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The Response of Commercial Banks to Compensation Reform

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Abstract. This study assesses changes in the executive compensation policy of 94 commercial banks following the SEC's expanded compensation disclosure rules and revisions in the Internal Revenue Code regarding deductibility of compensation expense. During the period from 1989–1997, commercial banks experience a significant decline in the number of insiders serving in executive compensation committees. Following compensation reform, banks seem to substitute non-cash for cash compensation, and exhibit a somewhat stronger pay-for-performance relationship. Further, board structures are statistically indistinguishable among banks that were acquired compared to surviving banks, and between banks and a sample of electric utilities. Taken together, our analysis suggests that compensation reform, rather than deregulation or corporate control, led commercial banks to change their governance structures and provides limited evidence that such changes enhanced the incentive effects of compensation contracts.

Key words: compensation reform, commercial banks, compensation committees

JEL Classification: G38

1. Introduction

Few industries have undergone as many structural changes as banks in the 1990's. Nevertheless, although there is a large body of evidence studying the governance of industrial corporations, there exists only limited evidence pertaining to the control environment in commercial banks.[1] Yet, the boom in corporate control activity in banking has likely influenced the workings of the market for bank executives and the various governance mechanisms that can be used to monitor bank executives.[2] Therefore, structural changes in the banking industry during the 1990's provide a fruitful setting for studying the effects of recent compensation reform on the governance of commercial banks.

Understanding corporate governance in banking is important because it is likely to help policy makers in their effort to establish a more stable economic environment. The recent

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Asian financial crisis has stressed the importance of maintaining good governance practices in banking. In the U.S., deregulation in the banking industry through the Riegle-Neal Act of 1994 and the Gramm-Bleach Bliley Act of 1999 places additional burden on banking firm governance in disciplining managers. (See Adams and Mehran (2002) for an informative discussion on the increasing importance of governance in banks.) In addition, bank asset composition is much more homogeneous and concentrated as compared to other industries making the banking industry well-suited for an industry-specific study. Finally, focusing on the effects of regulation on corporate governance in a single industry provides a more homogeneous and therefore cleaner setting for our tests, given that governance structures and financial ratios are likely to vary systematically across industries.

This paper attempts to illuminate the impact of executive compensation reform on the internal control mechanisms of a sample of 94 commercial banks. Specifically, this paper exploits recent changes in compensation disclosure requirements (SEC Release 33-6962) and subsequent revisions to the US federal tax code regarding deductibility of the executive compensation expense (Section 162m of the Internal Revenue Code) as the stage for testing the response of commercial banks to governance regulation. Evidence about such changes would shed light on the importance of executive compensation policies for banking firms and on the effectiveness of governance reform in the banking industry.

In particular, this study empirically examines two issues which are related to governance reform: First, it investigates changes in the composition of compensation committees following the reform since both SEC disclosures and tax code revisions focus on the compensation committee as the core decision-making unit determining the structure of executive pay. Second, using a panel of CEO compensation data from 1989 to 1997 in fixed effects regressions, this study tests for changes in the pay-for-performance sensitivity following the years of reform since both SEC disclosures and tax code revisions underline the need for a link between CEO pay and corporate performance. Moreover, changes in the pay-for-performance sensitivity around the reform are linked to changes in the composition of compensation committees providing a more direct test of the association between regulatory reform and executive compensation policy changes. To probe further into the effects of corporate control and regulation on corporate governance, additional tests examine board and compensation committee differences between banks that were acquired to surviving banks, and between commercial banks and firms in an industry with a less active corporate control market (electric utilities).

The remainder of the study is organised as follows: Section 2 provides background for the study, Section 3 develops the testable hypotheses, Section 4 describes the sample collection process and the data, Section 5 presents the empirical results, and Section 6 summarizes and concludes.

2. Background

2.1. Corporate governance studies in the financial sector

Research examining corporate governance issues in financial firms is limited. Brickley and James (1987) examine whether the corporate control market and the board of directors are

substitute mechanisms as indicated in lower levels of outside directors in states were bank acquisitions are easier. In contrast to the substitute hypothesis, Brickley and James (1987) find that the proportion and number of outside directors is higher for banks in acquisition states. Schrantz (1993) finds evidence that banks in states with less restrictive takeover regulations are more profitable consistent with an active corporate control market enhancing shareholder wealth. Prowse (1997) suggests that regulation leads to a weaker corporate control market in the banking industry which, in turn, shifts responsibility for effective monitoring to corporate boards. Nevertheless, Prowse (1997) also concludes that bank boards are less assertive than their industrial counterparts. In a related vein, Subrahmanyan, Rangan and Rosenstein (1997) find a positive relation between acquisition-induced abnormal returns for a sample of banks and outside director stock ownership. Furthermore, Whidbee (1997) finds that for his sample of bank holding companies, outside director representation on the board is positively related to institutional and outside stock ownership but negatively related to CEO stock ownership. Similarly, Mayers, Shivdasani and Smith (1997) document that in mutuals where ownership rights are non-transferable (and ownership structures are thus less effective in aligning management's interests to those of shareholders) outside directors play a more important role. Finally, studying a sample of banks from 1959 to 1999, Adams and Mehran (2002) document that banks with larger boards are valued more highly by the market, a finding that contrasts evidence from industrial firms.

Research focusing on the executive compensation practices of financial institutions in particular has also been limited. Barro and Barro (1990) first document a positive association between pay and performance for a sample of commercial banks, in line with evidence for industrial firms, and with the pay-for-performance relationship being a meaningful incentive alignment mechanism for banks. Houston and James (1995) find that there is no difference in the pay-for-performance relationship between banks and non-banks and that banks use relatively fewer stock options and stockholdings. They interpret this as evidence that executive contracts in banks are not designed to promote risk-taking, on balance. In addition, Hubbard and Palia (1995) find a stronger pay-for-performance relationship in deregulated interstate banking markets, consistent with a managerial talent market in the financial sector (since regulated markets hide efficiency differences across firms and therefore differences in managerial skill). In the same spirit, Crawford, Ezzell and Miles (1995) report evidence that bank CEO compensation became more sensitive to performance as bank management became less regulated in 1982, consistent with liberalization increasing the consequences of managerial decisions, thus dictating a need for stronger incentives for management.[3]

2.2. *Two instances of compensation policy reform*

Following several months of study, the SEC officially adopted rules requiring expanded compensation disclosure in annual proxy statements on October 15, 1992.[4] This action is in line with the Commission's favored strategy of triggering market forces through improved information for market participants.[5]

The second measure of reform is a revision in paragraph 162 of the federal income tax code restricting the tax deductibility of executive compensation expense.[6] In

particular, executive compensation exceeding one million dollars became deductible only if it was performance-based (i.e., if it was a function of an objective performance criterion), and the compensation decision was made by a compensation committee comprising exclusively of non-executive directors, and was cleared by shareholders at the annual meeting (e.g., Wartzman, 1993). Thus, federal tax code now posits a million dollar tax-deductibility criterion which is a restriction focusing on the level of pay, and the provision that higher compensation is only deductible if it is performance-based (a pay-for-performance criterion).

A growing body of research has studied the impact of these reforms on executive compensation policy. Vafeas and Afxentiou (1998) explore executive compensation policy changes following the adoption of SEC rule 33-6962 for 200 large industrial firms. They find that following the rule, firms removed most insiders from compensation committees, appointed outsiders holding more outside directorships as committee members, raised the number of committee meetings each year, and shifted committee sizes to moderate levels. This evidence is interpreted by the authors as being consistent with the spirit of SEC's disclosure reform. Moreover, Vafeas and Afxentiou (1998) document a stronger cross-sectional pay-for-performance relationship in the first year after disclosure reform compared to the last pre-reform year, but provide no evidence as to whether pay reform is related to compensation committee structures.

Similarly, Anderson and Bizjak (1999) study whether greater compensation committee independence promotes shareholder interests by tracing compensation committee and pay structures for 75 NYSE firms between 1985 and 1994. They report that the pay for performance sensitivity is lower for firms with independent compensation committees, and that there are no improvements in pay structure when CEOs come off the compensation committee. They conclude that compensation reform may not achieve efficiencies in incentive contracts.

In a related vein, Newman and Moses (1999) study the relation between compensation committee independence and CEO pay for a single year. While they find no difference in the level of pay conditioned on committee composition, they observe a stronger pay-for-performance relation for firms with an independent committee. Contrary to Anderson and Bizjak (1999) they conclude that CEOs receive preferential treatment when insiders serve on the compensation committee.

Motivated by compensation reform in the 1990's, Perry and Zenner (1998) study the trend in incentive contracts during the 1990's. They find rising levels of pay that are mostly the result of increases in option grants, a reduction of base salaries by some firms due to the tax code revisions, and a rising pay-for-performance sensitivity. These results suggest that firms partly responded to reform; they also imply, however, that the overall increase in pay-for-performance sensitivity may not be necessarily attributed to reform. Definitive evidence to this end should be provided through comparisons of pay sensitivities of firms that reformed their compensation committees compared to all others.

In sum, there is a growing body of evidence on the impact of compensation reform that has provided somewhat mixed results on the response of industrial firms to regulatory changes. By using a long time-series of data for commercial banks we illuminate further the impact of reform on executive pay practices in banking. Further, our study of a single industry in

an environment of heightened corporate control activity provides a rich, cleaner setting for studying the impact of pay reform.

3. Research hypotheses

Below, we discuss the potential implications of these regulatory changes on the executive compensation practices of commercial banks. First, implications for compensation committees are discussed; second, the impact of reform on the pay-for-performance relationship is examined.

3.1. Compensation committee composition

In their seminal work, Alchian and Demsetz (1972, p. 782) highlight the problem of shareholder monitoring over management that arises from the separation between ownership and control. They ask "who will monitor the monitor?" Empirical observation suggests that corporate directors that are not firm employees have emerged as a market-based, low cost solution to the need for shareholder monitoring over management. Corporate directors have incentives to perform their monitoring function well because of competition in the market for directorships. Specialization in monitoring is likely to reduce shirking because poor director monitoring damages a director's reputation as a specialist, diminishing the value of the director's reputation capital. In addition, outside directors can serve a monitoring role because they do not have as short a decision making horizon (see Smith and Watts, 1982) as managers might have. Finally, the rising incidence of director incentive plans that either tie director pay to shareholder wealth, or encourage increased share ownership by directors, induce a self-interested director to act so as to protect shareholder interests.

The majority of public corporations in the United States delegate the responsibility of determining executive compensation policies to standing board committees primarily comprising non-executive directors. Compensation committees are attractive in that they abstract from the boardroom which is often heavily populated with insiders and dominated by the CEO into a more independent and better focused environment that is more conducive to making decisions in accordance with shareholder interests. Nevertheless, compensation critics point to committee composition as a crucial issue since corporate insiders or directors under their influence often serve on such committees confounding committee independence.

In this vein, compensation committees may best serve shareholder interests if comprised exclusively of non-executive directors.[7] Empirically, there is some evidence that outside directors serve to protect shareholder interests well. For example, Byrd and Hickman (1992), Brickley, Coles and Terry (1994) and Cotter, Shivdasani and Zenner (1997) all document evidence that announcement period returns for takeover bidders, poison pill adopters and takeover targets are significantly higher when outside directors have voting control on the board. These studies also suggest that outside directors who could develop a fiduciary relationship to the firm are likely to be less effective in protecting shareholder interests. Specifically, outside directors who may, because of their professional affiliation, earn money

from the firm other than in their capacity as directors, are thought to be less than fully independent from management, and are often term “grey” (Examples of grey directors are the firm’s management consultants, bankers, auditors, and lawyers). By contrast, Hermalin and Weisbach (1991), among others, do not find a relation between the fraction of board outsiders and firm value. Thus, the monitoring value of outside directors is an issue that has not been conclusively resolved.

In this study we argue that governance reform is likely to induce corporations to structure their compensation committees more appropriately; i.e., by restricting committee membership to outside directors.[8] First, the SEC’s increased disclosure requirements specifically highlight the importance of a signed compensation committee report justifying committee choices. This disclosure requirement is likely to further discourage committee membership by the CEO or other insiders who would elicit criticism for determining their own pay. Second, the revisions in the federal income tax code require that in order for a certain portion of executive compensation to be tax-deductible, the compensation decision has to be made by a committee of non-executive directors. Therefore, firms aiming to reduce their tax liability are likely to maintain committees that are comprised exclusively of outside directors. Therefore, the first research hypothesis examined is

Hypothesis 1. *There is a significant reduction in the number of insiders serving in executive compensation committees of commercial banks following compensation reform.*

3.2. The pay-for-performance sensitivity

Much academic research has argued that the level of executive pay is of secondary importance and that shareholders should focus on the relationship between managerial compensation and shareholder wealth. In this spirit, Murphy (1985) documents a statistically significant, positive pay-for-performance association. Interestingly, Jensen and Murphy (1990) point out that, although significant, this association has historically been economically weak and in need of improvement. A somewhat different view has been advanced by Holderness, Kroszner and Sheehan (1999) who find that managerial ownership has in fact increased among publicly traded firms since the beginning of this century potentially alleviating agency conflicts, and that higher managerial ownership has not substituted for alternative governance mechanisms such as compensation.

This study posits that the governance reform would have a beneficial effect on compensation policies by strengthening the association between executive pay and corporate performance. The impact of SEC’s disclosure reform on this association is likely to be indirect: First, the compensation committee report specifying the criteria used in compensating executives is likely to put pressure on the committee to use objective, performance-related criteria. Second, expanded disclosure requires tables of a firm’s recent performance record and executive pay levels, thus drawing a link between the two. More broadly, the general spirit of the rule is that compensation policies should be revised such that they protect shareholder interests, which may be potentially achieved through a stronger pay-for-performance association. Furthermore, a direct provision of the federal tax code is that a portion of compensation expense be deductible only if, among other things, it can be determined that compensation was granted to corporate executives in conjunction with higher

firm performance. Simply put, more performance-related pay may result in a lower tax liability for a corporation. Together, these arguments give credence to the following research hypothesis:

Hypothesis 2. *There is a stronger pay-for-performance sensitivity following governance reform compared to the pre-reform period.*

4. Data and methodology

In order to examine the changes in compensation policy of commercial banks we focus on banks that are listed on the Forbes annual compensation survey. This choice allows for the collection of CEO compensation data over a fairly long time period at a relatively low cost. In order to be included in the sample, commercial banks have to be listed in the Forbes survey either in 1989 or in 1990.[9] This process results in the identification of 106 sample firms. Twelve firms are deleted because of data unavailability in Compustat or unavailability of proxy statements leaving a final sample total of 94 firms. A list of the sample firms is provided in an appendix at the end of this paper.

4.1. Changes in committee composition

The compensation committee structure of these 94 firms is examined from their proxy statements from fiscal years 1989 to 1997. This nine-year period is centered around 1993 which is the year of the compensation reform. The expectation is that compensation committee composition is significantly different across years, suggesting an association between compensation reform and committee composition.

In order to assess changes in committee composition and hypothesis one, directors are partitioned based on compensation committee membership. Moreover, in line with Baysinger and Butler (1985), all directors are classified into insiders (firm employees, active or retired, employees of subsidiaries, and their relatives), grey outsiders (management consultants, lawyers, auditors) and independent outsiders (other non-executives including professional and public directors, private investors, and executives in other firms). It should be noted that Section 162m considers grey directors to be independent. Our three-way partition of directors allows finer distinctions based on committee independence.

Changes in compensation committee composition are assessed by regressing the compensation committee variables on the sample year. The expectation is that the fraction of insiders on the committee is inversely related to time, signifying a decline in committee insiders through time for our sample. Hermalin and Weisbach (1988) find that board composition is endogenously determined and varies systematically with certain firm characteristics. Therefore, to account for the possibility that committee changes reflect wider changes in board composition over the sample period, the model also controls for the representation of insiders and grey directors on the board as a whole. Further, by focusing on changes in committee structures, our longitudinal approach allows us to abstract from endogeneity problems given that a firm's lagged committee structure is used as the benchmark for its expected committee structure.

Further, our tests examine the trend of committee composition over a longer period of time surrounding the reform rather than attempting to identify a structural break in committee composition around rule adoption. The specific time of rule adoption is unlikely to have caused a structural break in boards because (1) the spirit of the rule changes had been rumored for at least two years before the rules became official, and (2) long director tenure terms reduce the firms' flexibility to modify their governance structures immediately after the rule.

4.2. Changes in the pay-for-performance sensitivity

Next, the tests examine changes in the pay-for-performance sensitivity. For this purpose, for each of the 94 sample firms we collected CEO compensation data over the nine year period from 1989–1997 from the Forbes compensation surveys. The dependent variable of interest is first defined as total cash compensation that includes the fixed component of CEO pay as well as annual cash bonuses. Admittedly, this treatment ignores the value of stock option grants because pre-rule compensation disclosures were often incomplete making the valuation of the option component of pay very difficult or impossible. One advantage of focusing on pay components other than options is that we abstract from a mechanically-driven relation between pay and performance that results from a relation between pay and market levels (see Murphy, 1999, pp. 17–18). In further tests, we construct a non-cash compensation variable, comprising the present value of stock options granted and long-term incentive payments. These data are collected from the *Execucomp* database. Last, total pay is defined as the sum of cash and non-cash pay components defined above.

The underlying model used here relates CEO compensation (log-transformed because of skewness) to alternative performance measures (logged sales, annual stock return, and accounting return on assets). The basic notion tested is that the sensitivity of these performance measures to CEO compensation is significantly more positive following compensation reform (after fiscal year 1993) as suggested by the study's second hypothesis. Evidence to this effect would suggest that compensation reform is associated with a tighter pay-for-performance link in accordance with the shareholders' best interests.

Given that disclosure and tax changes were almost simultaneous, we attempt a test for isolating the source of potential changes on compensation policies. To illuminate the differential impact of tax rule 162, we isolate firms that pay their CEOs more than one million dollars in cash compensation, the presumption being that there would be more pressure on these firms to tie pay to performance to maintain tax deductibility of compensation expense. Following Perry and Zenner (1998) we create a binary variable that equals one for firms that have paid one million dollars to their CEOs at least once during the sample period, and zero otherwise. If the tax rule dominates firm concerns, the improvement in the pay for performance relation should have increased more for "million dollar" firms compared to the rest.[10]

Second, we test whether firms that remove insiders from their compensation committees experience more pronounced changes in compensation policy than the rest. This test could potentially provide direct evidence on the role of insiders in compromising the structure of executive pay. Empirically, we create a dummy variable that is set to one for firms that have removed all insiders from their committee during the sample period (the "change" firms),

and zero otherwise. If committee membership matters, the improvement in the pay-for performance relation will be greater for "change" firms than the rest.

5. Results

5.1. Results on committee composition changes

Table 1 presents results on the size and composition of compensation committees and corporate boards over the sample period. Importantly, consistent with hypothesis one, there is a steady decline in the fraction of insiders serving on compensation committees, from 4.72% in 1989 to 0.38% in 1997. The decline is monotonic with the greatest changes occuring from 1991 to 1993, in line with the reform driving changes in committee composition (the t-statistic of a regression of compensation committee insiders on the sample years is -4.23 which is significant at $p < 0.001$; thus, the fraction of committee insiders decreases through time).

The fraction of "grey" directors in the committee remains unchanged throughout the sample period signifying that firms aimed at satisfying the tax code revisions which treated "grey" directors as outsiders, and not at enhancing the independence of the committee. Importantly, changes in the fraction of committee insiders and "grey" directors on bank boards over the period under examination are insignificant. Further, the reduction in committee insiders holds after controlling for changes in board composition. Last, consistent with recent evidence by Yermack (1996) and Eisenberg et al. (1998) who find evidence suggesting smaller boards may be more effective, there is a downward trend in the size of bank boards ($t = -1.85$). In sum, the results in Table 1 suggest that there has been a sharp decline in the percentage of compensation committee insiders and a modest decline in the size of bank boards over the sample period.

5.2. Changes in the pay-for-performance sensitivity

Next, the tests focus on the cash pay-for-performance sensitivity. Following prior research we employ a fixed effects model with separate firm and year dummies to account for systematic correlation between the variables within each company and each year. Because of the fixed effects, our model R-squared ranges from 84.8 to 85.8%. Notably, each of the models presented in Table 2 is jointly significant at the 0.01 level or better, as evidenced by their respective F-values.

Our base model (model 1) tests the relation between CEO cash compensation (salary plus bonus) to the composition and size of compensation committees after controlling for CEO tenure and firm performance, proxied by sales, stock return, and return on assets. Contrary to the predictions of agency theory, there is no relation between committee insiders and pay, while there is an inverse relation between committee "grey" directors and pay. This suggests "grey" directors do not act so as to inflate CEO cash compensation; on average, their presence in the committee is associated with lower salaries. Thus, committee independence may not be compromised by the presence of "grey" directors. Consistent with prior evidence, longer CEO tenure is associated with higher CEO cash compensation. Finally the return

Table 1. The composition of the boards and compensation committees of 94 commercial banks from 1989 to 1997

	1989	1990	1991	1992	1993	1994	1995	1996	1997	t-Value for bi
	89	92	94	94	88	82	68	60	53	720
Compensation committee insiders	4.72%	4.53%	3.95%	2.98%	1.33%	1.09%	0.66%	0.52%	0.38%	−4.23***
Compensation committee "grey"	13.28%	12.17%	14.96%	14.77%	15.17%	15.97%	12.29%	10.09%	12.15%	−1.31
Committee size	4.48	4.40	4.58	4.52	4.67	4.60	4.69	4.60	4.53	0.42
Board insiders	21.67%	20.26%	19.54%	20.33%	20.71%	19.86%	18.67%	18.75%	18.30%	−1.12
Board "grey"	14.73%	13.67%	14.19%	14.52%	14.83%	14.57%	13.57%	13.78%	13.94%	0.97
Board size	17.24	17.20	16.69	16.95	16.55	16.36	16.34	16.35	16.39	−1.85*

Directors are characterized as "grey" if they have the potential to develop a fiduciary relation to management (e.g., consultants, financiers, or lawyers). The right hand column reports the t-statistics from an OLS regression of the board variables listed below (x's) on the sample year (y). All data are collected from annual proxy statements.

*,**,***significant at the 0.10, 0.05, and 0.01 level respectively.

Table 2. Fixed effects analysis of covariance of the bank CEO pay—performance relationship for 94 commercial banks between 1989–1997

	(1)	(2)	(3)	(4)
Intercept	3.01***	2.63***	2.49***	2.71***
	(5.42)	(4.78)	(4.36)	(4.89)
Pct. committee insiders	0.19	0.09	0.15	−0.08
	(0.77)	(0.36)	(0.60)	(−0.30)
Pct. committee “grey”	−0.40***	−0.36***	−0.37***	−0.33***
	(−3.34)	(−3.03)	(−3.10)	(−2.69)
Committee size	0.02	0.02	0.01	0.01
	(1.42)	(1.24)	(0.99)	(1.00)
Tenure as CEO	0.01**	0.01**	0.01*	0.01**
	(2.24)	(2.04)	(1.75)	(2.07)
Log sales	0.46***	0.39***	0.39***	0.37***
	(5.76)	(4.81)	(4.82)	(4.55)
Log sales if year > 1993,		0.10***	0.17***	0.10***
0 otherwise		(4.44)	(2.82)	(4.40)
Log sales if year > 1993 and			−0.06	
million = 1, 0 otherwise			(−1.08)	
Log sales if year > 1993 and				−0.01
change = 1, 0 otherwise				(−0.43)
Stock return	0.05	0.01	0.01	0.02
	(1.00)	(0.26)	(0.24)	(0.31)
Stock return if year > 1993,			−7.25	0.83
0 otherwise			(−0.58)	(0.26)
Stock return if year > 1993 and			7.47	
million = 1, 0 otherwise			(0.58)	
Stock return if year > 1993 and				−2.73
change = 1, 0 otherwise				(−0.43)
Return on assets (ROA)	11.05***	11.90***	12.03***	12.30***
	(4.05)	(4.41)	(4.46)	(4.51)
ROA if year > 1993,		0.24*	0.03	0.22*
0 otherwise		(1.84)	(0.19)	(1.66)
ROA if year > 1993 and			0.28**	
million = 1, 0 otherwise			(2.06)	
ROA if year > 1993 and				0.11
change = 1, 0 otherwise				(0.55)
R^2	84.8%	85.6%	85.8%	85.8%
Sample size	610	610	610	610
F-value	21.28***	21.85***	21.49***	21.33***

The dependent variable in all regressions is the log of CEO cash compensation (salary plus bonus). The million dollar dummy is set to one if the CEO received cash compensation of more than one million dollars during the sample period, and zero otherwise. The “Change” dummy is set to one for firms having removed all insiders from their compensation committees during the sample period, and zero otherwise. CEO tenure equals the number of years at the CEO position. Return on assets equals net income over total assets and stock return is the raw return over the year.

t-statistics are in parentheses. *,**,*** significant at the 0.10, 0.05, and 0.01 level respectively.

on assets and sales measures of performance, but not stock return, are positively related to pay, signifying higher cash pay for better performance.

Model 2 attempts to identify a change in the pay-for-performance relation after the 1993 period by interacting a post-reform time dummy to the three performance measures. Consistent with hypothesis two, the relation between cash compensation to logged sales and the return on assets to cash pay is significantly more positive after 1993 (the reform year) than before. Therefore, CEO pay became more aligned to performance after the reform compared to the pre-reform period.

Models 3 and 4 attempt to isolate the sources of this shift in the pay-for-performance relation by focusing on firms that are more likely to be affected by the tax code revision (the "million dollar firms" defined earlier), and on firms that have removed all insiders from their compensation committee (the "change" firms, also defined earlier). The results from model 3 suggest that the "million dollar" partition has some merit since the improvement in the relation between pay and return on assets stems from firms that are likely to be more sensitive to revisions in the tax code ($t = 2.06$). By contrast, model 4 results show no evidence that firms that remove insiders from their compensation committee experience more pronounced differences in the pay-for performance relation than the rest. In sum, Table 2 results suggest that there is no impact of committee insiders on bank CEO cash pay, and that there is an improvement in the pay-for-performance relation after the reform, especially for banks that are affected by the provisions of the tax code changes.

Next, Table 3 presents results from re-estimating the model using logged non-cash compensation (models 1 and 2) and logged total compensation (models 3 and 4) as the dependent variable. In general, the value of options granted is primarily explained by sales volume (model 1). More importantly, the relation between sales and stock returns to non-cash pay becomes stronger after the reform, in line with the notion that the SEC disclosure rules and/or IRS reforms have induced a tighter pay-for-non cash pay sensitivity after the reforms.

Finally, regressions on total CEO pay presented in models 3 and 4 suggest the following: Total pay rises with total sales and accounting performance; post-reform sales and stock returns are more aligned with total pay after the reforms than before; firms changing their compensation committees experience a lower shift in pay sensitivity than other firms. In sum, the evidence from Table 3 re-affirms some meaningful post-reform changes in pay structures, consistent with Hypothesis 2.

In further tests (results not tabulated) a post reform binary variable was found to be positive and significant in explaining non-cash compensation, suggesting that greater amounts of stock options are granted to executives after the reform. Further, the ratio of cash to total pay declined from 0.83 in 1992 (the last full year before the reform) to 0.69 in 1995 (the first full year after the reform), suggesting that firms may have responded to the reform by switching from cash to non-cash compensation.

The substitution of non-cash compensation for cash compensation after the reforms by commercial banks has some interesting implications. First, this result would be consistent with banks trying to by-pass the restrictive tax deductibility provisions of the tax code revisions, keeping cash pay at lower levels, while inflating total pay by granting CEOs greater amounts of stock options instead. Second, given that cash pay is usually a more visible component of CEO pay than non-cash pay, shifting pay to non-cash components

Table 3. Fixed effects analysis of covariance of the bank CEO pay—performance relationship for 94 commercial banks between 1989–1997

	(1)	(2)	(3)	(4)
Intercept	−2.41	−3.36	3.77***	3.51***
	(−0.63)	(−0.87)	(5.17)	(4.92)
Pct. committee insiders	0.81	0.65	0.34	0.08
	(0.47)	(0.35)	(1.06)	(0.22)
Pct. committee “grey”	−1.01	−1.24	−0.33**	−0.31**
	(−1.22)	(−1.48)	(−2.07)	(−1.98)
Committee size	−0.14	−0.15	0.02	0.01
	(−1.39)	(−1.57)	(0.90)	(0.41)
Tenure as CEO	−0.03	−0.04	0.01	0.01
	(−1.29)	(−1.56)	(1.27)	(0.87)
Log sales	1.25**	0.64	0.40***	0.20*
	(2.22)	(1.11)	(3.76)	(1.92)
Log sales if year >1993, 0 otherwise		0.45***		0.14***
		(2.83)		(4.98)
Log sales if year >1993 and change = 1, 0 otherwise		0.30		0.07
		(1.35)		(1.61)
Stock return	0.29	0.38	0.07	0.05
	(0.86)	(1.05)	(1.05)	(0.76)
Stock return if year >1993, 0 otherwise		76.10***		14.59***
		(3.42)		(3.59)
Stock return if year >1993 and change = 1, 0 otherwise				−19.27**
				(−2.16)
Return on assets (ROA)	−4.50	−6.22	13.13***	14.19***
	(−0.25)	(−0.34)	(3.67)	(4.05)
ROA if year >1993, 0 otherwise		−0.64		0.13
		(−0.70)		(0.81)
ROA if year >1993 and change = 1, 0 otherwise		0.02		−0.19
		(0.01)		(−0.75)
R^2	73.0%	74.3%	84.7%	86.3%
Sample size	510	510	510	510
F-value	10.35***	10.37***	21.04***	22.23***

The dependent variable is the log of CEO non-cash compensation in models 1 and 2 (present value of options granted plus long-term incentive payments plus one) and total compensation in models 3 and 4 (cash plus non-cash compensation components). The million dollar dummy is set to one if the CEO received cash compensation of more than one million dollars during the sample period, and zero otherwise. The “Change” dummy is set to one for firms having removed all insiders from their compensation committees during the sample period, and zero otherwise. CEO tenure equals the number of years at the CEO position. Return on assets equals net income over total assets and stock return is the raw return over the year.

t-statistics are in parentheses. *,**,*** significant at the 0.10, 0.05, and 0.01 level respectively.

Table 4. Board and compensation differences between commercial banks that were acquired during the sample period compared to all others

Variable	Acquired	Others	Difference	t-Value	Wilcoxon-z
Pct. committee insiders	4.92	4.11	0.81	0.29	0.43
Pct. committee “grey”	15.51	8.65	6.84	1.92*	1.71*
Committee size	4.39	4.42	−0.03	0.07	0.18
Pct. board insiders	20.14	20.39	−0.25	−0.11	−0.70
Pct. board “grey”	14.96	12.20	2.76	1.38	1.54
Board size	17.04	17.40	−0.36	−0.37	−0.34
Committee change dummy	0.20	0.14	0.06	0.92	–
Salary plus bonus (in $thousand)	555.8	724.5	−178.7	−2.80***	−3.18***
Total compensation (in $thousand)	698.9	1180.7	−481.8	−2.42***	−3.17***
Million dollar dummy	0.36	0.69	−0.23	−3.63***	–

The million dollar dummy is set to one if the CEO received cash compensation of more than one million dollars at least once during the sample period, and zero otherwise.
*,**,*** significant at the 0.10, 0.05, and 0.01 level respectively.

would alleviate some of the public scrutiny on bank CEO compensation practices. Thus, one should be cautious when drawing inferences regarding the efficacy of compensation reforms in creating better compensation contracts.

5.3. Board changes and bank acquisition activity

To gain some insight into the interplay between the corporate control market, which was an important external monitoring force over this time period as discussed earlier, and contemporaneous changes in board structures, we separated the sample into 51 commercial banks having survived throughout the sample period and 43 banks that had not (41 of these banks were acquired, one was liquidated, and one underwent a major restructuring). Our expectation is that surviving firms had more sound governance structures in place than acquired firms. Table 4 presents results comparing board and compensation structures between acquired and control firms. The results uniformly suggest that there are no meaningful differences in board and compensation committee structure between the two sub-samples, casting doubt on the notion that poor governance led to the acquisition of these banks. By contrast, there are significant cross-group differences in cash compensation and total compensation, probably because acquired firms tend to be smaller than surviving firms, and because compensation levels are related to bank size. One other possibility is that compensation committee and board changes interact with subsequent acquisition activity. However, given the small sample of survivors and limited post-reform time period we are unable to conduct rigorous statistical analysis to test this notion.

5.4. Board changes in electric utilities

To probe further into the relation between acquisition activity and board changes, we examine analogous board changes for a sample of 62 electric utilities (SIC codes 4911 and 4931) which are selected based on data availability from Compustat. Electric utilities provide an

Table 5. The composition of the boards and compensation committees of 62 electric utilities from 1989 to 1997

	1989	1990	1991	1992	1993	1994	1995	1996	1997	t-Value for ui
	52	50	58	58	61	62	62	62	56	521
Compensation committee insiders	6.94%	4.83%	5.04%	2.62%	1.37%	0.67%	0.63%	0.69%	0.77%	−5.02***
Compensation committee “grey”	24.83%	24.33%	22.59%	25.74%	29.20%	25.85%	25.88%	22.95%	20.79%	−1.13
Committee size	4.64	4.53	4.63	4.47	4.57	4.37	4.41	4.17	4.07	−0.84
Board insiders	24.07%	23.59%	21.94%	21.39%	20.38%	19.29%	18.29%	18.86%	19.09%	−4.45***
Board “grey”	19.59%	20.40%	19.39%	19.50%	21.03%	20.04%	19.98%	18.96%	18.72%	0.63
Board size	11.91	11.82	11.93	11.88	11.61	11.34	11.37	11.19	10.75	−4.64***

Directors are characterized as “grey” if they have the potential to develop a fiduciary relation to management (e.g., consultants, financiers, or lawyers). The right hand column reports the t-statistics from an OLS regression of the board variables listed below (x’s) on the sample year (y). All data are collected from annual proxy statements.

*,**,*** significant at the 0.10, 0.05, and 0.01 level respectively.

attractive setting for examining this notion because they operate in a less active corporate control market than banks and were not subject to as much deregulation as banks during the 1980's and 90's. This allows for a separation between the effects of corporate control vs. compensation reform on board and compensation committee structures. The results on the sample of utilities follow the pattern that was followed for banks, and are presented in Table 5.

Three notable observations are drawn from Table 5. First, there is an analogous sharp decline in committee insiders in electric utilities (from 6.94% in 1989 to 0.77% in 1997). Again, most of this drop seems to have occurred between 1991 and 1993, consistent with compensation reform driving changes in committee composition. Second, there is a contemporaneous decline in the fraction of board insiders overall, from 24.07% in 1989 to 19.09% in 1997. Importantly, the committee and board insider variables are both significant in a multiple regression model of board composition on time (t-statistics of −5.02 and −4-45 respectively) suggesting that the decline in committee insiders was significant even after accounting for the decline in board insiders. Finally, there is a drop in the average number of directors, in line with earlier evidence from commercial banks ($t = -4.64$), and with the Yermack (1996) and Eisenberg et al. (1998) findings.

In further tests (results not tabulated) we also estimated the relation between pay, governance, and performance for our sample of electric utilities, similar to the models estimated for banks, as presented in Table 2. We find that the link between cash pay and performance for electric utilities is weak, at best, while there is no evidence for an improvement of this link in the post-reform period.

Together, the results on electric utilities, coupled with our earlier results on commercial banks, and results from Vafeas and Afxentiou (1998) on unregulated firms, uniformly suggest that firms responded to tax and disclosure reform by reducing the number of committee insiders irrespective of their regulatory environment. Commercial banks further responded to compensation reform by restructuring their incentive contracts, as evidenced by the banks' post-reform pay-for-performance improvements.

6. Conclusion

This study explores changes in executive compensation policies for 94 commercial banks following expanded compensation disclosure requirements and tax code revisions pertaining to the deductibility of executive compensation expense. The empirical tests reveal a significant reduction in the number of insiders serving in the compensation committees following compensation reform. Moreover, the sensitivity of CEO compensation to performance is significantly higher in the post-reform period, especially for firms that are likely to be affected by the tax code revision. In general, non-cash pay is substituted for cash pay after the reform, consistent with banks trying to by-pass the restrictive tax deductibility provisions of the tax code revisions, while at the same time responding to public pressure concerning the amount of cash pay received by bank CEOs.

Further tests reveal no relation between board structures and bank acquisition activity. Last, we find evidence that electric utilities experience at least as many board and compensation committee changes as banks over the sample period.

Taken together, these results are important for at least two reasons: First, they suggest that commercial banks responded to compensation reform by meaningfully restructuring their CEO pay packages. Second, the results emphasize the increasing significance of internal contracting mechanisms in general, and executive compensation policies in particular, in aligning the interests of managers and shareholders in commercial banks. More generally, these findings highlight the study of governance in commercial banks as a potentially fruitful area for further research.

Appendix: List of the 94 commercial banks studied in this paper

Amsouth Bancorporation
Bank One Corp.
Bank Boston
Bank South
Bankers Trust
Barnett Banks
BB&T Financial
Central Fidelity Banks
Chemical Financial
City National
Commerce Bancshares
Corestates Financial
Cullen/Frost Bankers
Deposit Guaranty
Equimark
First American
First Chicago
First Commerce
First Fidelity Investment
First Hawaiian
First of America Bank
First Tennessee Natl
First Virginia Banks
Firtsier Financial
Fourth Financial
Manufacturers National
Mellon Financial
Merchants National
Michigan National
MNC Financial
National City
NBB Bancorp
Northern Trust
Old Kent Financial
Baltimore Bancorp
Pacific Century
Bank of New York
Bank of America
Banponce
Baybanks
Boatmens Bancshares
Chase Manhattan
Citicorp
Colorado Natl Bankshares
Continental Bank
Crestar Financial
Dauphin Deposit
Dominion Bankshares
Fifth Third Bancorp
First Bank System
First Citizens
First Empire State
First Florida Banks
First Interstate
First Security Corp
First Union Corp
Firstar
Fleet Mtg Group
Hibernia
MBNA Corp
Merchants Bancorp
Meridian Bancorp
Midland Finl Group
Multibank Financial
National Community Bank
Northeast Bancorp
Norwest Financial
Old Stone Corp

Peoples Bancorp
PNC Financial Svcs
Premier Bancorp
Puget Sound Bancorp
Republic New York
Riggs Natl Corp
Shawmut National
Signet banking
Society for Savings
Southtrust
Standard Fedl Bancorp
State Street Corp
Sumitomo Bank of California
Summit Bancorp
Suntrust Banks
Trustmark Corp
UJB Financial
Union Bancorp
Union Planters
USBancorp
US Trust
Valley National
Wells Fargo & Co
West One Bancorp
Wilmington Trust
Zions Bancorporation

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Notes

1. For corporate governance studies focusing on industrial firms see, for example, Yermack (1996), Kole (1997), and Vafeas (1999).
2. See Mitchell and Mulherin (1996) for evidence on corporate control activity in banking and Berger, Demsetz and Strahan (1999) for a detailed review of banking deregulations and their impact on the banking industry.
3. In a similar vein, Kole and Lehn (1999) report evidence that deregulation in the airline industry was followed by a tighter pay-for-performance sensitivity, also consistent with deregulation unmasking managerial inefficiencies and eliciting stronger compensation incentives for managers.
4. The rules provided (1) for a graphical comparison of the firm's cumulative stock performance to a group of peers, (2) for a more complete description of long-term compensation in SAR's and stock options in tabular form, (3) for a signed compensation committee report explaining the criteria used in making the compensation decisions, and (4) for a summary of top executive compensation for the past three years.
5. For a more complete description of the rules see the SEC proposal of June 24, 1992 (Release 33-6940) and the final draft as approved on October 15, 1992 (SEC Release 33-6962). Later SEC Releases refined these rules without changing their substance.
6. Even though the tax code revisions were not finalized until early in 1994, they had been anticipated since the change in administration in November of 1992.
7. This expectation would also be consistent with the recommendations of the UK's Cadbury (1992) report, and with the empirical findings reported by Newman and Mozes (1999).
8. Since revisions to the tax code and the new proxy disclosure rules were fairly close in time, it is difficult to distinguish between the two effects. Any compensation policy changes are interpreted as being associated with the joint effect of the two reform measures.
9. See "The pay" in Forbes, May 28, 1990, pp. 266–317 and "What 800 companies paid their bosses" in Forbes, May 27, 1991, pp. 236–289.
10. At the margin, a firm's expected tax burden should affect its willingness to adopt structural changes in executive compensation in response to IRC revisions. In our sample less than 5% of firm-years exhibit a net

operating loss. The rarity of losses in our sample suggests that the additional tax burden is likely to motivate compensation decisions for the vast majority of our sample firms.

References

Adams, R. and H. Mehran, “Board Structure and Banking Firm Performance.” Working paper, Federal Reserve Bank of New York, 2002.

Alchian, A. and H. Demsetz, “Production, Information Costs, and Economic Organization.” *American Economic Review* 62, 777–795 (1972).

Anderson, R. and J. Bizjak, “An Empirical Examination of the Role of the CEO and the Compensation Committee in Structuring Executive Pay.” Working paper, American University and Portland State University, 2000.

Barro, J. and R. Barro, “Pay, Performance, and Turnover of Bank CEOs.” *Journal of Labor Economics* 8, 448–481 (1990).

Baysinger B. and H. Butler, “Corporate Governance and the Board of Directors: Performance Effects of Changes in Board Composition.” *Journal of Law, Economics and Organization* 1, 101–124 (1985).

Berger, A., R. Demsetz and P. Strahan, “The Consolidation of the Financial Services Industry: Causes, Consequences, and Implications for the Future.” *Journal of Banking & Finance* 23, 135–194 (1999).

Brickley, J., L. Coles and R. Terry, “Outside Directors and the Adoption of Poison Pills.” *Journal of Financial Economics* 34, 371–390 (1994).

Brickley, J. and C. James, “The Takeover Market, Corporate Board Composition, and Ownership Structure: The Case of Banking.” *Journal of Law and Economics* 30, 161–180 (1987).

Byrd, J. and A. Hickman, “Do Outside Directors Monitor Managers? Evidence from Tender Offer Bids.” *Journal of Financial Economics* 32, 195–221 (1992).

Cotter, J., A. Shivdasani and M. Zenner, “Do Independent Directors Enhance Target Shareholder Wealth During Tender Offers?” *Journal of Financial Economics* 43, 195–218 (1997).

Crawford, A., J. Ezzell, and J. Miles, “Bank CEO Pay-Performance Relations and the Effects of Deregulation.” *Journal of Business* 68, 231–256 (1995).

Eisenburg, T., S. Sundgren and M. Wells, “Larger Board Size and Decreasing Firm Value in Small Firms.” *Journal of Financial Economics* 48, 35–54 (1998).

Gilson, S., “Bankruptcy, Boards, Banks, and Blockholders: Evidence on Changes on Corporate Ownership and Control when Firms Default.” *Journal of Financial Economics* 27, 355–387 (1990).

Hermalin, B. and M. Weisbach, “The Determinants of Board Composition.” *RAND Journal of Economics* 19, 589–606 (1988).

Hermalin, M. and M. Weisbach, “The Effects of Board Composition and Director Incentives on Firm Performance.” *Financial Management* 20, 101–112 (1991).

Holderness, C., R. Kroszner and D. Sheehan, “Were the Good Old Days that Good? Changes in Managerial Stock Ownership Since the Great Depression.” *Journal of Finance* 54, 435–470 (1999).

Houston, J. and C. James, “CEO Compensation and Bank Risk—Is Compensation in Banking Structured to Promote Risk Taking?” *Journal of Monetary Economics* 36, 405–431 (1995).

Hubbard, R. and D. Palia, “Executive Pay and Performance: Evidence from the U.S. Banking Industry.” *Journal of Financial Economics* 39, 105–130 (1995).

Jensen, M. and K. Murphy, “Performance Pay and Top Management Incentives.” *Journal of Political Economy* 98, 225–264 (1990).

Kole, S., “The Complexity of Compensation Contracts.” *Journal of Financial Economics* 43, 79–104 (1997).

Kole, S. and K. Lehn, “Deregulation and the Adaptation of Governance Structures: The Case of the U.S. Airline Industry.” *Journal of Financial Economics* 52, 79–117 (1999).

Mayers, D., A. Shivdasani and C. Smith, “Board Composition and Corporate Control: Evidence from the Insurance Industry.” *Journal of Business* 70, 33–62 (1997).

Mitchell, M. and H. Mulherin, “The Impact of Industry Shocks on Takeover and Restructuring Activity.” *Journal of Financial Economics* 41, 193–229 (1996).

Murphy, K., “Corporate Performance and Managerial Remuneration: An Empirical Analysis.” *Journal of Accounting and Economics* 7, 11–42 (1985).

Murphy, K., "Executive Compensation." Forthcoming in Orley Ashenfelter and David Card (Eds.), *Handbook of Labor Economics*, vol. 3, North Holland, 1999.

Newman, H. and H. Moses, "Does the Composition of the Compensation Committee Influence CEO Compensation Practices?" *Financial Management* 28, 41–53 (1999).

Perry, T. and M. Zenner, "Pay for Performance? Government Regulation and the Structure of Compensation Contracts." Working paper, Arizona State University and University of North Carolina, 1999.

Prowse, S., "Corporate Control in Commercial Banks." *Journal of Financial Research* 20, 509–527 (1997).

Schrantz, M., "Takeovers Improve Firm Performance: Evidence from the Banking Industry." *Journal of Political Economy* 101, 299–326 (1993).

Shivdasani, A. and D. Yermack, "CEO Involvement in the Selection of New Board Members: An Empirical Analysis." *Journal of Finance* 54, 1829–1854 (1999).

Smith, C. and R. Watts, "Incentive and Tax Effects of Executive Compensation Plans." *Australian Journal of Management* 7, 139–157 (1982).

Subrahmanyam, V., N. Rangan and S. Rosenstein, "The Role of Outside Directors in Bank Acquisitions." *Financial Management* 26, 23–36 (1997).

The Cadbury Report, *Report of the Committee on the Financial Aspects of Corporate Governance*, Gee Publishing, United Kingdom, 1992.

U.S. Securities and Exchange Commission (SEC), *Executive Compensation Disclosure, Release 33-6940* (June 23, 1992a).

U.S. Securities and Exchange Commission (SEC), *Executive Compensation Disclosure, Release 33-6962* (October 16, 1992b).

Vafeas, N., "Board Meeting Frequency and Firm Performance." *Journal of Financial Economics* 53, 113–142 (1999).

Vafeas, N. and Z. Afxentiou, "The Association Between the SEC's 1992 Compensation Disclosure Rule and Executive Compensation Policy Changes." *Journal of Accounting and Public Policy* 17, 27–54 (1998).

Yermack, D., "Higher Market Valuation of Companies with a Small Board of Directors." *Journal of Financial Economics* 40, 185–211 (1996).

Wartzman, R., "The Clinton Budget: Tax Plan Gives Shareholders a Voice in How Companies Pay Top Executives." *The Wall Street Journal*, A4, (April 9 1993).

Whidbee, D., "Board Composition and Control of Shareholder Voting Rights in the Banking Industry." *Financial Management* 26, 27–41 (1997).