



Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Journal of Financial Intermediation 13 (2004) 6–27

Journal of
Financial
Intermediation

www.elsevier.com/locate/jfi

Bank mergers, the market for bank CEOs, and managerial incentives

Christopher W. Anderson,^a David A. Becher,^{b,*}
and Terry L. Campbell II^c

^a *The School of Business, University of Kansas, Lawrence, KS 66045, USA*

^b *Department of Finance, Drexel University, Philadelphia, PA 19104, USA*

^c *Department of Finance, University of Delaware, Newark, DE 19716, USA*

Received 13 April 2001

Abstract

After a large bank merger, the compensation of the surviving bank's CEO often increases materially. Theories of executive compensation based on managerial productivity and optimal incentives suggest that changes in CEO compensation are related to the potential gains from merger. Alternatively, compensation gains might result from an increase in bank size regardless of whether the merger creates value. We examine mergers among billion-dollar banks in the 1990s and find results consistent with managerial productivity. Specifically, we show empirically that changes in CEO compensation after mergers are positively related to anticipated gains from merger measured at the announcement date. Other changes in the structure of compensation are also consistent with hypotheses based on managerial productivity and incentive restructuring.

© 2003 Elsevier Inc. All rights reserved.

JEL classification: G21; G34

Keywords: Bank mergers; CEO compensation

1. Introduction

Mergers and acquisitions in the US banking sector substantially increased the average size of banking firms in the 1990s. Managers of large firms, in general, tend to earn higher compensation than managers of small firms, an observation that generates diverse

* Corresponding author.

E-mail address: becher@drexel.edu (D.A. Becher).

1042-9573/\$ – see front matter © 2003 Elsevier Inc. All rights reserved.

doi:10.1016/S1042-9573(03)00027-5

and sometimes controversial inferences.¹ In this study, for instance, we document that CEO compensation at prominent US banks increases, on average, following mergers with other prominent banks. The interesting question raised by this is: Why does CEO compensation increase following US bank mergers?

On the one hand, the correlation between firm size and managerial compensation is sometimes interpreted as a result of empire building. Specifically, boards of directors might benchmark managerial compensation for firm size, and managers therefore have incentives to increase firm size so as to realize higher compensation (Jensen, 1989). Obviously, acquiring another bank is one way for managers to increase firm size and perhaps enjoy greater size-related personal benefits.

On the other hand, a relation between firm size and compensation levels is consistent with markets for managerial labor in which the largest firms bid up the compensation of highly-skilled executives because their managerial product is higher at such firms. In particular, managerial product might increase after a merger since the organization is larger and more complex and more is demanded of the manager (Demsetz, 1995). An increase in managerial compensation might follow the confirmation of the talent of the manager and putting it to the test at the newly merged bank. In particular, the manager must identify and realize sources of potential cost savings and revenue enhancements, restructure assets, and reconfigure the organization. None of these changes or the requisite decisions will occur by themselves; managerial effort must be expended and managerial discretion carefully exercised. Managerial compensation should therefore increase commensurately with the expected value gains from the merger.

To test these explanations we identify a sample of 97 mergers between billion-dollar banks in the 1990s and analyze data on managerial compensation. We first document an economically-significant average increase in CEO compensation after mergers. CEO cash compensation, for example, increases by a mean (median) of 64% (29%), and total compensation increases by a mean (median) of 127% (75%). The ratio of long-term to total compensation increases from a mean (median) of 28.9% (35.3%) to 42.1% (43.0%). The increase in this ratio can be viewed as an enhancement of performance incentives because the ultimate value of long-term compensation, which includes stock options and other long-term incentive payouts, depends on future performance (Mehran, 1995).

Jointly observing higher pay and greater performance incentives is consistent with the notion that a newly-merged bank requires and rewards greater managerial effort (Demsetz, 1995). We further test this hypothesis by examining the relation between changes in CEO compensation and gains from merger. The acquirer bank pays a premium for the target that reflects the anticipated gains from merger, and after the merger the CEO's efforts must be focused on realizing these anticipated merger gains. We measure expected gains from merger as the value-weighted change in market values of the target and bidder banks upon announcement of the merger. The value change at announcement can be viewed as the financial market's expectation of gains from organizational efficiencies, product and geographic diversification, cost savings, and revenue enhancements (Houston and Ryngaert, 1994; Houston et al., 2001; DeLong, 2001). Under the hypothesis that greater managerial

¹ See Rosen (1992) for a summary of seminal work on this topic.

effort will be directed at realizing these merger gains, a positive relation between changes in compensation and the financial market's assessment of merger gains would suggest efficient restructuring of managerial incentives.

Consistent with our predictions, we show that changes in CEO compensation after mergers are positively related to expected merger gains. This inference is confirmed in multivariate analysis that also controls for bidder bank size, target bank size, and other bank-specific and manager-specific variables. Specifically, we find that the changes in the log value of compensation are positively related to expected merger gains and, in the case of cash compensation, changes in operating profits. This relation appears economically significant; for a CEO with median before merger cash (total) compensation, a merger with expected value gains at the 3rd quartile predicts a \$246 thousand (\$463 thousand) larger pay raise subsequent to the merger than if the merger gains were at the 1st quartile. In contrast to Bliss and Rosen (2001), we do not find a statistically significant positive relation between changes in compensation and target assets.

Based on these results we are inclined to view increases in CEO compensation after bank mergers as indicative of restructured incentives for CEOs required to focus their talents on the realization of merger gains in a more complex organization. It seems less persuasive to argue that these changes in compensation represent windfall benefits to bank CEOs who increase bank assets via merger. Of course, this is not to say that every management-proposed merger makes sense or that every post-merger pay raise is well deserved. On balance, however, general patterns in CEO compensation following bank mergers appear consistent with a market for corporate control that rewards efficient asset consolidation and a managerial labor market that rewards managerial productivity.

In Section 2 we review the impact of mergers on CEO compensation and develop hypotheses to explain why we might observe these effects. In Section 3 we describe our sample of bank mergers. In Section 4 we summarize data on levels and changes in CEO compensation of merging banks. In Section 5 we provide results from multivariate analysis of changes in CEO compensation. We offer a conclusion in Section 6.

2. Firm size, executive compensation and mergers

A cross-sectional relation between firm size and executive compensation is a ubiquitous empirical finding (Rosen, 1992; Jensen and Murphy, 1990). Labor market theory suggests that this relation is the outcome of matching more talented executives with larger firms in which their managerial product is maximized (Rosen, 1992; Himmelberg and Hubbard, 2001). On the other hand, the relation between firm size and executive compensation is sometimes viewed as evidence that managers have opportunities to enjoy personal benefits that are related to firm size. Jensen (1989, p. 66), for example, argues “managers have many incentives to expand company size beyond that which maximizes shareholder wealth. Compensation is one of the most important incentives.” Implicit in this empire-building story, at least with respect to executive compensation, is the assumption that boards of directors naively set CEO pay according to firm size regardless of how growth is achieved or what costs to investors are incurred.

Growth through mergers is one way to rapidly increase the size of a firm, and thus several studies examine how executive compensation at non-financial firms changes after mergers. Lambert and Larcker (1987) report that CEO compensation increases only when mergers create wealth for investors. Avery et al. (1998) report that CEO compensation growth at firms that merge does not outpace that for firms that do not merge but also that compensation growth at merging firms does not depend on whether acquisitions increase shareholder wealth. Rose and Shepard (1997) and Berry et al. (2002) find that salaries of CEOs of diversified firms are larger than those of similarly-sized but less-diversified firms (approximately 13% and 11%, respectively, higher for diversified than focused firms). Based on additional evidence they infer that this relation is due not to managerial entrenchment but rather to greater task complexity and higher managerial product for the diversified firms.

The findings described above are for samples of non-financial firms. Bliss and Rosen (2001) report that CEO compensation increases with changes in asset size due to internal growth or mergers for 32 billion-dollar banks from 1986–1995. They interpret the correlation between merger-related changes in firm size and compensation as evidence of empire building, but they do not investigate alternative explanations. In effect, Bliss and Rosen suggest that a CEO at a bank of any size is matched according to his talent and has incentives to engage in mergers to take advantage of a size-benchmarked compensation policy and earn more than he deserves. This perspective is appealing to critics of bank mergers, especially in light of the difficulty in observing efficiency gains from mergers and the mixed empirical evidence on their magnitude (Houston and Ryngaert, 1994; Calomiris, 1999; Becher, 2000; Kane, 2000; Houston et al., 2001).

We believe that alternative explanations for the observed increase in CEO compensation after bank mergers merit investigation for several reasons. First, the extent to which managerial self-interest has motivated or accompanied consolidation of the US banking sector as observed during the past two decades is arguable (Gorton and Rosen, 1995; Houston et al., 2001). The merger wave in the US banking sector appears to be a response to regulatory, technological, and other economic shocks that reward consolidation, restructuring, and geographic and product market diversification (Mitchell and Mulherin, 1996; Berger et al., 1999; DeLong, 2001). Indeed, Mulherin and Boone (2000) show that the banking sector leads all others in terms of merger frequency in the 1990s. Becher (2000) reports, for example, 558 mergers of US banks between 1980 and 1997 involving transactions of more than \$187 billion in bank equity. More than 60% of these mergers, accounting for 76% of total deal value, occurred in the 1990s. In light of merger activity of this magnitude, it seems to make sense to view bank mergers as a manifestation of efficient restructuring rather than managerial empire building, although anecdotal examples of the latter certainly exist.²

Second, extant evidence indicates that, in general, bank boards of directors structure managerial incentives to promote value-enhancing decisions (Barro and Barro, 1990; Crawford et al., 1995; Hubbard and Palia, 1995; Houston and James, 1995; Talmor and

² Hugh McColl, formerly of Nations Bank (now Bank of America), is perhaps the most well-known example of a CEO who rapidly expanded his bank via mergers, often evoking praise (see *The Wall Street Journal*, April 17, 1995, B3) and sometimes attracting criticism (see *The Economist*, January 27, 2001, 71–72).

Wallace, 2000; Ang et al., 2002). Such evidence casts doubt on the notion that boards of directors naively follow a policy of benchmarking CEO compensation according to firm size and award CEOs of recently-merged banks an undeserved compensation windfall. Rather, merger proposals by managers who aspire to control the combined bank receive intense scrutiny from regulators, financial markets, and boards of directors of both target and bidder banks. Indeed, the board of directors' efforts at identification of the management team and the structuring of its incentives may be as important as deciding which assets to combine via a bank merger. A successful merger, therefore, can be viewed as a value enhancing combination of assets under the management of executives best suited to exploit potential merger gains. In other words, a completed merger is confirmation of the bidder bank's management as best suited to direct the difficult task of subsequent restructuring and realization of merger gains.

Consequently, we believe that theories based on efficient managerial labor markets predict an increase in managerial compensation after a merger. In essence our view is similar to that stated by Demsetz (1995, pp. 126–127), "Firm size... offers a reasonable index of management productivity. Merge two firms and ask whether the CEO of the new firm has a more difficult and important task than the CEOs of either of the two smaller pre-merger firms." An increase in compensation after a merger can therefore be viewed as consistent with enhanced managerial productivity especially with regard to task complexity.

This managerial productivity hypothesis also generates the additional prediction that post-merger increases in CEO compensation are related to expected merger gains. The expected gains from cost cutting, revenue enhancement, and product or geographic diversification motivate the merger itself, and CEOs should receive compensation incentives for their realization. Furthermore, performance-based incentives whose ultimate value depends on realization of merger gains, such as long-term compensation, should also increase commensurate with the magnitude of the gains themselves. Observation and measurement of merger gains in an industry undergoing a consolidation wave are inherently difficult (Calomiris, 1999; Kane, 2000; Houston et al., 2001). However, the combined changes in value to bidder and target banks at merger announcement proxy for the expected gains from the proposed merger (Houston et al., 2001), and thus are expected to positively affect CEO compensation levels. In the next section we describe the data and methods for investigating these predictions.

3. Sample of bank mergers

To create a sample of bank mergers, we select all firms from the Center for Research in Security Prices (CRSP) tapes from 1990–1997 that have a delisting code in the 200s or 300s. To focus on banks, we choose all firms with a 3-digit SIC code of 602 (banks) or 671 (holding companies). This results in a preliminary sample of 498 observations. From this preliminary sample, 132 firms are deleted because they are not bank holding companies

(e.g., oil companies, shipping conglomerates, etc.), nine additional firms are removed for technical reasons, and 25 are eliminated for missing key data.³

This process results in a sample of 332 bank mergers from 1990–1997. For both the bidder and target firms we collect the following variables: CUSIP number, assets, state, geographic region, initial merger-announcement date, completion date, and amount of the merger (dollar millions).⁴ From this sample of 332 bank mergers, we select all mergers where both the target and bidder firms meet the following criteria: initial announcement date after January 1, 1990; merger completed by December 31, 1997; headquartered in the USA; assets greater than one billion dollars in the year prior to merger announcement⁵; and publicly available data on compensation structure and other related variables. The final sample is 97 bank mergers over eight years (1990–1997).

We focus on mergers in the 1990s for several reasons. First, large bank mergers across geographic regions, in general, did not occur until the banking industry was deregulated and regional compacts formed beginning in the early 1990s. Consistent with changes in the types of mergers and their motives, Becher (2000) reports that announcement returns to bidders are significantly less negative in the 1990s when compared to earlier periods. Second, compensation data on proxy statements is better recorded in the 1990s compared to earlier time periods, and proxy statements themselves are more readily available. Our sample period differs from Bliss and Rosen (2001) period of 1986–1995, and therefore our samples are not directly comparable.

Tables 1 and 2 provide summary data on the sample mergers. Panel A of Table 1 details summary statistics by year including the number of mergers, as well as the mean, median, and total value of these mergers. The contents of Table 1 indicate that the value of these mergers increases throughout the 1990s and that a unique bidder firm undertakes about 87% of the mergers. In other words, very few large bank mergers are contested events.⁶ Table 2 reports the asset values of target and bidder firms. The number and size of the bidders and targets in our sample represent a considerable portion of the overall market. The number of mergers in the sample represents approximately 30% of all public bank mergers from 1990–1997. Total bank assets acquired over the eight years are nearly \$1 trillion dollars, with roughly \$400 billion of those assets acquired in 1995 alone. Our sample bidders have mean pre merger assets of \$42.35 billion, which compares to Bliss and Rosen's

³ This sample is a subset of that in Becher (2000) where the author provides a more detailed description of the variables collected and a thorough explanation of firms excluded.

⁴ Data for these mergers are collected from the following sources: *Mergers and Acquisitions*, *MergerStat Review*, *Wall Street Journal Index*, *Capital Changes Reporter*, *Predicasts Merger & Acquisition Sourcebook*, *Moody's Banking and Finance Manual*, *Moody's Industrial Manual*, *New York Times Index*, *American Banker*, *Lexis-Nexis*, *SNL Securities*, and *Dow Jones News Retrieval*.

⁵ These asset criteria are due, in part, to the difficulty in obtaining data for firms with less than \$1 billion in assets. Most of these smaller firms are traded on the NASDAQ Bulletin Board system (infrequent trades with no return data) and do not have much public information available (a search of the SEC archives reveals that many do not have SEC filings).

⁶ Becher and Campbell (2002) find similar results for a sample of 443 bank mergers from 1990–1999. Moreover, Becher (2000) documents that, for a sample of banks that have at least one unsuccessful takeover attempt from 1980–1997, almost all of these banks were eventually acquired, completed a merger of equals, or went out of business within the next few years. Thus, focusing on successful bids only is not likely an issue in this analysis.

Table 1
Summary data on sample bank mergers

A. Summary statistics on firm value					
Year	Number of mergers	No. of unique bidders	Value of all mergers (\$ millions)	Mean value of merger (\$ millions)	Median value of merger (\$ millions)
1990	3	3	829	276	262
1991	17	13	14,681	864	432
1992	16	13	8750	547	451
1993	16	15	8671	624	299
1994	10	9	6794	679	353
1995	20	19	42,692	2135	1107
1996	8	8	13,596	1700	645
1997	7	6	17,544	2506	1200
All	97	86	113,558	1171	514

B. Cumulative abnormal returns					
Firm	No. of observations	Mean	Median	Minimum	Maximum
Target	97	15.45% (0.00)	14.04% (0.00)	−36.00%	57.60%
Bidder	97	−1.12% (0.04)	−1.85% (0.02)	−10.93%	19.79%
Combined	97	1.70% (0.00)	0.63% (0.10)	−6.65%	25.05%

Notes. This table provides summary data for a sample of 97 bank mergers from 1990–1997. Panel A details summary statistics on firm value. Panel B provides cumulative abnormal returns for targets and bidders, and changes in combined firms market values. Bank mergers are: all completed acquisitions of any banking firm (with an SIC code = 612_, 671_) listed on the CRSP tapes denoted by a delist code in the 200s or 300s with assets greater than or equal to one billion dollars prior to the merger announcement. The number of mergers is determined based on the year of the announcement date. The value of a merger is determined by multiplying the number of shares outstanding times the price of the stock at completion of a merger as defined in articles from various financial sources. Cumulative abnormal returns are calculated over a seven-day event window (−5, +1) around the *initial* announcement date. Combined market value returns are based on the relative return (adjusted for firm size) of the target and bidder firms around the merger announcement event window. Geometric cumulative abnormal returns are found by multiplying the product of that day's abnormal return times the previous cumulative product, $((1 + ar_i) * (1 + ar_{i-1}))$, and then subtracting off one from the final product, where ar_i is the i th day abnormal return and ar_{i-1} is the cumulative product of all the days abnormal returns prior to the i th day. The CRSP value-weighted return index (including all distributions) was used to calculate abnormal returns. Tests of statistical significance, p -values, are in parentheses. For median returns, p -values are based on the Wilcoxon signed rank test used to indicate if the median value is statistically different from zero.

sample of billion dollar banks over 1986–1995 with reported mean (median) asset size of \$64.4 billion (\$44.0 billion). On average, bidder firms are four to five times larger than the target firms.

We implement standard event study methodology to estimate the wealth effects for bidders, targets, and combined bidders and targets. Returns are calculated over a seven-day event window (−5, +1) around the initial merger announcement date. Geometric cumulative abnormal returns are found by multiplying the product of that day's abnormal return times the previous cumulative product, $((1 + ar_i) * (1 + ar_{i-1}))$, and then subtracting one from the final product, where ar_i is the i th day abnormal return and ar_{i-1} is the cumula-

Table 2
Assets of bank merger participants

Year	Number of mergers	Total target assets (\$ billion)	Average target assets (\$ billion)	Total bidder assets (\$ billion)	Average bidder assets (\$ billion)	Average ratio of assets acquired	Target assets/ assets of all banks by year, %	Target assets/ assets of all banks, %	Total No. of all bank mergers
1990	3	9.75	3.25	55.91	18.64	0.1984	14.85	0.20	20
1991	17	169.37	9.96	583.17	34.30	0.2734	22.51	3.39	21
1992	16	80.46	5.03	572.23	35.76	0.1413	12.33	1.61	32
1993	16	56.52	3.53	566.37	35.40	0.1203	9.07	1.13	49
1994	10	53.12	5.31	346.54	34.65	0.2536	13.29	1.06	56
1995	20	395.95	19.80	1157.39	57.87	0.3552	25.49	7.93	51
1996	8	53.72	6.72	497.12	62.14	0.1680	9.75	1.08	65
1997	7	68.11	9.73	329.17	47.02	0.2539	17.14	1.36	60
All	97	887.00	9.14	4107.90	42.35	0.2288	16.60	2.98	354

Notes. This table provides summary statistics on assets for a sample of 97 bank mergers from 1990–1997. Bank mergers are: all completed acquisitions of any banking firm (with an SIC code = 612_, 671_) listed on the CRSP tapes denoted by a delist code in the 200s or 300s with both bidder and target assets greater than or equal to one billion dollars prior to the merger announcement. Asset values are determined from Compustat, Lexis-Nexis, Edgar On-line, 10-Ks, and other financial sources. Average ratio of assets acquired is target assets divided by bidder assets. Target assets/Assets of all banks by year, is target assets divided by total target plus bidder assets for that year, while Target assets/Assets of all banks, is target assets divided by total target and bidder assets. Total number of all mergers is the number of all public bank mergers announced each year between 1990–1997, regardless of target or bidder firm size.

tive product of all the days abnormal returns prior to the i th day. The CRSP value-weighted return index (including all distributions) was used to calculate abnormal returns.⁷ For combined firm (bidder plus target) changes in value, we calculate announcement-period returns along the lines of DeLong (2001). Combined firm changes in values are the daily changes (from day -5 to day $+1$) in the sum of bidder and target market values around the announcement date, thereby taking into account the relative size of the two merging banks. Specifically,

$$\text{Combined firm change in value} = \sum_{n=1}^6 \log \left(\frac{MVT_{it} + MVB_{it}}{MVT_{it-1} + MVB_{it-1}} \right), \quad (1)$$

where MVT_{it} and MVB_{it} are the market value of equity of the target and bidder firms associated with merger i on day t .⁸

Panel B of Table 1 reports abnormal returns to targets and bidders, and changes in combined firms' market values over a seven-day event window ($-5, +1$) around the merger announcement date. Our results are consistent with prior studies of bank mergers in the 1990s (Becher, 2000; Becher and Campbell, 2002; Houston et al., 2001). In particular, we find that targets gain value (mean 15.45%, median 14.04%), bidders do not gain (mean -1.12% , median -1.85%), and these mergers result in a mean (median) combined change in bidder and target shareholder wealth of 1.70% (0.63%).

4. Post-merger changes in executive compensation

For the 97 sample mergers we obtain compensation data from proxy statements, 10-Ks, and other sources for the CEO and other executives for both target and bidder banks. We collect data for the year before the merger announcement for both bidder and target banks and for the year-end after the merger completion date for the combined bank.⁹ Data from proxy statements include annual salary, bonus, other annual compensation, long-term

⁷ Cumulative abnormal returns were also calculated using the following: an arithmetic process, an equal weighted market index, a market model -120 day to -30 days before the announcement window, and event windows of different lengths without qualitatively changing the results.

⁸ We also calculate combined firm returns as a weighted average of pre-merger market value, as outlined in Houston and Ryngaert (1994),

$$\text{Combined cumulative abnormal returns} = \frac{(MVT_i * CART_i) + (MVB_i * CARB_i)}{(MVT_i + MVB_i)},$$

where MVT_i and MVB_i are the market value of equity of the i th target and bidder firm five days before the initial announcement date, and $CART_i$ and $CARB_i$ are the cumulative abnormal returns for the i th target and bidder firm over the seven-day event window ($-5, +1$). Results for regression analyses were qualitatively similar to those we report and do not materially affect our inferences.

⁹ If t_{-1} statements are not available, then same-year statements are used only if the data are compiled before the initial announcement date. Otherwise, data from t_{-2} filings are obtained. Similarly, if t_{+1} filings are not available, same-year statements are used on if the data are compiled after the merger. Otherwise, data from t_{+2} filing are used.

incentive payouts (LTIP), and all other long-term compensation. In long-term compensation we include the options awarded that at the value reported by the firm.¹⁰ We also collect additional background information on members of each bank's executive committee from 10-Ks and/or proxy statements. These data include name, age, position in the company, membership on board of directors, and previous position(s) in the bank and other companies. We also collect the number of shares each executive controls, the number and percentage of shares controlled by all officers and directors, and the number and percentage of shares controlled by each outsider of the bank.

Ideally, we would measure broadly how compensation changes affect CEO wealth. For instance, the change in a CEO's compensation-related wealth should include the present value of all future compensation as well as changes in expected severance or retirement benefits. We restrict our analysis to reported annual compensation figures for several reasons. First, the contractual severance benefit, when reported, is usually a lump-sum payment equal to a multiple of recent salary (most frequently three times recent salary). For many CEOs, therefore, changes in expected severance benefits will be proportionate to observable changes in annual compensation. Second, few bidder bank CEOs resign or retire coincidentally with our sample mergers,¹¹ so we do not have sufficient sample size to make inferences on how mergers affect severance or retirement benefits.¹²

Table 3 shows compensation levels and changes for the top executives for our sample of 97 bank mergers from 1990 through 1997. Cash compensation is annual salary plus bonus and other annual compensation. Total compensation is cash plus long-term compensation such as the value of stock options, long-term incentive payouts, and all other long-term compensation granted during the prior year. Panel A of Table 3 summarizes compensation for CEOs of all sample banks. Before merger mean (median) cash compensation is \$1.36 million (\$1.16 million) for bidders, and the mean (median) level for total compensation is \$2.6 million (\$1.7 million). These pre-merger compensation levels compare to the averages of \$1.6 million in cash compensation and \$2.8 million in total compensation reported by Bliss and Rosen (2001) across their 1986–1995 panel of data. Cash compensation increases by a mean (median) of \$431 thousand (\$330 thousand) after a merger, or a mean (median) percentage increase of 45% (28%). Total compensation increases by a mean (median) of

¹⁰ We do not attempt to measure independently the value of awarded options because we are primarily interested in changes in compensation from pre merger levels to post merger levels. We presume that the methods for valuing newly awarded options do not change materially from year to year for sample banks.

¹¹ There are two cases of seemingly premature resignations (one bidder CEO at age 53 and one at age 59). According to proxy statements, these CEOs received severance benefits with maximum estimated values of \$1.955 million and \$1.655 million, respectively. These packages are consistent with what had been disclosed in pre-merger proxy statements and do not appear to be excessive in comparison with compensation nor inflated because of the merger itself. There are three cases of normal CEO retirement at age 65 or older. Retirement benefits for these three cases, as discussed in proxy statements, do not appear to be excessive in relation to compensation. In addition, two former bidder CEOs remained employed as compensated chairmen of the post-merger bank and two CEOs became 'president and COO' but subsequently regained the CEO title within three years. None of these latter four changes in title appear to trigger any severance benefits.

¹² In contrast, severance packages at *target banks* would appear to be a fruitful avenue for additional research. Hartzell et al. (2002), for example, find that executives of merger targets often benefit from severance packages that replace lost future income and facilitate merger completion. Similarly, Mehran et al. (1998) find that managerial incentives, including severance benefits, condition decisions to liquidate corporations.

Table 3
Compensation for top executives

Variable	Pre-merger				Post-merger			
	Mean	Median	Min	Max	Mean	Median	Min	Max
A. All CEO compensation								
Cash compensation	1361	1155	448	4321	1792	1630	423	6148
Total compensation	2646	1667	506	26,464	4023	2581	683	26,464
Change in cash, \$	n.a.	n.a.	n.a.	n.a.	431	330	−2656	3652
Change in total, \$	n.a.	n.a.	n.a.	n.a.	1377	1107	−10,272	16,700
Change in cash, %	n.a.	n.a.	n.a.	n.a.	45.3	28.0	−63.4	622.4
Change in total, %	n.a.	n.a.	n.a.	n.a.	92.9	62.4	−73.8	591.1
Long-term to total compensation, %	28.9	35.3	0.0	92.2	42.1	43.0	0.0	92.2
B. Continuing CEOs								
Cash compensation	1337	1154	478	4321	1730	1647	423	6148
Total compensation	2704	1687	506	26,464	4003	2581	683	26,464
Change in cash, \$	n.a.	n.a.	n.a.	n.a.	393	337	−1459	3652
Change in total, \$	n.a.	n.a.	n.a.	n.a.	1299	1148	−10,272	16,700
Change in cash, %	n.a.	n.a.	n.a.	n.a.	44.8	28.0	−46.4	622.4
Change in total, %	n.a.	n.a.	n.a.	n.a.	89.9	70.8	−73.8	591.1
Long-term to total compensation, %	28.9	34.5	0.0	92.2	42.5	42.9	0.0	92.2
C. Successor CEOs								
Cash compensation	1333	1151	448	4190	1960	2374	812	2580
Total compensation	2140	1558	718	7893	4560	4610	812	12,642
Change in cash, \$	n.a.	n.a.	n.a.	n.a.	627	403	−2656	2071
Change in total, \$	n.a.	n.a.	n.a.	n.a.	2420	1796	−4965	11,125
Change in cash, %	n.a.	n.a.	n.a.	n.a.	60.8	30.0	−63.4	145.5
Change in total, %	n.a.	n.a.	n.a.	n.a.	103.4	84.1	−62.9	534.1
Long-term to total compensation, %	28.8	36.6	0.0	50.2	39.8	43.7	0.0	68.6
D. Power sharing CEOs								
Cash compensation	1971	1933	506	3318	2491	2301	812	3990
Total compensation	3533	3063	506	26,464	6436	3061	812	26,464
Change in cash, \$	n.a.	n.a.	n.a.	n.a.	520	702	−132	2006
Change in total, \$	n.a.	n.a.	n.a.	n.a.	2903	2503	−10	20,839
Change in cash, %	n.a.	n.a.	n.a.	n.a.	139.3	79.3	−12.4	453.9
Change in total, %	n.a.	n.a.	n.a.	n.a.	180.0	138.3	−0.4	577.1
Long-term to total compensation, %	26.2	36.6	0.0	49.6	43.7	36.7	0.0	58.0

Notes. This table provides compensation data for top executives for a sample of 97 bank mergers from 1990–1997. Bank mergers are all completed acquisitions of any banking firm (with an SIC code = 612, 671) listed on the CRSP tapes denoted by a delist code in the 200s or 300s with assets over one billion dollars prior to the merger announcement. Panel A details compensation for all CEOs ($n = 97$). Panel B provides compensation for firms where the CEO did not change from before the merger announcement to after the merger completion ($n = 86$). Panel C shows compensation for firms where the CEO changed from before to after the merger ($n = 11$). Panel D denotes compensation for mergers where the CEO from before the merger announcement must share control with another executive after ($n = 10$). *Cash compensation* (\$ thousands) is defined as annual salary plus bonus and other annual compensation. *Total compensation* (\$ thousands) is defined as cash compensation plus the value of stock options, long-term incentive payouts, and all other long-term compensation granted during the prior year. *Long-term to total compensation* is long-term compensation (total-cash compensation) divided by total compensation, in %.

\$1.4 million (\$1.1 million), corresponding to mean (median) percentage increases of 93% (63%). Our sample period and methods do not directly correspond to those of Bliss and Rosen (2001), but consistent with their findings we also show that CEO compensation increases materially after merger.¹³

Both cash and total compensation (which includes long-term compensation) increase after merger, but the proportionate change in total compensation is substantially larger. Mean (median) long-term compensation as a proportion of total compensation increases from 28.9% (35.3%) to 42.1% (43.0%) after the merger, and *t*-tests for differences between the mean long-term to total compensation ratio pre merger versus post merger are significant at better than the 1% level.¹⁴ The ultimate value of long-term compensation, composed of stock options and long-term incentive payouts, depends on future performance and the realization of merger gains. Mehran (1995) provides evidence suggesting that the incentive provided by equity-based compensation apparently leads to better performance at non-financial firms. With respect to the banking sector, Crawford et al. (1995) and Hubbard and Palia (1995) report that material changes in banks' operating environments due to deregulation also prompt increases in incentive pay. Consequently, one interpretation of the disproportionately large increase in total compensation is an efficient recontracting with the CEO to provide him with incentives for improved firm performance and realization of merger gains. In short, the merger represents a material change in the nature of the organization requiring proportionately more incentives for performance.

Panels B–D of Table 3 classify the sample banks on post-merger CEO status. These categories include no change in CEO, change in CEO, and mergers where the CEO shares power after the merger is completed (i.e., in some cases, the CEO gives up the title of Chairman to another executive). It is possible for a merger to be listed in multiple categories. For example, if a firm experienced no turnover in CEO, but a power-sharing arrangement occurred, then that merger would be listed in both the no-change and power-sharing categories. Panel B of Table 3 provides compensation data for firms where the CEO did not change from before the merger announcement to after the merger completion. Panel C shows compensation for firms where the CEO changed from before to after the merger. Panel D denotes compensation for mergers where the CEO from before the merger announcement shares control with another executive after the merger.

A comparison of compensation of continuing CEOs versus new CEOs offers some informal evidence on the managerial labor market. At the time of the merger, boards have

¹³ Because we employ an event-study style analysis, our reported data are not directly comparable to Bliss and Rosen (2001) panel data statistics in which compensation changes for frequently acquiring banks are averaged across years regardless of whether a merger occurred in a given year. Reported compensation changes in our sample are larger because we focus on years in which a merger occurred. Bliss and Rosen report that billion-dollar banks that they classify as frequent acquirers over the 1986–1995 period display average annual cash and total compensation changes of 12.0% and 10.8%, respectively, versus 7.7% and 9.8% for infrequent acquirers (Table 4, p. 122). Similarly, in their Table 8 (p. 131) they report that estimated annual change in total compensation for these frequent acquirers has a mean (median) of \$122,000 (\$88,000).

¹⁴ Tests of equal means pre-merger and post-merger are also rejected at conventional significance levels for continuing CEOs (Table 3, panel B) and “power-sharing CEOs” (Table 3, panel D). For the small number of successor CEOs, their mean ratio of long-term to total compensation is higher (39.8%) than for their predecessors (28.8%), but the *t*-statistic is significant at only 16%.

the option to retain the incumbent CEO or hire a new CEO. Retention of an incumbent may be viewed as an explicit vote of confidence from the board. In other words, the match between the competencies of the incumbent CEO and the restructured bank can be viewed as a good one, and any changes in compensation viewed as commensurate with an increase in the CEO's marginal product or adjustments to provide incentives to realize gains from merger. On the other hand, the hiring of a new CEO can be viewed as the outcome of the board's search for a better match than the incumbent CEO, and the compensation of new CEOs can be viewed as that demanded by an efficient managerial labor market.

Compensation changes for continuing CEOs are shown in panel B, and panel C shows compensation changes for new CEOs. The changes in compensation for continuing CEOs are slightly smaller than the incremental compensation gained by new CEOs when compared to their predecessors. Specifically, for new CEOs cash and total compensation increase by a mean (median) of 61% (30%) and 103% (84%), respectively, compared to their predecessors' levels. Changes in cash and total compensation at a lower level are observed for continuing CEOs for whom mean (median) percentage changes are 45% (28%) and 90% (71%) respectively. These differences prove statistically significant in a multivariate framework where we control for bank and merger characteristics (we omit these results for brevity). This finding suggests that continuing CEOs do not experience increases in salary greater than observed for newly-hired CEOs. Instead, changes in compensation for incumbent CEOs are comparable to or smaller than those required when the board contracts with a new CEO. In other words, the compensation terms required to recruit a new CEO following a merger are roughly mirrored in the restructuring of incumbents' compensation packages. This seems indicative of efficient managerial labor markets rather than board capture, entrenchment, self-dealing, or other explanations based on inadequate governance.

Power sharing between executives from both the bidder and target bank may be an indication that the integration of the banks' respective assets or personnel could be especially difficult and managerial discretion in realizing merger gains is especially valuable. The dollar and percentage changes in compensation for power-sharing CEOs, reported in panel D of Table 3, are larger than the whole sample average. Specifically, for power-sharing CEOs the mean (median) percentage changes in cash and total CEO compensation are 139% (79%) and 180% (138%), respectively. This might suggest that such arrangements occur in complex mergers in which the value of managerial discretion in achieving merger gains may be highest.

5. Compensation changes and expected gains from merger

In this section we investigate the extent to which bank-specific and CEO-specific variables explain changes in CEO compensation around bank mergers. We are most intrigued about the relation between compensation changes and expected merger gains measured by the percentage change in combined bidder and target market values of equity upon merger announcement. The combined value change upon merger announcement can be viewed as the financial market's expectation of gains from merger (Houston and Ryngaert, 1994; Houston et al., 2001; DeLong, 2001). These merger gains could be obtained from

organizational efficiencies, product and geographic diversification, cost savings, and revenue enhancements. Indeed, the combined announcement return can be viewed not only as the market's view on combining two banks' assets but also the value of reassigning the target assets to the control of bidder management. Managerial talent and effort must be directed at turning these expectations into reality, and consequently a restructuring of managerial incentives commensurate with the magnitude of the potential gains might be expected.

Before presenting multivariate analysis, we first compare compensation changes for samples of firms distinguished by a measure of expected merger gains and by the relative size of target assets to bidder assets. In Table 4, we segment our sample of 97 bank mergers into quadrants based on relative target size (below median vs. above median) and by our measure of value enhancement due to merger (below median vs. above median). Holding value enhancement from the merger constant, there appears to be no reliable relation between relative target size and changes in compensation. Specifically, tests for differences in means for compensation changes after acquisitions of relatively large targets versus acquisitions of small targets fail to reject the null hypothesis of no difference. Holding relative target size steady, however, changes in compensation appear to be higher following mergers with above median merger gains versus those with below median gains. The *p*-values associated with tests for differences in means are relatively small but still not significant

Table 4
Change in compensation by merger gains and relative target size

Value enhancement	Target assets/bidder assets		<i>p</i> -value of <i>t</i> -test of difference in means
	Below median	Above median	
Below median			
Change cash compensation	559,364* (280,426*)	212,727 (261,496*)	0.48
Change total compensation	700,144 (486,826*)	850,930* (738,296*)	0.84
	<i>N</i> = 25	<i>N</i> = 24	
Above median			
Change cash compensation	526,506* (333,973*)	639,056* (521,813*)	0.64
Change total compensation	2,353,773* (1,199,309*)	1,622,161* (1,311,833*)	0.52
	<i>N</i> = 24	<i>N</i> = 24	
<i>p</i> -value of <i>t</i> -test of difference in means			
Change cash: below vs. above	0.33	0.07	
Change total: below vs. above	0.17	0.15	

Notes. This table examines changes in compensation among the top executives of 97 banks that undertake mergers from 1990–1997 based on differences in wealth creation (value) and relative target size. *Firm value enhancement* is based on combined market value returns calculated as the change in the sum of target and bidder firms' market values over a seven-day window (–5, +1) around the initial merger announcement date. *Relative target size* is based on the ratio of pre merger target to bidder assets. All compensation variables before the merger are as of the year-end prior to the merger announcement date and for after the merger are as of the year-end end after the closing date. Mean and median (in parenthesis) values are reported. For median returns, *p*-values are based on the Wilcoxon signed rank test used to indicate if the median value is statistically different from zero. For changes in cash and total compensation, differences between groups are calculated. For mean returns, a *p*-value of the *t*-test measuring differences in returns is reported. *, **, *** indicate significance at the 1%, 5%, and 10% level, respectively.

at conventional levels for all comparisons, however.¹⁵ Perhaps this is to be expected given the small sample size in each quadrant, the variation in compensation levels across sample banks, and our failure to include bank-specific variables such as pre merger asset size of the bidder bank and post-merger changes in operational performance.

We next conduct multivariate regression analysis that relates changes in compensation to bank and CEO characteristics. We measure changes in compensation as the difference between the log of compensation after the merger and the log of compensation before the merger. This specification is similar to that used by Avery et al. (1998) in their study of acquisitions by firms in non-financial sectors.¹⁶ Table 5 presents the summary statistics for the variables used in our regressions. The primary variables of interest are bidder assets before the merger, target assets, change in return on assets, and merger wealth effects (both change in combined market values and announcement returns of bidder firms). We expect the coefficient estimate for log of bidder assets to be positive, as larger banks will pay higher salaries and give commensurately higher raises if they are seeking to hire and retain the most talented managers (Himmelberg and Hubbard, 2001). If compensation increases due to the addition of target assets, as inferred by Bliss and Rosen (2001), we would expect the coefficient on target assets to be positive. If bank CEOs are rewarded for enhancements

Table 5
Summary statistics of regression variables

Variables	Mean	Median	Minimum	Maximum	1st quartile	3rd quartile
Bidder assets (\$ billions)	42.35	29.42	2.49	187.30	20.49	46.65
Target assets (\$ billions)	9.14	2.98	0.99	114.03	1.25	7.67
Change in ROA (%)	0.21	0.12	−0.44	4.72	−0.06	0.40
Combined market value return (%)	1.70	0.63	−6.65	25.05	−2.85	5.63
Bidder firm returns (%)	−1.12	−1.85	−10.93	19.79	−4.55	2.09
Change in employees	4712	2393	−38,696	31,142	1127	6110
Percent ownership	3.55	2.77	0.04	28.01	1.56	4.07
Headquarters same	0.29	0	0	1	0	1
Age (years)	54.81	55	41	64	52	59
Tenure bidder before (years)	13.49	12	1	34	6	20

Notes. This table provides summary statistics for regression variables for a sample of 97 bank mergers from 1990–1997. *Bidder assets* are year-end bidder assets (\$ billions) prior to the merger announcement. *Target assets* are target firm assets (\$ billions) year-end prior to the initial merger announcement date. *Change in ROA* is the change in bidder return on assets from before the merger to after. *Combined market value return* is calculated as the combined dollar change in bidder and target value over the seven-day (−5, +1) merger announcement window scaled to combined market value of bidder and target equity prior to the event window. *Bidder firm returns* are cumulative abnormal returns calculated over a seven-day event window (−5, +1) around the initial announcement date. The CRSP value-weighted return index (including all distributions) was used to calculate abnormal returns. *Change in employees* is the change in the number of bidder employees from before the merger to after. *Percent ownership* represents the number of shares held by the CEO divided by total shares outstanding times 1,000,000. *Headquarters same* equals 1 when bidder and target headquarters are in the same state. *Age* is the age of the CEO prior to the merger. *Tenure bidder before* is the tenure of the CEO on the executive committee up to the year-end prior to the merger announcement.

¹⁵ The reported *p*-values are for two-sided tests.

¹⁶ We thank an anonymous referee for suggesting use of this specification.

to bank profitability, we would expect the coefficient estimate for change in ROA to be positive, especially so for cash compensation that is likely to include the current year's performance bonus. Most importantly, if changes in compensation are related to expectations of gains from merger we expect the coefficient on combined market value returns to be positive. In addition to these variables we also report specifications that include the change in the number of bank employees, a geographic focus variable based on whether or not the headquarters of the target and acquirer bank are in different states, and age, tenure,¹⁷ and shareholding of the bidder CEO.¹⁸ Table 5 also reports summary statistics for these additional variables.

Table 6 reports regressions of changes in CEO compensation on various explanatory variables. The dependent variable for regressions #1 to #5 is change in cash compensation. The dependent variable for regressions #6 to #10 is change in total compensation. Regression #1 shows that the change in log cash compensation is positively but insignificantly related to the log of bidder assets (coefficient = 0.113, p -value = 12%) and the log of target assets (coefficient = 0.059, p -value = 20%). The F -test for this specification nevertheless has a p -value of 2%, suggesting that target and bidder assets jointly explain some of the variation in cash compensation.

Regression #2 of Table 6 adds change in ROA and combined merger gains as explanatory variables. In this specification, the coefficient on log of bidder assets increases slightly and becomes distinguishable from zero (coefficient = 0.126, p -value = 7%). The coefficients on both change in ROA and our measure of merger gains are positive and statistically distinguishable from zero (coefficients of 0.156 (p -value = 2%) and 1.909 (p -value = 3%), respectively). The coefficient on log of target assets is diminished and remains positive yet indistinguishable from zero. This specification suggests that changes in cash compensation immediately following a merger depend primarily on pre merger bank size, post merger change in profitability, and the financial market's expectation of value gains from the recently completed merger. Regression #3 of Table 6 adds additional bank-specific and manager-specific variables. These variables increase the adjusted R -squared, but none of their respective coefficient estimates is statistically distinguishable from zero. With their inclusion, however, the coefficients on log of bidder assets and our measure of merger gains remain positive and statistically distinguishable from zero. The coefficient on change in ROA diminishes (to 0.098, p -value = 16%). The coefficient on target assets also diminishes and remains indistinguishable from zero.

The final two cash specifications (regressions #4 and #5) substitute announcement returns to bidder shareholders for combined bank value changes. In regression #4, the coefficient on bidder returns is positive yet indistinguishable from zero (0.940, p -value = 28%),

¹⁷ We define tenure of the CEO both as tenure on the executive committee and tenure with the firm. In regression analyses, results are qualitatively the same using either definition. To conserve space, we only present one measure of tenure in the tables.

¹⁸ We also investigate specifications where we replace target assets with the net change in bidder assets, which includes other non-merger asset increases or decreases. Results do not change materially from those reported with target assets. We also include an estimate of non-merger asset growth (total asset growth minus target assets) in addition to target assets. Coefficients on non-merger growth are never reliably different from zero and the inferences on other variables do not change.

Table 6
Multivariate regression analysis of changes in CEO (cash and total) compensation around bank mergers

Variable	Cash compensation					Total compensation				
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Intercept	−0.181 (0.44)	−0.242 (0.28)	−0.011 (0.99)	−0.199 (0.38)	0.218 (0.75)	−0.097 (0.77)	−0.161 (0.62)	−0.460 (0.68)	−0.084 (0.80)	−0.212 (0.85)
Log bidder assets	0.113 (0.12)	0.126 (0.07)	0.211 (0.03)	0.115 (0.11)	0.181 (0.06)	0.183 (0.09)	0.205 (0.05)	0.209 (0.20)	0.188 (0.07)	0.174 (0.28)
Log target assets	0.059 (0.20)	0.026 (0.58)	0.003 (0.96)	0.054 (0.23)	0.020 (0.70)	−0.003 (0.96)	−0.057 (0.40)	−0.109 (0.23)	−0.013 (0.84)	−0.088 (0.33)
Change in ROA		0.156 (0.02)	0.098 (0.16)	0.138 (0.05)	0.084 (0.25)		0.090 (0.36)	0.023 (0.84)	0.063 (0.52)	0.004 (0.95)
Combined market value return		1.909 (0.03)	2.426 (0.02)				3.133 (0.01)	3.125 (0.07)		
Bidder firm return				0.94 (0.28)	1.58 (0.10)				2.152 (0.09)	2.359 (0.15)
Change in employees			0.000 (0.32)		0.000 (0.10)			0.000 (0.27)		0.000 (0.11)
Percent ownership			0.000 (0.43)		0.000 (0.28)			−0.000 (0.78)		0.000 (0.96)
Headquarters same			0.025 (0.84)		0.167 (0.90)			0.182 (0.38)		0.159 (0.47)
Age			−0.000 (0.40)		−0.000 (0.31)			0.000 (0.76)		0.000 (0.86)
Tenure bidder before			−0.006 (0.29)		−0.006 (0.29)			−0.005 (0.61)		−0.005 (0.62)
Adjusted R^2	6.8%	14.5%	24.0%	12.8%	18.8%	2.3%	7.7%	4.9%	3.9%	2.3%
F-value	3.95 (0.02)	4.44 (0.00)	3.06 (0.01)	3.35 (0.01)	2.52 (0.02)	1.98 (0.15)	2.69 (0.04)	1.34 (0.24)	1.82 (0.13)	1.16 (0.34)

Notes. This table examines changes in cash compensation among the top executives of 97 banks that undertake mergers from 1990–1997. In regressions #1 to #5 the dependent variable is the change in the log value of cash compensation while in regressions #6 to #10 the dependent variable is the change in the log value of total compensation. *Log bidder assets* are the log of year-end bidder assets (\$ billions) prior to the merger announcement. *Log target assets* are the log of year-end target assets (\$ billions) prior to the merger announcement. *Age* is the age of the CEO prior to the merger times 1000. The rest of variables are as in Table 5. All compensation variables before the merger are as of the year-end prior to the merger announcement date and for after the merger are as of the year-end end after the closing date. *P*-values are in parentheses.

but the coefficient on change in ROA is positive and significant (0.211, p -value = 3%). In regression #5, which includes other explanatory variables, the coefficient on bidder returns is positive and marginally significant (1.58, p -value = 10%). The only other variable that is related to the change in cash compensation is the change in employees, which is only significant in regression #5. This could be interpreted as a size effect indicative of empire building. On the other hand, the change in a bank's labor force can be interpreted as a scope or scale of management measure, over which CEO managerial productivity is leveraged.^{19,20} Other firm and manager-specific variables, including our measure of geographic diversification, do not seem to explain the change in post-merger cash compensation.^{21,22}

Notably, the log of target assets is indistinguishable from zero across all regressions involving cash compensation changes reported in Table 6. Thus we do not find that increases in size due to merger lead to cash compensation increases. Rather, the findings reported in Table 6 suggest that our proxy for expected merger gains positively affects changes in cash compensation.

The economic significance of the effect of merger gains on cash compensation is not directly discernible from these coefficient estimates, largely due to our specification of the dependent variable as the change in the log of cash compensation. We can use the coefficient estimates, say from regression #3 for instance, to calculate the implications for cash compensation. If we assume a manager has median cash compensation before the merger (\$1155 thousand) and engages in a merger that produces value gains at the 75th percentile of the distribution (5.63%), his cash compensation is predicted to increase by about \$169 thousand.²³ If such a manager instead engages in a merger that results in value gains at the 25th percentile (−2.85%), his cash compensation is predicted to decrease by

¹⁹ Rosen (1992, p. 183), for example, states that under the marginal productivity theory, "Activities of top management are magnified geometrically because they affect recursively the productivity of all who work below them in the organization."

²⁰ Earlier versions of this paper also explored size-related theories of executive compensation based on tournament theory (Lazear and Rosen, 1981; Rosen, 1986). Tournament theory predicts that compensation increases disproportionately as executives are promoted up an executive hierarchy. An increase in the pool of employees would be predicted to lead to an increase in compensation at the top of the hierarchy. A key prediction of tournament theory, however, is that the difference between CEO and junior executive compensation increases after merger, a pattern that is not displayed in our data with respect to cash compensation.

²¹ DeLong (2001), Houston et al. (2001), and Becher (2000) find that merger returns are sensitive to the geographical location of merger participants. We define diversifying mergers as any merger where the bidder and target are not headquartered in the same state (HQ Same). There is concern, however, that this measure does not adequately capture diversified versus focused mergers. As a result, we use an alternate measure based on whether the bidder and target have overlapping branches (BR Same) rather than headquarters. In all regression analyses, we substituted BR Same for HQ Same without qualitatively altering any of the results. Therefore, we include only HQ Same in the tables.

²² Moreover, in regressions not included here, we include a dummy variable equal to one when there is a new CEO following the merger as well as interaction terms with firm size and age. Related to results from Table 3, we find the coefficient on the new CEO dummy to be positive and significant in most specifications, suggesting that changes in CEO compensation are *larger* for new CEOs than continuing CEOs. The interaction terms of new CEO with firm size and age, however, are generally not significant.

²³ The premise is for this calculation is that marginal effect of the gain from merger is calculated as $\log(\text{NEW CASH COMP}) - \log(1155) = 2.426 \times 0.0563 \Rightarrow \Delta \text{CASH COMP} = \169 thousand . Substituting a value decrease of −2.85% for 5.63% results in an implied decrease in cash compensation of \$77 thousand.

\$77 thousand. This implied difference in cash compensation (\$246 thousand) based on expected value enhancements from the merger appears economically significant.

Table 6 also reports regression specifications for change in log total compensation as the dependent variable. The coefficient estimates for log of bidder assets are positive in all specifications, yet only significant when the additional bank and CEO characteristics are omitted (regressions #6, #7, and #9). Consistent with our findings for cash compensation, the coefficient estimates for log of target assets are never statistically distinguishable from zero and are actually negative in all specifications. Coefficient estimates on change in ROA are positive but never distinguishable from zero. This suggests that, unlike cash compensation, the long-term compensation component imbedded in total compensation is largely independent of short-term accounting performance. The coefficients on combined value enhancement for bidder and target banks are positive and statistically distinguishable from zero for both regressions #7 and #8. The coefficient estimate on bidder returns is also positive, but marginally significant only in regression #9. Coefficient estimates on other bank-specific and CEO-specific variables are not distinguishable from zero and do not improve model performance as measured by adjusted *R*-squared.

Again, the economic magnitude of the effect of expected gains from merger on total compensation is difficult to discern from these coefficients. Using the coefficient estimate from regression #8 in Table 6, total compensation is predicted to decrease by about \$142 thousand for a CEO who has median total compensation before the merger (\$1667 thousand) and engages in a merger that produces value gains at the 25th percentile of the distribution (−2.85%).²⁴ If such a manager instead engages in a merger that results in gains at the 75th percentile (5.63%), total compensation is predicted to increase by \$321 thousand, or \$463 thousand more than if the merger gains were at the 25th percentile. Therefore, the impact of expected value enhancement from the merger appears economically significant with respect to total compensation. On the other hand, merger gains appear to explain less of the observed dispersion in total compensation than they do for cash compensation.

Finally, we estimate but do not report regression specifications in which total merger gains are separated into a component attributable to the bidder bank and a component attributable to the target bank. Coefficients on the bidder bank's component of total mergers gains are positive and generally statistically distinguishable from zero at conventional significance levels. Coefficients on the target bank's component are most frequently negative but never statistically significant. These results suggest that cash and total compensation of bidder CEOs increases with the bidder's share of total merger gains, not the gains to target shareholders.²⁵

²⁴ The premise is for this calculation is that marginal effect of the gain from merger is calculated as $\log(\text{NEW TOTAL COMP}) - \log(1667) = 3.125 \times -0.0285 \Rightarrow \Delta \text{TOTAL COMP} = -\142 thousand . Substituting a value increase of 5.63% for −2.85% results in an implied increase in total compensation of \$321 thousand.

²⁵ We thank an anonymous referee for suggesting this specification.

6. Conclusions

A cross-sectional relation between firm size and executive compensation is sometimes interpreted as providing managers incentives to realize personal benefits through empire building. For example, increases in CEO compensation following US bank mergers might be interpreted as an example of self-serving behavior by acquiring bank management. However, bank mergers in the USA can be viewed as an efficient response to economic shocks that reward restructuring of assets. The managerial function is especially important in identifying and realizing potential gains from mergers, and incumbent managers receive intense scrutiny from regulators, financial markets, and boards of directors during the merger process. Theories of executive compensation based on marginal product of CEO effort and talent suggest, therefore, that changes in CEO compensation should be related to anticipated merger gains, measured by returns to bidder and target shareholders, not merely merger-related increases in asset size.

We examine bank CEO compensation changes associated with mergers among large banks in the 1990s and find results consistent with these notions. First, we confirm that on average CEO compensation increases materially following a merger between billion-dollar banks. Notably, however, the change in long-term compensation is the disproportionately large, resulting in a significant increase in the ratio of long-term compensation to total compensation. Because the ultimate value of long-term compensation depends on future performance, in general, and therefore on realization of merger gains, we view the post-merger changes in compensation as consistent with optimal restructuring of CEO compensation.

We next investigate how bank and merger-specific characteristics affect the observed changes in CEO compensation following mergers. In contrast to Bliss and Rosen (2001), we do not find a reliable relation between increases in asset size due to merger and post-merger changes in CEO compensation. The evidence, therefore, is not suggestive of empire-building motives on the part of bank CEOs who engage in mergers. Rather, we find that post-merger compensation changes are related to the combined value increase of bidder and target banks upon merger announcement. The announcement return can be viewed as the financial market's expectation of gains from merger to be derived from organizational efficiencies, product and geographic diversification, cost savings, and revenue enhancements. Managerial talent must be directed at realizing these expected merger gains, however. That observed changes in CEO compensation are directly related to potential gains as assessed by the financial market suggests efficient restructuring of the compensation package of the CEO of the surviving bank.

Our results, of course, should not be interpreted to imply that all bank mergers create value or that all post-merger managerial pay raises are well deserved. Our results do suggest, however, that observed patterns in CEO compensation following bank mergers are consistent with markets for corporate control and managerial labor that provide incentives for banks to merge and for bank managers to realize potential gains from merger.

Acknowledgments

We thank Michael S. Cichello, Hamid Mehran, Harold Mulherin, Anjan Thakor, David Yermack, two anonymous referees, and seminar participants at the University of Delaware, University of Kansas, Northern Illinois University, 2000 FMA meetings, and the 2001 Conference on Corporate Governance in the Banking and Financial Services Industries sponsored by the Federal Reserve Bank of New York, New York University, and the *Journal of Financial Intermediation* for suggestions. Campbell acknowledges partial support from the Center for Corporate Governance in the Lerner College of Business and Economics at the University of Delaware and the KPMG Audit Committee Institute. We also thank Victor Cancel Garcia for data assistance. Much of the work contributed by David Becher was completed while he was at Northern Illinois University.

References

- Ang, J., Lauterbach, B., Schreiber, B., 2002. Pay at the executive suite: How do US banks compensate their top management teams?. *J. Banking Finance* 26, 1143–1163.
- Avery, C., Chevalier, J., Schaefer, S., 1998. Why do managers undertake acquisitions? An analysis of internal and external rewards for acquisitions. *J. Law, Econ., Organ.* 14, 24–43.
- Barro, J.R., Barro, R.J., 1990. Pay, performance, and turnover of bank CEOs. *J. Lab. Econ.* 8, 448–481.
- Becher, D., 2000. The valuation effects of bank mergers. *J. Corp. Finance* 6, 189–214.
- Becher, D., Campbell, T., 2002. Megamergers, interstate banking deregulation, and the changing market for corporate control. Working paper. Northern Illinois University, DeKalb, IL.
- Berger, A., Demsetz, R., Strahan, P., 1999. The consolidation of the financial services industry: Causes, consequences, and implications for the future. *J. Banking Finance* 23, 135–194.
- Berry, T.K., Bizjak, J.M., Lemmon, M.L., Naveen, L., 2002. CEO turnover and firm diversification. Working paper. Portland State University, Portland, OR.
- Bliss, R., Rosen, R., 2001. CEO compensation and bank mergers. *J. Finan. Econ.* 61, 107–138.
- Calomiris, C.W., 1999. Gauging the efficiency of bank consolidation during a merger wave. *J. Banking Finance* 23, 615–621.
- Crawford, A., Ezzell, J.R., Miles, J., 1995. Bank CEO pay-performance relations and the effects of deregulation. *J. Business* 68, 231–256.
- DeLong, G., 2001. Stockholder gains from focusing versus diversifying bank mergers. *J. Finan. Econ.* 59, 221–252.
- Demsetz, H., 1995. Management compensation and tournament theory. In: *The Economics of the Business Firm: Seven Critical Commentaries*. Cambridge Univ. Press, Cambridge, pp. 110–136.
- Economist, 2001. Deal-making done: The problems at Bank of America lay bare one of banking's dominant myths, that big means better. *Economist* January 27, 71–72.
- Gorton, G., Rosen, R., 1995. Corporate control, portfolio choice, and the decline of banking. *J. Finance* 50, 1377–1420.
- Hartzell, J., Ofek, E., Yermack, D., in press. What's in it for me? CEOs whose firms are acquired. *Rev. Finan. Stud.*
- Himmelberg, C., Hubbard, R.G., 2001. Incentive pay and the market for CEOs: An analysis of pay-for-performance sensitivity. Working paper. Columbia University, New York, NY.
- Houston, J., James, C., 1995. CEO compensation and bank risk: Is compensation in banking structured to promote risk taking?. *J. Monet. Econ.* 36, 405–432.
- Houston, J., James, C., Ryngaert, M., 2001. Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. *J. Finan. Econ.* 60, 285–331.
- Houston, J., Ryngaert, M., 1994. The overall gains from large bank mergers. *J. Banking Finance* 18, 1155–1176.

- Hubbard, R.G., Palia, D., 1995. Executive pay and performance: Evidence from the US banking industry. *J. Finan. Econ.* 39, 105–130.
- Jensen, M.C., 1989. The eclipse of the public corporation. *Harvard Bus. Rev.* 67, 61–74.
- Jensen, M.C., Murphy, K.J., 1990. Performance pay and top-management incentives. *J. Polit. Econ.* 98, 225–264.
- Kane, E., 2000. Incentives for banking megamergers: What motives might regulators infer from event-study evidence?. *J. Money, Credit, Banking* 32, 671–701.
- Lambert, R., Larcker, D., 1987. Executive compensation effects of large corporate acquisitions. *J. Acc. Public Policy* 6, 231–243.
- Lazear, E., Rosen, S., 1981. Rank order tournaments as optimal labor contracts. *J. Polit. Economy* 89, 841–864.
- Mehran, H., 1995. Executive compensation structure, ownership, and firm performance. *J. Finan. Econ.* 38, 163–184.
- Mehran, H., Nogler, G.E., Schwartz, K.B., 1998. CEO incentive plans and corporate liquidation policy. *J. Finan. Econ.* 50, 319–349.
- Mitchell, M., Mulherin, J.H., 1996. The impact of industry shocks on takeover and restructuring activity. *J. Finan. Econ.* 41, 193–229.
- Mulherin, J.H., Boone, A.L., 2000. Comparing acquisitions and divestitures. *J. Corp. Finance* 6, 117–139.
- Restless Nations Bank sets sights on Chase Manhattan, April 17, 1995. *Wall Street J.*, (April 17), B3.
- Rose, N.L., Shepard, A., 1997. Firm diversification and CEO compensation: Managerial ability or executive entrenchment? *RAND J. Econ.* 28, 489–514.
- Rosen, S., 1986. Prizes and incentives in elimination tournaments. *Amer. Econ. Rev.* 76, 701–715.
- Rosen, S., 1992. Contracts and the market for executives. In: *Werin, L., Wijkander, H. (Eds.), Contract Economics*. Blackwell, Cambridge, MA, pp. 181–211.
- Talmor, E., Wallace, J.S., 2000. A unified analysis of executive pay: The case of the financial sector. Working paper. London Business School, London, UK.