reduces incentives for bankers to take excessive risks (Matutes and Vives, 2000). On the other hand, some models predict that less bank competition increases the fragility of the bank market. Boyd and De Nicolo (2005) stress that in less competitive environments banks charge higher interest rates to firms, which are therefore prepared to take greater risks. Their model predicts that greater market power of

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