

Top Management Compensation and the Structure of the Board of Directors in Commercial Banks*

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Abstract. We examine the relationship between top management compensation and the structure of the board of directors for a sample of commercial banks. We find that boards with more reputable outside directors compensate managers more heavily with long-term incentives (stock and stock options) than with cash (salary and bonus). We also find a significant positive correlation between the future performance of our sample banks and the proportion of their managers' compensation in the form of long-term incentives. Taken together, these results suggest that boards with highly reputed outside directors are more effective in providing managers with the appropriate incentives and thus ensuring better future firm performance. Another indication of the effectiveness of these boards is our finding that they compensate managers more heavily with long-term incentives (instead of cash) when these managers are more entrenched. We also find very little evidence of mutually beneficial *back-scratching* or collusion between outside directors and senior managers when setting management compensation. But boards with long-serving outside directors are less effective in creating appropriate management incentives.

1. Introduction

The issue of management compensation has generated a lot of controversy in the business press. Many articles have criticized the 'excessive' levels of compensation awarded to top managers. The board of directors, which is responsible for setting the level and structure of top management compensation, is often blamed for this problem of 'excessive' compensation. For example, Crystal (1991) argues that corporate directors are ineffective in setting appropriate levels of compensation because they are under the control of and can be manipulated by the CEOs who hired them and who can remove them from their boards. Furthermore, Crystal claims that many directors are friends or business associates of the top managers and are, therefore, unlikely to oppose management pay raises or support pay cuts for poor performance. This argument, in particular, has had considerable play in the popular press. For example, an article in *Business Week* (May 6, 1991, p. 91)

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criticizes the prevailing state of affairs as a '*...system in which pay is largely regulated by board directors who are reaping greater rewards from the same chief executive whose pay they keep hiking*'. A similar sentiment is echoed in a satirical article in the *Wall Street Journal* (April 13, 1994, p. R15) entitled, '*The Buddy System: The CEO wants a raise? No problem. We're all friends here*'.

Surprisingly, the academic literature has paid scant attention to this hypothesized link between top management pay and the board of directors. Jensen and Murphy (1990) allude to the possibility of an ineffective or compromised board as a possible explanation for their finding that CEO pay is not very sensitive to firm performance. But they do not present any direct evidence bearing on this issue. We are aware of only two recent studies, by Holthausen and Larcker (1993) and Hwang and Anderson (1993), that directly address this issue. Holthausen and Larcker (1993) examine the relationship between the level of CEO compensation and board and ownership structure variables and find that these variables can explain a significant amount of the cross-sectional variation in CEO compensation. They find that CEO compensation increases with the size of the board, the percentage of outside directors on the board, and the percentage of outside directors who are appointed by the CEO. They also find that CEO compensation is lower when there is an external blockholder or an executive who owns at least five percent of the firm's shares. Hwang and Anderson (1993) test for the presence of board room *back-scratching* or collusion wherein outside directors reward CEOs with excessively generous compensation packages in the expectation that the CEOs will return the favor through business dealings or similarly generous compensation for the outside directors in their own firms. They find no evidence that CEO compensation is larger in firms where there are potential conflicts of interest between CEOs and outside directors, thus refuting the back-scratching allegations that have been made so often in the business press.

In this paper, we conduct another investigation of the relationship between management compensation and the board of directors. Our study differs from the Holthausen-Larcker and Hwang-Anderson studies in a number of ways. A crucial difference is that, while they consider firms from different industries, our sample is made up only of firms in the commercial banking industry. Since the banking industry is highly regulated, our study can shed light on the issue of whether such regulations have an influence on the governance role of the board of directors. For example, we find that bank boards have more outside directors than boards of unregulated firms. This may imply that bank boards are more independent (and more effective as a result) than other boards. It may also suggest that the regulatory oversight of banks strengthens or complements the board of directors. But we also find some evidence pointing the other way. We see that bank boards are larger in size than boards of unregulated firms. This may make them less effective given the arguments of Lipton and Lorsch (1992) and Jensen (1993) that CEOs can more easily control large boards. In addition, we find that bank CEOs receive a lower fraction of their total compensation in the form of long-term incentives than CEOs

of unregulated firms. This may suggest that regulatory oversight substitutes for (and reduces the need for) managerial incentives in banks.¹

Another difference between our study and the other two studies is that, while they focus on the linkage between *total* compensation and the board of directors, we are more interested in the linkages between the board and different components of total compensation like cash compensation (salary and bonus) and long-term incentive compensation (stock and stock option grants). Finally, while they only consider the effect of the board on CEO compensation, we also consider the board's impact on the compensation of the other top managers. Since the board is responsible for setting the compensation of all top managers and not just the CEOs, we may learn something more by expanding our study to include non-CEO top managers. For example, we can test whether there is any difference between the CEO and other managers in their relationship to the board of directors as regards compensation and whether board room back-scratching occurs with respect to managers other than the CEO.

As a consequence of these differences between our study and the others, we are able to shed some new light on the the relationship between top management compensation and the board of directors. Our main results are as follows. We find that boards with more reputable outside directors pay a greater proportion of the top managers' total compensation in the form of long-term incentives than in the form of cash compensation. Furthermore, we find a strong positive correlation between the incentive proportions of managers and the future stock performance of their banks.² These two pieces of evidence, taken together, suggest that boards with more reputable outside directors are better than other boards at providing managers with appropriate incentives to maximize shareholder wealth and are thus more effective. Fama (1980) and Fama and Jensen (1983) argue that highly reputed outside directors will monitor managers more effectively because they have substantial reputation capital at stake. If we define a major aspect of the board's monitoring activity to be setting the level and form of management compensation, then we can interpret our results as supporting the Fama (1980) and Fama and Jensen (1983) prediction of a positive relationship between the board's monitoring effectiveness and its outside directors' reputations.

¹ To the extent that the board-compensation relationship may vary across industries, our study avoids the statistical inference problems that result from pooling firms from different industries by focusing only on the banking industry. Holthausen and Larcker (1993) try to control this problem by using industry dummy variables in their regressions. But this only controls for industry mean shifts and ignores the possibility that the regression coefficients may differ across industries.

² This evidence is consistent with the extant theoretical and empirical literature. Jensen and Meckling (1976) and others have argued that stock and stock options for managers can play an important role in alleviating agency problems and improving firm performance. Bhagat, Brickley and Lease (1985) provide empirical support for this argument by finding that stock prices of firms increase when they announce the adoption of long-term incentive plans for managers. In addition, Jensen and Murphy (1990) find that firm performance is far more sensitive to stock-based compensation than to cash compensation.

Another important result and a further indication of the board's effectiveness in setting management compensation is our finding that management teams which have been in charge for a long time, and are thus entrenched, earn a greater proportion of their total compensation in the form of long-term incentives than less well-entrenched managers. This suggests that outside directors of firms realize that managers who have been around for a long time may become entrenched and difficult to remove following periods of poor performance. Therefore, the outside directors try to provide these entrenched managers with the right incentives by compensating them more heavily with stock and stock options than with cash compensation. We also find that boards whose outside directors have served for a long time compensate managers more heavily with cash than with incentives. This evidence can be interpreted in two conflicting ways. On the one hand, it suggests that boards with long-serving outside directors are less effective in providing managers with incentives. But an alternative interpretation is that such outside directors are experienced monitors who can control management through other means and thus have less need to provide managers with incentive-based compensation. In other words, the monitoring experience of outside directors may substitute for managerial incentives in promoting firm performance.

Finally, we present some evidence on the board room back-scratching theory. We find a positive relationship between the fees paid to the outside directors and the cash and total compensation of the CEO. This evidence seems to be consistent with the back-scratching hypothesis. But we argue later in the paper that there are other explanations for this evidence. In fact, our overall evidence provides very little support for this hypothesis in the banking industry. Just like Hwang and Anderson (1993), we find no evidence that the presence of interlocking directorships between outside directors and management leads to higher compensation for the latter. Similarly, the existence of business transactions between outside directors and the bank or the number of outside directors hired by the CEO has no effect on management compensation.

The remainder of the paper is organized as follows. In Section 2, we describe our sample and the variables used in the analysis. In Section 3, we discuss our results on the relationship between management compensation and the board of directors. Section 4 contains our concluding remarks.

2. Description of Data and Variables Used

We started with an initial sample of the 150 commercial banks listed on Standard and Poor's Annual Bank Compustat data base. We chose the sample period of 1989 to coincide roughly with the start of shareholder activism and with the increased public debate on executive compensation. Unavailability of the relevant proxy statements for some banks and of market data from the *Center Research in Security Prices* (CRSP) files reduced our final sample to 97 banks.

Table I. Summary statistics of selected firm characteristics. This table presents summary statistics on selected accounting and market characteristics for our sample of 97 commercial banks. All dollar figures are in millions^a

Variable	Mean	Median	Standard deviation	Minimum	Maximum
Total assets	\$13832.81	5954.40	19294.73	246.50	107369.00
Market value of equity	\$975.16	573.36	1143.44	19.52	6256.03
Return-on-assets	1.07%	1.15%	0.72%	-1.46%	2.43%
Return-on-equity	15.48%	17.51%	11.06%	-34.05%	38.21%
Gross stock return	18.12%	18.65%	20.49%	-25.40%	88.68%
Market/book ratio	1.297	1.207	0.460	0.528	3.896
Stock return volatility ^b	1.51%	1.47%	0.37%	0.91%	2.85%
Leverage ratio ^c	6.67%	6.36%	1.39%	3.960%	11.92%

^a Source: S&P Bank Compustat and CRSP Files.

^b Computed as the standard deviation of the daily stock returns in 1989.

^c Computed as the ratio of book value of common and preferred stock to book value of total assets.

Table I presents some descriptive statistics of the banks in our sample. We can see that our sample is comprised mainly of large banks with an average size of \$13.83 billion (median = \$5.95 billion) in total assets. This is also reflected in the fact that the average market value of the sample banks is \$975 million (median = \$573 million). Table I also presents the accounting and market measures of firm performance in 1989. We see that the banks in our sample have an average return-on-assets (calculated using book values) of just over 1% though the average return-on-equity is a healthier 15.48%. The bank stocks earned an average gross return of 18.12% in the stock market with returns ranging from -25.40% to 88.68%. Table I also contains the summary statistics of other variables such as stock return volatility, market-to-book ratios and leverage ratios.³

2.1. CHARACTERISTICS OF THE BOARD OF DIRECTORS

Table II presents the descriptive statistics on the boards of our sample banks using data collected from their 1989 proxy statements. We see that the median board has 16 directors of which 13 (82%) are outside directors. One measure of the board's independence from management is the size of the board (BDSIZE) since Lipton and Lorsch (1992) and Jensen (1993) have argued that large boards are easier for the CEO to control whereas directors on small boards are better able to coordinate their actions and act independently of management. Another measure of the board's independence in setting management compensation is the proportion of

³ The volatility of stock returns is computed as the standard deviation of daily stock returns in 1989. Consistent with the banking parlance, the leverage ratio actually measures the amount of equity in the bank and it is calculated as the ratio of the book value of common and preferred stock to the book value of total assets.

Table II. Characteristics of the board of directors. This table presents descriptive statistics on the characteristics of the boards of directors for the sample of 97 banks^a

Variable	Mean	Median	Standard deviation	Minimum	Maximum
Size of board (BDSIZE)	15.95	16	5.31	5.00	32.00
No of outside directors	13.11	13	4.74	1.00	25.00
% of outside directors (OD%)	81.41	82.61	10.66	14.28	100.00
% of firms where CEO is board chairman (CEOCHAIR)	88.42	1	—	—	—
% of firms with interlocking boards (INTERLOCK)	38.14	0	—	—	—
% of firms with significant transactions (TRANS)	59.79	1	—	—	—
Outside director average, other directorships (ODDIRS)	0.23	0.09	0.72	0	7.00
Outside director average, tenure in years (ODTENURE)	7.59	7.06	3.36	0	19.47
Inside director average, tenure in years (IDTENURE)	7.65	7.00	4.54	0	22.00
Outside director stock (ODSTOCK), % of shares outstanding	5.48	2.31	9.23	0.04	70.31
Inside director stock (IDSTOCK), % of shares outstanding	4.05	1.48	7.86	0.00	49.92
Outside director fees (ODFEES)	\$16287.81	16500.00	9115.96	0	42000.00

^a Source: Proxy Reports for 1989.

outside directors on the board (OD%). We define outside (inside) directors as those who are not or were never (are or were) employees of the bank. Jensen (1993) argues that boards are more independent when the CEO is not the chairman of the board. Therefore, an indicator variable (CEOCHAIR) is also used to measure board independence. CEOCHAIR takes on a value of one (and zero otherwise) when the CEO is also the board chairman. The CEO is also the chairman in 88% of our sample firms. On comparing these statistics with similar ones for unregulated firms in the Holthausen and Larcker (1993) study, it is unclear whether regulated bank boards are more or less independent than unregulated ones. Outside directors comprise a smaller fraction (67%) of the boards of unregulated firms; but their median board is smaller (13 directors) and the CEO is the chairman in fewer (76%) of these firms.

We recognize that the percentage of outside directors is an imperfect measure of board independence because an outside director may not really be independent of the bank's management when he/she has other significant relationships with

the bank or its management. We use two dummy variables, **INTERLOCK** and **TRANS**, to take into account these other relationships between outside directors and the bank's management. The dummy variable **INTERLOCK** accounts for the presence of a board interlock between the bank's management and its outside directors. It takes on a value of one (and zero otherwise) if one or more of the bank's managers serves on the board of one or more of the bank's outside directors' home firms. The **TRANS** dummy variable takes on a value of one (and zero otherwise) if one or more of the bank's outside directors has any business transactions with the bank in 1989. These business transactions include the provision by outside directors of legal or investment services to the bank, leasing of land to or from the bank, obtaining loans from the bank, etc. As we see in Table II, such business relationships between outside directors and the bank are fairly widespread. We find that 38% of our sample banks have interlocking boards and 60% of them have business transactions occurring between outside directors and the bank. Hwang and Anderson (1993) report similar figures for Fortune 500 firms where they find such conflicts of interest involving outside directors in 48% of the firms.

The degree of board independence is only one factor in determining the board's effectiveness in setting management compensation. Even an independent board may not be very effective if its outside directors do not have the requisite reputation or expertise. Following Shivdasani (1993), we measure the reputation of the outside directors of a board as the mean number of additional outside directorships (**ODDIRS**) held by each outside director. This is a reasonable measure of reputation because, as Fama (1980) argues, outside directors with proven ability as monitors are rewarded with additional outside directorships. Furthermore, serving on additional boards can also contribute to a director's monitoring expertise. Therefore, the reputation or ability of a board is increasing in the mean number of additional outside directorships (**ODDIRS**) held by its outside directors. In our sample, the average outside director holds less than one (0.23) other outside directorship. In contrast to banks, Shivdasani (1993) finds that outside directors in other industries hold more other directorships (nearly one).

We also measure the tenure of the inside and outside directors on these boards. The variables **IDTENURE** and **ODTENURE** measure the average number of years the inside and outside directors, respectively, have served on the bank's board. In our sample, the median tenure of the inside and outside directors is more than seven years. We use **IDTENURE** as a measure of the degree of entrenchment of the bank's management team on the board. Inside directors who have been serving on their boards for a long time are likely to have greater influence and seniority on the board and this makes it more difficult for the outside directors to replace them or other members of their management team, leading to managerial entrenchment. **ODTENURE** can be interpreted in a couple of ways. On the one hand, it can measure the degree of entrenchment of outside directors since long-serving outside directors may be too close to management and ineffective as a result. On the other hand, **ODTENURE** can measure the monitoring experience of outside directors

since long-serving outside directors are likely to be more effective in monitoring managers.

Finally, we also measure the stock ownership of directors and the fees paid to the outside directors in order to examine their potential influence on management compensation. We find that median stock ownership for outside directors as a group (ODSTOCK) is only 2.3% of the outstanding shares and that of the inside directors as a group (IDSTOCK) is 1.5%. Holthausen and Larcker (1993) find even lower stock ownership figures for outside directors in their sample of unregulated firms. This evidence lends support to the argument made by critics of boards that one reason for their ineffectiveness is that outside directors have very small stakes in the firms they are supposed to be monitoring. Our data also reveal that the average annual remuneration of outside directors for serving on a bank's board (ODFEES) is over \$16,000 and is typically comprised of an annual retainer plus fees for attending an average of 6 board meetings. Linn and Martin (1992) report a significantly larger annual compensation (more than \$26,000) for outside directors in their sample of firms from different industries.

2.2. CHARACTERISTICS OF TOP MANAGEMENT COMPENSATION

We obtain compensation data for the CEO and the four other highest-ranking executives from the proxy statements of the banks. The summary statistics for the compensation data are shown in Table II. We calculate the total compensation as the sum of cash compensation and long-term incentive compensation. Cash compensation is defined as the sum of the salary and bonus paid to the manager in 1989. Long-term incentive compensation is calculated as the market value (as of the date of the grant) of the restricted stock and stock options granted to the manager in 1989. The market value of the stock grant is calculated as the product of the number of shares granted and the stock price on the grant date. In order to calculate the market value of the stock options, we follow the procedure outlined by Murphy (1985) where he uses a modified Black-Scholes option pricing formula with continuously paid dividends.

From Table III, we see that the median CEO compensation for our bank sample is nearly \$660,000 and that of the other four officers as a group is \$1.2 million. For both the CEO and the other four officers, the bulk of the compensation comes in the form of cash compensation. In fact, the median cash compensation for the CEO constitutes more than 98% of the total and long-term incentives account for less than 2%. The distribution between cash and incentive compensation is similarly lop-sided for the other four managers. This pattern of cash forming the bulk of management compensation is fairly typical of most firms, as seen in the Holthausen and Larcker (1993) and Hwang and Anderson (1993) studies. But the proportion of incentive compensation in their sample firms is much larger than in ours and it ranges from 10% to 28%. One possible reason for the smaller incentive proportions for bank managers may be because banks are heavily regulated. The

Table III. Characteristics of top management compensation. This table presents the summary statistics for the compensation of the CEO and the four other senior managers for the sample of 97 banks. Cash compensation consists of salary and bonus. Long-term incentive compensation consists of the market value of stock and stock option grants. All compensation figures are in dollars.^a

Component	Mean	Median	Standard deviation	Minimum	Maximum
CEO compensation					
Cash	682839.70	591377.00	359623.38	127280.00	1737500.00
Long-term incentives	171853.61	7597.75	521793.28	0.00	3601996.66
Total	854793.31	659969.15	729147.24	127280.00	4678105.66
Long-term incentives as proportion of total	0.0955	0.0138	0.1742	0.00	0.7699
Compensation of other four managers					
Cash	1362225.21	1135191.00	815600.91	121370.00	4969500.00
Long-term incentives	256996.56	16315.50	764055.85	0.00	5422312.50
Total	1619221.76	1209147.20	1345027.84	123370.14	9006698.00
Long-term incentives as proportion of total	0.0797	0.0156	0.1449	0.00	0.7007

^a Source: Proxy Reports for 1989.

presence of these regulations may reduce the potential for opportunistic behavior by managers at the expense of the shareholders and thus reduce the need for incentive compensation. On the other hand, the existence of deposit insurance should give shareholders an incentive to reward management generously with stock options so that they can be induced to increase the risk exposure of banks and maximize the bank's deposit insurance subsidy. Nevertheless, the large standard deviations of 17% and 14%, respectively, for the incentive proportions of the CEO and the other four managers suggests that there is a significant amount of cross-sectional variation in these proportions in our sample.

3. Results

A major problem with any empirical analysis of the board-compensation relationship is the absence of any formal theories on this issue. While there is a vast body of theoretical knowledge on the issue of management compensation in the principal-agent framework, none of these models explicitly account for the board as a third party whose interests may diverge from those of the shareholders when designing management contracts. The absence of theory implies that our empirical study must be interpreted more as an exploratory investigation of certain popular conjectures than as a precise test of some well-defined theoretical predictions. With this caveat in mind, we now proceed to discuss our empirical results.

We analyze the compensation-board relationship using a multivariate cross-sectional regression model of the following form:

$$(\text{COMP})_i = \alpha_0 + \sum_j \alpha_j (\text{BOARD})_i + \sum_j \beta_j (\text{CONTROL})_i + \epsilon_i.$$

The dependent variable $(\text{COMP})_i$ refer to one of the following management compensation variables for firm i : cash compensation, incentive compensation, total compensation, and the proportion of total compensation in the form of long-term incentives. The independent variables collectively designated as $(\text{BOARD})_i$ are the board characteristics for firm i , some of which we discussed in Section 2.1. Since management compensation is also likely to be influenced by attributes of the firm other than its board characteristics, we include a set of control variables, $(\text{CONTROL})_i$, in the regression to account for factors such as firm size, firm performance, risk, etc. We run two separate sets of regressions, one relating to the CEO's compensation and the other relating to the compensation of the four other top managers as a group. We discuss the CEO compensation-board relationship in Section 3.1 and the non-CEO management compensation-board relationship in Section 3.2. For ease of reference, we present a complete description of all independent variables used in our regressions in Table IV.

3.1. CEO COMPENSATION-BOARD RELATIONSHIP

Table V contains the ordinary least squares (OLS) regression results relating the CEO's compensation to various board and firm characteristics.⁴ We see that all three measures of the board's independence, BDSIZE, OD% and CEOCHAIR, have no effect on the CEO's cash, incentive, and total compensation and on the incentive proportion. Lipton and Lorsch (1992) and Jensen (1993) argue that smaller boards are more effective monitors than larger ones because the latter have coordination problems and are easier for the CEO to control. While this argument may be certainly valid in the context of the board's management monitoring function, it does not extend to its compensation function. Small boards do not compensate management more heavily with incentive compensation than large boards. Our evidence for banks also differs from Holthausen and Larcker's (1993) finding of a positive relationship between CEO compensation and board size for manufacturing and service firms.⁵ Similarly, the insignificance of OD% and CEOCHAIR

⁴ These regression results are invariant with respect to logarithmic transformations of the different variables. Furthermore, when we perform the White (1980) tests, we are unable to reject the null hypothesis of homoscedastic errors for any of the regression equations at conventional levels of statistical significance.

⁵ Jensen (1993) suggests that the optimal board size is 7-8 members. When we divide our sample into those with $\text{BDSIZE} \leq 8$ and those with $\text{BDSIZE} > 8$, we find that management compensation levels and incentive proportions are significantly larger for the large BDSIZE sub-sample than for the small BDSIZE sub-sample. This seems to imply that large boards hire more able CEOs (who require more compensation) and provide stronger incentives than small boards. But these results must be viewed with caution since there are only nine firms in the small board sub-sample.

Table IV. Description of independent variables. This table contains a description of all the independent variables used in the cross-sectional regression analysis of the compensation-board relationship for the sample of 97 banks. All data pertain to the sample year 1989

Variable	Variable description
BOARD variables	
BDSIZE	Number of members on the bank's board
OD	Percentage of outside directors on the bank's board
CEOCHAIR	Dummy variable equal to 1(0 otherwise) if CEO is also the chairman of the board
SOLEID	Dummy variable equal to 1(0 otherwise) if the CEO is the sole insider on the board
INTERLOCK	Dummy variable equal to 1(0 otherwise) if there is any board interlock between the outside directors and management
TRANS	Dummy variable equal to 1 (0 otherwise) if there are any business transactions between the outside directors and the bank
ODFEES	Annual fees paid to the outside directors on the bank's board
ODHIRE	Percentage of outside directors hired by the CEO
ODDIRS	Average number of additional outside directorships held by the outside directors on the bank's board
ODTENURE	Average number of years served by the outside directors on the bank's board
IDTENURE	Average number of years served by the inside directors on the bank's board
ODSTOCK	Percentage of outstanding shares of the bank's common stock owned by the outside directors as a group
IDSTOCK	Percentage of outstanding shares of the bank's common stock owned by the inside directors as a group
CONTROL variables	
TA	Total assets of the bank (book value)
ROA	Return-on-assets of the bank
RET	Total return on the bank's stock
SDRET	Standard deviation of the daily returns on the bank's stock
M/B	Ratio of market value-to-book value of the firm's equity
LEV	Leverage ratio of the bank
CEOAGE	Age of the CEO
BHSTOCK	Percentage of outstanding shares of the bank's common stock owned by the institutional investors and blockholders as a group
TAKEOVER	Dummy variable equal to 1(0 otherwise) if the bank is incorporated in a state with restrictive bank takeover laws

implies that boards provide similar compensation packages to the CEO regardless of whether they are dominated outside directors or whether they are chaired by the CEO. Jensen (1993) recommends that boards be made up primarily of outside directors and that the CEO-board chairman positions be decoupled in order to

increase their monitoring effectiveness.⁶ Our evidence again shows that these board attributes do not appear to play a significant role in their compensation decisions. We also directly test Jensen's (1993) recommendation that the CEO should be the sole insider on the board. *SOLEID* is a dummy variable that takes on a value of one (and zero otherwise) if the insider is the sole inside director on the board. The insignificance of this variable implies that boards where the CEO is the sole insider do not provide the CEO with stronger incentives or pay them any more or less than other boards.

The dummy variables *INTERLOCK* and *TRANS*, which attempt to capture potential conflicts of interest between outside directors and management, are also seen to have no influence on CEO compensation levels and the incentive proportion. This is consistent with the finding of Hwang and Anderson (1993) that interlocking directorships or business transactions between the firm and its outside directors do not appear to lead to any *quid pro quo* in the form of higher CEO compensation. But the significance of *ODFEES* seems to offer supporting evidence for the back-scratching hypothesis. We see that the CEO's cash and total compensation are significantly positively related to the fees paid to the outside directors. A \$1 increase in these fees is associated with a \$12.54 increase in the CEO's cash compensation and a \$19 increase in his/her total compensation. Even though the back-scratching theory could explain this evidence, there are alternative explanations for it. For example, firms operating under complex business conditions will need to compensate management and outside directors more in order to induce them to manage and monitor this complexity effectively, thus leading to a positive relationship between compensation and fees. Another explanation is that good CEOs, who earn more money, are more likely to hire good directors for their boards, who require higher fees for their services. The insignificance of the *ODHIRE* variable adds to the evidence against the back-scratching hypothesis. *ODHIRE* measures the fraction of the outside directors who were appointed to the board after the CEO came into power. These directors are more likely to favor the CEO since he/she hired them and the fact that the CEO's compensation does not increase in *ODHIRE* suggests that there is no back-scratching between the CEO and the outside directors.

One important result of our analysis is our finding of a significant positive relationship between the level and form of the CEO's compensation and the reputation of its outside directors (as measured by *ODDIRS*). We see that the CEO's total compensation increases by \$257,483 whenever the average number of outside directorships held by outside directors increases by one. Once again, this is consistent with the idea that good CEOs tend to hire more reputable outside directors for their boards and vice versa, leading to a positive relationship between total

⁶ Supporting evidence is offered by Weisbach (1988) and Rosenstein and Wyatt (1990) among others. The former finds that boards dominated by outside directors are more likely to dismiss poorly performing CEOs and the latter reports a positive stock price reaction for firms that appoint outside directors to their boards.

Table V. Regression results of the CEO compensation-board relationship

Independent variable	Cash compensation	Incentive compensation	Total compensation	Incentive proportion
BDSIZE	584.73 (0.10)	-6773.05 (-0.51)	-6188.33 (-0.40)	-0.375 (-0.80)
OD%	2321.25 (0.62)	127.40 (0.02)	2448.65 (0.26)	0.007 (0.03)
CEOCHAIR	-38949.00 (-0.50)	60520.00 (0.36)	21571.00 (0.11)	4.491 (0.76)
SOLEID	-71553.00 (-0.81)	16850.00 (0.09)	-54702.00 (-0.25)	-0.957 (-0.14)
INTERLOCK	30285.00 (0.57)	-7237.01 (-0.56)	23048.00 (0.17)	0.886 (0.22)
TRANS	16368.00 (0.30)	-2274.54 (-0.02)	14094.00 (0.11)	2.308 (0.57)
ODFEES	12.54 (3.32****)	6.29 (0.77)	18.83 (2.00**)	0.00001 (0.03)
ODHIRE	-794.19 (-1.16)	1053.91 (0.71)	259.72 (0.15)	0.076 (1.46)
ODDIRS	64971.00 (1.59)	192512.00 (2.14**)	257483.00 (2.39**)	5.640 (1.96**)
ODTENURE	-3029.67 (-0.61)	-22069.00 (-2.03**)	-25099.00 (-2.02**)	-0.790 (-2.09**)
IDTENURE	808.83 (0.12)	24040.40 (1.61)	24849.00 (1.45)	0.978 (1.99**)
ODSTOCK	-2095.70 (-1.33)	946.56 (0.28)	-1149.14 (-0.29)	0.030 (0.25)
IDSTOCK	7038.09 (2.38**)	-4310.29 (-0.67)	2727.86 (0.37)	-0.068 (-0.30)
TA	8.37 (3.83****)	9.65 (2.03**)	18.02 (3.31****)	0.00031 (1.83*)
ROA	130417.00 (2.77****)	-104170.00 (-1.02)	26247.00 (0.22)	-3.089 (-0.87)
RET	-1371.53 (-0.99)	1107.43 (0.37)	-264.10 (-0.08)	-0.041 (-0.39)
SDRET	-104746.00 (-1.12)	222377.00 (1.10)	117631.00 (0.51)	-1.734 (-0.25)
M/B	83454.00 (1.20)	61072.00 (0.41)	144526.00 (0.84)	-2.095 (-0.40)
LEV	-38121.00 (-1.61)	143369.00 (2.79****)	105249.00 (1.79*)	3.087 (1.73*)
CEOAGE	5739.09 (1.50)	-16492.00 (-1.98*)	-10753.00 (-1.13)	-0.636 (-2.19**)
BHSTOCK	-1424.58 (-0.39)	-4357.54 (-0.55)	-5782.12 (-0.63)	0.129 (0.47)

Table V. Continued

Independent variable	Cash compensation	Incentive compensation	Total compensation	Incentive proportion
TAKEOVER	41327.00 (0.52)	-115777.00 (-0.67)	-74450.00 (-0.38)	-9.683 (-1.61)
F-stat	8.291	1.918	4.421	1.476
(p-value)	(0.0001)	(0.0207)	(0.0001)	(0.1111)
Adj R^2 (%)	63.05	17.68	44.47	10.01

This table presents the results of the OLS regressions of the CEO compensation variables on the board and firm characteristics for the sample of 97 banks. The *t*-statistics are in the parentheses below the regression coefficients. The symbols ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively

compensation and ODDIRS. More interesting is our finding of a significant positive relationship between the incentive proportion of the CEO's compensation and ODDIRS. This implies that reputable outside directors safeguard their reputations and provide appropriate incentives for CEOs by compensating them more heavily with incentive compensation than with cash. This evidence complements the argument put forward by Fama (1980) and Fama and Jensen (1983) that reputed outside directors are more effective monitors. Our evidence shows that not only are they more effective monitors but they also provide managers with stronger incentives.

Next, we turn to the variables measuring the tenure of the inside and outside directors—IDTENURE and ODTENURE, respectively. We see that even though IDTENURE does not affect the CEO's compensation levels, it has a significant positive effect on the CEO's incentive proportion. As discussed earlier, we interpret IDTENURE as measuring the extent of managerial entrenchment in the firm. Our evidence suggests that as managers become more entrenched, outside directors recognize the difficulty in dislodging them from power following periods of poor performance and so they try to counteract this by providing the CEO with more incentive-based compensation. ODTENURE has a negative effect on the CEO's total compensation, primarily through a negative effect on his/her incentive compensation. This is also reflected in the negative relationship between ODTENURE and the CEO's incentive proportion. These results can be interpreted in two different ways. On the one hand, if we consider ODTENURE to be a measure of the outside directors' experience as monitors, then boards with more experienced directors will have less of a need to provide the CEO with incentive compensation since their monitoring skills will ensure that managers act appropriately. While this may explain the negative relationship between the CEO's incentive proportion and ODTENURE, it does not explain the negative relationship between total compensation and ODTENURE. An alternative interpretation of the results is based on viewing ODTENURE as a measure of the degree of entrenchment of the outside directors. When ODTENURE increases and outside directors become more

entrenched, our evidence suggests that they become less effective in providing the CEO with strong incentives (which leads to lower incentive proportions for the CEO). Furthermore, these entrenched directors also hire less able CEOs who require a lower total compensation.

We also look at the relationship between CEO compensation and the equity stakes owned by the outside and inside directors in the firm. Jensen (1993) and other critics of boards have argued for increased stock ownership by outside directors to increase their effectiveness. We do not find that boards where outside directors own a lot of equity (as measured by ODSTOCK) compensate the CEO any differently or provide him/her with stronger incentives than boards whose outside directors have small equity stakes. Therefore, while stock ownership by outside directors may increase their monitoring efficiency, it does not carry over into their providing the CEO with stronger incentives.⁷ We also find that stock ownership by inside directors (IDSTOCK) has a positive impact on the CEO's cash compensation but no impact on his/her total compensation or incentive proportion. This evidence is somewhat puzzling. One could argue that when inside directors (managers) own a lot of equity, they would prefer to be compensated with cash instead of incentives since they already have sufficient incentives and would find cash more useful for diversification purposes. While this argument may explain the positive relationship between the CEO's cash compensation and IDSTOCK, it cannot explain the lack of a relationship between the CEO's incentive proportion and IDSTOCK because it would predict a negative relationship.⁸

It is also interesting to examine the regression results pertaining to the control variables. We find a positive relationship between CEO compensation and incentive proportion and the firm's assets (or firm size). This relationship is not restricted to banks since Holthausen and Larcker (1993) and Hwang and Anderson (1993) document a similar size effect for manufacturing and service firms. One explanation for this is that large firms are more difficult to manage and require more time and effort on the CEO's part for which he/she requires more compensation and also needs to be provided with strong incentives to do the job.⁹ It is surprising to see that the CEO's compensation is unrelated to the concurrent accounting and market performance of the firm, ROA and RET, respectively. Only the CEO's cash compensation has a significant positive relationship with the firm's ROA. We get similar results if ROA and RET are measured over the past three years (1987–89) instead of just the current year and if RET is replaced by market-adjusted or risk-adjusted stock

⁷ Holthausen and Larcker (1993) find that, just as in our bank sample, ODSTOCK does not affect CEO compensation in manufacturing and service firms either.

⁸ It is possible that the relationship between CEO compensation and these stock ownership variables are non-linear. We test for this possibility by using dummy variables for different ownership levels in the regressions and find that they have insignificant coefficients and have no impact on any of the results.

⁹ Jensen's free cash flow theory argues that managers have a tendency to overinvest and increase the firm's size to beyond what is optimal. Our finding that CEO compensation is increasing in firm size provides another incentive for managers to overinvest and misuse free cash flow.

returns. These results suggest that the board of directors does a poor job of tying the CEO's compensation to current or past performance. At best, the board ties only the CEO's cash compensation with accounting performance. The absence of a strong cross-sectional pay-performance relationship mirrors the results obtained by Jensen and Murphy (1990) using time-series data on CEO compensation and firm performance. We find that firm risk (SDRET) and market-to-book ratios (M/B) have no influence on CEO compensation or incentive proportion. This evidence contradicts the predictions of the Bizjak, Brickley and Coles (1993) model that firms with greater information asymmetries (as measured by market-to-book ratios) will compensate managers more heavily with long-term, rather than short-term, compensation so as to avoid suboptimal investment decisions by the managers. We also find that firms with more equity in their capital structure (as measured by LEV) compensate CEOs more and provide more incentive compensation. One explanation for this result is that when firms take on more equity, the disciplining effect of debt on the CEO is weaker and this induces the board of directors to provide them with stronger incentives, i.e., incentive compensation substitutes for debt in disciplining management.¹⁰

We also find a negative relationship between the CEO's age (CEOAGE) and his/her incentive proportion. This is consistent with the argument that, since older CEOs are more risk-averse than younger ones, they demand more cash compensation than long-term incentives since the former is less risky and allows for greater wealth diversification than the latter. Unlike Rose and Shepard (1984), we do not find that older CEOs receive a higher compensation than younger ones. Jensen (1993) and others have stressed the importance of the governance role played by large blockholders. Therefore, firms with significant stock ownership by large blockholders and institutional investors may not need to provide CEOs with strong incentives since blockholder activism can substitute for managerial incentives. This argument would predict a negative relationship between stock ownership of blockholders (BHSTOCK) and the CEO's incentive proportion. One can also make the reverse argument that blockholdings complement and strengthen managerial incentives. Our results do not support either hypothesis since BHSTOCK is seen to have no effect on compensation levels or incentive proportions. Finally, we relate CEO compensation to the likelihood of the bank being taken over. The dummy variable TAKEOVER takes on a value of one (and zero otherwise) if a bank is incorporated in one of 12 states with restrictions on out-of-state bank acquisitions as of 1989.¹¹ Brickley and James (1987) find that banks in states that restrict takeovers have a greater proportion of outside directors. This implies that outside directors substitute for takeovers as a management disciplining mechanism. One can similarly argue that banks in restrictive states should provide stronger incentives for the CEO since they are not subject to the disciplining effect of the market for corporate control.

¹⁰ We get the same results when we use market values instead of book values to measure LEV.

¹¹ The 12 states are Alabama, Arkansas, District of Columbia, Iowa, Kansas, Maryland, Minnesota, Mississippi, Missouri, Montana, South Carolina and Wisconsin.

But we see that our evidence refutes this substitution hypothesis since the CEO's incentive proportion is unrelated to the TAKEOVER variable. In addition, our evidence is also inconsistent with Agrawal and Knoeber's (1997) finding of a positive relationship between CEO compensation levels and the threat of a takeover.

Implicit in the entire discussion of our results is the view that boards are more effective if they increase the incentive proportion of the CEO's compensation. For example, we interpret our finding of a positive relationship between the incentive proportion and ODDIRS as suggesting that boards with more reputable outside directors are more effective. One way to justify this interpretation is to argue that it is the role of the board to persuade senior management to accept a high proportion of its compensation in the form of long-term incentives and reputable boards have the credibility and bargaining power to be more persuasive in this regard. While this view is reasonable, it can also be argued that increasing the incentive proportion does not necessarily indicate board efficiency.¹² In a cross-section of firms, characteristics of the firm, industry and the management team may jointly decide the optimal compensation scheme for the senior managers. At a given point in time, each firm may have a different optimal compensation scheme in place for its managers. Therefore, merely observing different mixes of stock and cash compensation may say nothing about the board's efficiency. In light of this argument, our claim that boards are more effective when they increase management's incentive proportion is justified only if we can demonstrate that such firms perform better in the future than other firms. In other words, we must find a positive relationship between the CEO's incentive proportion and the future long-run stock performance of the banks in the sample. Indeed, that is precisely what we find. Using CRSP returns data, we find a positive correlation between the CEO's incentive proportion and cumulative stock returns for two-, three-, four-, five- and six-year periods following 1989. The correlations range in value from 5% to 23% and they increase with the holding period. The correlations for the three-, four- and five-year holding periods are significant at the 10% level and the correlation between the incentive proportion and six-year returns is significant at the 5% level. The incentive proportions are also positively correlated with *market-adjusted* future stock returns over the same holding periods at similar levels of statistical significance.

3.2. NON-CEO MANAGEMENT COMPENSATION-BOARD RELATIONSHIP

Table VI contains the OLS regression results relating the cumulative compensation of the top four executives (other than the CEO) to various board and firm characteristics. Overall, these results are very similar to those pertaining to the CEO's compensation in Table V. Once again, we find that variables measuring board independence (BDSIZE, OD%, CEOCHAIR and SOLEID) have no effect on top management compensation levels or their incentive proportions. As before,

¹² We thank the referee, Karin Thorburn, for her insights on this issue.

the insignificance of INTERLOCK, TRANS, ODFEES and ODHIRE suggests that there is no empirical support for the back-scratching hypothesis. Note that, whereas ODFEES had a positive relationship with CEO compensation, no such relationship exists with the non-CEO management compensation.

The ODDIRS variable again has a positive effect on the compensation levels and incentive proportion of the senior managers. This implies that reputable outside directors prefer to serve on the boards of firms with able managers (who are paid more). Furthermore, they also compensate these managers better by providing them with stronger incentives. As with CEO compensation, we again see that the board of directors compensates non-CEO top managers more heavily with incentives when management is more entrenched (higher value of IDTENURE) and when outside directors are less entrenched (lower value of ODTENURE). Finally, the results for the stock ownership variables (IDSTOCK and O DSTOCK) and all of the control variables are similar to those in Table V for essentially the same reasons. One difference pertains to the relationship between non-CEO management compensation and ROA. We saw earlier that there was no relationship between total CEO compensation and ROA, though there was a positive relationship between the CEO's cash compensation and ROA. We see that for non-CEO managers, even this relationship does not exist and, in fact, their compensation is *negatively* related to ROA. This negative relationship disappears when we use a three-year ROA from 1987 to 1989 instead of the contemporaneous 1989 ROA. One possible explanation for the absence of a positive relationship between compensation and performance is that these non-CEO executives are not evaluated and compensated based on overall firm performance but rather based on some subgoals like divisional or departmental performance.

As we did with CEO compensation, we consider a board to be more effective when it increases the incentive proportion of the non-CEO top managers. Once again, this view is justified only if we can demonstrate that banks whose non-CEO top managers are compensated more heavily with stock-based incentives perform better in the future than other banks. This is seen to be the case when we perform a correlation analysis. We find that the incentive proportion of the non-CEO managers is positively correlated with the future stock performance of the banks (gross returns and market-adjusted returns) measured over two-, three-, four-, five- and six-year periods. The correlation coefficients range in value from 4% to 21%. They are significant at the 10% level for the four- and five-year periods and are significant at the 5% level for the six-year period.

4. Conclusion

In this paper, we examine the relationship between top management compensation and characteristics of the board of directors for a sample of 97 banks. We find that board characteristics explain a significant amount of the cross-sectional variation in management compensation in our sample. Our main findings are that boards

Table VI. Regression results of the non-CEO management compensation-board relationship

Independent variable	Cash compensation	Incentive compensation	Total compensation	Incentive proportion
BDSIZE	12371.00 (0.92)	-3563.81 (-0.19)	8807.16 (-0.37)	0.009 (-0.02)
OD%	-11082.00 (-1.36)	6161.08 (0.54)	-4920.97 (-0.34)	0.019 (0.08)
CEOCHAIR	-214393.00 (-1.26)	17459.00 (0.07)	-196934.00 (-0.65)	2.011 (0.40)
SOLEID	-112389.00 (-0.58)	-102481.00 (-0.38)	-214870.00 (-0.62)	-1.388 (-0.24)
INTERLOCK	164577.00 (1.41)	71823.00 (0.44)	236400.00 (1.13)	0.192 (0.06)
TRANS	-43118.00 (-0.37)	3104.49 (0.02)	-40013.00 (-0.19)	-1.448 (-0.42)
ODFEES	12.38 (1.51)	4.47 (0.39)	16.84 (1.15)	-0.00003 (-0.14)
ODHIRE	-407.52 (-0.27)	1291.41 (0.62)	883.90 (0.33)	0.038 (0.87)
ODDIRS	286534.00 (3.04****)	279284.00 (2.11**)	565818.00 (3.36****)	5.999 (2.24**)
ODTENURE	-29710.00 (-2.73****)	-29098.00 (-1.91*)	-58808.00 (-3.03****)	-0.664 (-2.07**)
IDTENURE	-3769.52 (-0.25)	35259.00 (1.68*)	31490.00 (1.18)	0.730 (1.75*)
ODSTOCK	-152.35 (-0.05)	3354.84 (0.70)	3202.48 (0.52)	0.068 (0.67)
IDSTOCK	-4640.77 (-0.72)	-68.90 (-0.01)	-4709.68 (-0.41)	-0.018 (-0.10)
TA	17.05 (3.58****)	11.53 (1.73*)	28.58 (3.36****)	0.00014 (0.99)
ROA	-17400.00 (-0.17)	-403839.00 (-2.81****)	-421239.00 (-2.30**)	-4.163 (-1.38)
RET	891.56 (0.30)	965.86 (0.23)	1857.42 (0.34)	-0.016 (-0.18)
SDRET	-149955.00 (-0.74)	170190.00 (0.60)	20235.00 (0.06)	0.794 (0.13)
M/B	145073.00 (0.96)	154767.00 (0.73)	299840.00 (1.11)	-1.461 (-0.33)
LEV	-30986.00 (-0.60)	174161.00 (2.41**)	143175.00 (1.56)	2.599 (1.72*)
BHSTOCK	-6585.66 (-0.82)	-3363.55 (-0.30)	-9949.21 (-0.70)	0.156 (0.66)

Table VI. Regression results of the non-CEO management compensation-board relationship

Independent variable	Cash compensation	Incentive compensation	Total compensation	Incentive proportion
TAKEOVER	5837.85 (0.03)	-123575.00 (-0.51)	-117737.00 (-0.38)	-6.346 (-1.25)
F-stat	10.291	2.339	7.830	1.347
(p-value)	(0.0001)	(0.0037)	(0.0001)	(0.1728)
Adj R^2 (%)	68.50	23.86	61.52	7.52

This table presents the results of the OLS regressions of the top 4 non-CEO managers' compensation variables on the board and firm characteristics for the sample of 97 banks. The *t*-statistics are in the parentheses below the regression coefficients. The symbols ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

whose outside directors are more reputable and have not served for too much time are more effective in designing management compensation contracts than other boards because they compensate managers more heavily with long-term stock-based incentives than with cash. Furthermore, we find that boards effectively combat managerial entrenchment by providing managers with strong incentives. Contrary to the extant literature, we find that the degree of board independence and the stock ownership of the directors has no influence on top management compensation. Finally, we do not find much evidence supporting the board room back-scratching hypothesis.

While the above evidence does suggest the presence of a compensation-board relationship, we must stress that our study is exploratory in nature and its results are only suggestive. Furthermore, while we have assumed that the board characteristics are exogenous variables that can be used to explain management compensation, it is likely that some of these variables are themselves endogenous. A more complete empirical specification would have to address the issue of the joint determination of compensation and board attributes and relate it to future firm performance. Nevertheless, we believe that our results can serve as a basis for further empirical research and for the development of theoretical models that can explain the compensation-board relationship.

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