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The effect on competition of banking sector consolidation following the financial crisis of 2008

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ABSTRACT

Consolidation of the Spanish banking sector after the financial crisis of 2008 raises concerns about potential negative effects on competition. I use structural econometric methods to examine these anti-competitive concerns in the Spanish mortgage market. I estimate a mixed-logit model of mortgage demand and recover bank-level cost information with a strategic model of price competition. Counterfactual experiments reveal that the observed increase in concentration is associated only with small variations in mortgage rates and market shares, staying far from collusive levels. This moderate change in industry conduct implies a small direct effect of consolidation on bank exposures to mortgage risk.

1. Introduction

The merger and liquidation of banks are important policy options in the toolkit of regulatory authorities that confront a financial crisis. The policy decisions modifying the structure of the banking sector do not only have immediate consequences on the solvency of banks and the fiscal cost of state-support programs, but they also have a long term effect on banking competition. The changes in the banking sector structure after a severe crisis will have an impact on the financial costs of future borrowers and also the incentives of surviving banks to provide credit. This article applies a structural econometric framework to analyze the effect on mortgage market competition of the increased concentration in the Spanish banking sector that resulted from the financial crisis of 2008.

Financial crisis and the structure of the banking sector are connected in both current policy debate and historical experience.[2] During a financial crisis, regulatory incentives to contain the fiscal cost of public support and private motives to capture market share can induce the acquisition of banks with low capital by institutions with stronger financial positions. If the financial crisis produces bank failures, the liquidation and sale of these entities will lead to further increases in concentration. For high enough levels of economic losses, injections of public capital will be used as a complement to industry consolidation to restore adequate capital levels.

The international financial crisis of 2008 and the end of the national real state boom produced a gradual response from Spanish banking regulators. The initial efforts on 2009 were focused on the consolidation of the sector through the creation of a public fund for restructuring Spanish banks. This consolidation process targeted specially savings banks that had expanded during the pre-

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[2] Calomiris (2000) provides an historical overview of the relation between limits to banking sector consolidation and financial stability in the U.S. Drees and Pazarbasioglu (1995) describe bank consolidation in the Nordic Crisis of the 1990s. The Proposal on a Directive for a European Bank Resolution framework in European Union Commission (2012) includes the possible sale and liquidation of banks as part of crisis resolution (see Section 4.4.10. of the proposal) of the European Union Commission.

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vious decade and faced governance problems. As bank losses mounted in the period of 2010–2012, direct capital injections of government funds were completed and the combination of bank groups proceeded. This process lead to the consolidation of the main Spanish commercial and savings banks into fourteen groups by the end of 2012. This radical change in market structure opens up the question of whether the more concentrated bank sector behaves collusively and allocates credit very differently than the structure existing before 2008.

I use counterfactual analysis to evaluate the possible anti-competitive effect on the mortgage market of the bank consolidation process in Spain after 2008. A strategic model of interest rate setting is employed to compute the counterfactual equilibrium mortgage rates and volumes that would have been set in the period 2004–2010 by the concentrated industry that emerged as result of the financial crisis. These counterfactual computations can then be compared with actual interest rates and volumes. The strategic model is evaluated with demand and cost estimates from bank-level data on the volumes and interest rates of new mortgages granted.

A mixed-logit model for mortgage demand is estimated, allowing to control for the effect on loan demand of household income. I also control for the effects on demand estimates of endogenous mortgage rates with the use of GMM techniques. The expected costs for banks of new mortgages are recovered through the combination of demand estimates with the assumption of profit maximizing behavior of banks when setting mortgage rates. Given the demand estimates, the observation of a bank granting a certain volume of mortgage loans at a given interest rate reveals the cost level that makes these lending decisions profit-maximizing. This structural approach is in line with the methods popularized in empirical industrial research by Berry (1994) and Berry et al. (1995).

Estimation results reveal that the demand for mortgage loans is relatively elastic, with an elasticity with respect to own loan rate of approximately -3.76. The estimated cost for banks of mortgage lending is in the range of 1.62–4.54%, with a significant correlation with interbank rates. This information is then used in the calculation of equilibrium rates for the counterfactual consolidated structure, finding a minimum variation in loan rates and volumes with respect to actual data in the period 2004–2010. The average increase in rates is only of 0.07% and the volume of new mortgages decreases on average less than 20 million euros per month. A market structure with higher degree of concentration than actually observed in 2012, and with weak savings banks concentrated in a large group, yields higher average changes for mortgage rates (+0.21%) and volumes (-51 million euros per month). This result is still found to be far from collusive rates and volumes, lessening the concerns about the anti-competitive effects of the crisis resolution on the Spanish mortgage market. However, it must also be noted that the switch to concentrated market structures does not imply a dramatic redistribution of new mortgages across entities, so the weighted expected default rates are not affected significantly. This result suggests that the change in market structure alone cannot be expected to improve credit quality without the revision of credit risk management and supervisory rules.

The design of a resolution framework for banks by a financial regulator will ideally take into account its impact on market competition, in line with the analysis in the current article. However, a regulator might assign a relative low priority to evaluating competition when pressed to achieve urgent policy goals in the middle of the crisis, e.g., the protection of the payment system or avoidance of negative externalities from bank failure. If this is the case, it is still possible to complete the analysis of competition after the immediate risk of bank failure has been averted. If the market structure after resolution of the crisis is found to generate inefficient credit growth or distortions in mortgage rates, a range of corrective actions can be taken. These actions could range from closer antitrust scrutiny to use of prudential regulation to require higher capital charges as function of bank conduct in credit markets.

The rest of the article is organized as follows. Section 2 surveys the banking literature related to the present article. Section 3 describes the available data set and provides basic industry background. Section 4 presents the formal model of the mortgage market. Section 5 presents estimation methods and results for mortgage demand and implicit mortgage costs. Section 6 contains counterfactual analysis to measure the effect of sector consolidation on competition and default rates. Section 7 concludes.

2. Research on bank mergers and competition

The analysis of U.S. bank mergers has received considerable attention since the passing of the Riegle–Neal (R–N henceforth) Interstate Banking and Branching Efficiency Act of year 1994. This act progressively developed a national banking market by lifting restrictions to the interstate operation of branches and banking sector consolidation. Berger et al. (1999) and Amel. et al. (2004) provide comprehensive reviews of the research on bank mergers after the R–N Act, with a focus on the U.S. Empirical research in the decade after the R–N Act studied the relation of bank mergers with cost and profit efficiency, economies of scale and scope, and market power. Prominent works include Akhavein et al. (1997), Berger and Humphrey (1999), Berger and Mester (1997), Berger and Hannan (1998) and Prager and Hannan (1998).

The consolidation of the financial sector has remained an internationally relevant issue in more recent periods, and particularly in the context of the financial crisis of 2008. DeYoung et al. (2009) review the post-2000 literature and find that American bank mergers can increase efficiency, but that evidence on shareholders's gains from mergers in the U.S. is mixed. For Europe, they find stronger evidence of both efficiency and shareholders's gains. Claessens (2009) reviews recent research measuring competition in the financial sector across countries, e.g., Demirguc-Kunt et al. (2004) and Bikker and Spierdijk (2008). He also advocates lower institutional dispersion, harmonization across markets and separation from prudential regulation in the design of competition policy for the financial sector. The financial crisis of 2008 has already generated multiple studies of its causes and consequences.[3] However, there has been to my knowledge limited progress in the assessment of the effect of the crisis on credit market competition. Calomiris and Pornrojnangkool (2005) point out that regulatory concerns about anti-competitive effects of concentration in lending markets before the crisis were also limited, and provide evidence that these effects can be significant for some borrowers.[4]

The empirical studies of European bank mergers are generally consistent with the analyses of U.S. data samples in their design and objectives. However, the institutional framework and market structure differ from the U.S. and the heterogeneity across countries conditions the analysis. Campa and Hernando (2006) find that mergers in the European financial sector in the period 1998–2002 are associated to increases in operational performance and return on equity. Hagendorff and Keasey (2009) find that European bank mergers are more closely associated with cost-cutting than Amer-

[3] Spiegel (2011) summarizes several theoretical and empirical contributions. Santos (2011) and Murillo et al. (2011) examine the effects of the crisis on lending to firms in the U.S. Wheelock (2011) documents continued consolidation in the U.S. after the crisis of 2008.

[4] Calomiris and Pornrojnangkool (2005) study the effect of the merger of Fleet and BankBoston in New England with granular firm borrower data, finding an heterogenous effect of the increased concentration on the interest spreads earned on firms of different sizes.