

Studies

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When Less Means More**

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**Banking's Merger Fervor:
Survival of the Fittest?**

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Bank Consolidation: When Less Means More

Jeffery W. Gunther

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Lost in all the talk about reorganization and consolidation in the banking industry is one exceedingly important fact—the most noticeable structural change from the consumer's perspective has been an appreciable expansion in the number of local banking offices, together with an associated improvement in the availability of banking services. That is the conclusion Jeffery Gunther draws from an examination at the local market level of the massive structural changes in the banking industry during the 1980s. In addition, evidence presented in this article indicates that liberalization of geographic banking restrictions at the state level helped facilitate the increase in banking offices. The concurrent trends of reductions in the number of banking organizations at the national level and increases in the number of banking offices at the local market level partly reflect the breakdown of long-standing restrictions on banks' geographic expansion.

Banking's Merger Fervor: Survival of the Fittest?

Robert R. Moore

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Consolidation in the U.S. banking industry has greatly reduced the number of banks and has the potential to reshape the industry further. Robert Moore examines the characteristics of banks that have been acquired in mergers.

The findings show that banks with weak performance are more likely to be acquired than are banks with strong performance. Acquisition probability tends to be high for banks with low profitability, slow asset growth, a low market share, a low capital-to-asset ratio, and a low ratio of non-small-business loans to assets. Small business loans and bank size, however, do not significantly influence acquisition probability.

Bank Consolidation: When Less Means More

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Liberalization of geographic banking restrictions has lived up to its promise of enhancing service accessibility.

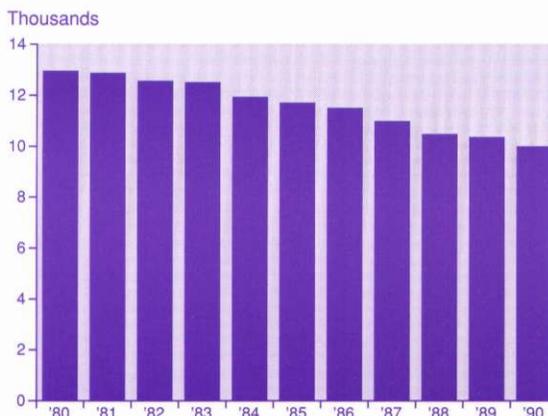
During the 1980s, widespread accounts of high failure rates and large-scale mergers left the impression that the banking industry was undergoing a historic contraction. In one sense this impression is accurate, but in another it is not.

This article examines the structural changes in the banking industry during the 1980s to illuminate important aspects of the consolidation wave that have been either overlooked or underappreciated. The results suggest that, beyond the name changes accompanying mergers, the average bank depositor saw little evidence of the large-scale consolidation occurring at the national level. Instead, the most noticeable structural change from the consumer's perspective was an appreciable expansion in the number of local banking offices, together with an associated improvement in the availability of banking services.¹ In addition, a statistical analysis of the increase in the number of banking offices during the 1980s indicates that the removal of long-standing restrictions on banking organizations' geographic expansion deserves some of the credit for the improvements in the accessibility of services.

Consolidation wave leaves fewer banking organizations—or does it?

The 1980s witnessed considerable consolidation in the U.S. banking industry. As shown in Chart 1, the number of U.S. banking organizations fell from 12,930 in 1980 to 9,982 in 1990, a reduction of 23 percent.² A wave of bank failures and reductions in legal restrictions on the ability of banking organizations to expand geographically were among the factors that fueled the consolidation wave.³

Chart 1
Number of U.S. Banking Organizations, 1980–90



DATA SOURCE: Federal Deposit Insurance Corp.,
Summary of Deposits.

¹ It should be acknowledged, though, that in certain cases consolidation may have negatively affected other bank customers, such as small business borrowers. For example, if a bank's lending focus was redirected following its acquisition by another institution, then some of the bank's original borrowers may have faced transitional costs associated with locating alternative sources of funds.

² Banking organizations are defined here as banks aggregated to the company level.

³ The erosion of geographic banking restrictions at the state level during the 1980s paved the way for legislation at the federal level, which came ultimately in the form of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994.

However, while recent reductions in the overall number of banking organizations are dramatic, they may be of little interest to the average bank customer. Of broader significance are changes at the local market level, because it is from this perspective that consumers view the banking industry and interact with it. Did consolidation leave the consumer with fewer, or more, banking alternatives?

As it turns out, the average number of banking organizations operating at the local market level held steady during the consolidation of the 1980s.⁴ The average number of banking organizations serving individual counties provides a reasonable measure of the number of local banking alternatives consumers face.⁵ For metropolitan counties, the average number of banking organizations rose slightly, from 11.1 in 1980 to 11.8 in 1990.⁶ The average number of banking organizations serving rural counties was 4.1 in both 1980 and 1990.

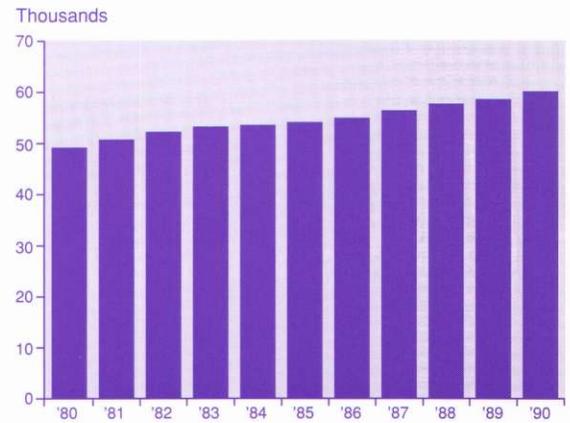
It is not difficult to see how the overall number of banking organizations could shrink while leaving the average number of organizations operating at the county level unchanged. When a given banking organization acquires another, the overall number of organizations is reduced by one. However, if prior to their merger the two organizations had operated in different local markets, then the acquisition would leave the average number of organizations operating at the county level unchanged. The stability in the number of banking organizations operating at the county level during the consolidation of the 1980s is partly attributable to the frequency of mergers involving organizations in different markets.

Consolidation leaves more banking offices

Despite the large reduction in the overall number of banking organizations during the 1980s, the number of banking offices actually increased substantially over the same period.⁷ As shown in Chart 2, the number of U.S. banking offices rose from 49,104 in 1980 to 60,108 in 1990, an increase of 22 percent, as the establishment of branches more than made up for reductions in the number of head offices. Ironically, this large increase in the number of banking offices occurred during a period when technological innovations, such as the automated teller machine, supposedly had reduced the importance of “brick and mortar” locations.

Given the substantial increase in the number of offices, together with the stability in the number of organizations operating at the local market level, the banking industry can be char-

Chart 2
Number of U.S. Banking Offices, 1980–90



DATA SOURCE: Federal Deposit Insurance Corp., Summary of Deposits.

acterized as contracting during the 1980s only in the sense of the reduction in the overall number of organizations. As argued in the next section, the substantial rise in the number of banking offices during this period suggests that banking organizations were seeking to expand geographically, in an effort to enhance the availability of financial services.

Geographic expansion increases accessibility of banking services

Does the consumer have more or less convenience following the bank consolidation wave? One indicator of customer convenience—the accessibility of banking services—has been the subject of numerous academic studies.⁸ Below, both growth in the number of banking offices per county and growth in the ratio of county population to banking offices are used as indicators of changes in the accessibility of banking services.⁹ The averaging of growth rates at the county level helps provide an accurate picture of the changes occurring in local markets.¹⁰

Metropolitan counties. The number of banking offices operating in metropolitan counties grew an average of 36 percent during 1980–90. This significant growth in offices at the county level is in stark contrast to the 23 percent decline in the number of organizations operating at the national level. By 1990, the average number of banking offices in metropolitan counties was fifty-three, compared with forty-two in 1980, as shown in Chart 3.¹¹

Although the increase in offices for metropolitan counties could simply reflect rising population levels, changes in the ratio of population to banking offices can provide a better indication of trends in the accessibility of services. If

⁴ Previous studies using the Herfindahl–Hirschman Index to measure market concentration have reached similar conclusions regarding the lack of any noticeable effect of bank consolidation in reducing competition at the local market level (for example, see Klemme 1995).

⁵ The appropriate geographic definition for a local banking market is far from clear. Here, a county-level definition is used, as counties represent the smallest geographic unit for which the population data used in this article are consistently available. The county-level analyses in this article are restricted to the continental United States. Also, the analyses are restricted to counties having at least one banking office in both 1980 and 1990. Only twenty-nine counties fail to meet this latter criterion.

⁶ Metropolitan counties are defined here as counties, or areas classified as county equivalents, that are part of either metropolitan statistical areas (MSAs) or, in the case of New England, New England county metropolitan areas (NECMAs). The MSAs and NECMAs are identified according to the standard definitions, as revised by the Office of Management and Budget in June 1994.

⁷ Banking offices are defined here to include all head offices, branches, and facilities reporting deposit activity.

⁸ For examples of the studies addressing the accessibility of banking services, see Lanzillotti and Saving (1969), Savage and Humphrey (1979), Seaver and Fraser (1979), and Evanoff (1988).

⁹ Accessibility often has been measured either as the number of banking offices operating in a given market area or as the ratio of local population to banking offices. A notable exception is Evanoff (1988), who argues that the number of offices per square mile is a superior measure. However, because the analysis here focuses on changes in accessibility, Evanoff’s measure becomes equivalent to a measure based on the number of banking offices per county; that is, the growth rate of the number of offices in a given county is equal to the growth rate of the number of offices per square mile of the county, given that the size of individual counties typically is constant.

¹⁰ In principle, the average growth rate at the county level could be less than, greater than, or equal to the growth rate for all counties combined.

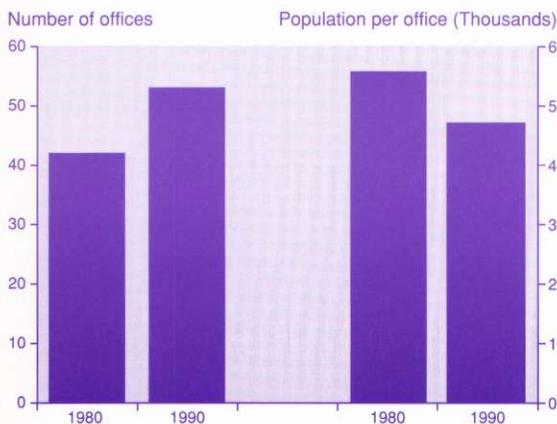
¹¹ Note that the resulting 26 percent increase in the average number of banking offices represents the growth rate for all metropolitan counties combined, as opposed to the average rate of growth at the individual metropolitan county level, which, as mentioned in the text, was 36 percent.

growth in the number of banking offices failed to keep up with population growth, then the ratio of population to offices would rise. In contrast, if growth in the number of offices exceeded population growth, the ratio of population to offices would fall. In this sense, a falling population-to-office ratio would suggest an increase in service accessibility, while a rising population-to-office ratio would indicate a reduction in accessibility.

For metropolitan counties, growth in banking offices tended to exceed local population growth in the 1980s. The average county-level change in the ratio of population to banking offices from 1980 to 1990 was -11 percent. Reflecting relatively strong growth in the number of banking offices, the average population-to-office ratio in metropolitan counties was 4,711 in 1990, compared with 5,572 a decade earlier, as shown in Chart 3. These county-level data indicate that, within local metropolitan markets, the banking industry expanded fairly aggressively during the 1980s, despite the contraction in the overall number of banking organizations.

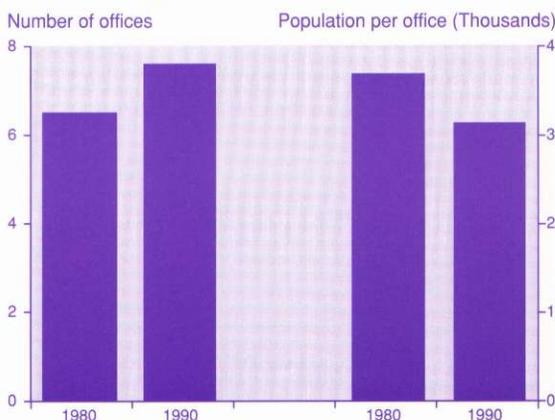
Rural counties. Data indicate that service accessibility increased for customers in rural areas as well. The average county-level growth rate between 1980 and 1990 in the number of banking offices was 20 percent. By 1990, the average number of offices operating in rural counties was 7.6, compared with 6.5 in 1980, as shown in Chart 4. Moreover, the average change between 1980 and 1990 in the ratio of population to offices was -11 percent, as was the case for metropolitan counties. As shown in Chart 4, the average population-to-office ratio for rural

Chart 3
Service Accessibility in the Average Metropolitan County, 1980 Versus 1990



DATA SOURCES: Federal Deposit Insurance Corp., Summary of Deposits; U.S. Bureau of the Census, Census of Population and Housing.

Chart 4
Service Accessibility in the Average Rural County, 1980 Versus 1990



DATA SOURCES: Federal Deposit Insurance Corp., Summary of Deposits; U.S. Bureau of the Census, Census of Population and Housing.

counties was 3,147 in 1990, compared with 3,694 a decade earlier.

Geographic restrictions and service accessibility

During the 1980s, a large number of states relaxed long-standing restrictions on banking organizations' geographic expansion.¹² Restrictions on holding companies' operation of multiple banks were relaxed in twelve states during this period. In addition, twenty-two states provided for greater branching powers, with fifteen removing virtually all restrictions on the number and location of branches. All but five states passed laws allowing interstate banking, either on a regional or national basis. Greater holding company and branching powers within individual states, together with the legislative changes allowing various forms of interstate banking, undoubtedly affected the structure of banking at the local market level.

Good reasons exist to suspect that a liberalization of geographic banking restrictions would promote service accessibility. Consider a relatively small rural market area, which in the absence of branching could support only a single banking organization. Suppose that a change in law allowed branching or holding company expansion within the market area. If the cost of operating a branch or a bank subsidiary were less than the cost of operating a separate banking organization, then the lone organization operating in the market might find it profitable to open a branch or another bank subsidiary, perhaps in a somewhat distant, but reasonably well populated, portion of the market area. In this

¹² Data on the liberalizations are from Amel (1993).

case, the removal of geographic restrictions within the market area would precipitate an increase in the number of banking offices.

In addition, if the restriction on expanding into the market area from other regions were removed, then banking organizations headquartered outside the market conceivably could find it profitable to enter the area by establishing branches or bank subsidiaries. This also would increase the number of banking offices serving the local market.

Similar arguments apply to larger, less limited market areas. Consider a given metropolitan market area served by several banking organizations, each consisting of a single bank. And assume again that both branching and holding company expansion offer efficiency gains over the operation of independent banks. Then, if branching or holding company expansion were allowed, competitive forces would be expected to result in the conversion of many of the independent banks into branches or bank subsidiaries. Also, because organizations now would be able to expand, both within the market and into the market from other areas, additional offices most likely would appear at particularly advantageous locations.

Insofar as the cost of operating a network of branches or affiliated banks is lower than the cost of operating an equivalent number of independent banks, the removal of geographic restrictions might promote the establishment of a relatively large number of banking offices. One reason to suspect the operation of multiple offices would result in greater efficiency is the potential effect of a large asset base in reducing average cost. If a large asset size helps banking organizations operate more efficiently, then, by helping establish and support a large asset base, branching or holding company expansion might result in efficiency gains. Put another way, because branches and bank affiliates can share resources at the company level, the cost of establishing an additional branch or bank subsidiary might be lower than the cost of establishing an independent bank representing an entirely new organization. Additionally, geographic expansion by banking organizations can yield benefits by facilitating risk diversification at the company level. As a result, the removal of branching restrictions and the removal of restrictions on holding company expansion both have the potential to increase the number of banking offices at the local market level.

While both branching and holding company expansion hold the promise of increasing the accessibility of banking services, other fac-

tors suggest that branching represents the more effective structure for multiple offices. Regulatory restrictions on banks, including charter requirements, capital adequacy guidelines, reporting requirements, and other compliance issues, may make geographic expansion through a subsidiary more costly than expansion through a branch. Similarly, bank-level expenses that could otherwise be centralized in a head office—for example, the costs associated with a board of directors or additional levels of senior management—may also make the cost of operating a subsidiary bank higher than the cost of operating a branch.

An empirical test of the liberalization-accessibility relationship

To test empirically for a positive effect of geographic liberalizations on changes in the number of banking offices at the local market level, states are categorized according to whether they were affected by liberalization during the 1980s. In this analysis, no effort is made to identify differences in the effects of branching versus holding company liberalizations. Rather, the term *expansion* refers to expansion within a state or smaller area through either branching or the establishment of bank subsidiaries.¹³ Later, in the following section, additional empirical tests are conducted for branching liberalizations in particular.

The experience of individual states is categorized as follows: (1) no liberalization, (2) the removal of prohibitions on expansion to allow limited expansion, (3) the removal of prohibitions on expansion to allow unlimited expansion, and (4) the removal of laws allowing only limited expansion to allow unlimited expansion.¹⁴ The expansion status of the individual states, at both the beginning and end of the 1980s, is determined by the extent of expansion allowed through either branches or holding companies. For example, a state falls in the second category—the removal of prohibitions on expansion to allow limited expansion—if it moved from the prohibition of branching to allow limited branching and, at the beginning of the period, had not allowed holding company expansion in any form. However, a state falls in the first category—no liberalization—if it moved from the prohibition of branching to allow limited branching and, at the beginning of the period, already had allowed limited expansion through multibank holding companies. Because states that liberalized their branching laws, but only to a degree comparable to previously existing holding company laws, are lumped together

¹³ The categorization of states according to expansion opportunities, irrespective of whether they spring from branch banking or holding company expansion, is a somewhat novel aspect of this article. Reflecting the arguments pointing to the potentially stronger effect of branching laws on service accessibility, previous studies of accessibility have tended to focus exclusively on branching laws. However, because the efficiency and diversification arguments apply to both forms of expansion, albeit to potentially different degrees, both branching laws and the laws governing holding company expansion may significantly affect service accessibility. Although not reported here, a separate analysis for metropolitan counties in states that prohibited branching at the beginning of the 1980s indicates that liberalizations of holding company laws were associated with relatively high growth in banking offices, even after controlling for the effects of population growth and branching liberalizations. This finding supports the explicit consideration given here to the laws governing holding company expansion.

¹⁴ These categories are necessarily broad and imprecise. For example, states that prohibited expansion at the beginning of the 1980s may nevertheless have contained branches or multibank holding companies if previously existing offices had been exempted. Similarly, the category of limited expansion includes a wide range of expansion laws, including, for example, laws allowing expansion only in limited regions or only through acquisition, as opposed to the establishment of new offices. Unlimited expansion refers to laws generally allowing expansion with no limitations on the number or location of offices.

with states that experienced no change in law, comparisons of structural changes across the four categories may understate the true effects of geographic liberalization.¹⁵

The states categorized as liberalizing experienced significant changes in the laws governing geographic expansion. As of 1980, only five states prohibited all forms of both branching and holding company expansion, and these states alone are candidates for the second and third categories.¹⁶ As it turns out, each of the five states experienced a liberalization. Kansas, Nebraska, and Oklahoma moved from the prohibition of expansion through either branches or holding companies to allow limited branch banking and also limited forms of holding company expansion. As a result, these three states fall under the second category—the removal of prohibitions on expansion to allow limited expansion. In addition, Illinois moved from the prohibition of expansion through either branches or holding companies to allow limited branching and unlimited holding company expansion, while West Virginia moved from the prohibition of expansion to allow unlimited branching and limited holding company expansion. As a result, these two states fall under the third category—the removal of prohibitions on expansion to allow unlimited expansion.

Four states qualify for the fourth category—the removal of laws allowing only limited expansion to allow unlimited expansion. Louisiana, New Hampshire, and Washington moved from limited branching to unlimited branching, while New Jersey moved from limited to unlimited holding company expansion.

With the states categorized according to their changes in expansion laws, their respective counties can be grouped accordingly. It is then a simple matter to calculate, for each of the categories, the proportion of counties experiencing a reduction in the ratio of population to banking offices. If the liberalization of geographic restrictions had a positive impact on the accessibility of banking services, then the proportion of counties experiencing a reduction in the population-to-office ratio should be higher for the liberalization categories than for the first category, which represents no change in expansion laws. The differences across categories in the proportion of counties experiencing greater accessibility are tested for statistical significance at the 5 percent level using the standard chi-square test for differences in probabilities.¹⁷

Similarly, for each of the different categories, the average rate of change in the ratio of county population to banking offices also is

calculated. If the liberalization of geographic restrictions had a positive impact on the accessibility of banking services, then the average percentage change in the population-to-office ratio should be lower for the liberalization categories than for the first category. The differences across categories are tested for statistical significance at the 5 percent level using the Wilcoxon rank sum test.¹⁸ All the tests are conducted separately for metropolitan and rural counties.¹⁹

Metropolitan counties. As shown in the first row of Table 1, the proportion of metropolitan counties experiencing a reduction in the ratio of population to banking offices between 1980 and 1990 is lowest for the states with no change in expansion laws, as expected under the view that geographic liberalizations facilitate the expansion of banking offices. The proportion of metropolitan counties experiencing a reduction in the population-to-office ratio is highest for the category of full liberalization—the removal of prohibitions on expansion to allow unlimited expansion. For 98 percent of the metropolitan counties in this category, growth in banking offices exceeded growth in population. This relatively high proportion is statistically different from the 69 percent calculated for the no-liberalization category. Also, 76 percent of the metropolitan counties in states that moved from the prohibition of expansion to allow limited expansion experienced a reduction in the population-to-office ratio. However, this proportion is not significantly different from the relatively low proportion calculated for the no-liberalization category. Similarly, while the proportion of metropolitan counties with reductions in the population-to-office ratio is slightly higher for states that moved from limited to unlimited expansion than for states with no change in expansion law, the difference is not statistically significant. Overall, though, these findings provide evidence of a positive effect of geographic liberalization on the accessibility of banking services in metropolitan counties.

Additional evidence that geographic liberalizations facilitate expansion in the number of banking offices is provided in the second row of Table 1, which shows, for each category, the average percentage change in the ratio of metropolitan county population to banking offices. The category representing full liberalization—the removal of prohibitions on expansion to allow unlimited expansion—shows a 30 percent average reduction in the population-to-office ratio, compared with an average reduction of only 9 percent for the no-liberalization category, a statistically significant difference. Simi-

¹⁵ A large number of categories could be formed to reflect the peculiar characteristics of the various types of liberalizations that occurred during the 1980s. However, to maintain tractability, the analysis here proceeds on the basis of the four categories defined in the text.

¹⁶ Altogether, thirteen states prohibited branch banking as of 1980, while holding company expansion also was prohibited in thirteen states.

¹⁷ See Conover (1980, 144–46).

¹⁸ See Conover (1980, 215–18).

¹⁹ It should be noted that a positive correlation between geographic liberalizations and improvements in accessibility would not necessarily imply that the liberalizations caused the improvements. Nevertheless, a positive association between liberalizations and accessibility improvements would be consistent with the view that the liberalizations were effectual.

Table 1
Liberalization of Restrictions on Bank Expansion

	Type of liberalization			
	None	Prohibited to limited	Prohibited to unlimited	Limited to unlimited
Metropolitan counties				
Percentage of counties experiencing a reduction in the population-to-office ratio, 1980–90 ¹	69	76 (.60)	98** (14.7)	73 (.36)
Average percentage change in the population-to-office ratio, 1980–90 ²	-9	-19* (-2.25)	-30** (-6.23)	-11 (-.37)
Number of counties	683	29	40	59
Rural counties				
Percentage of counties experiencing a reduction in the population-to-office ratio, 1980–90 ¹	74	89** (27.2)	97** (30.9)	71 (.32)
Average percentage change in the population-to-office ratio, 1980–90 ²	-9	-13** (-2.98)	-27** (-7.68)	-7 (.44)
Number of counties	1,800	244	117	75

* Significantly different at the 5 percent level from the base case of no liberalization.
 ** Significantly different at the 1 percent level from the base case of no liberalization.

NOTES: ¹ The values of the chi-square test statistic for differences in proportions relative to the base case of no liberalization are in parentheses. The large sample approximation for the test statistic is the chi-square distribution with one degree of freedom. See Conover (1980, 144–46).

² The values of the Wilcoxon rank sum test statistic for differences in location relative to the base case of no liberalization are in parentheses. The large sample approximation for the test statistic is the standard normal distribution. See Conover (1980, 215–18).

larly, the 19 percent average reduction for the metropolitan counties in states that moved from the prohibition on expansion to allow limited expansion also is significantly different from the average reduction calculated for the no-liberalization category.

Rural counties. The results for rural counties are similar to those for metropolitan counties. As shown in the fourth row of Table 1, the proportion of rural counties experiencing a reduction in the ratio of population to banking offices between 1980 and 1990 is relatively high for the two groups of states that removed prohibitions on expansion, as expected under the view that geographic liberalization facilitates growth in the number of banking offices. The growth in offices exceeded population growth in 97 percent of the rural counties in states that moved from prohibited to unlimited expansion. This relatively high proportion is statistically different from the 74 percent calculated for the no-liberalization category. Similarly, 89 percent of the rural counties in states that moved from the prohibition of expansion to limited expansion

experienced a reduction in the population-to-office ratio. This proportion also is significantly different from the relatively low proportion calculated for the no-liberalization category. However, as was the case for the metropolitan counties, no statistically significant difference in the proportion of rural counties with reductions in the population-to-office ratio occurs between the group of states that moved from limited to unlimited expansion and the group of states with no change in expansion laws. Overall, though, these findings for rural counties also point to a positive impact of geographic liberalization on the accessibility of banking services.

The fifth row of Table 1 provides additional evidence that geographic liberalization helps boost the number of banking offices in rural counties. The category representing full liberalization—the removal of prohibitions on expansion to allow unlimited expansion—shows a 27 percent average reduction in the population-to-office ratio, compared with a reduction of only 9 percent for the no-liberalization category, a statistically significant difference. Simi-

Table 2
**Liberalization of Branch Banking Restrictions in States
 Allowing Unlimited Holding Company Expansion**

	Type of branching liberalization			
	None	Prohibited to limited	Prohibited to unlimited	Limited to unlimited
Metropolitan counties				
Percentage of counties experiencing a reduction in the population-to-office ratio, 1980-90 ¹	61	46 (1.99)	78* (5.80)	72* (6.11)
Average percentage change in the population-to-office ratio, 1980-90 ²	-4	-3 (.18)	-16** (-4.50)	-12** (-4.09)
Number of counties	239	24	58	193
Rural counties				
Percentage of counties experiencing a reduction in the population-to-office ratio, 1980-90 ¹	68	84** (13.9)	74 (2.12)	67 (.13)
Average percentage change in the population-to-office ratio, 1980-90 ²	-5	-15** (-4.87)	-10* (-2.04)	-8 (-.66)
Number of counties	586	138	190	305

* Significantly different at the 5 percent level from the base case of no liberalization.

** Significantly different at the 1 percent level from the base case of no liberalization.

NOTE: See notes to Table 1.

larly, the 13 percent average reduction for the rural counties in states that moved from the prohibition on expansion to allow limited expansion also is significantly different from the relatively small average reduction calculated for the no-liberalization category.

An empirical test of the branching-accessibility relationship

Because a good number of states allowed unlimited holding company expansion at the beginning of the 1980s and subsequently relaxed restrictions on branch banking, the types of empirical tests applied in the previous section to geographic liberalizations in general can be applied exclusively to branching liberalizations. In 1980, thirty-one states already allowed unlimited holding company expansion. Of these, eighteen experienced no change in branching laws. However, three of the thirty-one states—Minnesota, North Dakota, and Wyoming—moved from the prohibition of branching to allow limited branching, while Texas moved from the prohibition of branching to allow unlimited branching. In addition, nine of the states moved from limited branching to unlimited branching.²⁰ If the liberalization of branching restrictions had a

positive impact on the accessibility of banking services, even after holding company expansion had been allowed, then the proportion of counties experiencing a reduction in the population-to-office ratio should be higher for the liberalization categories than for the category of no change in branching laws. Similarly, if the liberalization of branching restrictions had a positive impact on the accessibility of banking services, then the average percentage change in the population-to-office ratio should be lower for the liberalization categories than for the no-change category.

Metropolitan counties. The statistics in Table 2 are generated in the same manner as those in Table 1, except that the analysis is confined to the states that allowed unlimited holding company expansion in 1980 and the categories refer to the liberalization of branching laws only. As shown in the first row of Table 2, the proportion of metropolitan counties experiencing a reduction in the population-to-office ratio is highest for the category of full liberalization—the removal of prohibitions on branching to allow unlimited branching. This relatively high proportion of 78 percent is statistically different from the 61 percent calculated for the no-liberalization category.

²⁰ These states are Connecticut, Florida, Massachusetts, Michigan, Ohio, Oregon, Utah, Virginia, and Wisconsin.

Moreover, a relatively high 72 percent of the metropolitan counties in states that moved from limited to unlimited branching experienced a reduction in the population-to-office ratio. For states that removed prohibitions on branching to allow limited branching, the proportion of metropolitan counties experiencing a reduction in the population-to-office ratio is 46 percent. However, the associated chi-square test indicates that the difference between this relatively low proportion and the 61 percent calculated for the no-liberalization category is not statistically significant. Finally, the average percentage reduction in the population-to-office ratio is significantly greater for metropolitan counties in the two groups of states that moved to unlimited branching than for metropolitan counties in states with no change in branching law, as shown in the second row of Table 2. These findings provide evidence of a positive effect of branching liberalization on the accessibility of banking services in metropolitan counties.

Rural counties. The branching results for rural counties also indicate a positive branching-accessibility relationship. As shown in the fourth row of Table 2, the proportion of rural counties experiencing a reduction in the ratio of population to banking offices between 1980 and 1990 is relatively high for states that moved from the prohibition of branching to allow limited branching. In addition, the average percentage reduction in the population-to-office ratio is significantly greater for rural counties in the two groups of states that eliminated prohibitions on branching, as shown in the fifth row of Table 2.

Conclusion

The term *contraction*, as applied to recent trends in the banking industry, is in many ways a misnomer. This article's examination of the structural changes in the industry during the 1980s reveals far more expansion than contraction. Although the overall number of banking organizations declined, the average number of organizations operating at the local market level held steady. Moreover, the accessibility of banking services rose substantially, as growth in the

number of banking offices at the local market level often exceeded growth in the local population. Finally, the evidence presented here indicates that liberalizations of geographic banking restrictions at the state level helped facilitate the growth in the number of banking offices that occurred during the 1980s. The concurrent trends of reductions in the number of banking organizations at the national level and increases in the number of banking offices at the local market level partly reflect the breakdown of long-standing restrictions on banks' geographic expansion. Thus, liberalization of geographic banking restrictions has lived up to its promise of enhancing service accessibility.

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Banking's Merger Fervor: Survival Of the Fittest?

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E*vidence from the merger market suggests that acquisitions tend to focus on banks with relatively weak performance.*

The banking industry operates in an environment that has changed dramatically over the past decade. Improvements in communication and computing technology make it possible to process information today that would have been either impossible or prohibitively expensive to process a decade ago. Major changes in banking regulation have come about in the past ten years. The Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA) and the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) have altered the rules governing banking nationwide. At the state level, changes in laws governing intrastate branching and interstate banking have created new opportunities for geographic expansion of banks.¹ And the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 will further enhance banks' ability to expand geographically by allowing interstate branching in 1997 unless a state opts out.

Forces for change have also swept through the U.S. economy as a whole, leading some scholars to claim that the U.S. economy is proceeding through a "third industrial revolution."² As these forces move through the economy, they have both direct and indirect effects on banking as banks and their customers adapt to the new environment. As a result, significant changes in the industry are likely.

Jensen (1993) argues that mergers provide an avenue through which an industry can change. In the banking industry, banks that are out of step with the new environment could be acquired by another institution, thereby filtering them from the industry. Moreover, as the new owners reshape the acquired banks, the industry could move in new directions. If the acquiring banks push the acquired banks to provide the services demanded in the new environment, mergers could promote better use of resources and enhance industry profitability.

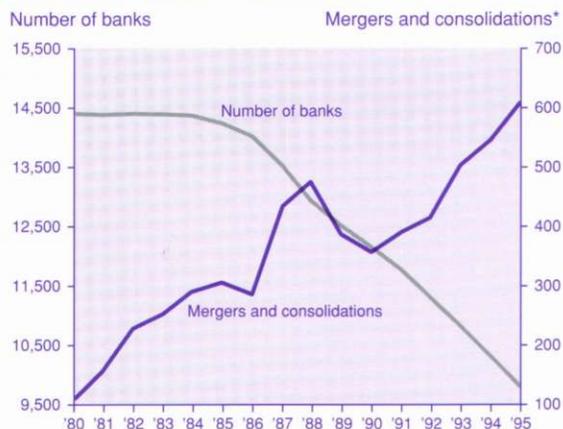
Mergers have been an important part of the banking landscape recently. Between June 1993 and June 1996, 1,645 U.S. banks were acquired in mergers, creating the potential for significant changes in the industry. If firms at odds with market forces tend to be acquired, a study of the acquired banks' characteristics can provide evidence on the changes the industry may make.

My analysis begins with a discussion of mergers and how they can help the industry adapt to changes in the banking environment. I then discuss the factors I consider in my model of banking acquisitions, as well as the empirical findings. The results indicate that the

¹ Berger, Kashyap, and Scalise (1995) discuss these and other changes in the banking environment that have transpired since 1979.

² Jensen (1993).

Chart 1
Mergers and Consolidations Reduce the Number of Banks Nationwide



* Includes banks eliminated as the result of merger or conversion to branch offices.

SOURCES: Report of Condition and Income; NIC (the Federal Reserve's National Information Center for Systemwide Structure and Financial Information).

probability of being acquired tends to be higher for banks with low profitability, slow asset growth, low market share, a low capital-to-asset ratio, and a low ratio of non-small-business loans to assets. Small business loans and bank size, however, do not significantly influence acquisition probability.

Mergers: an avenue for adaptation?

Although this article examines the determinants of being acquired in a merger between June 1993 and June 1996, the abundance of mergers during this period is part of a longer trend of rising merger and consolidation activity. As Chart 1 shows, between 1980 and 1995, not only were 5,863 banks eliminated by either merger or conversion to branch offices, but the number of banks nationwide declined from 14,407 to 9,822.

Given the large number of bank mergers and the arguably substantial industry changes needed to adapt to the new environment, the question of whether mergers are facilitating the adaptation takes on increased importance. Jensen (1993) argues that mergers can help an industry adopt needed changes. At the most fundamental level, a bank acquisition indicates that the new owner places a higher value on the bank than did the former owner. This valuation may be the result of the acquirer's belief that bringing additional resources to the acquired bank could make it more profitable. If the acquirer's belief in the potential for improved performance is accurate, such mergers can improve efficiency.

If a bank is not geared toward providing the services demanded in the new environment, it is likely to have low profitability. Hence, if mergers are motivated by acquirers seeking to profit from improving a bank's operations, then acquisitions should be more likely among banks with low profitability. Such acquisitions would promote efficiency as the new owners improve the acquired bank's operations.³

If mergers promote efficiency by shifting resources to their best use, however, bank characteristics beyond direct measures of profitability could influence acquisitions. If a bank's overall performance is hampered by a trait that could be changed more readily by a new owner, then it would be a likely acquisition target. For example, if a bank devotes a large fraction of its portfolio to small business lending primarily because it finds lending to larger firms difficult, then that bank is likely to be acquired by a party that is more able to lend to larger firms. If, on the other hand, small business lending provides a competitively viable market niche for certain banks, then such lending should not have any relationship to the probability that the bank will be acquired.

In addition to mergers, there are other avenues for changes in corporate control that can redirect the management of banking organizations operating out of step with market forces. Prowse (1995) studies the operation of these forces in large bank holding companies. He finds that poor performance is associated with an increased probability of management turnover or regulatory intervention but not with an increased probability of a friendly merger. In one sense, Prowse's results could be viewed as conflicting with mine because I find poor performance associated with an increased acquisition probability and he does not. It is not surprising, however, that the two studies reach seemingly different conclusions, given that they are based on different samples of banks (large bank holding companies with publicly traded stock versus independent banks) and different periods (1987–92 versus 1993–96). One way the different time frames may affect the results is that banking conditions were not as favorable during 1987–92 as they were during 1993–96; it is possible the merger market operates differently when an industry is up than when it is down. Finally, I classify banks as either acquired or not acquired; in the Prowse study, banks can also fall into the category of "regulatory intervention." Given the industry's difficulties in banking during 1987–92, some troubled banks would have fallen into the regulatory

³ Mergers could be motivated, however, by forces that would not promote economic efficiency. Siems (1996) reviews some of the alternative motivations for bank mergers that have been raised in the literature. These motivations include managerial utility, where managers seek to maximize their own utility by expanding the size of the firms they manage; managerial hubris, where managers believe incorrectly that their valuation of target firms is better than the market's and then make misguided acquisitions; and market power, where banks merge with a competitor to reduce price competition.

Table 1
**Predicted Influence of Bank Characteristics
 On Acquisition Probability**

	In-market	Out-of-market
Profitability	Negative	Negative
Asset growth	Negative	Negative
Market share	Negative	Negative
Capital-to-asset ratio	Negative	Negative
Market concentration	Negative	Positive
Loan-to-asset ratio (excluding small business loans)	Negative	Negative
Small business loan-to-asset ratio	Undetermined	Undetermined
Size	Undetermined	Undetermined
Rural location	Undetermined	Negative

NOTES: *Negative* indicates that higher levels of these variables are predicted to be associated with a lower probability of being acquired. *Positive* indicates that higher levels of these variables are predicted to be associated with a higher probability of being acquired. *Undetermined* indicates the absence of a predicted relationship between the variable and acquisition probability.

intervention category but eventually would have been acquired. Thus, weak performance would still lead to merger, but with the intermediate step of regulatory intervention.

Other studies look at the relationship between mergers and the merging companies' stock prices. Siems (1996) reviews some of these studies and examines large bank mergers that occurred in 1995. He finds that the market tends to react favorably to mergers of holding companies with significant office overlaps, which he attributes to the potential gains from the elimination of redundant operations.

Empirical approach

Data are not available for gauging the relationship between stock price performance and mergers of privately held banks. Direct measures of performance from call report data, however, can be used to test whether banks at variance with market forces are the likely candidates for acquisition. If banks with weak performance are likely to be acquired, then there should be a negative relationship between the probability of acquisition and measures of financial strength. Moreover, if mergers are an important force for moving the banking industry toward a new equilibrium, then looking at the characteristics of acquired banks can provide evidence on the direction of the industry.

Hannan and Rhoades (1987) examine the characteristics of banks acquired in Texas from 1970 to 1982. They find that a bank's chances of being a merger target are higher for banks with large market shares, low capital ratios, and

urban locations. They do not find, however, a statistically significant relationship between a firm's profitability or growth and its probability of being acquired.⁴

Hannan and Rhoades' model provides a starting point for my examination of bank mergers. Using national data from 1993 to 1996 permits an exploration of merger trends that are more recent and geographically broader than those Hannan and Rhoades study. In addition, the availability of data on a bank's small business lending in my sample allows the examination of such lending as a potential influence on a bank's chances of becoming a merger target.⁵

Hannan and Rhoades' model allows for the estimation of the probability of a bank's being acquired by a bank in its own market as well as by one outside its market.⁶ Thus, the model has the flexibility to allow the effect of a variable on the probability of being acquired to differ for in-market and out-of-market acquisitions. These variables, shown in Table 1, and their relationship to acquisition probability are explained below.

Profitability. A bank's profitability, measured by its return on assets, is examined for its influence on the probability of being acquired. As discussed earlier, the relationship between a bank's acquisition chances and its profitability provides a simple test of the efficiency view—that is, there should be a negative relationship between a bank's profitability and its chances of becoming a merger target. A firm with low profitability would be a likely acquisition target of a firm that could operate it differently from

⁴ Rose (1989) also studies the characteristics of acquired banks. His approach is based on the difference in means between acquired banks and other banks and thus cannot isolate the effect of a particular variable on acquisition probability, unlike the approach taken by Hannan and Rhoades.

⁵ Like Hannan and Rhoades (1987), the statistical approach I take models a bank's probability of being acquired using multinomial logit analysis. For a more detailed description of my statistical procedure and quantitative results, see Moore (forthcoming).

⁶ The definition of a banking market in my study is the bank's standard metropolitan statistical area (SMSA) for urban banks and the bank's county for banks outside SMSAs.

the current owners and produce higher profits.

Growth. The model also includes a bank's growth rate as a potential determinant of its probability of acquisition.⁷ A slow-growing bank may attract a buyer that would seek to increase the value of the franchise by accelerating the bank's growth rate. If potential acquirers seek slow-growing targets, there would be a negative relationship between a bank's growth rate and its acquisition probability.

Market share. A bank's market share could influence the probability of being acquired through several channels. If the banking market has evolved so that only banks with a substantial market share are competitively viable (Rhoades 1985), then a bank with a small market share is likely to be acquired by an in-market bank; the assets of the bank with a small market share would become more valuable by merging with the larger organization. Moreover, regulatory concerns about potential anticompetitive effects could reduce the probability of an in-market acquisition for banks with high market share. Also, there may not be any in-market acquirers large enough to acquire a bank with a considerable market share. Finally, because a bank's low market share may reflect a lack of success in the marketplace, there may be room for an acquirer to improve the bank's operations. Thus, the predicted influence of market share on acquisition probability is negative for both in-market and out-of-market acquisitions.

Capital ratio. If acquisitions tend to center on banks with operations a new owner could improve, the capital ratio would influence the probability of being acquired. Banks with low capital-to-asset ratios would be more likely targets than those with high ratios because the acquirer could bring additional capital to the acquired bank. Also, because a low capital-to-asset ratio may indicate financial weakness, an acquirer may strengthen the acquired bank's financial position. The improvement from the infusion of capital would apply to either an in-market or out-of-market acquisition, implying that the capital-to-asset ratio would have a negative influence on the probability of an in-market or out-of-market acquisition.

Market concentration. I include market concentration as another potential factor that could affect the probability of being acquired.⁸ One factor regulators consider in reviewing a potential merger is the impact it would have on competition in the affected market. In a market that is initially concentrated, the acquisition of a bank by an in-market acquirer could raise regu-

latory concerns about anticompetitive effects that an out-of-market acquisition would not raise. An additional factor operates for out-of-market acquisitions. If higher concentration is associated with greater potential profitability, there would be an incentive to enter concentrated markets. Some of this entry could be in the form of acquisitions, implying a positive association between concentration and out-of-market acquisitions. Thus, regulatory concerns about potential anticompetitive consequences suggest that market concentration would have a negative effect on the probability of being acquired by an in-market firm, but potential profitability would have a positive effect on the probability of being acquired by an out-of-market party.

Lending. I examine two measures of lending for their impact on acquisition probability. Specifically, a bank's loans are divided into small business loans and other types of loans. Under the efficiency view of mergers, the ratio of non-small-business loans to assets is predicted to have a negative relationship with acquisition probability for both in-market and out-of-market acquisitions. If banks with low loan-to-asset ratios lack lending opportunities, they would tend to be acquired by another bank with better lending opportunities.

Small business lending. In their *consolidation hypothesis*, Berger, Kashyap, and Scalise (1995) argue that bank mergers may reduce the amount of small business lending. Consolidation shifts assets from small to large banks. Given that large banks devote a smaller fraction of their assets to small business lending than do small banks, the shift in assets would tend to reduce the amount of small business lending if large banks restructure the portfolios of small banks they acquire to match their own portfolios.⁹ Such restructuring would be expected if small banks' emphasis on small business lending stems from barriers that make lending to larger borrowers difficult. These barriers would also suggest that an emphasis on small business lending would attract acquirers seeking to profit from such restructuring.

On the other hand, lending to small businesses has traditionally been viewed as an important part of a bank's overall activity. Several theories predict that banks will have a comparative advantage in lending to small firms because banks can acquire and process information about borrowers that are too small or unknown to attract capital directly in the financial markets.¹⁰ If banks are the best institution to fulfill this role and small business loans are part of banks' ideal portfolios, then these loans

⁷ A bank's growth is measured by the year-over-year percentage change in its assets.

⁸ I measure market concentration using the Hirschman-Herfindahl index.

⁹ Recent enhancements to the Report of Condition and Income provide data that allow a broad examination of the importance of small business lending in banks' portfolios. The call report data divide loans according to their original amount: \$100,000 or less; \$100,000 to \$250,000; or \$250,000 to \$1 million. Within these categories, the call report divides the loans into loans secured by nonfarm nonresidential real estate, and commercial and industrial loans to U.S. addresses. I include all these components in my measure of banks' small business lending. In one of the first published studies using these call report data, Klemme (1993) finds that small banks tend to devote a larger fraction of their portfolios to small business lending than do large ones. In addition, she describes some shortcomings of the data on small business lending. Concerns about the data shortcomings are allayed, however, by Berger, Kashyap, and Scalise (1995), who also find that small banks tend to devote a larger fraction of their assets to small business loans than do large ones, based on data from the Federal Reserve's Survey of Terms of Bank Lending to Businesses.

¹⁰ Bernanke (1993) reviews the literature that argues that banks have a special role in the provision of credit.

Table 2
**Estimated Influence of Bank Characteristics
 On Acquisition Probability**

	In-market	Out-of-market
Profitability	Negative	Negative
Asset growth	Negative	Negative
Market share	Negative	Negative
Capital-to-asset ratio	Negative	Negative
Market concentration	Insignificant	Positive
Loan-to-asset ratio (excluding small business loans)	Negative	Negative
Small business loan-to-asset ratio	Insignificant	Insignificant
Size	Insignificant	Insignificant
Rural location	Negative	Insignificant

NOTES: *Negative* indicates that higher levels of these variables are associated with a lower probability of acquisition, where the association is statistically significant at the 5 percent level. *Positive* indicates that higher levels of a variable are associated with a higher probability of acquisition, where the association is statistically significant at the 5 percent level. *Insignificant* indicates the absence of a statistically significant relationship between the variable and acquisition probability.

should continue to have a place in the banking industry as it evolves and should not be associated with merger targets. Thus, the relationship between small business lending and acquisition probability can shed light on the profitability of small business lending.

Size. The model includes a measure of bank size to see whether small size puts a bank at a disadvantage when competing in the banking market. If small size is a competitive disadvantage, then the efficiency view would predict that size would have a negative relationship with acquisition probability.

Rural location. Finally, the model includes a variable that indicates whether a bank is in a rural or urban area. If rural banks are difficult for outsiders to operate because of their relative geographic isolation, there would be a negative relationship between a bank's rural location and the probability of being acquired by an out-of-market party.¹¹

Results from the acquisition model

For independent banks (banks that are either not owned by a holding company or that are the only bank owned by its holding company), there were 278 in-market acquisitions and 336 out-of-market acquisitions in the sample. In addition to these 614 acquisition observations, there were 21,293 nonacquisition observations.¹²

Table 2 presents the results for independent banks and shows the relationship between various bank characteristics and the probability of being acquired in either an in-market or an out-of-market merger. Each row shows a variable's influence on the probability of being acquired under either type of merger.

Table 2 shows that for both in-market and out-of-market acquisitions, low profitability is associated with a high probability of being acquired. The results are consistent with the notion that acquisitions tend to eliminate banks with subpar profitability and create the possibility of improved profitability under new ownership.^{13,14} Thus, the impact of a bank's profitability on its probability of being acquired accords well with the efficiency view of bank mergers.

The results for asset growth provide further evidence for the efficiency view of bank mergers. Slow asset growth increases the probability of being acquired by either an in-market or out-of-market acquirer. Hence, banks with sluggish growth tend to be eliminated through acquisitions.

For both in-market and out-of-market acquisitions, high market share is associated with a low probability of being acquired. This negative relationship aligns well with the efficiency view. To the extent that a high market share reflects a successful operation, there would be little opportunity for an outsider to improve the

¹¹ The model also includes time variables to control for differences in merger activity in different years that are unrelated to the other variables in the model.

¹² For mergers of banks belonging to multibank holding companies, there are difficulties in distinguishing mergers of subsidiary banks resulting from relaxations of branching restrictions from those resulting from earlier acquisitions of unrelated bank holding companies. Also, the acquisition of a bank belonging to a multibank holding company would depend not only on the characteristics of the individual bank, but also on the characteristics of others belonging to the same parent company. Because of these difficulties, the empirical analysis is limited to independent banks.

¹³ In addition to the results reported in Table 2, an alternative specification in which a bank's profitability is measured as the difference between the bank's return on assets and the average return in its market produces similar results. Banks with a high return on assets relative to the return in their market are less likely to be acquired than are those with a low return. This rules out the possibility that the link between low profitability and high acquisition probability stems primarily from the takeover of banks operating in distressed markets.

¹⁴ One reason for an acquisition is bank failure. If failed banks are excluded from the sample, profitability loses its statistical significance for out-of-market acquisitions but remains significant for in-market takeovers. Bank failure, however, starkly illustrates the room for improved performance. The exclusion of failed banks does not affect the sign or statistical significance of the other model's variables.

bank's operations and, thus, little incentive to acquire it. In addition, for in-market acquisitions, size may be playing a role; if a bank has a considerable share of its market, there would not be many potential acquiring banks in that market large enough to acquire it.

There is a negative relationship between a bank's capital-to-asset ratio and its probability of being acquired for both in-market and out-of-market acquisitions. The increased probability of being acquired associated with a low capital ratio implies that a lack of financial strength tends to attract buyers. The acquirers of financially weak banks can infuse capital into the acquired banks; thus, mergers can play a role in increasing the capital position of thinly capitalized banks.

The effect of market concentration on acquisition probability differs for in-market and out-of-market acquisitions. For in-market acquisitions, no statistically significant relationship exists between the probability of being acquired and market concentration. For out-of-market acquisitions, the probability is higher for banks operating in concentrated markets. The greater probability of out-of-market acquisition may reflect the attractiveness of entering concentrated markets.

A bank's loan-to-asset ratio (exclusive of small business loans) has a negative relationship with the probability of being acquired by either an in-market or out-of-market party. Thus, banks that devote a low fraction of their assets to lending have a greater chance of being acquired than do those that devote a high fraction of their assets to lending. This result is consistent with the idea that banks with unfavorable lending opportunities tend to be acquired by banks with better ones.

Unlike the non-small-business loan-to-asset ratio, the ratio of small business loans to assets does not have a statistically significant relationship with the probability of being acquired. Therefore, the merger market neither rewards nor punishes banks that pursue small business lending. If some banks' emphasis on small business lending stems from a constraint that limits their ability to make more profitable types of loans, then there would be an incentive for those banks to be acquired so that the constraint could be relaxed. The lack of a statistically significant relationship between small business lending and the probability of being acquired suggests that the emphasis some banks place on small business lending is a viable banking strategy.

The results do not show a statistically sig-

nificant relationship between bank size and the probability of being acquired. So small size alone is not a competitive disadvantage. If it were, larger banks would have an incentive to acquire smaller ones, increasing the value of the smaller bank's assets. The lack of a statistically significant relationship between bank size and acquisition probability suggests that such potential gains are not available.¹⁵

Rural location is associated with a lessened probability of being acquired by an in-market party. But this does not have a statistically significant relationship with the likelihood of acquisition by an out-of-market acquirer, implying that the discipline imposed by potential takeovers by out-of-market parties applies in both rural and urban locations.

Conclusion

Consolidation is sweeping through the banking industry, resulting in the acquisition of hundreds of banks. Given that these acquisitions have the potential to reshape the banking industry significantly, the question of what type of bank is likely to be acquired takes on heightened importance. This article shows that the probability of being acquired tends to be higher for banks with low profitability, slow asset growth, low market share, a low capital-to-asset ratio, and a low ratio of non-small-business loans-to-assets. Small business loans and bank size, however, do not significantly influence the probability of being acquired. Thus, evidence from the merger market suggests that acquisitions tend to focus on banks with relatively weak performance. By doing so, mergers can be viewed as a market mechanism that is helping strengthen the industry.

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¹⁵ The empirical approach taken isolates the effect of a particular variable, and in doing so, holds the other variables constant. Thus, while small size does not increase acquisition probability, it is possible that small banks may attract acquirers for other reasons. For example, to the extent that small banks have lower market shares than larger ones, small banks would attract acquirers. Thus, the results here are consistent with those in Moore and Couch (1994) and Moore (1995), which document declines in small bank market share. In addition, by focusing only on independent banks, many of the largest banks are excluded from the sample, and thus the results here may not be applicable to the entire range of bank sizes.

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