THE JOURNAL OF FINANCE • VOL. LIII, NO. 6 • DECEMBER 1998

The Gains from Takeover Deregulation: Evidence from the End of Interstate Banking Restrictions

YARON BROOK,* ROBERT HENDERSHOTT,* and DARRELL LEE*

ABSTRACT

This paper uses interstate banking deregulation to explore the benefits of takeover deregulation and how these benefits are distributed across different firms. We find large and significant abnormal returns around the Interstate Banking and Branching Efficiency Act of 1994 which imply it created $85 billion of value in the banking industry. Consistent with an active market for corporate control allowing beneficial consolidation and providing needed discipline, there is a strong negative relationship between banks' abnormal returns and their prior performance. Consistent with managerial entrenchment limiting takeover discipline, banks with higher insider ownership, lower outside block ownership, and/or less independent boards have lower abnormal returns.

IMAGINE AN ECONOMY IN WHICH strict regulation has prohibited all takeover activity, and the governing body suddenly announces that the restrictions on mergers and acquisitions will be eliminated in one year. The capital market response to this announcement would establish the aggregate value added from an active corporate control market, and differences between individual firms' stock price reactions would reveal which firms benefit most from unrestricted consolidation and takeover discipline.

In some ways this hypothetical situation became reality for the U.S. banking industry in 1994 when Congress wrote and passed the Interstate Banking and Branching Efficiency Act (IBBEA). This legislation liberalized the bank takeover market by eliminating the various state laws restricting bank mergers across state lines.[1] The IBBEA was widely expected to accelerate the consolidation already occurring within the banking industry (see, for example, *American Banker*, 10/11/94).

A more active takeover market should increase firm values in at least two ways. First, unrestricted consolidation would allow firms to better utilize

* Brook and Hendershott are at Santa Clara University; Lee is at Kennesaw State University. We thank Stephen Cosslett, Edward Kane, Patric Hendershott, Atulya Sarin, René Stulz, the editor, an anonymous referee, and seminar participants at Ohio State University for their helpful comments. Financial support for this research was provided by a Santa Clara University Presidential research grant and by the Dean Witter Foundation.

[1] Throughout this paper we use the term "bank" to refer to both banks and bank holding companies.

potential scale and scope economies available from mergers. Cornett and Tehranian (1992) find a 120-basis point average increase in return-on-assets following fifteen interstate mergers during the mid-1980s, suggesting that these gains may be large in the banking industry. Second, both explicit and implicit takeover threats can motivate managers. Manne (1965), among others, argues that takeovers help solve the agency problems inherent in separating ownership and control in a publicly traded corporation. Consistent with this, James (1984) finds that banks tend to be less efficient when takeovers are restricted.

The notion that more active takeover markets necessarily enhance firm values is not universally accepted. Stein (1988) shows how information asymmetries between managers and investors can make firms that take long-term investments more susceptible to takeover bids. This makes a manager's optimal investment strategy myopic, neglecting profitable long-term investments. This argument suggests that, in at least some cases, takeover restrictions enhance firm value (also see Scherer (1988)).

We estimate the IBBEA's net effects using a large sample of publicly traded banks' stock price reactions to the legislation, controlling for both broad market movements and interest rate changes. There is a large and statistically significant increase in bank values during the legislation's passage. This suggests that the more active takeover market is expected to provide substantial net benefits.

Poorly performing banks react more positively to the IBBEA. This is consistent both with constrained banks benefiting relatively more from deregulation (assuming the poor performance is the result of regulatory restrictions) and with an active corporate control market aiding underperforming firms, by either disciplining their managers or replacing them. We also find a relation between banks' abnormal returns around the IBBEA and their corporate governance structures: banks with lower managerial ownership, higher outside block ownership, and/or fewer inside directors tend to earn higher returns. This suggests that increased takeover discipline accounts for at least part of the IBBEA's impact on the banking industry and that entrenched managers limit the value of an active takeover market.

Our results make several important contributions to the existing literature. Because the IBBEA is the only recent federal legislation deregulating a takeover market, its passage provides a unique opportunity for evaluating the effect of takeover deregulation. Although by its nature our experiment uses banks, our results likely extend to industrial firms. As measured by contemporaneous abnormal stock returns, the IBBEA had a positive impact on the banking industry. Given the political climate potential acquirers currently face, periodic reminders that deregulating takeover markets (and, by extension, takeovers themselves) creates value are useful.

The paper is organized as follows. The first section summarizes the IBBEA, the existing literature, and our hypotheses. Section II presents our bank sample and data sources. The third section measures the IBBEA's wealth effects. The fourth section uses the cross-sectional distribution of banks' ab-

normal returns to test hypotheses about the relationship between performance, corporate governance, and takeovers. Section V examines bank restructurings after the IBBEA and Section VI concludes.

I. The IBBEA and Its Likely Effects

A. The Legislation

The McFadden Act (1927, amended in 1933) placed banks at the mercy of state laws that generally forbade out-of-state banks from acquiring in-state banks. To avoid these restrictions, institutions formed bank holding companies to acquire banks in different states, and then operate them under a single umbrella. This loophole was eliminated by the Douglas Amendment of the Bank Holding Company Act (1956) which specifically prohibited bank holding companies from acquiring banks in another state without that state's explicit permission, thereby making it impossible for most banks to expand outside their state of domicile.

Starting with Maine in 1975, states began to develop a variety of specific rules regulating out-of-state acquisitions in their state and eliminating at least some restrictions that limited out-of-state banks' ability to acquire in-state banks.[2] Black, Fields, and Schweitzer (1990) use a sample of fifty-one banks from seventeen states that liberalized their interstate banking laws to show that this legislation significantly increased superregional banks' equity values, but decreased money center banks' values.

The IBBEA effectively repeals the Douglas Amendment, eliminating the myriad state regulations that have historically restricted interstate bank mergers and allowing a bank holding company to acquire other banks in any state, with some limited restrictions. Appendix A contains a detailed summary of the legislation's provisions. The IBBEA extends, standardizes, and completes the trend toward a more open bank takeover market in several important ways. The legislation allows takeovers that existing state laws previously made impossible. Its national scope makes it difficult for individual banks to appeal to their state legislatures for special protection from out-of-state takeovers that either involve them or introduce unwanted competition. Furthermore, interstate takeover restrictions are only one impediment would-be acquirers face: All bank mergers must be approved by regulators. The IBBEA likely revealed a new federal attitude toward bank mergers. If so, investors should expect fewer obstacles to future mergers (e.g., fewer antitrust objections).

The IBBEA's interstate branching provisions (e.g., allowing banks to consolidate branches under a single charter) should also make all bank mergers more profitable at the margin, leading to more takeover discipline in the

[2] Many states embraced what could be called "regional interstate banking" by allowing only a limited number of states in their geographic region (e.g., New England) to buy in-state banks. These agreements are generally contingent on the other states offering reciprocal access.

banking industry. Additionally, some takeovers that only make sense as part of a larger expansion scheme previously stymied by state regulations will now be attractive. For example, a bank may have only been an attractive target to a superregional bank attempting to become a "supernational" bank. This takeover would not occur before the IBBEA because true national banking was impossible, but may occur once national banking is feasible.

B. Hypotheses

Our first hypothesis is that the IBBEA has a positive effect on banks' equity values. Bank stockholders capturing part of the gains from unrestricted consolidation and from replacing poor managers should benefit directly. Additionally, bank values should increase as a more competitive takeover market discourages bank managers from pursuing nonvalue-maximizing strategies. We hypothesize that poorly performing banks will benefit most from the IBBEA. Pre-IBBEA performance may proxy for how costly interstate banking restrictions were for individual banks.

Poor performance should also be highly correlated with both managerial ineptitude and severe stockholder-manager agency problems, either of which makes takeover discipline valuable. For example, Craig and Dos Santos (1996) show that banks actively acquiring other banks generally have performed better than the banks they acquire, but that following the acquisitions improved profitability in the acquired-institutions causes the banks' performances to converge.

Evidence from industrial firms also supports this notion, Hasbrouck (1985) finds lower q-ratios in eighty-six nonfinancial takeover targets than in either size- or industry-matched control firms. Lang, Stulz, and Walkling (1989) use a sample of eighty-seven takeovers involving industrial firms to show that more value is created when better-performing companies acquire poorly performing companies. Martin and McConnell (1991) find that managerial turnover increases dramatically after successful tender offers (141 of their 253 sample firms had changes in top management). Additionally, they find that firms with subsequent turnover—and only these firms—performed poorly before the offers. For all these reasons, poorly performing banks should be the prime beneficiaries of increased takeover discipline.

If so, there is reason to believe that managerial entrenchment will limit the IBBEA's effect. Stulz (1988) shows how managerial ownership makes takeovers more costly. Mikkelson and Partch (1989) and Song and Walkling (1993) find that takeover targets tend to have lower insider holdings. Shleifer and Vishny (1986) show how outside blockholders can facilitate takeovers. Additionally, Brickley and James (1987) show that the structure of banks' boards depends on their state's takeover restrictions. These studies suggest that all aspects of banks' corporate governance will influence the IBBEA's impact.

II. Sample and Data Sources

CRSP firms with three-digit SIC codes of 602 or 671 form our initial sample. These firms are matched with banks and bank holding companies covered by the Sheshunoff Bank Database, published by Sheshunoff Information Services of Austin, Texas.[3] The Sheshunoff database provides 1993 financial data. Stock returns during the IBBEA's passage are taken from the CRSP daily return files. A bank's market value of equity is calculated using CRSP data as the number of shares outstanding times the closing stock price at year-end 1993. The number of U.S. offices (branches) owned by each bank is taken from *The Banking Organization Quarterly*, published by Sheshunoff. Aggregate data for each of the 50 states (number of banks and aggregate banking assets) are also obtained from Sheshunoff. Data on corporate governance structures (ownership and board structures) are compiled from 1993 proxy statements. If a 1993 proxy is unavailable, the 1994 proxy is used, provided it is filed during the first quarter of 1994. The number of banking subsidiaries in each bank and the number of states in which each bank operates are recorded from 1993 annual reports. Our final sample contains 290 publicly traded (as of 6/1/93) banks with financial data available on Sheshunoff and at least some governance data available from a proxy statement. Table I provides summary statistics for these banks.

Not surprisingly, our sample of banks is skewed toward larger institutions. At year-end 1993 our 290 banks (less than 3 percent of all U.S. banks) held aggregate assets totaling $2.64 trillion, accounting for 68 percent of all U.S. banking assets. Size does, however, vary substantially in the sample; the largest bank is more than one thousand times the size of the smallest bank.

III. The IBBEA's Wealth Effects

The *Wall Street Journal*'s first mention of interstate banking's 1994 prospects came in early February. Table II provides the *Wall Street Journal* announcement dates for the IBBEA's journey through Congress, starting with the initial legislation containing interstate banking emerging from the Senate Banking Committee (2/24/94), continuing through the final IBBEA's emergence from the Joint Congressional Conference (7/26/94), and culminating with Senate approval of the compromise bill (9/14/94). President Clinton signed the bill into law two weeks later.

Although the IBBEA's provisions for interstate banking did not apply until after the legislation became law, stock returns during the bill's successful passage should reflect market participants' best estimates of the IBBEA's

[3] The Sheshunoff Database is a comprehensive data set containing detailed financials, compiled from bank call reports, on 11,656 banks as of year-end 1993. It is necessary to match the CRSP banks to Sheshunoff banks by name and location. All ambiguous matches are dropped from the sample.

Table I

Descriptive Statistics, Year-End 1993

Summary statistics are given for our sample of 290 banks. All financial data are provided by the Sheshunoff Bank Database. Market value of equity is calculated using CRSP data as the number of shares outstanding times the closing stock price. The number of U.S. offices (branches) owned by each bank is taken from *The Banking Organization Quarterly*. Data on corporate governance structures (ownership and board structures) are compiled from 1993 proxy statements. The number of banking subsidiaries in each bank and the number of states in which each bank operates are recorded from 1993 annual reports. Total assets, market value of equity, and average branch size (total assets/no. of branches) are in $millions. No. of states indicates the number of states in which a bank has offices. Ownership of all officers and directors includes trusts controlled by managers and board members.

Variable	Mean	Median	Min	Max	*n*
Total assets	9,096	1,057	56	216,574	290
Market value of equity	954	141	3	16,571	290
Market value/replacement cost	1.03	1.02	0.91	2.11	286
Net income/book equity	0.099	0.124	−1.17	0.337	289
No. of branches	119	28	1	2,057	290
No. of states	2.2	1	1	50	290
Total assets/no. of branches	365	44.6	0.6	66,945	289
Ownership of all officers and directors	0.193	0.153	0.002	0.932	280
Ownership of all outside blockholders	0.062	0.000	0.000	0.498	281
Outside + grey directors/board size	0.78	0.80	0.17	0.95	289

future benefits to bank equityholders. Because uncertainty about the IBBEA's likelihood of passage and final contents was resolved slowly over the first nine months of 1994, the appropriate return window for evaluating the IBBEA's effect on bank equity values is not obvious. Any choice makes a trade-off between the benefit, capturing more of the legislative effect, and the cost, increasingly noisy cumulative returns, of increasing the window. However, because interstate banking legislation had previously failed to survive the Joint Congressional Conference, the IBBEA's successful emergence from this committee is probably an important event.

We focus on three different windows: the full period (107 trading days) starting with the day before a bill containing interstate banking passed the Senate Banking Committee unanimously and ending the day the final bill emerged from the Joint Congressional Conference; the joint conference period (61 trading days) starting with the day the Joint Congressional Conference began reconciling the two banking bills and ending the day the IBBEA emerged; and an intermittent ten-day window that consists of the two-day windows around five *Wall Street Journal* announcements about the legislation's progress.

We use an industry (value-weighted) portfolio of all 290 sample banks to measure the IBBEA's aggregate effect on the banking industry. We assume that this portfolio's normal return-generating process depends on broad mar-

Table II
The Interstate Banking and Branching Efficiency Act's Legislative Path

February 24, 1994:	Bill containing interstate banking passes Senate Banking Committee unanimously
March 10, 1994:	Bill containing interstate banking passes House Banking Committee 50-1
March 23, 1994:	Full House approves House banking bill
April 27, 1994:	Full Senate approves Senate banking bill
July 26, 1994:	Joint Congressional Conference approves the compromise bill (the final IBBEA) containing interstate banking
August 5, 1994:	House approves the IBBEA
September 14, 1994:	Senate approves the IBBEA
September 29, 1994:	President signs the IBBEA

Dates are the day of the *Wall Street Journal* announcement.

ket movements and interest rate changes. We are interested in whether the banking industry performed particularly well (or poorly) during the IBBEA's passage, after controlling for market and interest rate trends.[4] Therefore, from 6/1/93 through 7/26/94, we regress the banking industry portfolio's daily return (Rb) on (1) the contemporaneous CRSP equally weighted daily index return (Rm) and daily change in the 10-year Treasury rate (Δi); (2) the lagged market return and interest rate change; and (3) a dummy variable (D) that equals one while the IBBEA moved through Congress (2/22/94 to 7/26/94) and zero otherwise (t-statistics are reported in parentheses):

$$Rb_t = \underset{(-1.76)}{-0.0007} + \underset{(9.73)}{0.816}Rm_t - \underset{(-5.62)}{3.655}\Delta i_t - \underset{(-2.49)}{0.209}Rm_{t-1} - \underset{(-1.60)}{1.034}\Delta i_{t-1} + \underset{(2.29)}{0.0018}D_t. \quad (1)$$

The regression's R^2 and F-statistic are 0.32 and 40.0, respectively.

The dummy variable captures the banking industry's average daily abnormal return during the IBBEA's passage. The 0.18 percent daily abnormal return (p-value equals 0.02) translates into a 21.1 percent cumulative abnormal return over the 107-day legislative period. Based on our banking industry portfolio's $280 billion value at the beginning of 1994, this implies

[4] Controlling for interest rate movements is particularly important for our study because ten-year Treasury yields rose from 6.05 percent to 7.28 percent between 2/22/94 and 7/26/94.

that the IBBEA is associated with an aggregate \$59 billion increase in our sample banks' equity values. Extrapolating to the entire banking industry, the IBBEA appears to have created roughly \$85 billion of equity value.

Because many regulatory changes produce both winners and losers within an industry, the portfolio approach may understate the IBBEA's importance. To capture these effects and increase the statistical test's power, Binder (1985) proposes using a seemingly unrelated regression model (Zellner (1962)). Following Binder (also see Schipper and Thompson (1983, 1985)), we estimate the following system:

$$
\begin{aligned}
Rb_{1,t} &= \beta_{1,0} + \beta_{1,1} Rm_t + \beta_{1,2} \Delta i_t + \beta_{1,3} Rm_{t-1} + \beta_{1,4} \Delta i_{t-1} + \beta_{1,5} D_t + \epsilon_{1,t} \\
Rb_{2,t} &= \beta_{2,0} + \beta_{2,1} Rm_t + \beta_{2,2} \Delta i_t + \beta_{2,3} Rm_{t-1} + \beta_{2,4} \Delta i_{t-1} + \beta_{2,5} D_t + \epsilon_{2,t} \\
&\vdots \\
Rb_{290,t} &= \beta_{290,0} + \beta_{290,1} Rm_t + \beta_{290,2} \Delta i_t + \beta_{290,3} Rm_{t-1} + \beta_{290,4} \Delta i_{t-1} \\
&\quad + \beta_{290,5} D_t + \epsilon_{290,t}. \qquad (2)
\end{aligned}
$$

This approach assumes that the $\epsilon_{n,t}$ error terms are independent and identically distributed across time. It does not, however, assume that the error terms have the same variance across different banks or that the contemporaneous covariance of the error terms is zero (noncontemporaneous error terms are assumed to be uncorrelated).

In system (2) the dummy variable D_t is set equal to one for each day in the window of interest. The coefficients $\beta_{n,5}$ represent the average daily abnormal return earned by each bank during the window. Table III reports these coefficients and tests of the hypotheses that the abnormal return equals zero for all banks and that the average abnormal return equals zero over our event windows. The first F-test captures any effect the legislation has on bank returns, even if the effect is positive for some banks and negative for others. The second F-test determines whether there is a systematically positive effect on bank equity values.

The mean and median abnormal returns are positive for all windows except when the Senate passed its original interstate banking bill. For all windows, the first F-tests reject the hypothesis that all abnormal returns equal zero. The second F-tests reject the hypothesis that the average abnormal return equals zero for only the longer windows; although the mean (median) cumulative abnormal return over the five two-day announcement windows is 1.4 percent (1.2 percent), the F-test produces a p-value of only 0.165. Nonparametric sign-rank tests, however, show that the median abnormal return significantly exceeds zero for all two-day windows except the

Table III

Stock Returns around the IBBEA

Abnormal stock returns are given for our sample of 290 banks. All returns are taken from CRSP. The estimated coefficients are the average daily abnormal returns during the various event windows. Panel A reports results for the prolonged windows. The entire period is the 107 trading days between the original interstate banking bills emerging from the Congressional Banking Committees and the final IBBEA emerging from the Joint Congressional Committee. The Joint Congressional Conference period is the sixty-one days the House and Senate interstate banking bills were being reconciled in the Joint Congressional Conference. Panel B reports results for the two-day windows. The individual announcement windows are the day of and day before the *Wall Street Journal* announcement. All five two-day windows together is the sum of the two-day returns around the five announcement dates.

Window	Estimated Coefficients Mean (median)	*F*-statistics: Tests of the Hypotheses That All Coefficients Equal Zero (*p*-value)	*F*-statistics: Tests of the Hypotheses That Average Coefficient Equals Zero (*p*-value)	Sign-Rank Test That Median Coefficient Equals Zero
Panel A: Extended Periods				
Entire period (2/23/94–7/26/94)	0.0012 (0.0014)	3.43*** (0.000)	11.89*** (0.001)	4.82***
Joint Congressional Conference period (4/28/94–7/26/94)	0.0009 (0.0008)	2.87*** (0.000)	4.86** (0.027)	3.93***
Panel B: Two-Day Announcements				
Senate Banking Committee (2/23/94–2/24/94)	0.0024 (0.0011)	5.99*** (0.000)	1.33 (0.249)	2.41***
House Banking Committee (3/9/94–3/10/94)	0.0013 (0.0004)	4.44*** (0.000)	0.45 (0.502)	1.73*
House bill (3/22/94–3/23/94)	0.0027 (0.0012)	5.43*** (0.000)	1.18 (0.278)	3.29***
Senate bill (4/26/94–4/27/94)	−0.0010 (−0.0001)	7.88*** (0.000)	0.24 (0.627)	1.16
Joint Congressional Conference (7/25/94–7/26/94)	0.0014 (0.0006)	4.26*** (0.000)	0.41 (0.524)	2.58***
All five two-day windows together	0.0014 (0.0012)	6.08*** (0.000)	1.92 (0.165)	3.76***

***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

two-day announcement of the Senate bill. The median cumulative abnormal return over all five two-day announcement windows is significant at the 0.01 level ($z = 3.76$).

The abnormal returns suggest that information about interstate banking deregulation's prospects in 1994 emerged slowly throughout the entire legislative period. This is not surprising given the open nature of Congressional

debate and the attention paid to Congressional decision making. However, we cannot rule out that the significant positive abnormal returns between 2/23/96 and 7/26/96 result from some other shock specific to the banking industry.

We address this question indirectly. First, we note that although bank profitability rose dramatically in 1992 and 1993 (aggregate return-on-equity increased almost 700 basis points during these years), it fell slightly in both 1994 and 1995. This does not support the existence of a positive shock specific to the banking industry that accounts for the large abnormal returns in 1994.

Second, our hypotheses about the cross-section response to the IBBEA are predicated on banks' abnormal returns around the legislation being related to takeover deregulation. Even if our hypotheses are true, unless the abnormal returns are the result of the IBBEA, there should be no relation between banks' abnormal returns and measures of prior performance and entrenchment. Rejecting our joint hypotheses would cast doubt on the implicit assumption that the abnormal returns result from a less-restricted takeover market. Evidence in favor of the hypotheses, however, would support the notion that the IBBEA was an important deregulatory event.

Third, if the abnormal returns around the IBBEA reflect investors' expectations about future corporate control activity and these expectations are realized, banks that restructure or merge after the legislation should be identifiable from their relatively high abnormal returns. We explore this possibility in Section V.

IV. Which Banks Benefit from the IBBEA?

A. *Test Variables*

Tests of our hypotheses require measures of pre-IBBEA performance and managerial entrenchment. We use two performance measures, a q-ratio and return-on-equity. q is the ratio of the market value to the replacement cost of a firm's assets. Because banks' tangible assets are primarily financial assets, market values and replacement costs are identical for most assets. However, if q is interpreted as the ratio of the bank's value as an ongoing concern to its liquidation value, q can be calculated as (total assets + market value of equity − book value of equity)/(total assets + market value of investment securities − book value of investment securities). Return-on-equity (ROE) is calculated as the ratio of net income to book value of equity. Because of large outliers in q and ROE (e.g., ROE of −958 percent), we exclude performance ratios more than four standard deviations from the mean. This "trimming" eliminates five data points, four qs, and one ROE.[5]

[5] Although this trimming slightly enhances our subsequent results' statistical significance, it has no impact on our conclusions.

Three variables measure managerial entrenchment. Managerial control of voting rights, defined as equity ownership of all officers and directors plus any stock in trusts controlled by board members as a fraction of total shares outstanding, captures managers' direct control.[6] Aggregate outside block ownership (unaffiliated owners reported as holding more than 5 percent of the bank's shares in the bank's proxy statement) as a fraction of total shares outstanding proxies for the ability of outside shareholders to support takeover discipline. The percentage of outside and grey directors (defined as in Hermalin and Weisbach (1988)) on the board proxies for the likelihood that the bank's board will facilitate necessary discipline.[7]

As a sensitivity test, we also use three corresponding dummy variables: a dummy set to one if managerial control of voting rights is greater than the sample median (15.3 percent), a dummy set to one if aggregate outside block ownership exceeds 15.3 percent, and a dummy set to one if the percentage of outside and grey directors exceeds 80 percent (the sample median). We would prefer to use the sample median to define all three dummies, but the median level of outside block ownership is zero. Matching the ownership cutoffs provides a balance between indicating substantial outside blockholdings while still producing a reasonable division of the sample (forty-three banks have outside block ownership greater than 15.3 percent). Our results are unchanged when we use alternative cutoffs for the governance dummy variables (e.g., 5 percent for outside blocks or 0.6 to indicate an outside-dominated board).

B. Control Variables

Research showing that acquiring firms tend to be larger than target firms (Stevens (1973), among others) suggests the importance of controlling for bank size in our tests.[8] We measure size using the natural log of a bank's total assets. We also include the natural log of a bank's average branch size (total assets/number of branches). Branch size controls for three effects. Banks with many small branches may make attractive targets because eliminating redundant branches would tend to create more value. Banks with many small branches may also be attractive targets to acquiring banks trying to enter a new market quickly. Additionally, banks with many small branches will likely benefit the most if states relax their existing consolidation restrictions in the wake of the IBBEA.

[6] On average, trusts constitute about one-quarter of managerial control of voting rights. Our results are not sensitive to alternative measures of managerial ownership (e.g., CEO ownership in place of ownership of all officers and directors).

[7] We focus on the sum of outside and grey directors (all directors who are not bank managers) because it is very difficult to distinguish which bank directors have no other relationship with the company (true outsiders)—virtually anyone is a potential bank customer.

[8] Bank mergers exhibit a similar pattern (e.g., James and Wier (1987)).

We use two dummy variables to control for pre-IBBEA regulatory differences. The first indicates banks in states that prohibited out-of-state takeovers. The second indicates banks in states that restricted out-of-state takeovers (e.g., states with regional reciprocal agreements).[9]

We control for banks already operating in multiple states by setting a dummy variable equal to one if the bank has offices in more than one state. This variable should capture the value of the IBBEA allowing bank holding companies to (potentially) consolidate their holdings under a single charter.

Two variables, based on a bank's primary state of business, are combined to control for the nature of a bank's home market. This is important because potential acquirers would likely be reluctant to buy banks in states that are already served by efficient, aggressive institutions. First, we determine the number of superregional banks operating in each state (Appendix B lists the sample banks deemed to be superregionals). Second, we calculate each state's asset Herfindal index as

$$HI_j = \sum_{i=1}^{n_j} \left[\frac{\text{total assets}_i}{\text{total assets}_j} \right]^2, \tag{3}$$

where HI_j is the Herfindal index for state j, n_j is the number of banks in state j, total assets$_i$ is bank i's total assets, and total assets$_j$ is aggregate total assets in state j.[10] A dummy variable is set to one if a bank's home state's Herfindal index is less than the sample median (roughly 0.10) *and* there are fewer than three superregionals (the sample median) operating in the state. Therefore, this variable indicates whether a bank operates in a more or less competitive environment.[11] In our sample, eighty-four banks (28 percent) are deemed to come from less competitive states (dummy = 1).

C. Regression Tests

Table IV regresses banks' cumulative abnormal returns during the period while the final IBBEA was negotiated in the Joint Congressional Conference on our performance and entrenchment measures, along with the various control variables.[12] Our results strongly support the hypothesis that take-

[9] Other methods controlling for state differences (e.g., including state dummy variables) have no impact on our results.

[10] The value of this index is limited by the fact that bank holding companies do not always consolidate their subsidiaries in a particular state into a single bank. Therefore, our Herfindal index will tend to overstate the dispersion of banking assets, particularly in states with a large superregional presence (assuming the superregional has not consolidated its family banks).

[11] In this context "competitive" differs from the classic economic meaning because we deem states with relatively few large institutions competitive.

[12] Regressions using abnormal returns for the entire period produce similar results. Regressions using cumulative abnormal returns for the five two-day announcement windows are largely insignificant.

Table IV

Regressions Explaining the Capital Market Response to the IBBEA

The dependent variable is 290 banks' cumulative abnormal return during the sixty-one days while the original House and Senate banking bills were merged by the Joint Congressional Conference to produce the final IBBEA (4/28/94–7/26/94). All returns are taken from CRSP. Data on corporate governance structures (ownership and board structures) are compiled from 1993 proxy statements. Managerial ownership is ownership of all officers and directors, including trusts controlled by insiders. In addition to the test variables reported, each regression includes the following control variables: natural log of total assets, natural log of average branch size (total assets/no. of branches), a dummy variable equal to one for banks from less competitive states, a dummy variable equal to one for banks in states that prior to the IBBEA allowed regional entry, a dummy variable equal to one for banks in states that prior to the IBBEA allowed national entry with reciprocity, a dummy variable equal to one for banks in states that prior to the IBBEA allowed no out-of-state entry, a dummy variable equal to one for banks with subsidiaries in more than one state. *t*-statistics' absolute values are in parentheses.

	Model			
	(1)	(2)	(3)	(4)
Market value/replacement cost	−0.603***	−0.573***		
	(4.69)	(4.40)		
Net income/book equity			−0.195***	−0.177***
			(3.25)	(2.99)
Managerial ownership	−0.109*		−0.088	
	(1.91)		(1.60)	
Total outside block ownership	0.142*		0.205**	
	(1.75)		(2.54)	
Percentage outside or gray directors	0.097		0.136**	
	(1.53)		(2.15)	
Dummy for managerial ownership >15.3 percent		−0.034*		−0.035**
		(1.95)		(2.09)
Dummy for block ownership >15.3 percent		0.043*		0.060***
		(1.88)		(2.68)
Dummy for sum of outside and grey directors >80 percent		0.021		0.031*
		(1.24)		(1.90)
F-statistic	4.32***	4.22***	3.40***	3.48***
R^2	0.16	0.15	0.13	0.13
(adj. R^2)	(0.12)	(0.12)	(0.09)	(0.09)

***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively

over deregulation benefits poorly performing firms. There is a strong negative relationship between the abnormal returns and both measures of prior performance: In all models the coefficient on the performance variable is negative and significant at better than the 0.01 level.

Our results also suggest that managerial entrenchment limits the value of an active corporate control market. Managerial ownership, measured both continuously and using the dummy variable, is consistently negatively related to banks' abnormal returns, with the coefficients significant in three of the four models. The dummy variable coefficients suggest that high insider ownership is associated with approximately 3.5 percent lower abnormal returns. This supports Stulz's (1988) proposition that greater managerial ownership reduces the probability of a value-enhancing takeover. However, it may also be capturing the fact that disciplinary takeovers offer relatively few gains when large ownership stakes closely align managers' and shareholders' incentives.

The block ownership variables receive positive significant coefficients in all four models, with the dummy coefficients suggesting that high block ownership is associated with roughly 5 percent higher abnormal returns. This supports Shleifer and Vishny's (1986) hypothesis that blockholders can facilitate value-enhancing takeovers. The board composition variables are consistently positively related to abnormal returns, with the coefficients significant in two of the four models. The dummy coefficients suggest that a relatively high fraction of outsider and grey directors is associated with roughly 2.5 percent higher abnormal returns. This is consistent with Cotter, Shivdasani, and Zenner's (1997) finding that targets with more outside directors earn larger abnormal returns in tender offers.

Of our control variables, only the state competitiveness dummy is consistently significant. This variable receives a positive coefficient, significant at better than the 0.05 level, in all four models, and suggests that being in a less competitive state is associated with a roughly 4 percent higher abnormal return. The dummy indicating banks from states that allowed no out-of-state takeovers before the IBBEA receives coefficients between 0.04 and 0.05, but they are not consistently statistically significant.

V. Bank Restructuring after the IBBEA's Passage

If the abnormal returns around the IBBEA reflect accurate expectations about future corporate control activity, banks that restructure or merge after the legislation should be identifiable from their relatively high abnormal returns. This should be true whether the merger/ restructuring captures newly available economies of scale and scope or disciplines an underperforming bank.

Takeover discipline can take different forms. A well-managed bidder can acquire an underperforming target and profit by making value-enhancing changes that incumbent managers are either unable or unwilling to make. However, a disciplinary takeover is unlikely to occur when incumbent managers are able and willing to take the necessary actions to preserve their control (Hendershott (1996)). This makes classifying banks as ex post "disciplined" difficult. There are, however, observable actions besides takeovers

that suggest a bank is being disciplined. For example, the sudden possibility of a takeover might prompt a value-increasing bank restructuring. If this discipline is predictable, the banks that subsequently restructure should respond more positively to the IBBEA's passage.

Of course, many takeovers and restructurings occur for reasons other than to discipline underperforming firms. The IBBEA was intended to allow banks to capture any economies of scale and scope precluded by existing regulation. The banks able to do this would, presumably, restructure in an observable way. Therefore, it is difficult to disentangle the efficiency and disciplinary benefits of takeover deregulation when looking at firms that restructure ex post. We attempt to do this by classifying banks that either are acquired or sell major assets as potentially being disciplined.

To learn what happened to each of our sample banks after the IBBEA, we search the business news wire for stories mentioning each bank. From these news releases we record potentially disciplinary transactions (takeovers and asset sales) and other restructurings (asset purchases) occurring during the two years after the legislation (9/30/94 to 9/30/96). Table V compares the abnormal returns earned by banks that are acquired or sell assets to the abnormal returns earned by two "control" groups composed of banks that are neither acquired nor sell assets and banks in the top q quartile. The first group contains banks that are not observably "disciplined" ex post and the second contains banks that appear not to require discipline ex ante.

The mean and median abnormal returns for each group support the hypothesis that added takeover discipline is an important part of the IBBEA's value. For example, over the entire legislative period banks that subsequently restructure earn an average (median) cumulative abnormal return of 19.2 percent (22.4 percent), significantly more (at better than the 0.05 level) than both banks that do not restructure (mean and median returns equal 13.3 and 12.7 percent, respectively) and high-q banks (mean and median returns equal 6.4 and 6.7 percent, respectively).

To explore the extent to which restructuring banks' higher returns reflect market expectations about their ability to capture additional scale and scope economies after deregulation rather than the disciplinary benefits of an active takeover market, we compare banks that sell assets to banks that purchase assets. Both groups are restructuring, but, assuming managers do not need encouragement to grow, banks that buy assets are not being disciplined. Both groups have significantly positive abnormal returns, but the twenty-six banks that sell assets have significantly higher returns (mean and median returns equal 23.0 and 25.0 percent, respectively) than the twenty-nine banks that purchase assets (mean and median returns equal 14.6 and 17.8 percent, respectively). This comparison produces a t-statistic of 2.27 (p-value of 0.03) and a z-statistic of 2.35 (p-value of 0.02), and suggests that part of the IBBEA's effect reflects expected disciplinary gains.

We also estimate an objective probability of a bank being disciplined using the coefficients from a logistic regression on a dummy indicating whether or not a bank restructured after the IBBEA's passage. This regression (not

Table V

Post-IBBEA Control Events and Abnormal Returns

Frequency of disciplinary events between 9/94 and 9/96, and cumulative abnormal returns while the IBBEA evolved in Congress (2/23/94–7/26/94). All returns are taken from CRSP. The entire period is the 107 trading days between the original interstate banking bills emerging from the Congressional Banking Committees and the final IBBEA emerging from the Joint Congressional Committee. The Joint Congressional Conference period is the sixty-one trading days the House and Senate interstate banking bills were being reconciled in the Joint Congressional Conference. Banks defined as "not disciplined" have neither been acquired nor sold assets. Banks defined as "not needing discipline" fall in the top quartile when sample banks are ranked by q at year-end 1993. The table's first column defines the groups. The second column reports the number of banks in each group (the percentage of the sample that falls into each group is in parentheses). The third and fourth columns report abnormal returns for the two event windows. Median returns are reported in parentheses below the corresponding mean return.

		Mean (Median) Abnormal Return during the	
	Number (%) of Sample Banks	Entire Period	Joint Congressional Conference Period
Disciplined banks:			
Bought or merged	41 (14.4%)	0.167^{bbb}	0.096^{bbb}
		$(0.195)^{bbb}$	$(0.094)^{bbb}$
Asset sale	26 (9.2%)	$0.230^{aaa,bbb}$	0.103^{bbb}
		$(0.250)^{aaa,bbb}$	$(0.108)^{a,bbb}$
Either of above	60 (21.1%)	$0.192^{aa,bbb}$	0.097^{bbb}
		$(0.224)^{aaa,bbb}$	$(0.102)^{a,bbb}$
Control banks:			
Banks not disciplined	224 (78.9%)	0.133	0.074
		(0.127)	(0.065)
Banks not needing discipline	72 (25.4%)	0.064	0.021
		(0.067)	(0.018)

^{aaa,aa,a}Different from the banks not disciplined at the 0.01, 0.05, and 0.10 levels, respectively.
^{bbb,bb,b}Different from the banks not needing discipline at the 0.01, 0.05, and 0.10 levels, respectively.

reported) shows that large banks, low q-banks, and banks with low managerial ownership are more likely to restructure during the first two years following the IBBEA. There is also weaker evidence that banks with large block ownership are more likely to restructure. Using the regression coefficients to calculate the implied probability of a bank restructuring, we find a strong correlation (ranging from 0.23 to 0.38, all significant at better than the 0.01 level) between the estimated probability of a restructuring and banks' abnormal returns over the various windows around the IBBEA.

VI. Conclusion

In 1994, Congress passed the Interstate Banking and Branching Efficiency Act (IBBEA) to deregulate interstate bank mergers. We find large positive stock returns around the IBBEA's adoption, suggesting that takeover deregulation enhances equity values. For this study's full sample the total value increase is $59 billion. Extrapolating our results to the banks not in our sample (our sample of 290 banks hold slightly more than two-thirds of U.S. banking assets) suggests the total increase in bank equity values was about $85 billion.[13] Although this result cannot rule out takeover threats leading to costly investment distortions (Stein (1988), Scherer (1988)), it suggests that if there is a "myopia" effect, it is small compared to the benefits of takeover deregulation.

Cross-sectionally, poorly performing banks and banks without entrenched managers—low insider ownership, high outside block ownership, and/or relatively independent boards of directors—respond more positively to the IBBEA's passage. This supports the hypotheses that takeover discipline most benefits firms with poor managers or large stockholder-manager agency costs. It is also consistent with deregulation benefiting banks for which the regulations had a particularly negative effect on value. Additionally, our results suggest that managerial entrenchment reduces the efficacy of takeover discipline.

Appendix A: Provisions of the Interstate Banking and Branching Efficiency Act

Source: Federal Reserve Bank of Cleveland (http://www.clev.frb.org/bsr/dialogue/v2i2p3.htm)

> In September 1994, the Interstate Banking and Branching Efficiency Act ("IBBEA") was signed into law by President Clinton. The IBBEA focuses on a number of interstate banking and branching activities, including interstate bank holding company acquisitions, interstate bank mergers, and de novo interstate bank branching. The following is a summary of the law's major provisions, the majority of which take effect in 1995.

[13] Of course, this estimate likely does not precisely measure the IBBEA's net benefits. Because banking deregulation was not a complete surprise, returns around the legislation understate the IBBEA's value to stockholders (Malatesta and Thompson (1985)). Shocks limited to the banking industry (other than interest rate movements) may cause a systematic bias in our abnormal returns. Similarly, bank equity returns around the IBBEA will reflect any information the legislation's passage provides about the likelihood of future value-enhancing deregulation (e.g., repealing the Glass–Steagall Act). Stock returns also miss consumers' (likely) large share of IBBEA-related efficiency gains. Additionally, to the extent that the increased geographical diversification made possible by the IBBEA reduces future FDIC insurance losses, taxpayers will benefit. However, if IBBEA-allowed mergers primarily exploit an implicit "too big to fail" policy, taxpayers may suffer net losses.

Interstate bank holding company activity. One year after enactment of the law (September 29, 1995), a bank holding company will be able to acquire a bank in any state, subject to certain conditions. The holding company must be in safe and sound condition, that is, adequately capitalized and adequately managed. Additionally, the holding company's community reinvestment record must pass a review by the Federal Reserve Board. Deposit concentration limits will apply, prohibiting the holding company from controlling more than 10 percent of nationwide deposits or 30 percent of deposits in the state. In those cases where a holding company intends to acquire a failing or failed bank, exemptions from the concentration limits and community reinvestment requirements may be granted.

Interstate bank mergers. Beginning June 1, 1997, banks may branch interstate by merging with another bank across state lines and bank holding companies may consolidate their interstate subsidiary banks into a branch network. As with interstate bank holding company acquisitions, interstate bank mergers will be reviewed for safety and soundness, community reinvestment, and concentration considerations. States are allowed to "opt-out" of interstate branching by merger before June 1, 1997, or they may authorize it earlier ("opt-in"). Establishment of an interstate branching structure would be subject to approval by the appropriate federal regulator under the Bank Merger Act.

De novo interstate bank branching. Upon enactment of the law and with appropriate approval, a national or state-chartered bank may branch de novo into a state in which the bank does not already have branches. However, states must act affirmatively ("opt-in") to authorize de novo branching (i.e., branching into a state other than by merging with an existing bank in that state). Safety and soundness and community reinvestment considerations as well as state filing requirements will apply.

Interstate bank agency. Beginning September 29, 1995, the law permits a bank to act as an agent (may receive deposits, renew time deposits, close loans, service loans, etc.) on behalf of a sister bank without being considered to be a branch of the affiliate. Interstate branches of state-chartered banks are subject to all of the laws of the state in which the bank is chartered as well as to those of the host state.

IBBEA also amends the Community Reinvestment Act of 1977. In part, the amendment requires federal regulators to prepare written evaluations for each state in which an interstate bank maintains a branch. If an institution operates branches in two or more states that are within a multi-state metropolitan area, a separate written evaluation of the institution's performance in the multi-state metropolitan area must be prepared, and the scope of the state-wide evaluation is adjusted accordingly.

Appendix B: Superregional Banks

The twenty-one banks defined as superregional for the purpose of this study are listed here. All operate in at least three states and have at least 400 branches.

Banc One Corporation
Bankamerica Corporation
Barnett Banks, Inc.
BD Bancorp, Inc.
Boatmen's Bancshares, Inc.
Chemical Banking Corporation
Citicorp
First Fidelity Bancorp
First Interstate Bancorp
First of America Bank Corporation
First Union Corporation
Keycorp
Mellon Bank Corporation
National City Corporation
Nationsbank Corporation
Norwest Corporation
PNC Bank Corporation
Suntrust Banks, Inc.
U.S. Bancorp
Wachovia Corporation
Wells Fargo & Company

REFERENCES

Black, Harold, Andrew Fields, and Robert Schweitzer, 1990, Changes in interstate banking laws: The impact on shareholder wealth, *Journal of Finance* 45, 1663–1672.

Binder, John, 1985, Measuring the effects of regulation with stock price data, *Rand Journal of Economics* 16, 167–183.

Brickley, James, and Chris James, 1987, The takeover market, corporate board composition, and ownership structure: The case of banking, *Journal of Law and Economics* 30, 161–180.

Cornett, Marcia M., and Hassan Tehranian, 1992, Changes in corporate performance associated with bank acquisitions, *Journal of Financial Economics* 31, 211–234.

Cotter, James, Anil Shivdasani, and Marc Zenner, 1997, Do independent directors enhance target shareholder wealth during tender offers?, *Journal of Financial Economics* 43, 195–218.

Craig, Ben, and Joao Dos Santos, 1996, Performance and asset management effects of bank acquisitions, Working paper, Federal Reserve Bank of Cleveland.

Hasbrouck, Joel, 1985, The characteristics of takeover targets, *Journal of Banking and Finance* 9, 351–362.

Hendershott, Robert, 1996, Which takeover targets overinvest?, *Journal of Financial and Quantitative Analysis* 31, 563–580.

Hermalin, Benjamin, and Michael Weisbach, 1988, The determinants of board composition, *Rand Journal of Economics* 19, 589–606.

James, Chris, 1984, An analysis of the effect of state acquisition laws on managerial efficiency: The case of the bank holding company acquisitions, *Journal of Law and Economics* 27, 211–226.

James, Chris, and Peggy Weir, 1987, Returns to acquirers and competition in the acquisition market: The case of banking, *Journal of Political Economy* 95, 355–370.

Lang, Larry, René Stulz, and Ralph Walkling, 1989, Managerial performance, Tobin's Q, and the gains from successful tender offers, *Journal of Financial Economics* 24, 137–154.

Malatesta, Paul, and Rex Thompson, 1985, Partially anticipated events: A model of stock price reactions with an application to corporate acquisitions, *Journal of Financial Economics* 14, 237–250.

Manne, Henry, 1965, Mergers and the market for corporate control, *Journal of Political Economy* 73, 110–120.

Martin, Kenneth, and John McConnell, 1991, Corporate performance, corporate takeovers, and management turnover, *Journal of Finance* 46, 671–688.

Mikkelson, Wayne, and Megan Partch, 1989, Managers' voting rights and corporate control, *Journal of Financial Economics* 25, 263–290.

Scherer, Fredric, 1988, Corporate takeovers: The efficiency arguments, *Journal of Economic Perspectives* 2, 69–82.

Schipper, Katherine, and Rex Thompson, 1983, Evidence on the capitalized value of merger activity for acquiring firms, *Journal of Financial Economics* 11, 85–119.

Schipper, Katherine, and Rex Thompson, 1985, The impact of merger-related regulations using exact distributions of test statistics, *Journal of Accounting Research* 23, 408–415.

Shleifer Andre, and Robert Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461–488.

Song, Moon, and Ralph Walkling, 1993, The impact of managerial ownership on acquisition attempts and target shareholder wealth, *Journal of Financial and Quantitative Analysis* 28, 439–457.

Stein, Jeremy, 1988, Takeover threats and managerial myopia, *Journal of Political Economy* 96, 61–80.

Stevens, Donald, 1973, Financial characteristics of merged firms: A multivariate analysis, *Journal of Financial and Quantitative Analysis* 8, 149–158.

Stulz, René, 1988, Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25–54.

Zellner, Arnold, 1962, An efficient method of estimating seemingly unrelated regressions and tests of aggregation bias, *Journal of the American Statistical Association* 57, 348–368.