
ALLEN N. BERGER
ASLI DEMIRGÜÇ-KUNT
ROSS LEVINE
JOSEPH G. HAUBRICH

Bank Concentration and Competition: An Evolution in the Making

The consolidation of banks around the world in recent years is intensifying public policy debates on the influences of concentration and competition on the performance of banks. In light of these developments, this paper first reviews the existing literature on the impact of bank concentration and competition. Second, the paper summarizes the main findings of the papers in this special issue of the JMCB within the context of this active literature. Finally, the paper suggests some directions for future research.

JEL codes: D4, F36, G21, G28, G34, O16

Keywords: financial institutions, banks, concentration, competition, market structure, regulation.

BANKS MOBILIZE, ALLOCATE, and invest much of society's savings, so bank performance has substantive repercussions on capital allocation, firm growth, industrial expansion, and economic development.¹ Thus, research on the effects of bank concentration and competition on performance has important policy

1. See King and Levine (1993a, 1993b), Jayaratne and Strahan (1996), Demirgüç-Kunt and Maksimovic (1998), Levine and Zervos (1998), Rajan and Zingales (1998), Beck, Levine, and Loayza (2000), and Levine, Loayza, and Beck (2000), and the reviews by Levine (1997, 2004).

The authors thank Thorsten Beck, Gerard Caprio, Astrid Dick, Tim Hannan, Patrick Honohan, Luc Laeven, Maria Soledad Martinez Peria, Robin Prager, and other participants in the "Bank Concentration and Competition" conferences at the World Bank and Federal Reserve Bank of Cleveland. The opinions expressed do not necessarily reflect those of the Federal Reserve Board, the World Bank, Federal Reserve Bank of Cleveland, or their staffs.

ALLEN N. BERGER is a senior economist with the Board of Governors of the Federal Reserve System and Wharton Financial Institutions Center. E-mail: aberger@frb.gov ASLI DEMIRGÜÇ-KUNT is affiliated with the Development Research Group, The World Bank. E-mail: ademirguckunt@worldbank.org ROSS LEVINE is the Curtis L. Carlson Professor of Finance, University of Minnesota. E-mail: rlevine@csom.umn.edu JOSEPH G. HAUBRICH is in the Research Department, Federal Reserve Bank of Cleveland. E-mail: jhaubrich@clev.frb.org

Received May 29, 2003; and accepted in revised form May 29, 2003.

Journal of Money, Credit, and Banking, Vol. 36, No. 3 (June 2004, Part 2)

Published in 2004 by The Ohio State University Press.

implications. The consolidation of banks around the globe in recent years is intensifying the public policy debates on the influences of concentration and competition in the banking industry.²

In light of these considerations, this special issue of the *JMBCB* seeks to broaden and deepen our understanding of the impacts of bank concentration and competition on bank performance. The papers in this volume contribute both new ideas and new evidence to a burgeoning literature that has evolved significantly in the last decade. In effect, this volume contributes to a research evolution already in progress.

This introductory article first provides a brief review of the existing literature that places the papers in this special issue within the context of the active literature. Second, we summarize the main findings of the volume's papers. Finally, we suggest some directions for future research.

To illustrate the contributions of the new research, we first note the state of the literature a decade ago and how it has evolved since that time. As of the early 1990s, the empirical research on the effects of bank concentration and competition most often tested whether the traditional structure-conduct-performance (SCP) hypothesis applied to the banking industry using data from the U.S. The SCP hypothesis argues that bank concentration and other impediments to competition create an environment that affects bank conduct and performance in unfavorable ways from a social viewpoint. Authors typically tested the SCP hypothesis using a simple measure of concentration—such as the Herfindahl–Hirschman Index (HHI) or n -firm concentration ratio (CR n)—as an exogenous indicator of market power or an inverse indicator of the intensity of competition. The market shares of all sizes and types of commercial banks were generally treated equally in computing the concentration measure (with some exceptions for thrift institutions). The research usually specified bank prices and measures of profitability as the endogenous indicators of bank conduct and performance, respectively. The empirical models were generally static cross-section comparisons or short-run in nature. The studies were usually limited to examinations of local U.S. banking markets, such as Metropolitan Statistical Areas (MSAs) or non-MSA counties. Although there are exceptions to this stylized view of the state of the research a decade ago, this characterization reasonably represents much of the effort up to that time and helps frame the subsequent evolution of research.

The literature has now advanced well past this simple approach. The research has generalized beyond the SCP hypothesis, and tested a number of different models of competition. Authors have also recognized problems with HHI and CR n and specified alternative measures of competitiveness, including indicators of market structure that allow for the possibility that different sizes and types of commercial banks may affect competitive conditions differently. The measures of conduct and performance that are analyzed have expanded to include indicators of the efficiency, service quality, and risk of the banks, as well as consequences for the economy as

2. See Berger, Demsetz, and Strahan (1999), Bank for International Settlements (2001), Group of Ten (2001), and International Monetary Fund (2001).

a whole. More dynamic analyses of bank competition have been added, examining the effects over time of bank consolidation. Researchers have also broadened the focus from local U.S. banking markets to include other potential definitions of banking markets in the U.S., and other nations around the globe.

The research papers that follow in this special issue push significantly further in expanding research on bank concentration and competition. The new papers generally have an international orientation that includes developing nations, a significant departure from the vast majority of the studies in the extant literature. These new studies distinguish between concentration and broader measures of competition. To gauge the competitive environment, this research includes new indicators for regulatory restrictions on competition, entry restrictions, and legal impediments to bank competition. As well, a number of these papers examine the different competitive effects of foreign-owned and state-owned banks. In assessing the impact of regulations on bank performance, this new research also stresses that national policies toward bank competition occur in the broader context of each country's institutional environment. Thus, the papers in the special issue take a broader perspective of competition than is usually found in the literature. The papers also cover a wide array of different potential effects of concentration and the other competitiveness measures, including both conventional measures of bank pricing and profitability, and unconventional measures such as firms' access to credit and the stability of the banking system.

In Section 1, we briefly sketch how the research on bank concentration and competition has evolved over the past decade or so. This is not intended to be a comprehensive review, but merely a selective smattering of recent developments that set the stage for the new research papers in this special issue. More comprehensive literature reviews may be found in these new papers themselves. In Section 2, we briefly describe the individual papers, how they fit together, and their contributions to the extant literature. In Section 3, we offer some brief concluding remarks and possible directions for future research.

1. THE RECENT EVOLUTION OF RESEARCH ON BANK CONCENTRATION AND COMPETITION

Typical empirical studies of bank concentration and competition as of the early 1990s found that U.S. banks in more concentrated local markets, as measured by HHI or CR_n, charge higher rates on SME loans and pay lower rates on retail deposits (e.g., Berger and Hannan, 1989, Hannan, 1991), and that their deposit rates are slow to respond to changes in open-market interest rates (e.g., Hannan and Berger, 1991, Neumark and Sharpe, 1992). Both findings are consistent with the exercise of market power under the SCP hypothesis. However, another common finding in both the banking literature and the general industrial organization literature was that these concentration measures had only very weak relationships with measures of profitability when the market share of the firm was also included in the regression equation. A

debate ensued as to whether the results support the exercise of market power versus the alternative efficient structure (ES) hypothesis, in which high concentration endogenously reflects the market share gains of efficient firms (e.g., Smirlock, Gilligan, and Marshall, 1984, Rhoades, 1985, Smirlock, 1985, Shepherd, 1986). A more general problem of endogeneity in SCP tests was discussed by Bresnahan (1989) and others in which prices, profitability, and concentration are all jointly endogenous.

Since the early 1990s, progress has been made on a number of fronts. Researchers have recognized the problems with SCP tests and tried other methods. For example, some studies tested versions of the SCP and ES hypotheses in models of bank profitability. These studies controlled for measures of X-efficiency and scale efficiency and allowed concentration and market share in local U.S. banking markets to be functions of these efficiency measures (e.g., Berger, 1995, Frame and Kamerschen, 1997). They found some evidence favoring both the effects of both market power and efficiency on profitability, but the results were generally weak and varied by market type. Other studies specified different models of competition, including conjectural variations Cournot models to test for price-taking versus price-setting behavior (e.g., Berg and Kim 1998), models that test the role of sunk costs in determining concentration (e.g., Dick 2003), a model of simultaneous competitive imperfections in both output markets (loans) and input markets (deposits) (Adams, Roller, and Sickles 2002), non-structural models of competition, such as the Panzar-Rosse model (e.g., Bikker and Haaf 2002), and structural demand models based on consumer choice under product differentiation (e.g., Dick 2002).

In some cases, researchers specified alternative indicators of competition with fewer endogeneity problems than HHI and CR_n. Some have used the number of firms in the market (since entry and exit generally take much longer to occur than do changes in market shares), and one study distinguished between the competitive effects of dominant firms and the competitive fringe in local U.S. banking markets (Dick 2003). Others have looked to the literature on oligopoly and contestability for more direct measures of competition (e.g., Shaffer 2001). As well, recent studies often include indicators for regulation, entry restrictions, and other legal impediments to bank competition. The research has shown that indicators of creditor and shareholder rights, banking and financial regulations, openness of trade and entry, and so forth have important effects on competition among banks and between banks and financial markets, with significant consequences for economic growth (e.g., La Porta et al. 1997, 1998).³

Some of the recent research on the effects of bank competition allows for the possibility that different sizes of banks may affect competitive conditions differently. Small banks are often considered to be “community banks” with different competitive advantages than large banks. Relative to large banks, small banks in developed

3. Although studies of local U.S. banking markets have almost always controlled for geographic restrictions on competition (e.g., prohibitions on interstate branching), government rules and regulations play more central roles in international research because they differ so greatly across nations.

nations tend to serve smaller, more local customers, and to provide more retail-oriented rather than wholesale-oriented financial services (e.g., DeYoung, Hunter, and Udell 2004).

As well, banks of different sizes may deliver their services using different technologies. Large banks may have comparative advantages in lending technologies such as credit scoring that are based on “hard” quantitative data. Small banks, in contrast, may have comparative advantages in lending technologies such as relationship lending that are based on “soft” information that is difficult to quantify and transmit through the communication channels of large banking organizations (e.g., Stein 2002) and may create agency problems that require a closely held organizational structure (e.g., Berger and Udell 2002). Consistent with these arguments, large banks relative to small banks in the U.S. have been found to lend proportionately less of their assets to SMEs (e.g., Berger, Kashyap, and Scalise 1995), to lend to larger, older, more financially secure SMEs when they do so (e.g., Haynes, Ou, and Berney 1999), to charge lower rates, earn lower yields, and require collateral less often on their SME loans (e.g., Berger and Udell, 1996, Carter, McNulty, and Verbrugge, 2004), to have shorter and less exclusive relationships (e.g., Berger et al. 2002), to lend more often on an impersonal basis and at a longer distance (e.g., Berger et al. 2002), and to base their lending decisions more on financial ratios than on prior relationships (e.g., Cole, Goldberg, and White, forthcoming). Thus, the literature is strongly consistent with the hypothesis that large banks tend to make hard-information-based transaction loans to larger, safer, more transparent borrowers, while small banks tend to make more soft-information-based relationship loans to smaller, riskier, more opaque borrowers.

Despite the consistently strong findings about the differences between large and small banks, only a relatively few studies directly examined the competitive effects of the market shares of banks in different size classes. That is, most studies of the effects of market structure continue to use concentration measures like HHI and CR_n that treat the competitive effects of large and small banks equally. Some of the research that allows for differences found that greater shares for large banks in U.S. local markets are associated with lower interest rates on SME loans, consistent with the hypothesis that large banks tend to serve safer customers using hard information (Berger, Rosen, and Udell 2003). An international comparison also found that greater shares for small banks were associated with faster GDP growth, higher SME employment ratios, and more overall bank lending (Berger, Hasan, and Klapper 2004).

However, studies of local U.S. markets also found that the shares of large versus small banks had little association with SME credit availability (Jayaratne and Wolken, 1999, Berger, Rosen, and Udell, 2003). Combined with the consistent strong finding that large and small banks serve different SME borrowers, this finding suggests that in the dynamics of local U.S. banking markets, banks and customers are reasonably able to sort themselves to find mutual advantage. Some research on the dynamic effects of bank mergers and acquisitions (M&As) is also consistent with this possibility. Large U.S. banks that are involved in M&As appear to reduce their SME

lending significantly, presumably reducing their supply of soft-information-based relationship loans (e.g., Berger et al., 1998, Peek and Rosengren, 1998, Strahan and Weston, 1998). However, the supply of SME credit in the local markets of these banks appears not to change substantially because of “external effects” or general equilibrium reactions of other banks. Other incumbent banks may respond by increasing their own supplies of SME credit (e.g., Berger et al., 1998, Berger, Goldberg, and White, 2001, Avery and Samolyk, 2004) or new small banks may be created that tend to devote large portions of their portfolios to SME loans (Berger et al., forthcoming).

Some research also suggests that foreign-owned banks may compete in different ways from domestically owned institutions. Foreign-owned banks are also generally part of large banking organizations and so may have many of the same competitive advantages and disadvantages as large banks described above. In addition, foreign-owned banks may have other advantages over domestically owned banks in serving multinational customers, access to capital, use of technology, and so forth. However, these institutions may also have disadvantages due to managing from a distance, dealing with different economic environments, processing soft information about local conditions, and so forth. The research evidence on efficiency and profitability often suggests that the advantages of foreign ownership outweigh the disadvantages on average in developed nations (e.g., De Young and Nolle, 1996, Berger et al., 2000), and vice versa in developing nations (e.g., Claessens, Demirgüç-Kunt, and Huizinga 2001). Building on this work, one study found that it is regulatory restrictions on the entry of foreign banks, rather than the level of foreign-owned banks, that are robustly linked with bank interest margins (Levine 2003). This suggests that contestability of the market may be crucial for improving performance, rather than the national identity of bank owners.

Studies of the lending behavior of foreign-owned banks in developing nations is often consistent with competitive advantages for these banks in terms of credit availability (e.g., Dages, Goldberg, and Kinney, 2000, Clarke, Cull, and Martinez Peria, 2002, Berger, Hasan, and Klapper, 2004, Clarke et al., forthcoming). However, some evidence suggests that foreign-owned banks may have problems supplying credit to informationally opaque SMEs (e.g., Berger, Klapper, and Udell 2001).

Some of the recent research also takes into account the possibility that state-owned banks may compete in different ways from privately owned institutions. State-owned institutions often hold substantial market shares in developing nations, so it may be important to account for the competitive effects of these banks beyond the contributions of their market shares to HHI or CR_n. State-owned banks generally have objectives other than profit or value maximization. Their stated goals often include developing specific industries, sectors, or regions, assistance to new entrepreneurs, expansion of exports, and so forth, which may result in more competition in these areas and less competition in other banking services. As well, these institutions usually operate with government subsidies, may reduce market discipline and the incentives of these to compete. Most of the research in this area suggests that large concentrations of state bank ownership are associated with less competition

and generally unfavorable economic consequences (e.g., Barth, Caprio, and Levine, 2001a, 2001b, 2004, La Porta, Lopez-de-Silanes, and Shleifer, 2002, Berger, Hasan, and Klapper, 2004).

The types of economic consequences of market structure that are now examined in the research literature have expanded well beyond simple price and profit measures. For instance, research found that banks in more highly concentrated local U.S. markets have lower cost efficiency, presumably because of reduced effort or pursuit of other goals by managers when competition is lax (e.g., Berger and Hannan 1998). Some research also found that the consolidation of the U.S. banking industry in the 1990s resulted in very little change in local market concentration, but is associated with significant increases in the quality of banking services provided to customers in terms of superior branching networks, access to ATMs, and so forth, and higher fees to pay for this quality (e.g., Board of Governors of the Federal Reserve System, 2003, Dick, forthcoming). As well, some findings suggest that U.S. banks—particularly those involved in mergers—had reduced cost productivity but increased profit productivity in the 1990s, consistent with the hypothesis that these banks spent additional funds on improving service quality and variety, and that consumers were willing to pay more for these improved services (Berger and Mester 2003). One paper also found that consumer welfare of depositors increased during the 1990s with the structural changes in the U.S. banking industry (Dick 2002). Some research also examined the effects of banking market structure in the U.S. on bank risk, often based on the hypothesis that the banks try to protect the franchise value created by the market power associated with high concentration by keeping their risks relatively low (e.g., Keeley 1990). For example, one recent study found that banks in more concentrated local U.S. markets have smaller portfolio shares in construction and land development loans, a relatively risky type of lending (Bergstresser 2001). In addition, studies of the performance effects of M&As and geographic diversification of U.S. banks often found that much of performance benefits are due to risk diversification benefits, which allow the institutions to take on more credit risk and leverage risk to earn higher returns (e.g., Hughes et al., 1996, 1999, Akhavein, Berger, and Humphrey, 1997, Demsetz and Strahan, 1997). Thus, when large U.S. banks face an improved risk-expected return trade-off, they often appear to choose to increase expected returns.

Investigators have expanded the research agenda to include analysis of the effects of concentration and competition on economy-wide growth, credit availability to SMEs, and the performance of nonfinancial industries. The SCP hypothesis predicts restricted credit through higher prices from greater concentration, whereas an alternative hypothesis predicts that high concentration encourages banks to invest in lending relationships because the borrowers are less likely to find alternative future sources of credit (Petersen and Rajan 1995). Other restrictions on competition, such as barriers to new bank entry, interstate banking prohibitions, and implicit or explicit limits on cross-border banking may have the same unfavorable or favorable effects on SME credit, industry performance, and economic growth. The empirical research yields mixed findings. Some studies find unfavorable effects from high concentration

and other restrictions on competition, including less new firm creation, expansion, and employment; less economic growth; and slower exit of mature firms (e.g., Jayaratne and Strahan, 1996, 1998, Black and Strahan, 2002, Cetorelli and Strahan, 2002, Beck, Demirgüç-Kunt, and Levine, 2003a, Cetorelli, 2003, Berger, Hasan, and Klapper, 2004). Other studies find favorable effects of bank concentration, such as higher growth rates and greater access to credit by new firms and other SMEs (e.g., Petersen and Rajan, 1995, DeYoung, Goldberg, and White, 1999, Bonaccorsi di Patti and Gobbi, 2001, Cetorelli and Gambera, 2001, Zarutskie, 2003, Bonaccorsi di Patti and Dell'Araccia, forthcoming).

Some studies have also examined the effects of bank concentration and competition on the stability of a nation's financial system. These studies often involve international comparisons and go beyond the implications for the risks for individual banks discussed above. The predictions from economic theory on the role of bank size and national concentration are mixed. According to the "concentration-stability" view, a concentrated banking system with a few large institutions is more stable because the banks may be more profitable, better diversified, and easier to monitor, and therefore more resilient to shocks (e.g., Allen and Gale 2000). In contrast, the "concentration-fragility" view predicts less stability from high concentration and a few large institutions because these institutions may be likely to take on more risk due to implicit "too big to fail" policies or preferences with regard to the risk-expected return trade-off discussed above (e.g., Boyd and Runkle, 1993, Mishkin, 1999). See Carletti and Hartmann (2002) for a recent survey of the literature on competition and financial stability.

Some research has examined dynamic effects of bank M&As on prices. A merger may increase concentration and thereby create more unfavorable prices for customers on deposits and loans, but may alternatively create efficiency savings that are passed on in part to customers through more favorable prices. Studies of the effects of bank M&As on prices are mixed. For example, one study found unfavorable price effects of M&As that increased local concentration in U.S. banking markets considerably (Prager and Hannan 1998), while others found mixed or small effects on prices of M&As as a whole in the U.S. (e.g., Akhavein, Berger, and Humphrey 1997). One study of Italian bank M&As also found mixed results (Sapienza 2002). It is also possible that the short-run effects of M&As may differ from the long-run effects if the market power and efficiency effects take different amounts of time to materialize. For example, a study of Italian bank M&As found that while the short-run effects on prices were unfavorable to consumers, the long-run effects were favorable, consistent with market power effects dominating in the short-run and efficiency effects dominating in the long term (Panetta and Focarelli, forthcoming).

Some research has tried different geographic definitions of U.S. banking markets. Some studies found that U.S. banks have increased the distances at which they make SME loans, more often lending outside the traditional geographic definition of local U.S. markets of MSAs or non-MSA counties (e.g., Petersen and Rajan, 2002, Hannan, forthcoming). As well, U.S. banks in recent years have much more often provided household financial services other than transaction accounts from significant

distances (Amel and Starr-McCluer 2002). However, other findings suggest very change in distance for some retail financial services (e.g., Wolken and Rohde 2002). Some tested whether the locality versus the U.S. state is the correct geographic market, with mixed findings. Some banks that are located in multiple local markets in the same state appear to offer the same prices on a statewide basis (e.g., Radecki, 1998, Heitfield, 1999). Tests of the effects of local-level and state-level concentration usually show that local-level measures matter, but in some cases state-level concentration also matters or matters more than local-level measures (e.g., Hannan and Strahan, 2000, Hannan and Prager, forthcoming, Heitfield and Prager, forthcoming).⁴

The literature has also expanded to include many other developed and developing nations, as well as international comparisons among these nations. As examples, among the studies already cited above, Panetta and Focarelli (forthcoming) examined the effects of bank concentration and competition in a non-U.S. developed nation, Beck, Demirgüç-Kunt, and Levine (2003a) examined the effects in developing nations, and La Porta, Lopez-de-Silanes, and Shleifer (2002) compared effects across many nations. Most of the non-U.S. studies treat the entire nation as a single market, reflecting in part that other nations typically did not have the same history of fragmented banking markets created by regulatory restrictions as the U.S. In some cases, research has even examined multinational regions as potential banking markets. For example, some studies investigated some or all of the European Union (EU) nations as whole—where regulatory changes were designed to move the industry in the direction of a single market. These studies typically found that significant differences across nations in markets and bank behavior and performance remain (e.g., Goddard, Molyneux, and Wilson, 2001, Dermine, 2003).

2. THE NEW RESEARCH PAPERS AND THEIR CONTRIBUTIONS

The papers in this special issue make significant contributions to the existing research on bank concentration and competition. These papers study the impact of bank concentration, regulations, ownership, and institutional development on (1) financial stability, (2) bank net interest margins, and (3) firms' access to financing. The objective of this research is to better understand the different elements that contribute to the overall level of banking competition, benchmark bank competition, and concentration around the world, and investigate the different trade-offs involved in policy decisions regarding regulatory interventions to alter market structure.

To reach these objectives, the researchers contribute to the literature in the following ways. First, the research is based on a broad international database, which includes developing countries and allows analysis of cross-country issues that have not previously been studied. Second, these new studies acknowledge that bank competition is a multifaceted issue, and in addition to bank concentration also consider regulatory restrictions, such as entry restrictions and other legal impediments to bank

4. See Gilbert and Zaretsky (2003) for a recent review of the evidence on antitrust issues regarding U.S. banking markets.

competition. In trying to capture different dimensions of competition, researchers also investigate if foreign and state bank ownerships affect the competitive environment. Furthermore, the research stresses that it is not possible to view bank regulations in isolation from the broader context of institutional framework, since bank regulations reflect national institutions associated with the protection of private property rights and the freedom to compete in the economy. Thus, the papers in this volume define a much broader concept of bank competition and investigate its effects not only on measures of bank pricing and profitability that were studied extensively by earlier researchers, but also on the more complex issues of financial stability and firms' access to credit.

The theoretical papers in this special issue (Boyd, De Nicolo, and Smith, 2004, Allen and Gale, 2004, this issue of *JMCB*) make important contributions to the literature on bank competition and financial stability. Boyd, De Nicolo, and Smith study a monetary general equilibrium economy to examine the cost of a banking crisis in competitive system and under monopoly. They find that the relative crisis probabilities under the two banking systems cannot be determined independently of inflation, but that the probability of a costly banking crisis—defined as a case in which banks exhaust their reserve assets and economic output falls—is always higher under competition than under monopoly.

Allen and Gale consider a variety of different models of competition and stability in the banking sector to illustrate the potential trade-offs that may exist between competition and financial stability. One of the important findings is that in general equilibrium models with incomplete contracts or Schumpeterian models of innovation, efficiency requires both perfect competition and financial instability. Consumers might prefer a banking sector with new firms creating innovative products to a more stable, but moribund sector. The paper thus argues that the standard view that there is a trade-off between competition and financial stability often does not hold.

The theoretical prediction of complex interactions among concentration, competition, and financial stability is consistent with empirical results by Beck, Demirgüç-Kunt, and Levine (2003b). They study the relationships of bank concentration and other measures of competition with systemic banking crises using a large cross-country database for the 1980s and 1990s. They find that more competitive banking systems—as indicated by fewer entry and activity regulations—tend to be more stable. However, they also find that higher bank concentration is associated with more financial stability. One possible explanation for these seemingly contradictory results is that concentration may be a less robust measure of competition than the entry and activity regulations, and so higher concentration may proxy for greater diversification or other influences.⁵

A second area of focus of this special issue is the impact of bank concentration and competition on bank net interest margins, an alternative measure of bank performance to profitability that is often used in international comparisons. The net

5. Beck, Demirgüç-Kunt, and Levine (2003b) is part of the research agenda which was presented at the World Bank conference on Bank Concentration and Competition, but is not included in this special issue.

interest margin, defined as interest income minus interest expense divided by interest-bearing assets, focuses on the traditional operations of the banks and is intended to reflect the exercise of market power and/or its effect on operational efficiency.

Demirgüç-Kunt, Laeven, and Levine (2004, this issue of *JMCB*) examine the impact of bank regulations, concentration, and national institutions on bank net interest margins using data on 1400 banks across 72 countries, while controlling for bank-specific characteristics and macroeconomic factors. Their results suggest that tighter regulations on bank entry, restrictions on bank activities, and regulations that inhibit the freedom of bankers to conduct their business all boost net interest margins. However, examining bank regulations in isolation may be misleading. When national institutions—such as indicators of property rights protection or the degree of economic freedom—are included, the explanatory role of regulations disappears, whereas institutional development is associated with significantly lower margins. Finally, although there is a weak positive relationship between bank margins and concentration, this link breaks down when controlling for institutional development. These results suggest skepticism regarding the use of bank concentration measures to proxy for the competition environment in banking markets.

Martinez Peria and Mody (2004, this issue of *JMCB*) analyze domestic and foreign bank spreads using data for Argentina, Chile, Colombia, Mexico, and Peru, and find that foreign banks were able to charge lower spreads relative to domestic banks, and that foreign entry lowered spreads through its effect on administrative costs. Claessens and Laeven (2004, this issue of *JMCB*) use bank-level data for 50 countries to compute competitiveness measures based on the revenue elasticity to input prices. They find that systems with greater foreign bank entry and fewer entry and activity restrictions tend to be more competitive. Consistent with the other results, they find no evidence that banking system concentration is negatively related to competitiveness.

The third and final area of focus of this special issue is the impact of bank competition and concentration on firms' access to finance. Using a unique survey database for 74 countries, Beck, Demirgüç-Kunt, and Maksimovic (2004, this issue of *JMCB*) study the impact of bank market structure on firms' access to bank finance. They find that bank regulations that impede competition—such as entry and activity restrictions—result in higher financing obstacles for firms. Firms' access to finance improves with institutional development, a larger foreign bank share, and a smaller share for state-owned banks. Bank concentration increases financing obstacles, but only in countries with low levels of economic and institutional development.

A study of OECD countries is consistent with these findings. Cetorelli (2004, this issue of *JMCB*) presents evidence on the effects of changes in banking structure on average firm size in 28 manufacturing sectors in 29 OECD countries over time. The results suggest that in sectors in which incumbent firms are more in need of external finance, these firms are also of disproportionately larger size if they are in countries with more concentrated banking sectors. Cetorelli also finds that this effect of bank concentration is substantially weakened in EU-member countries, where the banking system is more competitive due to pro-competitive deregulation.

As with any research involving international comparisons, we need to be especially cautious in drawing inferences from this body of research. It is simply not impossible to control for the many differences in economic conditions, regulations, and institutional frameworks in samples that pool data from a wide range of developed and developing countries. However, many of the issues that these new research papers address—such as the effects of regulations and institutional structure of the economy—require the analysis of cross-country data in order to have adequate variation in these conditions. Thus, there is a trade-off between using more homogenous, high-quality data from an individual nation versus comparing data across heterogeneous nations with imperfect controls that allow for investigation of additional important research and policy issues.

3. CONCLUSIONS AND POSSIBLE DIRECTIONS FOR FUTURE RESEARCH

The new research in this special issue of the *JMCB* significantly extends the research literature on bank concentration and competition. The inclusion of developing nations provides additional evidence on the effects of bank concentration and competition where it is needed most. From a methodological viewpoint, the research not only solidifies the case against sole reliance on concentration measures as indicators of market competition, but offers some additional new measures of competition that perform much better with fewer measurement problems. The new research significantly extends the research on the effects of competition to go well beyond traditional measures of conduct and performance, with emphasis on credit availability and financial stability—topics of first-order importance, especially in developing nations. The attention to the competitive effects of foreign-owned and state-owned banks in developing nations is also important both because of the significant roles of these banks in developing nations, and because it illustrates the more general principle that different types of banks may affect competitive conditions differently.

To put the findings of this new research into context, a recent review article that focused primarily on the research in developed nations posed the question of whether bank competition is “good” or “bad” from a social perspective (Allen et al. 2001). The authors concluded that the research literature was ambiguous and that more research was needed. The findings of the research in this special issue that incorporate developing nations provide some new perspective on this question.

The new research distinguishes between concentration and competition and generally finds that bank competition is good from a social perspective. In terms of concentration measures per se, the findings are fairly weak. While greater concentration is generally associated with less favorable prices for customers, higher measured profitability, and reduced firm access to credit, these findings are frequently not robust to including other measures of bank competition. For example, concentration appears to have much smaller effects in nations with less regulation and more possibility for foreign bank entry.

The findings with respect to the measures of competition other than concentration are generally robust. More regulatory restrictions on bank competition are associated with bad outcomes—such as less favorable prices for customers, less access to credit, and reduced stability of the financial system. Less binding impediments to foreign bank ownership and entry are generally associated with more favorable prices for customers and more access to credit (good). State bank ownership is generally associated with less access to credit and reduced financial system stability (bad). Thus, policies that restrict bank competition—regulation, barriers to foreign bank participation, and direct state control of banking resources—tend to be associated with bad outcomes and diminished overall economic performance.

More research is clearly needed on the topic of bank concentration and competition. One useful direction for future research is likely to be additional focus on developing nations and their problems of credit availability, economic growth, and financial stability. Along these lines, more detailed analyses of how regulatory and supervisory policies influence bank and overall economic performance may provide policymakers with considerably improved information for formulating banking sector policies. As well, more attention to the link between the structure of the banking industry and the structure of nonfinancial industries seems likely to be fruitful. In addition, it seems clear that more research is needed on indicators of market structure that allow for the possibility that different sizes and types of banks may affect competitive conditions differently. The results to date that suggest that large and small banks, foreign-owned and domestically owned banks, and state-owned and privately owned banks affect market outcomes differently may need further investigation both to confirm the findings and explain why they occur. In addition, it is clear that additional research on the effects of bank concentration and competition on the performance of the rest of the economy in terms of access to credit, economic growth, and financial stability, as well as on the performance of the banks themselves, is needed. Finally, the findings suggest that future research on bank concentration and competition use the broadest possible institutional framework, taking into account when feasible both bank regulations and the institutional structure of the economy.

LITERATURE CITED

- Adams, Robert M., Lars-Hendrik Roller, and Robin C. Sickles. (2002). "Market Power in Outputs and Inputs: An Empirical Application to Banking." Finance and Economics Discussion Series Paper 2002-52, Board of Governors of the Federal Reserve System. [Available at <http://www.federalreserve.gov/pubs/feds/2002/200252/200252abs.html>.]
- Akhavein, Jalal D., Allen N. Berger, and David B. Humphrey (1997). "The Effects of Bank Megamergers on Efficiency and Prices: Evidence from the Profit Function." *Review of Industrial Organization* 12, 95–139.
- Allen, Franklin, and Douglas Gale (2000). *Comparing Financial Systems*. Cambridge, MA and London: MIT Press.
- Allen, Franklin, and Douglas Gale (2004). "Competition and Financial Stability." *Journal of Money, Credit, and Banking* 36, 453–480. (this issue of *JMCB*).

- Allen, Franklin, Hans Gersbach, Jan-Pieter Krahen, and Anthony M. Santomero (2001). "Competition Among Banks: Introduction and Conference Overview." *European Finance Review* 5, 1–11.
- Amel, Dean F., and Martha Starr-McCluer (2002). "Market Definition in Banking: Recent Evidence." *Antitrust Bulletin* 47, 63–89.
- Avery, Robert B., and Katherine A. Samolyk (2004). "Bank Consolidation and Small Business Lending: The Role of Community Banks." *Journal of Financial Services Research* 25, 291–325.
- Bank for International Settlements (2001). "The Banking Industry in the Emerging Market Economies: Competition, Consolidation, and Systemic Stability." BIS Papers 4, Basel.
- Barth, James R., Gerard Caprio, Jr., and Ross Levine (2001a). "Banking Systems Around the Globe: Do Regulations and Ownership Affect Performance and Stability?" In *Prudential Supervision: What Works and What Doesn't*, edited by Frederic S. Mishkin, pp. 31–88. Chicago: University of Chicago Press.
- Barth, James R., Gerard Caprio, Jr., and Ross Levine (2001b). "The Regulation and Supervision of Banks Around the World: A New Database." In *Brooking-Wharton Papers on Financial Services*, edited by Robert E. Litan, and Richard Herring, pp. 183–250. Washington, DC: Brookings Institution.
- Barth, James R., Gerard Caprio, Jr., and Ross Levine (2004). "Bank Supervision and Regulation: What Works Best?" *Journal of Financial Intermediation*, forthcoming.
- Beck, Thorsten, Aslı Demirgüç-Kunt, and Ross Levine (2003a). "Small and Medium Enterprises, Economic Growth and Development." World Bank Working Paper.
- Beck, Thorsten, Aslı Demirgüç-Kunt, and Ross Levine (2003b). "Bank Concentration and Crises." World Bank Working Paper.
- Beck, Thorsten, Aslı Demirgüç-Kunt, and Vojislav Maksimovic (2004). "Bank Competition and Access to Finance: International Evidence." *Journal of Money, Credit, and Banking* 36, 627–648. (this issue of *JMCB*)
- Beck, Thorsten, Ross Levine, and Norman Loayza (2000). "Finance and the Sources of Growth." *Journal of Financial Economics* 58, 261–300.
- Berg, Sigbjorn Atle, and Moshe Kim (1998). "Banks as Multioutput Oligopolies: An Empirical Evaluation of the Retail and Corporate Banking Markets." *Journal of Money, Credit, and Banking* 30, 135–153.
- Berger, Allen N. (1995). "The Profit–Structure Relationship in Banking—Tests of Market-Power and Efficient-Structure Hypotheses." *Journal of Money, Credit, and Banking* 27, 404–431.
- Berger, Allen N., Rebecca S. Demsetz, and Philip E. Strahan (1999). "The Consolidation of the Financial Services Industry: Causes, Consequences, and Implications for the Future." *Journal of Banking and Finance* 23, 135–194.
- Berger, Allen N., Lawrence G. Goldberg, and Lawrence J. White (2001). "The Effects of Dynamic Changes in Bank Competition on the Supply of Small Business Credit." *European Finance Review* 5, 115–139.
- Berger, Allen N., and Timothy H. Hannan (1989). "The Price–Concentration Relationship in Banking." *Review of Economics and Statistics* 71, 291–299.
- Berger, Allen N., and Timothy H. Hannan (1998). "The Efficiency Cost of Market Power in the Banking Industry: A Test of the 'Quiet Life' and Related Hypotheses." *Review of Economics and Statistics* 80, 454–465.
- Berger, Allen N., Iftekhar Hasan, and Leora F. Klapper (2004). "Further Evidence on the Link between Finance and Growth: An International Analysis of Community Banking and Economic Performance." *Journal of Financial Services Research* 25, 169–202.

- Berger, Allen N., Anil K. Kashyap, and Joseph M. Scalise (1995). "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been." *Brookings Papers on Economic Activity* 2, 55-218.
- Berger, Allen N., Leora F. Klapper, and Gregory F. Udell (2001). "The Ability of Banks to Lend to Informationally Opaque Small Businesses." *Journal of Banking and Finance* 25, 2127-2167.
- Berger, Allen N., and Loretta J. Mester (2003). "Explaining the Dramatic Changes in the Performance of U.S. Banks: Technological Change, Deregulation, and Dynamic Changes in Competition." *Journal of Financial Intermediation* 12, 57-95.
- Berger, Allen N., Richard J. Rosen, and Gregory F. Udell (2003). "Does Market Size Structure Affect Competition? The Case of Small Business Lending." Board of Governors of the Federal Reserve System Working Paper.
- Berger, Allen N., and Gregory F. Udell (1996). "Universal Banking and the Future of Small Business Lending." In *Financial System Design: The Case for Universal Banking*, edited by A. Saunders and I. Walter, pp. 559-627. Burr Ridge, IL: Irwin Publishing.
- Berger, Allen N., and Gregory F. Udell (2002). "Small Business Credit Availability and Relationship Lending: The Importance of Bank Organisational Structure." *Economic Journal* 112, F32-F53.
- Berger, Allen N., Anthony Saunders, Joseph M. Scalise, and Gregory F. Udell (1998). "The Effects of Bank Mergers and Acquisitions on Small Business Lending." *Journal of Financial Economics* 50, 187-229.
- Berger, Allen N., Robert DeYoung, Hesna Genay, and Gregory F. Udell (2000). "The Globalization of Financial Institutions: Evidence from Cross-Border Banking Performance." *Brookings-Wharton Papers on Financial Services* 3, 23-158.
- Berger, Allen N., Nathan H. Miller, Mitchell A. Petersen, Raghuram G. Rajan, and Jeremy C. Stein (2002). "Does Function Follow Organizational Form? Evidence from the Lending Practices of Large and Small Banks." NBER Working Paper No. 8752, National Bureau of Economic Research, Inc. [Available at <http://papers.nber.org/papers/W8752>.]
- Berger, Allen N., Seth D. Bonime, Lawrence G. Goldberg, and Lawrence J. White (2004). "The Dynamics of Market Entry: The Effects of Mergers and Acquisitions on Entry in the Banking Industry." *Journal of Business*, forthcoming.
- Bergstresser, Daniel (2001). "Market Concentration and Loan Portfolios in Commercial Banking." MIT Working Paper.
- Bikker, Jacob A., and Katharina Haaf (2002). "Competition, Concentration and Their Relationship: An Empirical Analysis of the Banking Industry." *Journal of Banking and Finance* 26, 2191-2214.
- Black Sandra E., and Philip E. Strahan (2002). "Entrepreneurship and Bank Credit Availability." *Journal of Finance* 57, 2807-2833.
- Board of Governors of the Federal Reserve System (2003). *Annual Report to Congress on Retail Fees and Services of Depository Institutions* (June). [Available at <http://www.federalreserve.gov/boarddocs/rptcongress/2003fees.pdf>.]
- Bonaccorsi di Patti, Emilia, and Giovanni Dell'Ariceia. "Bank Competition and Firm Creation." *Journal of Money, Credit, and Banking* 36, 225-252.
- Bonaccorsi di Patti, Emilia, and Giorgio Gobbi (2001). "The Effects of Bank Consolidation and Market Entry on Small Business Lending." Banca D'Italia Temi di Discussione 404.
- Boyd, John, Gianni De Nicolo, and Bruce Smith (2004). "Crises in Competitive versus Monopolistic Banking Systems." *Journal of Money, Credit, and Banking* 36, 487-506. (this issue of *JMCB*)
- Boyd John H., and David E. Runkle (1993). "Size and Performance of Banking Firms: Testing the Predictions of Theory." *Journal of Monetary Economics* 31, 47-67.

- Bresnahan, Timothy F. (1989). "Empirical Studies of Industries with Market Power." In *Handbook of Industrial Organization*, Vol. II, edited by Richard Schmalensee and Robert D. Willig, pp. 1011–1057. Amsterdam: Elsevier Science.
- Carletti, Elena, and Philipp Hartmann (2002). "Competition and Stability: What's Special About Banking." In *Monetary History, Exchange Rates and Financial Markets: Essays in Honor of Charles Goodhart*, edited by Paul Mizen. Cheltenham, UK: Edward Elger.
- Carter, David A., James E. McNulty, and James A. Verbrugge (2004). "Do Small Banks Have an Advantage in Lending? An Examination of Risk-adjusted Yields on Business Loans at Large and Small Banks." *Journal of Financial Services Research* 25, 233–252.
- Cetorelli, Nicola (2003). "Life-Cycle Dynamics in Industrial Sectors: The Role of Banking Market Structure." *Federal Reserve Bank of Saint Louis Review* 85 (July/August 2003), 135–147.
- Cetorelli, Nicola (2004). "Bank Concentration and Competition in Europe." *Journal of Money, Credit, and Banking* 36, 543–558. (this issue of *JMCB*)
- Cetorelli, Nicola, and Michele Gambera (2001). "Banking Market Structure, Financial Dependence and Growth: International Evidence from Industry Data." *Journal of Finance* 56, 617–648.
- Cetorelli, Nicola, and Philip E. Strahan (2002). "Banking Competition, Technology and the Structure of Industry." Federal Reserve Bank of Chicago Working Paper.
- Claessens, Stijn, Asli Demirgüç-Kunt, and Harry Huizinga (2001). "How Does Foreign Entry Affect the Domestic Banking Market?" *Journal of Banking and Finance* 25, 891–911.
- Claessens, Stijn, and Luc Laeven (2004). "What Drives Bank Competition? Some International Evidence." *Journal of Money, Credit, and Banking* 36, 563–583. (this issue of *JMCB*)
- Clarke, George, Robert Cull, and Maria Soledad Martinez Peria (2002). "How Does Foreign Bank Participation Affect Access to Credit by SMEs? Evidence from Survey Data." World Bank Working Paper.
- Clarke, George, Robert Cull, Maria Soledad Martinez Peria, and Susana M. Sanchez. "Bank Lending to Small Businesses in Latin America: Does Bank Origin Matter?" *Journal of Money, Credit, and Banking*, forthcoming.
- Cole, Rebel A., Lawrence G. Goldberg, and Lawrence J. White. "Cookie-Cutter versus Character: The Micro Structure of Small Business Lending by Large and Small Banks." *Journal of Financial and Quantitative Analysis*, forthcoming.
- Dages, B. Gerard, Linda Goldberg, and Daniel Kinney (2000). "Foreign and Domestic Bank Participation in Emerging Markets: Lessons from Mexico and Argentina." Federal Reserve Bank of New York Economic Policy Review 6, 17–36.
- Demirgüç-Kunt, Asli, Luc Laeven, and Ross Levine (2004). "Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation." *Journal of Money, Credit, and Banking* 36, 593–622. (this issue of *JMCB*)
- Demirgüç-Kunt, Asli, and Vojislav Maksimovic (1998). "Law, Finance, and Firm Growth." *Journal of Finance* 53, 2107–2137.
- Demsetz, Rebecca S., and Phillip E. Strahan (1997). "Diversification, Size, and Risk at Bank Holding Companies." *Journal of Money, Credit, and Banking* 29, 300–313.
- Dermine, Jean (2003). "Banking in Europe: Past, Present, and Future." In: *The Transformation of the European Financial System*, edited by Vitor Gaspar, Philipp Hartmann, and Olaf Sleijpen. Chicago: European Central Bank.
- DeYoung, Robert, Lawrence G. Goldberg, and Lawrence J. White (1999). "Youth, Adolescence, and Maturity of Banks. Credit Availability to Small Business in an Era of Banking Consolidation." *Journal of Banking and Finance* 23, 463–492.
- DeYoung, Robert, William C. Hunter, and Gregory F. Udell (2004). "The Past, Present, and Probable Future for Community Banks." *Journal of Financial Services Research* 25, 85–133.

- DeYoung, Robert, and Daniel E. Nolle (1996). "Foreign-Owned Banks in the U.S.: Earning Market Share or Buying It?" *Journal of Money, Credit, and Banking* 28, 622–636.
- Dick, Astrid A. (2002) "Demand Estimation and Consumer Welfare in the Banking Industry." Finance and Economics Discussion Series Paper 2002-58, Board of Governors of the Federal Reserve System. [Available at <http://www.federalreserve.gov/pubs/feds/2002/200258/200258abs.html>.]
- Dick, Astrid A. (2003) "Market Structure and Quality: An Application to the Banking Industry." Finance and Economics Discussion Series Paper 2003-14, Board of Governors of the Federal Reserve System. [Available at <http://www.federalreserve.gov/pubs/feds/2003/200314/200314abs.html>.]
- Dick, Astrid A. "Nationwide Branching and Its Impact on Market Structure, Quality and Bank Performance." *Journal of Business*, forthcoming.
- Frame, W. Scott, and David R. Kamerschen (1997). "The Profit–Structure Relationship in Legally Protected Banking Markets Using Efficiency Measures." *Review of Industrial Organization* 12, 9–22.
- Gilbert R. Alton, and Adam M. Zaretsky (2003). "Banking Antitrust: Are the Assumptions Still Valid?" Federal Reserve Bank of St. Louis Working Paper.
- Goddard, John A., Philip Molyneux, and John O. S. Wilson (2001). *European Banking: Efficiency, Technology and Growth*. Chichester, UK: Wiley and Sons.
- Group of Ten (2001). "Report on Consolidation in the Financial Sector." Basel, Switzerland: Bank for International Settlements
- Hannan, Timothy H. (1991). "Bank Commercial Loan Markets and the Role of Market Structure: Evidence from Surveys of Commercial Lending." *Journal of Banking and Finance* 15, 133–149.
- Hannan, Timothy H. "Changes in Non-local Lending to Small Business." *Journal of Financial Services Research* 24, 31–46.
- Hannan, Timothy H., and Allen N. Berger (1991). "The Rigidity of Prices: Evidence from the Banking Industry." *American Economic Review* 81, 938–945.
- Hannan, Timothy H., and Robin A. Prager. "The Competitive Implications of Multimarket Bank Branching." *Journal of Banking and Finance*, forthcoming.
- Hannan, Timothy H., and Philip E. Strahan (2000). "Are Loan Markets Really Local?" Board of Governors of the Federal Reserve System Working Paper.
- Haynes, George W., Charles Ou, and Robert Berney (1999). "Small Business Borrowing from Large and Small Banks." In *Business Access to Capital and Credit*, edited by Jackson L. Blanton, Alicia Williams, and Sherrie L.W. Rhine, pp. 287–327. A Federal Reserve System Research Conference.
- Heitfield, Erik A. (1999). "What do Interest Rate Data Say about the Geography of Retail Banking Markets?" *Antitrust Bulletin* 44, 333–347.
- Heitfield, Erik, and Robin A. Prager. "The Geographic Scope of Retail Deposit Markets." *Journal of Financial Services Research*, forthcoming.
- Hughes, Joseph P., William Lang, Loretta J. Mester, and Choon-Geol Moon (1996). "Efficient Banking under Interstate Branching." *Journal of Money, Credit, and Banking* 28, 1043–1071.
- Hughes, Joseph P., William W. Lang, Loretta J. Mester, and Choon-Geol Moon (1999). "The Dollars and Sense of Bank Consolidation." *Journal of Banking and Finance* 23, 291–324.
- International Monetary Fund (2001). "Financial Sector Consolidation in Emerging Markets," chap. 5, International Capital Market Report.
- Jayaratne, Jith, and Philip E. Strahan (1996). "The Finance–Growth Nexus: Evidence from Bank Branch Dereulation." *Quarterly Journal of Economics* 111, 639–670.

- Jayaratne, Jith, and Philip E. Strahan (1998). "Entry Restrictions, Industry Evolution, and Dynamic Efficiency: Evidence from Commercial Banking." *Journal of Law and Economics* 41, 239–273.
- Jayaratne, Jith, and John D. Wolken (1999). "How Important Are Small Banks to Small Business Lending? New Evidence from a Survey of Small Firms." *Journal of Banking and Finance* 23, 427–458.
- Keeley, Michael (1990). "Deposit Insurance, Risk, and Market Power in Banking." *American Economic Review* 80, 1183–1200.
- King, Robert G., and Ross Levine (1993a). "Finance and Growth: Schumpeter Might Be Right." *Quarterly Journal of Economics* 108, 717–738.
- King, Robert G., and Ross Levine (1993b). "Finance, Entrepreneurship, and Growth: Theory and Evidence." *Journal of Monetary Economics* 32, 513–542.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (2002). "Government Ownership of Banks." *Journal of Finance* 57, 265–301.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1997). "Legal Determinants of External Finance." *Journal of Finance* 52, 1131–1150.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (1998). "Law and Finance." *Journal of Political Economy* 106, 1113–1155.
- Levine, Ross (1997). "Financial Development and Economic Growth: Views and Agenda." *Journal of Economic Literature* 35, 688–726.
- Levine, Ross (2003). "Denying Foreign Bank Entry: Implications for Bank Interest Margins." Mimeo, University of Minnesota.
- Levine, Ross (2004). "Finance and Growth: Theory, Evidence, and Mechanisms." In *Handbook of Economic Growth*, edited by P. Aghion and S. Durlauf. Amsterdam: North-Holland Elsevier Publishers, forthcoming.
- Levine, Ross, Norman Loayza, and Thorsten Beck (2000). "Financial Intermediation and Growth: Causality and Causes." *Journal of Monetary Economics* 46, 31–77.
- Levine, Ross, and Sara Zervos (1998). "Stock Markets, Banks, and Economic Growth." *American Economic Review* 88, 537–558.
- Martinez Peria, Maria Soledad, and Ashoka Mody (2004). "How Foreign Participation and Market Concentration Impact Bank Spreads: Evidence from Latin America." *Journal of Money, Credit, and Banking* 36, 511–537. (this issue of *JMCB*)
- Mishkin, Frederic S. (1999). "Financial Consolidation: Dangers and Opportunities." *Journal of Banking and Finance* 23, 675–691.
- Panetta, Fabio, and Dario Focarelli. "Are Mergers Beneficial to Consumers? Evidence from the Italian Market for Bank Deposits." *American Economic Review*, forthcoming.
- Neumark, David, and Steven A. Sharpe (1992). "Market Structure and the Nature of Price Rigidity: Evidence from the Market for Consumer Deposits." *Quarterly Journal of Economics* 107, 657–680.
- Peek, Joe, and Eric S. Rosengren (1998). "Bank Consolidation and Small Business Lending: It's Not Just Bank Size That Matters." *Journal of Banking and Finance* 22, 799–819.
- Petersen, Mitchell A., and Raghuram G. Rajan (1995). "The Effect of Credit Market Competition on Lending Relationship." *Quarterly Journal of Economics* 110, 407–443.
- Petersen, Mitchell A., and Raghuram G. Rajan (2002). "Does Distance Still Matter? The Information Revolution in Small Business Lending." *Journal of Finance* 57, 2533–2570.
- Prager, Robin A., and Timothy H. Hannan (1998). "Do Substantial Horizontal Mergers Generate Significant Price Effects? Evidence from the Banking Industry." *Journal of Industrial Economics* 46, 433–452.

- Radecki, Lawrence J. (1998). "The Expanding Geographic Reach of Retail Banking Markets." *Federal Reserve Bank of New York Economic Policy Review* 4, 15–34.
- Rajan, Raghuram G., and Luigi Zingales (1998). "Financial Dependence and Growth." *American Economic Review* 88, 559–586.
- Rhoades, Stephen A. (1985). "Market Share as a Source of Market Power: Implications and Some Evidence." *Journal of Economics and Business* 37, 343–363.
- Sapienza, Paola (2002). "The Effects of Banking Mergers on Loan Contracts." *Journal of Finance* 57, 329–367.
- Shaffer, Sherrill (2001). "Banking Conduct Before the European Single Banking License: A Cross-Country Comparison." *North American Journal of Economics and Finance* 12, 79–104.
- Shepherd, William G. (1986). "Tobin's q and the Structure–Performance Relationship: Comment." *American Economic Review* 76, 1205–1210.
- Smirlock, Michael (1985). "Evidence on the (Non) Relationship between Concentration and Profitability in Banking." *Journal of Money, Credit, and Banking* 17, 69–83.
- Smirlock, Michael, Thomas Gilligan, and William Marshall (1984). "Tobin's q and the Structure–Performance Relationship." *American Economic Review* 74, 1051–1060.
- Stein, Jeremy C. (2002). "Information Production and Capital Allocation: Decentralized vs. Hierarchical Firms." *Journal of Finance* 57, 1891–1921.
- Strahan, Philip E., and James P. Weston (1998). "Small Business Lending and the Changing Structure of the Banking Industry." *Journal of Banking and Finance* 22, 821–845.
- Wolken, John D., and Douglas Rohde (2002). "Changes in the Location of Small Businesses' Financial Service Suppliers between 1993 and 1998." Federal Reserve Board Internal Memorandum.
- Zarutskie, Rebecca (2003). "Does Bank Competition Affect How Much Firms Can Borrow? New Evidence from the U.S." In *Proceedings of a Conference on Bank Structure and Competition*. Chicago: IL, Federal Reserve Bank of Chicago.

Copyright of Journal of Money, Credit & Banking is the property of Ohio State University Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Copyright of Journal of Money, Credit & Banking is the property of Ohio State University Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.