

**Acquisition Activity of Large Depository Institutions in the 1990's:  
An Empirical Analysis of Motives**

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## **Acquisition Activity of Large Depository Institutions in the 1990's: An Empirical Analysis of Motives**

### **Abstract**

This study examines the performance and ownership structure characteristics of financial institutions that have chosen to aggressively expand by acquiring other institutions. The “wealth maximization hypothesis” posits that in an era of deregulation, the most efficient institutions will acquire the less efficient, thereby creating value and benefitting shareholders. Conversely, the “incentive conflict hypothesis” argues that a large number of acquisitions is a symptom of managers pursuing their own self interests. The empirical results are consistent with the wealth-maximization hypothesis when acquisition activity is measured by assets acquired in unassisted deals involving acquirers with at least one large outside shareholder. For this category, which accounts for about 57 percent of the acquired assets in our sample, consolidation in the banking industry should yield positive benefits.

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1. INTRODUCTION

The passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 removed important expansion constraints for banking organizations and is certain to accelerate the pace of consolidation in the financial services industry. This trend was already established well before 1994 for other reasons, including the passage of state legislation that granted new opportunities to holding companies to acquire institutions operating in other states. By 1987, approximately 77 percent of U.S. banks, with 91 percent of all banking deposits, operated in states that had enacted interstate banking laws (Savage 1987). By November 1993, all but Hawaii had enacted interstate bank-holding-company legislation (Savage 1993). Out-of-state acquisitions of failed institutions was another common way for banking organizations to expand into new markets. Between the time of its creation in 1989 and its termination in 1995, the Resolution Trust Corporation (RTC) resolved 747 failed thrifts. The Federal Deposit Insurance Corporation (FDIC) resolved 438 failed banks between 1990 and 1995. The Riegle-Neal Act, which authorizes interstate bank mergers and the consolidation of out-of-state subsidiaries into branch networks beginning in June 1997, will lead to further restructuring within the industry.<sup>1</sup>

Depository institutions have several strategic options in the 1990s. First, they can continue to operate as an independent organization — an option that is most attractive to those institutions operating in growing markets or to those who believe that they can best compete as a

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<sup>1</sup> The Riegle-Neal Act granted states the right to opt out of interstate branching or to permit interstate branching before June 1, 1997.

community institution offering a high level of personal service to loyal customers. Second, depository institutions can choose to grow through acquisition. This option is most attractive to institutions located in markets with little potential for growth, especially if operational costs are such that they need to grow larger to remain competitive. Those opting for a growth-through-acquisition strategy could expand by buying failed banks and S&Ls, or by acquiring healthy institutions. A third option is to put themselves up for sale.

A total of 6,347 banks were acquired between 1980 and 1994. Of the \$1.2 trillion in assets acquired, 45% were acquired by the largest 25 banking organizations (Rhoades, 1996). A difference in strategies is also evident across major banking organizations. BankAmerica Corp. and Nationsbank acquired \$86.8 billion and \$70.2 billion, respectively, over the 1980-94 period. In contrast, Wachovia Corp. added \$7 billion in assets through the acquisition of only two banks.<sup>2</sup>

Consolidation would be expected to improve overall performance if the resulting institutions are now better positioned to exploit economies of scale and scope or are now under the control of more talented managers. Bank shareholders might also benefit if the market power of their organization is enhanced. In contrast, performance may decline if the actions taken by bank managers to expand are a symptom of agency conflicts. Shareholder value would be destroyed if managers acquire other institutions for non-value-maximizing objectives such as building empires or enlarging institutions to lower the probability that they, sometime in the future, will become takeover targets.

This paper examines the motives for pursuing an expansion-through-acquisition strategy. Empirical tests are conducted to determine if performance and ownership-structure variables are related to (1) the number of acquisitions and (2) the amount of assets gained through acquisitions

for a sample of large depository institutions. The results have implications for the likely impact of the 1994 legislation, both in terms of the pace of consolidation and the performance benefits arising from consolidation.

The next section reviews the related literature. Statements of the hypotheses and a description of the data are presented in Section 3. Section 4 presents the empirical analysis. Finally, conclusions are discussed in Section 5.

## **II. LITERATURE**

### **A Mergers and bank efficiency**

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<sup>2</sup> See Rhoades (1996), Tables 16, 17.

The impact of regulatory constraints on interstate banking and, more recently the steps taken to remove constraints on out-of-state acquisitions and branching, have motivated researchers to study the economic effects of merger on the banking industry.<sup>3</sup> Rhoades (1994) reviews merger performance studies in banking published between 1980 and 1993. Nineteen of these studies present tests of changes in the performance of banks using accounting measures of costs and profit and twenty-one of these studies analyze the markets' reaction to news of acquisitions. The results are mixed, but Rhoades concludes that these studies, taken as a whole, do not support the view that bank mergers result in improved performance. However, since only two of these studies cover mergers after 1989, caution must be exercised in making inferences about the impact of mergers in the 1990s.

In a more recent study, Pilloff (1996) tests for performance changes and for abnormal returns associated with 48 publicly-traded-bank mergers between 1982 and 1991. On average, changes in accounting performance variables are not different from industry patterns and abnormal returns around merger announcements are generally insignificant. However, cross-sectional analysis identifies statistically significant relationships between these and expense variables. In another study, Siems, (1996) finds that for 19 megamergers announced in 1995, acquirers on average experienced negative abnormal returns and target firms experienced positive abnormal returns. Although the market rewarded a subset of deals with the highest percentage of office overlap, based on the market's responses for the full sample he concludes that the evidence is consistent with self-serving behavior by managers or hubris.

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<sup>3</sup> See for example, Cornett and De (1991), Cornett and Tehranian (1992), Linder and Crane (1993), and Rhoades (1998).

## **B Ownership structure and acquisition activity**

Agency problems may arise whenever differing incentives cause managers to take actions that benefit themselves but harm shareholders.<sup>4</sup> For example, managers may choose a lower level of risk than preferred by shareholders to minimize their undiversifiable employment risk (Amihud and Lev, 1981; Saunders, Strock, and Travlos, 1990), take steps to entrench themselves (Shleifer and Vishny, 1989), pursue unrelated diversification (Morck, Shleifer, and Vishny, 1990), or engage in excessive consumption of perquisites. In the context of acquisitions, agency conflicts may lead to a reduction in shareholder wealth if managers pursue expansion for non-profit-maximizing reasons, e.g., because executive compensation is related to institution size or because the acquisition will create a larger and more diversified institution and thus lower the employment risk of executives.

However, a number of corporate control mechanisms can influence managerial behavior and reduce agency costs. Managers with sizeable equity holdings, or with compensation tied closely to bank performance, share a common interest with stockholders. Outside shareholders with substantial holdings (outside blockholders) and directors would be expected to monitor managers, pressuring them to take specific action or calling for their dismissal whenever the company appears to be performing below its potential.<sup>5</sup> Finally, the market for corporate control can resolve agency problems since current managers know they can be replaced by more efficient managers and that bidders will be attracted to underperforming firms trading at depressed prices. Differences in the ownership structure and the general effectiveness of corporate control

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<sup>4</sup> See Shleifer and Vishny (1997) for a comprehensive survey of research on corporate governance.

<sup>5</sup> Regulators who have a duty to protect the deposit insurance fund would be an additional group of monitors.

mechanisms to lower agency costs across the industry are possible reasons for the lack of clear empirical evidence that bank mergers are beneficial.

While much research has been conducted on corporate governance of nonfinancial firms, the unique regulatory environment of financial institutions prevents generalizing these results to the banking industry. Control mechanisms may be weaker in the banking industry because restrictions are placed on who may serve as bank directors (Subrahmanyam, Rangan, and Rosen, 1997) and on the ownership of bank stock (Prowse, 1995). Prowse, examining corporate control changes at 234 bank-holding companies (BHCs) over the period 1987-1992 finds that hostile takeovers and management turnover are, respectively, 5 times and 2 times as likely in non-financials as BHCs. Furthermore, Prowse finds that outside directors tend to have larger stakes in non-financials than in BHCs. Regional differences in the regulatory environment affected the likelihood a bank would become a takeover target and thus the ability of the market for corporate control to reduce agency costs. Rose (1992) finds that banks operating in states that lowered legal entry barriers over the 1972-1987 period experienced efficiency improvements following the regulatory changes. Brickley and James (1987) find that expenditures for salaries are higher in five unit branching states that restrict corporate acquisitions than in six unit branching states that do not restrict by statute corporate acquisitions of bank stocks. Hannan and Mavinga (1980), studying banking firms operating in Pennsylvania during the 1970s, conclude “that manager-controlled banks operating in non-competitive markets spend more on inputs likely to be preferred by managers than do owner-controlled banks in the same situation.”

Allen and Cebenoyan (1991) emphasize the interaction of corporate control mechanisms. They demonstrate that conflict resolution between managers and shareholders depends on both the level of insider shareholdings and shareholder concentration. While the interests of the two

groups can be aligned if managers own significant shares, managers with sizeable holdings may become entrenched unless outsiders have sufficiently large holdings to be motivated to monitor managers. A study of bank mergers and acquisitions over 1979-1986 leads them to conclude that the most active acquirers, measured by number of acquisitions, have the most entrenched managers (a high percent of the shares are held by insiders and shareholder concentration is low) and the least active acquirers have the least entrenched managers.

Finally, Subrahmanyam, Rangan, and Rosenstein (1997) find for a sample of bank acquisitions over 1982-1990 that abnormal returns around the announcement of acquisition bids is negatively related to the proportion of outside directors on the board, positively related to the proportion of equity ownership by outside directors, and at high levels, positively related to the shares owned by insiders. However, the ownership structure is found to be a more important governance mechanism than board composition.

This body of literature suggests that certain bank acquisitions in the past could have been motivated in part by managers' self-interests rather than by efforts solely focused on improving shareholder value. However, these results may not apply to the 1990s since deregulation has made the threat of takeover a more powerful tool to discipline managers. This study adds to this body of literature by examining the relationships of acquisition activity with performance and ownership structure in the banking industry in the 1990s. We differ from the studies noted above, with the exception of Allen and Cebenoyan, in that we focus on acquisition activity over a period of time rather than on the impact of specific acquisitions. Our analysis accounts for two interdependent corporate control mechanisms – equity ownership by insiders, and the existence of large outside shareholders.

### **III. HYPOTHESES, EMPIRICAL MODEL AND DATA**

#### **A Hypotheses**

The value of an acquisition to the shareholders of the acquiring institution depends on the synergies arising from the merger and the premium paid for the target firm. This value (Gain) may be represented as:  $\text{Gain} = V_{\text{at}} - V_a - V_t^t - \text{Premium}$ , where  $V_{\text{at}}$  denotes the value of the combined bank,  $V_a$  denotes the value of the acquiring bank prior to the acquisition, and  $V_t^t$  denotes the value of the target bank under its current management. Performance improvements may arise from revenue synergies or from cost reductions resulting from economies of scale and a more efficient application of the target's resources. Shareholders of the acquiring institution benefit if these gains are not offset by an excessive premium paid to the shareholders of the target institution.

If the takeover market is competitive and acquisitions enhance shareholder value, then the most efficiently operated institutions, relative to peers, should also be the most active acquirers. Talented and properly-motivated managers of efficient institutions will seek to extend their control over poorly run institutions, subsequently creating value by deploying assets to more profitable uses, improving pricing of services, or by cutting costs. Furthermore, agency theory suggests that efficient institutions have an ownership structure that minimizes costs arising from agency conflicts, i.e., managers have a meaningful ownership stake in the firm and at least one outside investor has sufficient wealth at stake to be motivated to monitor managers. Under these conditions, acquisitions should then be beneficial to shareholders. This hypothesis is referred to as the "Wealth Maximization Hypothesis" of acquisitions.

If the utility of managers is not only a function of GAIN but also of personal benefits derived from acquisitions, then mergers may be pursued even when shareholders are harmed. Managers may gain personally by increasing the size of an institution if greater executive compensation accompanies the responsibilities of managing a larger institution, if the acquisition lessens the probability of becoming a

takeover target itself, or if the acquisition improves the probability they will be treated as “too-big-to-fail” by government regulators. This outcome is possible if corporate control mechanisms fail to resolve agency conflicts. This hypothesis predicts that, in general, acquisitions are made by institutions with managers who own few shares and have no large outside blockholders. Furthermore, measures of acquirer efficiency are not positively associated with acquisition activity. This is referred to as the “Incentive Conflict Hypothesis” of acquisitions.

## B Empirical Model

The empirical analysis employs the following model to relate acquisition activity to measures of performance and ownership structure to distinguish between the two hypotheses of bank acquisition activity.

$$Y_i = \hat{a}_1 M/B_i + b_2 OWN_i + b_3 OWN_i^2 + b_4 SIZE_i + \hat{a}_5 + \hat{a}_i \quad (1)$$

where  $Y$  = the number of acquisitions, or total assets gained through acquisitions 1990-1995,  
 $M/B$  = market-to-book ratio at year-end 1989,  
 $OWN$  = percent of shares held by insiders at year-end 1989, and  
 $SIZE$  = log of total assets at year-end 1989.

The dependent variable is either the number of acquisitions or the amount of assets gained through acquisitions over the 1990-1995 time period. The primary measure of efficiency is the market-to-book ratio ( $M/B$ ) at the start of the time period. Sensitivity tests include replacing  $M/B$  with an accounting-based performance measure. The measures of ownership structure consist of the percent of shares held by officers, directors, and other insiders ( $OWN$ ). Since the relationship between acquisition activity and ownership structure may be nonlinear (Allen and Cebenoyan, 1991), the square of insider ownership is added to the model. To control for the impact of discipline imposed by large outside shareholders, the equation is estimated separately for the group of firms with at least one outside blockholder and the group of firms without an outside blockholder. A blockholder is defined as an investor that holds more than 5 percent of the institution's outstanding shares.

A control variable,  $SIZE$ , also appears in equation (1). Several additional control variables were considered, including the growth rate of assets in the institution's home market, the institution's equity-to-asset ratio, and the emphasis on non-traditional banking activities proxied by the institution's deposits-to-assets ratio. None of these variables proved to be statistically significant so estimates of models that included them are not reported here.

For the shareholder-wealth-maximization hypothesis to be supported, the most active acquirers must be those institutions that (1) exhibit superior efficiency *and* (2) have ownership structures that tend to minimize costs arising from agency conflicts. For the incentive conflict hypothesis to be supported, the most

active acquirers must be those that (1) are relatively inefficient *and* (2) have ownership structures that are unlikely to resolve agency conflicts.

Under the shareholder-wealth-maximization hypothesis, the more profitable and better managed institutions are the most active acquirers. Thus, a positively signed coefficient associated with the market-to-book ratio is expected. Conversely, under the incentive-conflict hypothesis, managers pursue non-profit-maximizing objectives so acquirers are relatively inefficient. Thus, the expectation is that the sign on the market-to-book ratio is negative.

The analysis of insider ownership is complicated by its possible non-linear relationship with acquisition activity. A positive relationship may suggest that the most active acquirers are those where managerial interests are aligned with owners – a result that supports the wealth-maximization hypothesis. However, a positive relationship might also reflect a pattern of overly aggressive acquisition activity carried out by entrenched managers, e.g., managers protected from control mechanisms by virtue of their large equity holdings. This result would then be consistent with the incentive-conflict hypothesis. By dividing the sample into groups of firms with and without outside blockholders, we are better able to distinguish between the two scenarios. When an outside blockholder is present, it is less likely that managers are entrenched and are pursuing self-serving acquisitions at the expense of firm value. Thus, a positive relationship between insider ownership and acquisition activity may be interpreted as evidence that the most active acquirers are institutions which have minimized costs arising from agency conflicts. When no outside blockholder is present, a positive relationship between insider ownership and acquisition activity has an ambiguous interpretation. It may indicate that entrenched managers are pursuing personal goals at the expense of owners, or it may reflect an increased probability of managers pursuing acquisitions as their interests become more aligned with owners. When no outside blockholder is present, a negative relationship is consistent with the view that managers are pursuing acquisitions when their ownership stake is low and thus, agency conflicts have not been minimized.

## **C Data**

The sample consists of 60 U.S. depository institutions with \$5 billion or more in assets operating from 1989 through 1995 with available performance and ownership structure data. The sample size was a compromise between the desire to use a large sample and the effort required to gather merger data. Despite the small number of firms, a high percentage of acquisition activity, as measured by acquired assets, is covered. Sixty-three percent of acquired bank assets involved the largest 25 banking organizations over 1990-1994.<sup>6</sup> Acquisitions involving these institutions over 1990-1995 were identified from *Mergers and Acquisitions* (1990-1996), FDIC Annual Reports, and the RTC's Conservatorship Report. Deals involving the acquisitions of branches are included as well as takeovers of entire institutions. For cases where data on assets of the acquired institutions were not supplied by these sources, *Moody's Bank Manuals*, the Reports of Condition and Income (Call Reports), and the *Dow Jones News Retrieval Service* were used to complete the profile. Since some of the assets of failed institutions were retained by the FDIC or RTC, the amount of transferred liabilities was used to measure the size of assisted acquisitions. All financial data for the sample institutions are from Bank Compustat. Finally, data on the ownership structure of the sample institutions are from SEC filings as presented in the Disclosure database.

#### **IV. EMPIRICAL RESULTS**

##### **A Preliminary analysis**

Tables 1 and 2 present selected descriptive statistics for our sample of depository institutions. Over 1990-1995, 449 acquisitions involving \$820 billion in assets were completed by the financial institutions in the sample. About 31 percent of the acquisitions arose from FDIC or RTC resolutions of bank or thrift failures representing about 17 percent of the acquired assets. However, the percent of assisted acquisitions varied widely over time; from as high as 68 percent in 1990 to 0 percent in 1995.

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<sup>6</sup> Total bank assets acquired over this period was \$618 billion; \$376 billion of this amount was acquired by the largest 25 largest banking organizations (Rhoades (1996), Tables 2, 17).

Table 2 presents univariate tests of performance and ownership-structure differences between the group of most active acquirers and the group of least active acquirers. The sample was first divided into three groups, each comprised of 20 firms, based on the level of acquisition activity. Two definitions of acquisition activity are used to classify the sample firms – the number of acquisitions completed over the 1990-1995 period and the value of assets acquired. Each of these measures is scaled by total assets of the acquirer at year-end 1989.<sup>7</sup>

The means for a wide range of market and accounting variables, scaled by total assets or revenue, are examined to identify differences, and the nature of the differences, between the groups. The most active acquirers appear to rely more on deposits, but there is no evidence that performance measures differ between the two groups. None of the income or expense ratios are found to differ. While the mean level of insider ownership is lower for the most active acquirers, it is not statistically different from the mean for the group of least active acquirers. Finally, there does not appear to be any significant differences in holdings by outside blockholders.<sup>8</sup> These results suggest that no single reason explains why some banking organizations are more aggressive acquirers than others. The low levels of statistical significance in Table 2 might be due to fundamental differences in motives for participating in assisted versus unassisted deals. Also, as discussed in section III.B, the relationship between insider ownership and acquisition activity may be nonlinear and interrelated with other control mechanisms.

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<sup>7</sup> An acquisition of an institution with \$1 billion in assets would be viewed as modest expansion to a \$100 billion organization but an aggressive move by a \$5 billion institution. This classification method accounts for the starting size of the acquirer as well as the size of the acquisition.

<sup>8</sup> Because Block is a dummy variable, the Wilcoxon rank sum test was used to test for differences across the two groups.

## **B Estimates of Equation (1)**

Estimates of the multi-variate model of acquisition activity are presented in Tables 3.<sup>9</sup> The first three panels of the table present results when acquisition activity is defined by assets acquired. Acquisition activity is defined as the number of deals in the last three panels. For both definitions, estimates are provided for the group of firms with an outside blockholder (45 firms) and the group of firms without an outside blockholder (15 firms). It is possible that the motivation for participating in assisted deals differs from that for unassisted mergers. For example, some bidders for failed depository institutions may believe they can gain at the expense of the federal insurance funds.<sup>10</sup> Thus, the analysis is conducted separately for unassisted and assisted acquisitions. In addition to the coefficient estimates, presented in the first five columns, the table also provides information on the statistical and economic significance of the insider ownership variable. Wald tests are employed to judge its statistical significance. In addition, an elasticity measure for the insider ownership variable is provided. This measure is based on the median values of the explanatory variables and is helpful in determining the directional relation between acquisition activity and insider ownership.

The results in Table 3 offer some support for the wealth-maximization hypothesis when assets acquired is used to define acquisition activity. For the equation with total assets acquired as the dependent variable, the market-to-book ratio is positive and significant (at the 10% level) only in the equation based on firms with an outside blockholder. Likewise, the Wald test indicates that insider ownership is statistically significant only when an outside blockholder exists. Evaluated at the median variable values, the elasticity

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<sup>9</sup> All equations are estimated using ordinary least squares. The test statistics presented in the tables are based on the White (1980) covariance estimator.

<sup>10</sup> Bertin, Ghazanfari, and Torabzadeh (1989), Balbirer, Jud, and Lindahl (1992), and Cole, Eisenbeis, and McKenzie (1994) find evidence of excess returns for acquirers of failed depository institutions.

for the insider ownership variable is positive, implying that the most active acquirers are those where insiders hold a greater share of the outstanding equity. Entrenched managers pursuing self-serving mergers is an unlikely explanation for this positive relationship since such a relationship is not found for the group of managers most able to exploit control – those who manage firms without outside blockholders. For the firms with an outside blockholder, the combination of a positive association between the market-to-book ratio and acquisition activity and a positive association between insider ownership and acquisition activity supports the wealth-maximization hypothesis. This group accounts for 67 percent of the acquired assets in our sample. For the other 33 percent, the results fail to support either the wealth-maximization or the incentive-conflict hypothesis.

The second and third panels of Table 3 present the estimated models using assets acquired in unassisted deals and assets acquired in assisted deals, respectively. The results for the unassisted deals are very similar to those for total acquired assets. For the group of firms with an outside blockholder, acquisition activity is positively related to the market-to-book ratio and to insider ownership. That is, the active acquirers were more efficient and had an ownership structure that was more likely to have minimized costs arising from agency conflicts. This group accounts for 57 percent of the acquired assets in our sample. The overall explanatory power for the equations of assets acquired in assisted deals is relatively low and neither the market-to-book ratio nor insider ownership variable is significant. Thus, the results fail to support either the wealth-maximization hypothesis or the incentive-conflict hypothesis.

We next turn to the equations in which the total number of acquisitions is used as the definition of acquisition activity. Based on the Wald test, insider ownership is statistically significant for the group of firms with an outside blockholder at the 5% level. However, its relationship with acquisition activity is negative, suggesting that the most active acquirers are those with managers with lower ownership stakes. The most likely explanation for this result is that acquisition activity is lower for firms where managers' interests are more aligned with shareholders, a result consistent with the incentive-conflict hypothesis. An alternative interpretation is that less entrenched managers pursue more acquisitions, a result consistent with the wealth-

maximization hypothesis. But, if acquisition activity is less for institutions with entrenched managers, then this pattern should also be observed for the group without an outside blockholder since managers of these firms would be subject to less oversight. The estimated relationship between acquisition activity and insider ownership is not statistically significant for the firms without an outside blockholder. Furthermore, the market-to-book ratio is not statistically significant for the group of firms with an outside blockholder. Thus, the results can only be viewed as weakly consistent with the incentive-conflict hypothesis and inconsistent with the wealth-maximization hypothesis. Our conclusions based upon results using the number of acquisitions as the measure of acquisition activity is not necessarily inconsistent with the earlier finding of support for the wealth-maximization hypothesis when acquisition activity is measured by assets acquired. It is possible that managers who are pursuing expansion strategies because of personal objectives do so by acquiring a large number of small institutions rather than acquiring a few large institutions.

The final two panels in Table 3 present the results for acquisition activity defined as the number of unassisted deals or the number of assisted deals. Again, the results for the model of the number of unassisted deals are very close to those using all acquisitions as the dependent variable. However, in contrast to the results when assets acquired is used as the dependent variable, insider ownership is negative and statistically significant for assisted deals. Because this result holds for both the group with an outside blockholder and the group without an outside blockholder, we are unable to determine if this relationship is due to lower levels of acquisition activity by firms with managerial interests aligned with shareholders or to higher levels of acquisition activity by firms with less-entrenched managers.

In summary, the empirical estimates of equation (1) based on assets acquired are consistent with the hypothesis that acquisitions were beneficial to shareholders in the unassisted deals in which the acquirer had at least one large outside shareholder. This category covers about 57 percent of the acquired assets in our sample. The empirical estimates of equation (1) based on number of unassisted acquisitions are inconsistent with the wealth-maximization hypothesis. For assisted deals, our results fail to offer unambiguous support

for either the wealth-maximization hypothesis or the incentive-conflict hypothesis regardless of how acquisition activity is measured.

### **C Sensitivity analysis**

An underlying assumption made in our analysis is that institutions' market-to-book ratios and ownership structures at year-end 1989 reflect their efficiency and ownership structure throughout the entire 1990-1995 period. Furthermore, other corporate control mechanisms, such as product market competition and governmental oversight, may have changed and caused structural changes in equation (1). To examine these possibilities, equation (1) was estimated using just 1995 acquisition activity data. For this analysis, the market-to-book ratio, ownership structure, and size variables are based on year-end 1994 data. This is a useful period to examine not just because it is the last year of our analysis, but because acquisition activity was relatively high in 1995. These results are presented in Table 4. The more interesting results are for the model using number of acquisitions as the dependent variable. Consistent with the results presented in Table 3, the presence of an outside blockholder appears to be a crucial factor in explaining acquisition activity. For the institutions with an outside blockholder, acquisition activity, measured by number of acquisitions, is positively related to the market-to-book ratio and positively related to insider ownership. Both relationships are statistically significant. Thus, the most active acquirers are those with an ownership structure that minimizes costs arising from agency conflicts and are the most efficient. About 70 percent of the total number of acquisitions in 1995 are accounted for by this group. No statistically significant relationships are found for the equation using acquired assets as the dependent variable.

Finally, the equations presented in Tables 3 and 4 were re-estimated using ROA rather than the market-to-book ratio as the measure of efficiency. While ROA tended to be less statistically significant, our major conclusions do not change with this substitution.

## **22. SUMMARY AND CONCLUSIONS**

This study examines the performance and ownership structure characteristics of financial institutions that have chosen to aggressively expand through acquisitions. The “wealth maximization hypothesis” posits that in an era of deregulation, the most efficient institutions will acquire the less efficient, thereby creating value and benefitting shareholders. Conversely, the “incentive conflict hypothesis” argues that a large number of acquisitions is a symptom of managers pursuing their own self interests. This study examines 60 of the largest U.S. depository institutions from 1990 to 1995 by relating acquisition activity to measures of their efficiency and ownership structure. Both assets acquired and the number of acquisitions are employed as measures of acquisition activity. The empirical results are consistent with the wealth-maximization hypothesis when acquisition activity is measured by assets acquired in unassisted deals involving acquirers with at least one large outside shareholder. This category accounts for about 57 percent of the acquired assets in our sample. However, when acquisition activity is measured by the number of acquisitions, our results for unassisted deals are inconsistent with the wealth-maximization hypothesis. Together, these results imply that consolidation in the banking industry is most likely to yield positive benefits when expansion-through-acquisition strategies are pursued by institutions with managers who have a meaningful equity stake and at least one large outside shareholder, and the expansion strategy is implemented by making large acquisitions rather than numerous small acquisitions.

## References

- Allen, Linda and A. Sinan Cebenoyan. 1991. Bank Acquisition and Ownership Structure: Theory and Evidence, *Journal of Banking and Finance*, 15: 425-448.
- Amihud, Yakov and Baruch Lev. 1981. Risk Reduction as a Managerial Motive for Conglomerate Mergers, *Bell Journal of Economics*, Autumn: 605-617.
- Balbire, Sheldon D., G. Donald Jud, and Frederick W. Lindahl. 1992. Regulation, Competition, and Abnormal Returns in the Market for Failed Thrifts, *Journal of Financial Economics*, 31: 107-131.
- Bertin, W.F., F. Ghazanfari, and K. M. Torabzadeh. 1989. Failed Bank Acquisitions and Successful Bidders' Returns, *Financial Management*, 18: 93-100.
- Brinkley, James A. and Christopher M. James. 1987. The Takeover Market, Corporate Broad Structure: The Case of Banking, *Journal of Law and Economics*, 30: 161-180.
- Cole, Rebel A., Robert A. Eisenbeis, and Joseph A. McKenzie. 1994. Asymmetric Information and Principal-Agent Problems as Sources of Value in FSLIC-Assisted Acquisitions of Insolvent Thrifts, *Journal of Financial Services Research*, 8: 5-28.
- Cornett, Marcia M. and Sankar De. 1991. Common Stock Returns in Corporate Takeover Bids: Evidence from Interstate Bank Mergers, *Journal of Banking and Finance*, 15: 273-295.
- Cornett, Marcia Millon and Hassan Tehranian. 1992. Changes in Corporate Performance Associated with Bank Acquisitions, *Journal of Financial Economics*, 31: 211-234.
- Hannan, Timothy H. and Ferdinand Mavinga. 1980. Expense Preference and Managerial Control: The Case of the Banking Firm, *The Bell Journal of Economics*, 11: 671-682.
- Linder, Jane C. and Dwight B. Crane. 1993. Bank Mergers Integration and Profitability, *Journal of Financial Services Research*, 7: 35-55.
- Morck, Randall, Andrei Shleifer, and Robert W. Vishny. 1990. Do Managerial Objectives Drive Bad Acquisitions? *Journal of Finance*, 45: 31-48.
- Pilloff, Steven J. 1996. Performance Changes and Shareholder Wealth Creation Associated with Mergers of Publicly Traded Banking Institutions, *Journal of Money, Credit and Banking*, 28: 294-310.
- Prowse, Stephen D. 1995. Alternative Methods of Corporate Control in Commercial Banking, *Economic Review*, Federal Reserve Bank of Dallas, Third Quarter: 24-36.
- Rhoades, Stephen A. 1994. A Summary of Merger Performance Studies in Banking, 1980-93 and an Assessment of the "Operating Performance" and "Event Study" Methodologies, Staff Studies 167, Washington: Board of Governors of the Federal Reserve System.
- Rhoades, Stephen A. 1996. Bank Mergers and Industrywide Structure, 1980-94, Staff Studies 169, Washington: Board of Governors of the Federal Reserve System.

- Rhoades, Stephen A. 1998. The Efficiency Effects of Bank Mergers: an Overview of Case Studies of Nine Mergers, *Journal of Banking and Finance*, 22: 273-291.
- Rose, Peter S. 1992. Agency Theory and Entry Barriers in Banking, *The Financial Review*, 27: 323-353.
- Savage, Donald T. 1987. Interstate Banking Developments *Federal Reserve Bulletin*, February: 80-92.
- Savage, Donald T. 1993. Interstate Banking: a Status Report, *Federal Reserve Bulletin*, December: 1075-89.
- Saunders, Anthony, Elizabeth Strock, and Nickolaos G.Travlos. 1990. Ownership Structure, Deregulation, and Bank Risk Taking, *Journal of Finance*, 45: 643-654.
- Siems, Thomas F. 1996. Bank Mergers and Shareholder Wealth: Evidence Form 1995's Megamerger Deals, *Financial Industry Studies*, Federal Reserve Bank of Dallas, August: 1-12.
- Shleifer, Andrei and Robert W. Vishny. 1989. Management Entrenchment: the Case of Manager-specific Investments, *Journal of Financial Economics*, 25:123-140.
- Shleifer, Andrei and Robert W. Vishny. 1997. A Survey of Corporate Governance, *Journal of Finance*, 52: 737-783.
- Subrahmanyam, Vijaya, Nanda Rangan, and Stuart Rosen. 1997. The Role of Outside Directors in Bank Acquisitions, *Financial Management*, 26: 23-36.
- White, Halbert. 1980. A Heteroskedasticity-Consistent Covariance Matrix and a Direct Test for Heteroskedasticity, *Econometrica*, 48: 817-838.

Table 1. Acquisitions by Year

	Number of acquisitions		Assets acquired (\$billions)	
	Total	Assisted acquisitions (% of total)	Total	Assisted acquisitions (% of total)
1990-1995	449	31%	819.8	17%
1990	92	68%	75.2	72%
1991	65	55%	207.3	27%
1992	68	26%	184.8	9%
1993	69	17%	93.5	7%
1994	72	11%	93.3	3%
1995	83	0%	165.6	0%

**Table2 Ownership Structure and Performance Differences Between the Most and the Least Active Acquirers**

	Sample divided by: No. acquisitions / TA			Sample divided by: Assets acquired / TA		
	Mean for most active acquirers	Mean for least active acquirers	t-statistic (p-value) <sup>a</sup>	Mean for most active acquirers	Mean for least active acquirers	t- statistic (p-value) <sup>a</sup>
Capital/TA (%)	7.51	7.04	0.22	7.29	7.16	0.73
Log(TA)	62.40	56.33	0.21	64.12	59.10	0.21
Dep/TA (%)	74.24	63.24	0.01	72.67	65.97	0.05
M/B	1.33	1.27	0.48	1.35	1.29	0.51
Int Inc / Rev (%)	78.85	73.31	0.17	78.86	76.66	0.50
Int Exp / Rev (%)	36.05	38.27	0.51	36.93	38.43	0.67
NII / TA (%)	3.93	3.34	0.18	3.92	3.57	0.33
NII / Rev (%)	43.92	37.25	0.20	43.03	40.42	0.51
Non-Int Inc / Rev (%)	19.79	27.71	0.16	21.45	24.53	0.49
Non-Int Exp / Rev (%)	42.51	40.41	0.42	40.93	39.94	0.73
Oper Exp / Rev (%)	82.40	83.38	0.65	81.81	83.41	0.48
Oper ROA (%)	1.64	1.58	0.58	1.72	1.56	0.27
ROA (%)	1.16	1.09	0.33	1.18	1.08	0.27
Tobin's Q	1.03	1.02	0.21	1.03	1.02	0.45
Insider Ownership (%)	5.62	8.89	0.52	0.46	7.71	0.47
Block	0.65	0.70	0.74	0.65	0.70	0.74

**Notes.** To conduct the tests presented in this table, the sample was divided into three groups based on level of acquisition activity. The tests are based on a comparison of the most active acquirer group with the least active acquirer group. Acquisition activity is defined as the number of acquisitions or the amount of assets gained through acquisitions, scaled by total assets at year-end 1989.

Capital / TA = book value of common and preferred stock divided by total assets at year-end 1989; TA = total assets at year-end 1989; Dep/TA deposits-to-assets ratio at year-end 1989; M/B = market-to-book ratio at year-end 1989; Int Inc / Rev = interest income divided by revenue; Int Exp / Rev = interest expense divided by revenue; NII / TA = net interest income divided by average assets; NII / Rev = net interest income divided by revenue; Non-Int Inc / Rev = non-interest income divided by revenue; Non-Int Exp / Rev = non-interest expense divided by revenue; Oper Exp / Rev = operating expenses divided by revenue; Oper ROA = operating expenses divided by average assets; ROA = net income divided by average assets; Insider Ownership = percent of shares held by officers, directors, and other insiders at year-end 1989; Block is a dummy variable that equals 1 if an outside investor exists who individually owns at least 5 percent of the outstanding shares. Three-year averages (1987-1989) are used for Int Inc / Rev, Int Exp / Rev, NII / Rev, Non-Int Inc / Rev, Non-Int Exp / Rev, Oper Exp / Rev, Oper ROA, and ROA.

**Table2 Ownership Structure and Performance Differences Between the Most and the Least Active Acquirers**

a — Difference of means tests (t-statistic) for all variables except Block. The Mann-Whitney test (Z) was used for Block.

**Table 3. Model of Acquisition Activity: 1990-1995**

	M/B ( $\beta_1$ )	OWN ( $\beta_2$ )	OWN <sup>2</sup> ( $\beta_3$ )	Size ( $\beta_4$ )	Constant ( $\beta_5$ )	R <sup>2</sup>	% of total	Wald test ( $\beta_2 = \beta_3 = 0$ )	E <sub>Own</sub>
Dependent variable: Total acquired assets									
Blockholder exists (n = 45)	16,955.8 (0.0714)	574.7 (0.2565)	-9.5 (0.1571)	9,834.4 (0.0337)	-106,664.7 (0.0255)	0.22	67	0.0112	0.135
No blockholder ( = 15)	8,657.3 (0.6648)	-9,364.5 (0.4319)	917.1 (0.4132)	19,309.3 (0.2271)	-168,654.3 (0.2535)	0.45	33	0.6779	-0.981
Dependent variable: Assets acquired in unassisted deals									
Blockholder exists	16,206.5 (0.0801)	619.0 (0.2251)	-9.7 (0.1502)	8,433.3 (0.0446)	-94,213.6 (0.0354)	0.22	68	0.0443	0.180
No blockholder	8,551.9 (0.5800)	-7,865.8 (0.4098)	778.8 (0.3876)	15,480.9 (0.2305)	-136,964.1 (0.2525)	0.46	32	0.6376	-1.048
Dependent variable: Assets acquired in assisted deals									
Blockholder exists	749.3 (0.4621)	-44.3 (0.5779)	0.26 (0.7750)	1,401.1 (0.1028)	-12,451.0 (0.0941)	0.06	57	0.3279	-0.059
No blockholder	105.3 (0.9847)	-1,498.7 (0.5314)	138.2 (0.5362)	3,828.3 (0.2189)	-31,690.2 (0.2638)	0.33	41	0.8104	-0.742

**Table 3. Model of Acquisition Activity: 1990-1995 - cont**

	M/B ( $\beta_1$ )	OWN ( $\beta_2$ )	OWN <sup>2</sup> ( $\beta_3$ )	Size ( $\beta_4$ )	Constant ( $\beta_5$ )	R <sup>2</sup>	% of total	Wald test ( $\beta_2 = \beta_3 = 0$ )	E <sub>Own</sub>
Dependent variable: Total number of acquisitions									
Blockholder exists (n = 45)	-1.293 (0.5797)	-0.273 (0.0647)	0.0027 (0.1459)	0.303 (0.7901)	6.688 (0.6060)	0.14	66	0.0169	-0.075
No blockholder (n = 15)	0.423 (0.9679)	-1.600 (0.6650)	0.261 (0.4485)	3.679 (0.3770)	-25.201 (0.5195)	0.16	34	0.1094	-0.032
Dependent variable: Number of unassisted deals									
Blockholder exists	-0.765 (0.6910)	-0.260 (0.0148)	0.0028 (0.0289)	-0.430 (0.5895)	11.214 (0.2388)	0.12	70	0.0203	-0.091
No blockholder	0.502 (0.9504)	-0.416 (0.8407)	0.090 (0.6569)	1.049 (0.6435)	-4.570 (0.8433)	0.04	30	0.5045	-0.013
Dependent variable: Number of assisted deals									
Blockholder exists	-0.528 (0.6027)	-0.0136 (0.8454)	-0.000 (0.8971)	0.733 (0.1978)	-4.526 (0.4592)	0.10	57	0.0114	-0.018
No blockholder	-0.079 (0.9826)	-1.183 (0.5257)	0.171 (0.3231)	2.631 (0.2472)	-20.630 (0.3182)	0.34	43	0.0070	-0.354

Notes. Analysis is based on the Model:  $Y = \hat{\alpha}_1 \text{M/B} + \beta_2 \text{OWN} + \beta_3 \text{OWN}^2 + \hat{\alpha}_4 \text{SIZE} + \hat{\alpha}_5 + \hat{\alpha}$ : where M/B is the market-to-book ratio at the start of the time period, OWN is the percent of shares held by officers, board members, and other insiders, and SIZE is the log of total assets at the start of the time period. A blockholder exists if at least one outside investor owns at least 5 percent of the shares outstanding. The values in parentheses below the coefficient estimates are p-values. The Wald statistic tests the hypothesis that the coefficients associated with the insider ownership variable all equal zero (i.e.,  $\hat{\alpha}_2 = \hat{\alpha}_3 = 0$ ). The values in this column are p-values. E<sub>own</sub> is the elasticity for Insider Ownership calculated using the median values of all variables.

**Table 4. Model of Acquisition Activity: 1995**

	M/B ( $\beta_1$ )	OWN ( $\beta_2$ )	OWN <sup>2</sup> ( $\beta_3$ )	SIZE ( $\beta_4$ )	Constant ( $\beta_5$ )	R <sup>2</sup>	% of total	Wald test ( $\beta_2 = \beta_3 = 0$ )	E <sub>Own</sub>
Dependent variable: Total acquired assets									
Blockholder exists (n = 43)	1,924.7 (0.3031)	-483.4 (0.2138)	8.58 (0.2677)	808.1 (0.4136)	-5,502.0 (0.5400)	0.04	88	0.3268	-0.235
No blockholder (n = 16)	-2,333.6 (0.3659)	264.4 (0.1590)	-4.90 (0.1378)	1,846.5 (0.1752)	-13,886.3 (0.1733)	0.30	12	0.2587	0.488
Dependent variable: Total number of acquisitions									
Blockholder exists (n = 43)	2.222 (0.0253)	0.113 (0.0977)	-0.004 (0.0212)	-0.239 (0.2442)	0.307 (0.9050)	0.31	70	0.0009	0.173
No blockholder (n = 16)	-0.810 (0.4917)	0.540 (0.0050)	-0.010 (0.0031)	1.718 (0.0089)	-15.712 (0.0333)	0.52	30	0.0003	1.012

Notes. See Table 3.