Empirical Evidence on the Motives for Bank Mergers

Dean F. Amel and Stephen A. Rhoades*

INTRODUCTION

Record levels of merger activity during the early 1980s have attracted the attention of economists and policymakers. Some of this attention arises from an interest in developing an appropriate public policy toward mergers (e.g., [25]). There is, however, a more basic reason why economists may direct their attention toward mergers. Specifically, studying the characteristics of acquired firms can provide insights into the objectives, or motives, of owners or business managers.

The purpose of this paper is to test for the determinants of almost all of the 1,724 bank mergers and acquisitions from 1978–1983 and to draw inferences regarding motivation from observed behavior. Variables are included that describe firm, market, and regulatory characteristics in an attempt to determine what characteristics tend to encourage acquisitions. There is a sufficient number of observations to permit yearly cross-section tests. This allows examination of the stability of test results across years. Multinominal logit analysis is used for testing purposes to account for the fact that the dependent variable is qualitative, distinguishing between acquired and nonacquired firms. Since there is no single hypothesis being investigated, expectations as to results are discussed in connection with each of the independent variables. Of course, the variables included in the analysis, e.g., profitability, firm growth, and market share, are variables that economic theory suggests would likely be considered by owners or managers in making acquisition decisions.

BACKGROUND AND SAMPLE

Mergers have been studied by economists for many years for a variety of reasons, among them, examination of changes in the structure of American industries (e.g., [15, 18, 12, 7, 22]), the effects on overall (aggregate) concentration in the economy (e.g., [7, 13, 1, 30]), the importance of mergers in the growth of firms (e.g., [7, 11, 31, 27, 23]), the competitive effects of mergers (e.g., [32, 9, 7, 20]), the motives for mergers (e.g., [19, 29, 14, 16, 25]), and the effect on acquired firms (e.g., [17, 28, 10, 4, 24]).

This study focuses on the motives for mergers. This is a very basic question, since theoretical models in economics are predicated on assumptions regarding the motives of entrepreneurs and business managers, acting as agents for owners. Unfortunately, it is not possible to measure directly the possible motives of business owners or managers, e.g., profit maximization, growth maximization, or satisficing. In order to gain insights into business

motives, it is necessary to study observed behavior with the presumption that owners' and managers' motives will be manifested in their behavior.[1] Business behavior with respect to mergers provides a particularly attractive opportunity for the study of business behavior and, by inference, owners' and managers' motives.

The special features of this study are that the analysis (1) is based on virtually the entire universe of bank mergers and acquisitions, (2) includes a relatively homogeneous set of firms in many different local markets, (3) is based on cross-section tests for several years, (4) covers a very recent time period (1978–1983) during which merger activity reached record levels, and (5) is based on firms for which consistent and detailed data are available. In contrast, most previous studies have been based on limited samples of mergers either by, or of, very large firms and of mergers by very diverse firms in different industries so that controlling for "other factors" has been very difficult.

The mergers included in the study, all of which required prior approval by the appropriate federal bank regulator, are drawn from a larger database that includes all 4,805 bank mergers and acquisitions from 1960–1983.[2] Many of these mergers simply constituted a corporate reorganization and were not very meaningful for analytical purposes. To select only those mergers which are meaningful for analytical purposes, a number of criteria were applied. Mergers were excluded from the database if (1) either party was not a bank holding company or commercial bank, (2) either party was a foreign bank with no operations in the United States, (3) the acquired firm was a newly established or nonoperating bank, (4) the acquired and acquiring firms were commonly owned in some form before the acquisition, (5) less than 25 percent of the bank was acquired, or (6) the acquired bank was a failing bank (there were very few of these). These criteria resulted in the identification of 1,724 bank mergers during 1978–1983. Acquired banks selected in this manner along with all nonacquired banks for which complete data are available provide the samples used in this study.[3] Tests are conducted for each of the years 1978–1983. A brief description of the number and size of sample banks, for each test year (1978–1983), is provided in table 1.

VARIABLES AND DATA[4]

Each variable is constructed separately for each of the six years studied. The dependent variable in the analysis is a qualitative variable that distinguishes between banks acquired in horizontal mergers, banks acquired in market extension mergers, and nonacquired banks. Independent variables included in the model are intended to reflect firm or market characteristics that economic theory suggests would be considered by managers making an acquisition. Additional variables are included primarily to control for differences in merger opportunities available to banks. Each of these variables and its expected effect on the probability of a bank being acquired are discussed below.

Firm-specific Variables

A bank size variable for the acquired bank is included in the analysis. It is expected that, *ceteris paribus,* expansion-minded firms would prefer to acquire relatively large firms. This behavior, however, would be less likely to appear in connection with horizontal mergers than with market extension mergers because of constraints imposed by the antitrust laws. Furthermore, legal constraints on the acquisition of banks by nonbanking firms and the financial difficulties associated with acquisition of a large bank by a smaller bank make acquisition of very large banking organizations unlikely. In addition, acquired firms in banking generally

TABLE 1
Number and Size of Sample Banks (Asset and Deposit Values in $ Millions)

Year	Total	Number of Banks Acquired In Sample[1] Horizontal	Market Extension	Number of Nonacquired Banks in Sample	Total Asset Value of Acquired Banks ($)[2]	Range of Asset Values of Acquired Banks ($)	Average Deposit Size Acquired Banks ($)	Nonacquired Banks ($)
1978	144	87	37	13,120	4,949	2-406	35	40
1979	179	76	63	13,082	4,796	3-262	30	44
1980	188	89	53	13,021	5,575	2-225	35	48
1981	359	180	111	12,851	13,484	3-853	41	51
1982	422	214	122	12,735	25,461	4-2,091	67	52
1983	432	201	140	12,672	21,513	3-905	56	56
Total	1,724	847	526	77,481	75,778	2-2,091		

[1]Complete data are unavailable for a few acquired banks in each year. Also, banks in New England markets which do not follow county lines are dropped.

[2]Asset figures are estimates (assets = deposits/.88).

have been small historically. For these reasons, a negative sign is predicted for the bank size variable. Bank size is measured by total deposits in the year before acquisition, i.e., 1977 deposits for the 1978 tests, 1978 deposits for the 1979 tests, and so on.[5]

Growth of the acquired firm is included in the analysis for two reasons. First, growth maximization has been suggested as an alternative to profit maximization as the primary objective of business managers.[6] Second, and a logical extension of the first reason, it seems reasonable to expect that expansion-minded firms would prefer to acquire rapidly growing banks.[7] It is expected that the bank growth variable will carry a positive sign in both horizontal and market extension mergers. Growth is measured by the percentage change in deposits during the three years prior to the acquisition year.[8]

The rate of return on assets is one of the independent variables in the analysis. It is particularly interesting because it is an indicator of a bank's overall operating performance. On the surface, it seems likely that an acquiring firm would tend to acquire a bank with high profits to benefit immediately from an efficient, presumably well-managed firm, with a good reputation. However, it has been argued, especially in recent years, that acquirers prefer to seek out poorly managed firms, which presumably have a relatively low rate of return. According to this line of reasoning, the acquiring firm should be able to pay a relatively low price for a poor performer and then turn it around. Rate of return on assets is calculated as the average net income after taxes and securities gains and losses as a percentage of assets during the three years before acquisition. No sign is predicted for the rate of return variable because of this clear element of uncertainty in connection with both horizontal and market extension mergers.[9]

The total capital-asset ratio is another independent variable with uncertain effects on the acquisition decision. On the one hand, it seems reasonable to expect an acquirer to be attracted to a conservatively run firm that could be operated more aggressively, with a lower capital-asset ratio, subsequent to acquisition. However, discussions with people in the business of putting together acquisitions[10] indicate that banks with a low capital-asset ratio are attractive because they can be purchased for a relatively low price, based on book value (of which capital is a major component). These conflicting effects preclude prediction of the sign of the capital-asset ratio in horizontal as well as market extension mergers. The loan-asset ratio is also included in the

analysis as a control variable with no predicted sign.[11] Both the capital-asset and loan-asset ratios are measured as averages over the three years preceding the acquisition year.

A market share variable is included in the analysis because of the benefits that appear to be associated with a leading market position. To the extent that a high market share carries with it an extra element of goodwill and consumer recognition, it should create an "inherent product differentiation," which may allow premium prices.[12] Such a firm would appear to be an attractive acquisition target. However, as noted earlier, it is commonly argued that acquirers seek poorly managed firms and a good (low) price is also important. It seems unlikely, in general, that high market share firms are poorly managed, and with their goodwill and consumer acceptance they would not seem to be available at a low price. Under the circumstances, it is not clear what sign is to be expected. With some uncertainty, a negative sign is predicted for the market share variable in connection with horizontal mergers because of the constraints of the antitrust laws on such mergers. A positive sign for the market share variable is predicted in connection with market extension mergers. The market share variable is measured by the share of deposits in a market held in the year before acquisition.[13]

Regulatory and Market Variables

Two sets of dummy variables are included in the analysis to control for state laws governing the opportunity for geographic expansion. Dummy variables are included to distinguish among banks in unit banking, limited branching, and statewide branching states.[14] Since expansion by branching is relatively inexpensive, expansion by acquisition is more likely to occur in unit banking and limited branching states where branching is restricted. Since the statewide branching dummy is the omitted variable, the other two variables are expected to carry positive signs indicating a greater likelihood of banks in these states being acquired than banks in statewide branching states. The other set of dummy variables distinguishes between states that allow multibank holding companies and those that do not. In states with restrictive branching laws but where multibank holding company expansion is permitted, there is a relatively great incentive to expand by merger because in such states expansion can take place only by obtaining a charter (and establishing a new bank) or by acquisition. The acquisition route to expansion is often preferred when branching is not possible. The dummy variable designating states that allow multibank holding companies is expected to carry a positive sign.[15] This would indicate that banks in states allowing multibank holding companies are more likely to be acquired than banks in other states either via horizontal or market extension acquisitions.

Two variables are included in the analysis to account for differences among states in the number of banking organizations and markets. A variable measuring the number of markets in a state is included to account for the number of market areas available for expansion. It seems likely that, *ceteris paribus*, bank acquisitions (especially market extension acquisitions) are more common in states with a large number of markets than in other states. However, the effect on the probability of an individual bank being acquired is not clear. Similarly, states with a relatively large number of organizations contain both a greater number of acquisition targets and a greater number of potential acquirers and the effect of this variable on the probability of any one bank being acquired is uncertain.[16]

The remaining independent variables are intended to account for the characteristics of the market in which the acquired firm is located.[17] The size of the market is included as an independent variable because expansion-oriented firms are likely to see greater post-acquisition

growth opportunities in large markets than in small markets. Therefore, the market size variable is expected to have a positive sign indicating a greater likelihood of a firm being acquired in a large than a small market in market extension mergers. Larger market size is also likely to make regulatory approval more likely in horizontal mergers and is expected to have a positive coefficient for these mergers as well. The market size variable is measured by total commercial bank deposits in a market in the year prior to acquisition.[18]

A concentration variable is included as an indicator of monopoly power and the potential for earning excess profits.[19] It is expected, *ceteris paribus,* that acquiring firms would prefer to acquire a firm in a relatively concentrated market. However, antitrust laws may prevent many horizontal mergers in concentrated markets. Consequently, the concentration variable is expected to carry a stronger positive sign in market extension merger tests than in horizontal merger tests.[20] It is measured by the three-firm deposit concentration ratio in the year before acquisition.[21] A market growth variable is included in the analysis as an indicator of market attractiveness. It is expected that acquiring firms, which, by their behavior, exhibit a desire for expansion, would prefer to acquire a firm in a relatively high growth market. Thus, the market growth variable is expected to carry a positive sign in both horizontal and market extension merger tests. Market growth is measured by the percentage change in total market deposits during the three years prior to acquisition.[22]

The last independent variable in the analysis is income per capita, which is intended to be an indicator of market attractiveness. Other things equal, a market with a relatively high income per capita would be an attractive one for offering banking services. This variable is expected to have a positive sign regardless of the type of merger.[23]

TESTING PROCEDURE

The dependent variable in this study is an unordered categorical variable, i.e., the banks in the sample fall into one of three categories: not acquired, acquired by horizontal acquisition, or acquired by market extension acquisition. Ordinary least squares is an inefficient estimator for regressions on categorical dependent variables. Therefore, multinomial logit analysis is used for testing purposes. Cross-section tests are conducted on each of the years 1978–1983 for the characteristics of banks acquired by horizontal acquisitions and for the characteristics of banks acquired by market extension acquisition as compared to nonacquired firms.

RESULTS

Multinomial logit analysis yields results which differ substantially from both univariate analysis and ordinary least squares regressions run separately on horizontal and market extension mergers. In view of these findings and the preferability of multinomial logit analysis, only the logit results are reported.[24] Results from yearly cross-section regressions are given in tables 2A and 2B.[25]

Results of the estimation yield little evidence of the predicted negative effect of bank size on the probability of acquisition. Only one of the six yearly coefficients for either horizontal or market extension mergers is significant, and its significance is marginal. These results may reflect nonlinearity in the effect of bank size on attractiveness for acquisition, with the largest banks being too big to be acquired but medium-sized banks being more attractive than the smallest firms.

Results give no evidence that rapid bank growth increases a firm's probability of

TABLE 2A
Determinants of Horizontal Bank Acquisitions in the United States, by Year, 1978–1983
(Multinomial Logit Analysis)
Regression Coefficients on Independent Variables (t-statistics in parentheses)

Year	Bank Deposits[1]	Bank Growth	Return on Assets	Capital/ Assets	Loans/ Assets	Market Share	Unit Banking	Limited Branching	Allows MBHCs	No. Orgs. in State	No. Markets in State	Market Size[1]	Market Concentration	Market Growth	Income/ Capita	Constant	Residual R²
1978	−.0202 (−.20)	−.0010 (−.37)	−.0978 (−.62)	−.0012 (.04)	−.0057 (−.61)	−.0215^b (−2.06)	−.0195 (−.05)	.2052 (.68)	.9654^b (2.05)	−.0026^a (−3.44)	.0131^a (3.17)	−1.6140 (−.97)	−.0005 (−.07)	−.0232 (−.78)	.0002^c (1.91)	−6.41^a (−4.88)	.003
1979	−.2360 (−.89)	−.0141^b (−2.12)	−.1610 (−1.20)	.0368 (1.27)	.0176 (1.60)	−.0612^a (−3.15)	−.4950 (−.96)	.0369 (.11)	.8003 (1.51)	−.0035^a (−3.93)	.0241^a (5.44)	.2235 (.21)	−.0092 (−1.09)	.0299 (.93)	.0003^b (2.05)	−8.20^a (−5.60)	.007
1980	−.1670 (−.94)	−.0040 (−1.01)	−.2954^b (−2.26)	.0177 (.57)	−.0032 (−.33)	−.0186^c (−1.74)	−.1428 (−.37)	.1018 (.35)	1.4240^b (2.39)	−.0028^a (−3.92)	.0104^c (2.49)	.3749 (.56)	−.0047 (−.63)	−.0140 (−.45)	.0002^c (1.78)	−6.17^a (−4.56)	.002
1981	−.2224^c (−1.74)	−.0110^b (−2.28)	−.1550 (−1.48)	−.0155 (−.53)	.0156^b (2.01)	−.0110 (−1.41)	−.1040 (−.40)	−.5872^a (−2.59)	1.5934^a (3.11)	−.0035^a (−6.88)	.0235^a (7.88)	.3293 (.73)	−.0160^a (−2.88)	−.0038 (−.11)	.0004^a (4.83)	−7.63^a (−7.40)	.011
1982	−.0275 (−.69)	.0006 (1.24)	−.4690^a (−2.88)	−.0487^b (−2.25)	−.0084 (−1.29)	−.0070 (−.93)	−1.2527^a (−4.13)	−1.3597^a (−6.36)	.2814 (.93)	−.0005 (−1.42)	.0113^a (5.45)	.2432 (.71)	−.0193^a (−3.67)	−.0750^a (−2.71)	.0002^a (2.93)	−2.63^a (−3.09)	.011
1983	−.0221 (−.58)	−.0080^c (−1.91)	−.3447^b (−2.20)	.0026 (.12)	−.0014 (−.20)	−.0073 (−1.07)	−.6464^b (−2.14)	−.6763^a (−3.01)	.3848 (1.37)	−.0001 (−.34)	.0058^a (2.62)	.4969 (1.37)	−.0134^b (−2.55)	−.0404^b (−2.15)	−.00004 (−.05)	−2.63^a (−2.90)	.005

[1]Coefficients scaled by 10^5
[a]Indicates coefficient is statistically significant at the 1 percent level.
[b]Indicates coefficient is statistically significant at the 5 percent level.
[c]Indicates coefficient is statistically significant at the 10 percent level.

acquisition. In fact, for horizontal bank mergers there is weak evidence (three of six equations) that relatively slowly growing banks are more likely to be acquired. This may simply mean that such banks may be less expensive to purchase than faster growing banks. The results may indicate the functioning of a market for corporate control, with poorly managed firms more likely to be acquired. Neither of these explanations, however, would apply only to horizontal, and not to market extension, mergers. Consequently, these results seem to contradict the hypothesis that acquisitions occur for growth maximization reasons and provide weak evidence in support of a market for corporate control.

Banks with low levels of profitability are more likely to be acquired in both horizontal and market extension mergers. These results can be interpreted as evidence of a market for

corporate control in which poorly performing firms are acquired. This finding conflicts with the evidence of other work examining merger activity in banking as well as the industrial sector.[26]

While there is weak evidence that the probability of acquisition is related to both the capital-asset and loan-asset ratios, in most cases these variables have insignificant coefficients. The attraction of low-capital banks may be low acquisition prices because one basis for determining prices is book value, and capital is a major component of book value.

Results on the market share variable are as expected in half of the equations in each table. High market share reduces the probability of being acquired in a horizontal merger, presumably because of antitrust considerations, while it increases the probability of being acquired in a market extension merger. As hypothesized, a high market share is apparently an

TABLE 2B
Determinants of Market Extension Bank Acquisitions in the United States, by Year, 1978–1983 (multinomial logit analysis)
Regression Coefficients on Independent Variables (t-statistics in parentheses)

Year	Bank Deposits[1]	Bank Growth	Return on Assets	Capital/ Assets	Loans/ Assets	Market Share	Unit Banking	Limited Branching	Allows MBHCs	No. Orgs. in State	No. Markets in State	Market Size[1]	Market Concentration	Market Growth	Income/ Capita	Constant	Residual R²
1978	−.3836^c (−.86)	.0010 (.40)	−.5472^a (−3.38)	−.2051^b (−2.44)	.0043 (.28)	.0196^b (1.96)	−2.3973^b (−2.56)	−1.4442^a (−3.10)	1.2808 (1.23)	−.0020 (−1.40)	.0176^b (2.47)	−9.0801 (−1.27)	−.0245^b (−1.96)	−.0039 (−.18)	.0001 (.69)	−3.80^c (−1.83)	.003
1979	−.2707 (−.92)	−.0036 (−.62)	−.0374 (−.18)	−.0850 (−1.51)	−.0196^c (−1.85)	−.0013 (−.15)	−1.9274^a (−3.29)	−1.2289^a (−3.66)	1.4085^c (1.92)	−.0023^b (−2.26)	.0150^a (2.90)	−1.0117 (−.59)	.0103 (1.11)	.0271 (.96)	.0002^c (1.94)	−6.53^a (−4.16)	.007
1980	−.0675 (−.29)	−.0106 (−1.23)	−.3142^c (−1.76)	.0372 (.80)	.0119 (.88)	−.0060 (−.58)	−1.1621^c (−1.95)	−.4554 (−1.26)	.9876 (1.62)	−.0016^c (−1.66)	.0110^c (1.95)	−15.7803^b (−2.13)	−.0043 (−.42)	.0272 (.81)	.0002 (1.36)	−7.59^a (−4.40)	.002
1981	−.1277 (−.85)	.0009 (.45)	−.3568^a (−2.64)	−.1056^b (−2.33)	−.0088 (−.94)	.0096^c (1.77)	.2192 (.67)	−.1146 (−.41)	1.6154^a (3.14)	−.0033^a (−4.61)	.0214^a (4.98)	−11.5707^a (−3.14)	−.0058 (−.81)	−.0072 (−.23)	.0003^a (3.12)	−6.24^a (−5.08)	.011
1982	.0937^a (3.52)	.0002 (.14)	−.1683 (−.78)	−.0072 (−.25)	−.0106 (−1.22)	−.0010 (−.17)	−1.4979^a (−3.72)	−1.4219^a (−5.60)	.7665^c (1.90)	−.0011^c (−1.78)	.0168^a (5.19)	−16.2074^c (−3.56)	−.0055 (−.81)	−.0515^c (−1.72)	.0001 (1.10)	−4.24^a (−3.76)	.011
1983	−.0096 (−.24)	−.0072 (−1.28)	−.2212 (−1.16)	.0215 (.79)	.0035 (.43)	.0180^a (3.98)	−.6450^b (−2.04)	−.7744^a (−3.22)	1.9799^a (3.36)	−.0001 (−.21)	.0030 (1.09)	.1826 (.31)	.0015 (.23)	−.0457^b (−2.24)	−.00003 (−.37)	−5.88^a (−4.99)	.005

[1]Coefficients scaled by 10^5
[a]Indicates coefficient is statistically significant at the 1 percent level.
[b]Indicates coefficient is statistically significant at the 5 percent level.
[c]Indicates coefficient is statistically significant at the 10 percent level.

attractive feature of a target bank, at least in market extension mergers where regulatory constraints are not at work.

Results for the unit banking and limited branching dummy variables are contrary to expectations. Both variables tend to have negative, significant effects on the probability of acquisition, especially in market extension mergers. It had been expected that where branching is restricted, expansion would more frequently occur by merger. A possible rationale for these unexpected results is that use of crude binary measures of legal restrictions on geographic expansion fails to capture the varying degree of restrictions in state laws.[27] Because unit banking and limited branching states tend to have many more banking organizations than do states with statewide branching, the probability of acquisition may be lower in the former than in the latter despite a higher level of merger activity in the former.

The dummy variable measuring the legality of multibank holding companies has a positive, significant coefficient as expected. The effect is somewhat stronger for market extension than for horizontal mergers, possibly reflecting the greater impact that restrictive branching laws would have on market extension mergers.

The variables measuring the numbers of firms and markets in a state are both significant in the majority of the yearly regressions. The number of markets has a positive coefficient, indicating that increased opportunities for acquisitions increase the probability of being acquired. However, the number of organizations variable has a negative effect on the probability of acquisition. The cause of this result may be the same as that advanced to explain the results for the unit banking and limited branching variables given above.

Market concentration has the anticipated negative effect on the probability of horizontal acquisition, reflecting the effect of antitrust restrictions. Concentration does not significantly increase the probability of acquisition in market extension mergers, as expected. Rather, concentration has no consistent effect on acquisitions of out-of-market banks.

The three measures of market attractiveness, all of which were expected to increase the probability of acquisition, have mixed results. Banks in small markets are, unexpectedly, more likely to be acquired in market extension mergers than those in large markets; market size has no effect on the probability of a horizontal acquisition. There is weak evidence (two of six equations in each table) that banks in slower growing markets are more likely to be acquired. Again, this is not the expected result. These results reinforce the earlier conclusion that mergers and acquisitions do not appear to be used to maximize a banking organization's rate of growth. The per capita income variable has the expected positive impact on acquisition probability in the majority of the horizontal acquisition regressions, but in only one of the market extension regressions.

In sum, the regression results are mixed, with many explanatory variables not having their expected impact on the probability of acquisition. In addition, the low level of explanatory power of the regressions, as measured by an analogue to R^2, indicates that most merger and acquisition activity cannot be explained by the obvious firm, market and regulatory variables included in the estimated equation.[28] It is also notable that findings of this study, which are at least weakly suggestive of a market for corporate control, conflict with most other studies of this kind.[29] However, the failure to find a simple dominant motive for mergers is consistent with earlier studies.

SUMMARY AND CONCLUSION

This study includes firm, market, and regulatory characteristics in tests for the determinants of bank mergers and acquisitions to get an indication of the motives for mergers. The

multinomial logit analysis is based on most of the 1,724 bank mergers and acquisitions from 1978–1983.

Test results provide no direct support for the argument that mergers are motivated by growth or profit maximization. There is, however, a weak indication that a market for corporate control exists, i.e., there is weak evidence that poorly performing firms (low profits and growth) are acquired. Market share of the target firm stands out, along with per capita income, as attractive to acquiring firms.

Overall, the findings in this study do not point clearly to any single motive for bank acquisitions. This is consistent with findings for the industrial sector and largely consistent with other findings for banking.

ENDNOTES

1. There is, of course, a considerable literature suggesting that owners and managers will have different motives. We have assumed that owners of banks will exhibit sufficient control over their agents, the managers, that managers' actions will reflect essentially the same motives as owners'.
2. A detailed description of merger activity in banking during this period and the manner in which the data were constructed is provided in [22].
3. A relatively small number of nonacquired banks are branch banks with operations in more than one market. Financial data, such as profits, are available only for the entire bank and not for individual branches. Since it is not possible to construct financial ratios for each of the branches of a bank, and to thereby match financial data with market data, multimarket branch banks are dropped from the sample.
4. Most of the data used in the analyses are from reports that banks are required to file with a federal bank regulator. These reports, cited as appropriate, are available to the public.
5. Deposit data are from the Summary of Deposits Report.
6. This proposal is generally associated with [3].
7. By focusing on the behavior of acquiring firms, whose actions indicate they are expansion-minded, the observed behavior may be biased toward finding an emphasis on growth. This should not, however, rule out also finding behavior that is consistent with achieving superior profits to the extent that profit improvement is an important objective.
8. Deposit data are from the Summary of Deposits Report.
9. Data are obtained from Call Reports.
10. These include economists and lawyers employed with consulting firms and law firms, respectively.
11. Capital, loan and asset data are from Call Reports.
12. For a detailed development of this view, see [21].
13. Deposit data are from the Summary of Deposits Report.
14. This variable is based on laws in existence in 1983 for all tests. The source of the laws is a listing from the Financial Structure Section, Federal Reserve Board.
15. This variable is based on laws in existence in 1983 and is constructed from a detailed compilation of state banking laws in [2].
16. The numbers of organizations and markets in a state are determined from the Summary of Deposits Report for the year of acquisition.
17. Metropolitan Statistical Areas (MSAs) and nonMSA counties are used as approximations for banking markets. In some New England MSAs, MSA boundaries do not necessarily coincide with county boundaries. These markets were excluded from the analysis. MSAs and nonMSA counties have been extensively used as market areas for research in banking and are commonly used by bank regulators in bank merger analysis.
18. Deposit data are from the Summary of Deposits Report.
19. Numerous studies in banking, as in the industrial sector, find evidence of a positive relationship between market concentration and profitability. For a review of many of these studies see [26].
20. If the prices that must be paid to acquire banks in concentrated markets are greater than prices for banks in unconcentrated markets, other things equal, the expected effect of this variable may be muted.

21. Deposit data are from the Summary of Deposits Report. Deposits in separate banks owned by the same bank holding company are consolidated and the banks treated as a single organization.
22. Deposit data are from the Summary of Deposits Report.
23. Income per capita is based on 1978 data from the Bureau of the Census.
24. Summary statistics for the data set are available on request from the authors.
25. A pooled cross-section time-series multinomial logit regression was attempted, but we were unable to estimate a regression of that size. In any case, results from the yearly regressions are sufficiently varied that an F test for pooling would likely be rejected.
26. For a recent test in banking and a summary of previous studies, see [24]. Also see [8]. For the industrial sector, see [28, 17, 16, 29, 14].
27. See [2] for a discussion of the range of variation in branching laws.
28. While the cost of these large multinomial logit regressions precluded extensive experimentation with the estimated equation, ordinary least squares regressions run on various subsets of the data yield results similar to those from using the entire data set, and produce similarly low R^2s. For these regressions, the data set was divided by size of acquiring bank, size of acquired bank, and by geographic area.
29. Examples were cited in an earlier endnote.

REFERENCES

Adelman, M.A., in *Economic Concentration*, Part I, Hearings before the Subcommittee on Antitrust and Monopoly, U.S. Senate (1964), pp. 223–241.

Amel, Dean F. and Daniel G. Keane, "State Laws Affecting Commercial Bank Branching, Multibank Holding Company Expansion, and Interstate Banking," mimeo (Federal Reserve Board, July 1985).

Baumol, William J., *Business Behavior, Value and Growth* (New York: Macmillan, 1959).

Curry, Timothy J., "The Performance of Bank Holding Companies," in *The Bank Holding Company Movement to 1978: A Compendium* (Federal Reserve Board, 1978), pp. 95–120.

Federal Reserve Board, *Call Reports*, various years.

————————, *Summary of Deposits Reports*, various years.

Federal Trade Commission, *Economic Report on Corporate Mergers* (Washington, D.C.: U.S. GPO, 1969).

Hannan, Timothy H. and Stephen A. Rhoades, "Acquisition Targets and Motives: The Case of the Banking Industry," *Review of Economics and Statistics* (February 1987), pp. 67–74.

Hughes, Alan and Ajit Singh, "Mergers, Concentration, and Competition in Advanced Capitalist Economies: An International Perspective," in *The Determinants and Effects of Mergers: An International Comparison,* ed. Dennis C. Mueller (Cambridge, Mass.: Oelgeschlager, Gunn and Hain, 1980), pp. 1–25.

Jensen, Michael C. and Richard S. Ruback, "The Market for Corporate Control: The Scientific Evidence," *Journal of Financial Economics* (April 1983), pp. 5–50.

Lintner, John and J. Keith Butters, "Effect of Mergers on Industrial Concentration, 1940–1947," *Review of Economics and Statistics* (February 1950), pp. 30–48.

Markham, Jesse W., "Survey of the Evidence and Findings on Mergers," in *Business Concentration and Price Policy,* NBER (Princeton: Princeton University Press, 1955), pp. 141–212.

Means, Gardiner C., in *Economic Concentration*, Part I, Hearings before the Subcommittee on Antitrust and Monopoly, U.S. Senate (1964), pp. 8–17.

Meeks, G., *Disappointing Marriage: A Study of the Gains from Merger* (Cambridge, England: Cambridge University Press, 1977).

Moody, John, *The Truth About the Trusts* (New York: Moody, 1904).

Mueller, Dennis C., editor, *The Determinants and Effects of Mergers: An International Comparison* (Oelgeschlager, Gunn and Hain, 1980).

————————, "The Effects of Conglomerate Mergers: A Survey of the Empirical Evidence," *Journal of Banking and Finance* (December 1977), pp. 315–47.

Nelson, Ralph L., *Merger Movements in American Industry, 1895–1956* (Princeton: Princeton University Press, 1959).

Reid, Samuel Richardson, *Mergers, Managers and the Economy* (New York: McGraw Hill, 1968).

Rhoades, Stephen A., "The Effect of Bank Holding Companies on Competition," in *The Holding Company Movement to 1978: A Compendium* (Federal Reserve Board, 1978), pp. 185–207.

————————, "Market Share as A Source of Market Power: Implications and Some Evidence," *Journal of Economics and Business* (1985), pp. 343–363.

————————, "Mergers and Acquisitions by Commercial Banks, 1960–1983," *Staff Study,* No. 142 (Federal Reserve Board, 1985).

————————, "Mergers of the 20 Largest Banks and Industrials, All Bank Mergers (1960–1983), and Some Related Issues," *Antitrust Bulletin* (Fall 1985), pp. 617–649.

————————, "The Operating Performance of Acquired Firms in Banking before and after Acquisition," *Staff Study,* No. 149 (Federal Reserve Board, 1986).

————————, *Power, Empire Building, and Mergers* (Lexington, Mass.: Lexington Books, 1983).

————————, "Structure-Performance Studies in Banking: An Updated Summary and Evaluation," *Staff Studies,* No. 119 (Federal Reserve Board, 1982).

————————— and A.J. Yeats, "Growth, Consolidation and Mergers in Banking," *Journal of Finance* (December 1974), pp. 1397–1405.

Scherer, F.M., *Industrial Market Structure and Economic Performance,* 2nd ed. (Chicago: Rand McNally, 1980), pp. 127–141.

Steiner, Peter O., *Mergers: Motives, Effects, Policies* (Ann Arbor: University of Michigan Press, 1975).

Talley, Samuel H., "The Impact of Holding Company Acquisitions on Aggregate Concentration in Banking," *Staff Economic Studies,* No. 80 (Federal Reserve Board, 1974).

Utton, M.A., "Mergers and the Growth of Large Firms," *Bulletin of the Oxford University Institute of Economics and Statistics* (1972).

Weiss, Leonard W., "An Evaluation of Mergers in Six Industries," *Review of Economics and Statistics* (May 1965), pp. 172–181.