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**The FDICIA and Bank CEOs'
Pay-Performance Relationship:
An Empirical Investigation**

by Ying Yan



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Ying Yan is a visiting economist at the Federal Reserve Bank of Cleveland. This paper is based on a chapter of the author's Ph.D. dissertation. The author is especially grateful to James Thomson for his generous advice. The author also thanks Jocelyn Evans, Joseph Haubrich, Larry Lang, Inmoo Lee, Bing Liang, Ranga Narayanan, William Osterberg, Peter Ritchken, Calvin Siebert, Ajai Singh, seminar participants at the Southern Finance Association in Baltimore, Bowling Green State University, Case Western Reserve University, the Federal Reserve Bank of Cleveland, and John Carroll University for their helpful comments. The research assistance of Sunaina Kilachand and the editorial assistance of Michele Lachman are gratefully acknowledged.

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Abstract

Banking problems in the 1980s led to passage of the FDICIA (1991). The purpose of this legislation was to improve market and regulatory discipline of banks' performance through changes in incentive structures. This paper looks at how the FDICIA changes bank CEOs' pay-performance relationship. It finds that the FDICIA improves healthy banks' growth opportunities, making their CEOs' total compensation less sensitive to performance. Meanwhile, the FDICIA restricts unhealthy banks' growth opportunities, making their CEOs' total compensation more sensitive to performance. These results support the agency-cost-of-debt theory developed in John and John (1993). This paper shows that since enactment of the FDICIA, CEOs' compensation structure has become more incentive-based for both healthy and unhealthy banks. At the same time, the main components of CEOs' compensation, salary and bonus, have become more sensitive to accounting earnings, while stock-based compensation has become more responsive to stock returns.

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ABSTRACT

Banking problems in the 1980s led to the passing of the FDICIA (1991). The purpose of this legislation was to improve market and regulatory discipline of bank performance through changes in incentive structures. This paper looks at how the FDICIA changes bank CEOs' pay-performance relationship. It finds that the FDICIA improves healthy banks' growth opportunities, making their CEOs' total compensation less sensitive to performance. Meanwhile, the FDICIA restricts unhealthy banks' growth opportunities, making their CEOs' total compensation more sensitive to performance. These results support the agency-cost-of-debt theory developed in John and John (1993). The CEOs' compensation structure is found to be more incentive-based for both healthy and unhealthy banks after the enactment of the FDICIA. The main components of CEO compensation, salary and bonus, became more sensitive to accounting earnings, while stock-based compensation became more responsive to stock returns after the FDICIA was enacted.

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1. Introduction

Due to the dramatic increase in the number of failed banks in the late 1980s, Congress passed the Federal Depository Insurance Corporation Improvement Act (FDICIA) in December 1991. The FDICIA provides a new statutory framework for bank supervision that details early intervention and prompt corrective action by bank regulators in dealing with troubled banks. In particular, Section 131 concerning prompt corrective action classifies banks into five categories depending upon their risk-based capital ratios. Bank regulators can take supervisory actions on the basis of these categories. While banks above the highest threshold are considered well-capitalized, increasingly severe statutory restrictions and penalties are applied to banks in the three lowest categories, because their capital ratios fall below the clearly specified thresholds. For the troubled banks, these prompt corrective actions restrict activities and investment opportunities.

Meanwhile, bank regulators have begun to recognize that decision making ultimately rests with bank managers, whose actions are influenced by their compensation. Recognition of the important incentive effects of management compensation is codified in the FDICIA, giving federal bank regulators the authority to regulate managerial compensation in the banking industry. The FDICIA also mandates bank regulators to provide guidelines for senior management compensation structures at federally insured commercial banks, especially those that are undercapitalized. Although the economic theories of agency and optimal contracts have offered some explanations about the phenomena of managerial compensation, the effects of bank regulations on CEOs' pay, performance, and the pay-performance relationship are little understood. The FDICIA legislation necessitates more research concerning the regulations' effects on bank CEOs' compensation, a gap that this paper seeks to fill.

There is an extensive body of literature on how CEOs' compensation is related to their performance.¹ Jensen and Murphy (1990) show that a CEO's wealth changes \$3.25 for every \$1,000 change in shareholder wealth and conclude that overall pay-performance sensitivity is

¹ See Jensen and Murphy (1990), Murphy (1985, 1986), Rosen (1990), Joskow, Rose, and Shepard (1993), and Rose and Shepard (1994).

very low. Their work also suggests that not cash but equity-based compensation gives managers the correct incentive to maximize firms' value. However, there is little empirical evidence on whether corporations whose executive compensation is more equity-based actually perform better. Murphy (1986) finds that pay-performance sensitivity is negatively influenced by CEO experience. This phenomenon is also confirmed by Barro and Barro (1990), using a sample of commercial banks. Houston and James (1993) compare bank CEOs' pay-performance sensitivity with that of non-bank CEOs. They find that pay-performance sensitivity is lower for bank CEOs than for non-bank CEOs. Smith and Watts' (1992) comparison of regulated firms (including banks) and unregulated firms finds that those with greater investment opportunities employ more skilled executives who have higher pay and a more pronounced pay-performance relationship. According to Garen (1994), CEOs' pay-performance sensitivity is negatively related to firm size, and the empirical evidence that CEO compensation is consistent with the principal-agent model is not strong. Crawford, Ezzell, and Miles (1995) and Hubbard and Palia (1995) document that permitting interstate banking raises bank CEOs' pay-performance sensitivity.² So far, however, little is known about how the FDICIA has affected bank CEOs' pay-performance sensitivity and pay structure.

This paper extends the prior literature by distinguishing the regulation's direct effect from its indirect effect (the investment opportunity change). It is important to know whether the FDICIA has changed CEO pay-performance sensitivity and, if so, whether its effects are direct or indirect. The important factor that the regulation affects first is the firms' growth (investment) opportunity. Smith and Watts (1992) suggest that greater growth opportunities are associated with a stronger pay-performance relationship; they refer to this as the *contracting hypothesis* because they assume managers have private information about the firm's investment opportunities. As this information asymmetry grows, boards of directors have greater difficulty evaluating managers' success in choosing among investments.

² Crawford, Ezzell, and Miles (1995) define pay-performance sensitivity as the regression coefficient between the change in CEO pay and the change in shareholder wealth, while Hubbard and Palia (1995) define it as the regression coefficient between CEO pay and shareholder wealth.

Therefore, firms with larger growth opportunities should make compensation more sensitive to performance and use more stock-based compensation to increase managerial incentives. If banking deregulation (or non-regulated industries) could be interpreted as having a more competitive environment and higher growth opportunities, Crawford, Ezzell and Miles (1995), Hubbard and Palia (1995), Houston and James (1993), and Joskow, Rose, and Shepard (1993) all appear to support the contracting hypothesis. However, none of these papers really check how deregulation affects investment opportunities or how investment opportunities differ between regulated and unregulated industries. In this respect, their empirical evidence is not fully explained.

By examining how the FDICIA affects banks' growth opportunity, I hope to offer a more complete story about the effect of regulation. If the FDICIA did change banks' investment opportunities, then the evidence presented in this paper can be considered as the consequence of those banks' adjustments to investment opportunity changes. However, if the banks' investment opportunities are not affected by the FDICIA, then the empirical evidence presented might only be due to the special content of the FDICIA. Since the FDICIA's purpose is to solve the problems of troubled banks, making CEO compensation more performance-based is one way to get better bank performance, even if banks' investment opportunities are not affected. Thus, the hypothesis that bank CEOs' pay-performance sensitivity increases without any change in the banks' investment opportunities is referred to as the *FDICIA hypothesis*.

However, the agency cost of debt theory offers another story. Myers (1977) points out that firms with more growth opportunities borrow less and suffer from a greater underinvestment problem. To reduce underinvestment, optimal managerial compensation in a leveraged firm should have low pay-performance sensitivity as a precommitment device to minimize the agency cost of debt (John and John [1993]). The reason is that if managers have strong incentives to maximize the value of equity, debt holders will demand a higher risk premium for supplying capital, fearing that managers will pursue excessively risky investment projects that transfer wealth from debt holders to equity holders. Thus, when a firm has a higher growth opportunity, its board of directors might find it optimal to lower the managers'

pay-performance sensitivity in order to reduce the expected underinvestment problem. This is referred to as the *agency cost hypothesis*, and its prediction will be contrary to that of the *contracting hypothesis*.

Following Smith and Watts (1992), Gaver and Gaver (1993), and Yermack (1995), I use Tobin's Q (measured by market-to-book value of total assets) as the proxy for growth opportunities. Since the FDICIA emphasizes solving the problems of the troubled banks, it is necessary to separate the unhealthy banks from the healthy ones if we are to distinguish the different effects across groups. I find that the FDICIA is associated with an improvement in healthy banks' growth opportunities but a reduction in unhealthy banks'. This is consistent with the results on how banks' stocks responded to passage of the FDICIA (Liang, Mohanty, and Song [1996]). They find that shareholders of well-capitalized banks benefited from the FDICIA, while shareholders of undercapitalized banks suffered. For unhealthy banks, the negative stock response to the FDICIA comes from the mandatory and discretionary corrective actions towards them. The positive stock response of healthy banks may arise from relief, because the empirical evidence shows that healthy banks held excess cash flow while waiting for the new regulation to unfold.³ According to the contracting hypothesis, since investment opportunities are increased for healthy banks but decreased for unhealthy ones, enactment of the FDICIA should increase healthy banks' CEOs' pay-performance sensitivity, and decrease unhealthy banks'. The agency cost hypothesis, however, predicts the opposite. My empirical evidence supports the agency cost hypothesis. I find that the FDICIA made healthy banks' CEOs' total compensation less sensitive to performance, and unhealthy banks' more sensitive. Thus, the FDICIA did affect various bank groups' investment opportunities differently, inducing the pay-performance sensitivity change.

Along with these results, my study contributes to the literature by analyzing how both total compensation and the compensation structure relate to performance. Mehran (1995) points out that it is the structure of compensation, not its level, that motivates managers. He

³ When capital ratio (leverage ratio) is included as a control variable in the regression, I find the CEOs' total compensation is negatively related to capital ratio, and those estimated coefficients dropped significantly after the enactment of the FDICIA.

finds that firm performance is significantly related to the percentage of a CEO's compensation that is equity based, when growth opportunity is one of the control variables. However, his paper focuses on the general relationship among compensation structure, board composition, and firm performance. It does not address the question of how growth opportunity change could affect pay-performance sensitivity or the issue of compensation structure change. I find that, after enactment of the FDICIA, the ratio of equity-based compensation increased significantly for all banks. However, cash compensation, consisting of salary and bonus, is still the main component of CEOs' compensation package (over 70 percent on average). I also find that after the enactment of the FDICIA, cash compensation became more sensitive to accounting earnings, while equity-based compensation became more sensitive to stock returns.

This paper is organized as follows. The next section reviews the FDICIA regulation. Section 3 describes the data and the details of the sample selection procedure. Section 4 explains the variables and model specification. Section 5 presents the empirical results, and section 6 summarizes them.

2. The FDICIA Regulation Due to the dramatic increase in regulatory forbearance associated with bank and thrift failures in the 1980s, Congress passed the FDICIA on December 19, 1991. Its intent was to revise bank capital requirements, emphasize the importance of capital, and authorize early regulatory intervention and supervision of senior management compensation in problem institutions. Two of its key provisions were designed to reduce the cost of bank failures. First, the FDICIA's provision for early closure allowed bank regulators to close failing institutions with a positive level of capital. Such a policy has been advocated to prevent excessive losses to the deposit insurance fund, as discussed by Kane (1983), and to solve the moral hazard problem created by fixed-rate deposit insurance, as noted by Buse, Chen, and Kane (1981). The FDICIA explicitly limits use of the too-big-to-fail doctrine in order to reduce the FDIC's losses. An exception to the least-cost provision is the *systemic risk* exemption, invoked when it is determined that the failure of a large bank would "have serious adverse effects on economic conditions or financial stability." To invoke the systemic risk exemption requires the approval of a two-thirds majority of both the Board of Governors of the Federal Reserve System and the directors of the FDIC, as well as the approval of the Secretary of the Treasury. Under the FDICIA, the FDIC is also precluded from extending de facto guarantees to any uninsured liabilities of the bank. The FDICIA limits the Federal Reserve's incentive to provide solvency support through the discount window by requiring the Fed to share in the FDIC's losses if Fed lending to a closed bank increases the resolution costs. The FDICIA's second key provision involves bank regulators' early intervention in problem banks. While prompt corrective action was intended to supplement existing supervisory activities, the FDICIA legislated both mandatory and discretionary interventions for problem banks to save them from becoming insolvent. The FDICIA divides banks into the following five categories: 1) well-capitalized; 2) adequately capitalized; 3) under-capitalized; 4) significantly undercapitalized; and 5) critically undercapitalized. The bank categories are defined by three capital ratios: the total risk-based capital ratio (total capital/total risk-weighted assets),⁴ the Tier 1 risk-based capital ratio (Tier

⁴ The components used and their weights (in parentheses) are as follows: noninterest-bearing balances and currency and coin (0); interest-bearing balances (0.25); short-term U.S. Treasury and government agency debt securities

1 capital/risk-weighted assets),⁵ and book capital ratio (Tier 1 capital/ total assets). To be considered adequately (well) capitalized, a bank must maintain a total risk-based capital ratio of at least 8 (10) percent; a Tier 1 risk-based capital ratio of at least 4 (6) percent; and a book capital ratio of at least 4 (5) percent. If a bank fails to meet the minimum thresholds for adequate capital ratios, it becomes undercapitalized, and the mandatory restrictions on its activities become increasingly severe as the bank's capital ratios deteriorate below additional thresholds. Undercapitalized banks--those with total risk-based capital ratios less than 8 percent, Tier 1 risk-based ratios less than 4 percent, and Tier 1 leverage ratios less than 4 percent--are subject to a multitude of restrictions.⁶ In the extreme case, when a bank's tangible equity ratio falls to 2 percent or less, it is considered to be critically undercapitalized and faces the appointment of conservatorship (receivership) within 90 days. The purpose of the prompt corrective action is to limit regulatory forbearance, common in the past, in which regulators did not immediately impose any sanctions on undercapitalized banks.

The FDICIA intended to resolve the principal-agent conflict between depository institution regulators and taxpayers by establishing incentive-compatible contracts for regulators. If successful, the FDICA should have an effect on private contracts such as the compensation of bank CEOs. In this study, I empirically investigate how the FDICIA affects bank CEOs' pay-performance sensitivity and pay structure. I also seek indirect evidence on whether the FDICIA has reduced the too-big-to-fail phenomenon.

3. Data Sources and Sample Selection

The sample used in this study consists of banks held by bank holding companies (BHCs), with stock information from the Center for Research in Security Prices (CRSP) from

(0.10); long-term U.S. government and agency debt securities (0.25); state and local government securities (0.50); bank acceptances (0.25); standby letters of credit and foreign office guarantees (0.75); loan and lease financing commitments (0.25); commercial letters of credit (0.50); and all other assets (1.00).

⁵ Tier 1 capital includes common stockholders' equity, qualifying cumulative and noncumulative perpetual preferred stock, and minority interest in common equity accounts of consolidated subsidiaries.

⁶ The mandatory and discretionary provision for the undercapitalized banks includes the ability to suspend dividends and management fees; require approval for acquisitions, branching, and new activities; restrict interaffiliated transactions; restrict deposit interest rates; prohibit brokered deposits; restrict the pay of officers; suspend payment on subordinated debt; and restrict certain other activities.

1989 to 1994. This provides us with roughly three years of data before and after enactment of the FDICIA to observe the legislation's effect. Data constraints precluded the use of a longer time period.

Balance sheet and income data for bank subsidiaries are taken from the Federal Financial Industry Examination Council Reports of Income and Condition (henceforth, call reports). Those variables include the bank's book value of total assets, book value of equity, net income, rate of return on assets (ROA = net income/total asset), total risk-based capital ratio, Tier 1 risk-based capital ratio, and leverage (book capital) ratio. The ratios at the bank-holding-company level are calculated by aggregating individual bank data at that level when constructing the capital ratios.

Two groups of banks are selected from the call reports. The first consists of banks with total assets that exceeded \$0.5 billion by the end of 1994. In addition, these banks maintained a leverage ratio of 5.5 percent or higher throughout 1989-91, and their risk-based capital ratios fitted into the "adequately capitalized" or "well-capitalized" categories throughout 1992-94.⁷ Then the highest level of bank holding companies for those bank subsidiaries are found, using the bank code of the call report. This yields the healthy group with 125 BHCs.⁸

The second group consists of all banks in the call report that failed to meet the healthy criterion at a certain point in time but recovered by the end of 1994 (that is, they either had a leverage ratio lower than 5.5% at a certain point in time during the 1989-91 period or their total risk-based capital ratio is lower than 8%, or their Tier 1 risk-based capital ratio is lower than 4%, or their leverage ratio was lower than 4% at some point during the 1992-94 period).⁹ The highest BHCs of those bank subsidiaries are found as well. The final unhealthy group

⁷ A further investigation of bank supervision and regulations shows that a 5.5% leverage ratio is more appropriate than the 7% cut-off ratio used in Shrieves and Dahl (1992), since drawing the line at 7% made some healthy banks fall into the unhealthy group.

⁸ There are 18 BHCs with bank subsidiaries that belong to the healthy and the unhealthy group at the same time. However, after calculating the capital ratios weighted by banks assets held by different groups, I find that all 18 of these BHCs belong to the healthy group.

consists of 36 BHCs.¹⁰ The names of the BHCs in the healthy and unhealthy groups are listed in Appendices A and B.¹¹

Compensation for CEOs is collected from the annual proxy statements filed by banks with the Securities and Exchange Commission (SEC). The collected data include salary, bonus, restricted stock awards, options amount granted, options exercise price, and other compensation (such as life insurance, travel subsidies, and perquisites). Note that the SEC proxy statement filing format changed in 1993. Before that date, each firm reported only the current year's compensation, and CEOs' bonus and salary information were grouped together as "total cash compensation." Most of the firms did not report (or grant) restricted stock awards and/or options. Since 1993, proxy statement filing has required reporting CEOs' compensation for the previous three years. The reporting of bonuses, restricted stock awards, and options has also become standard. Therefore, compensation data with the new standard filing format can be traced back to 1990.¹² The salary and bonus in 1989, reported as "cash compensation," cannot be separated.

BHCs' stock market information is obtained from the CRSP monthly data files. These variables include stock price, number of shares outstanding, and stock return. The stock dividends and the variances of the stock return are also derived from CRSP. The stock return, dividends, and stock variance are annualized and used in the Black-Scholes (1973) formula to evaluate the options. The market value of equity is calculated by multiplying the stock price and the shares outstanding at the end of each year. Tobin's Q is constructed as the ratio of market value to book value of the total assets. The market value of total assets is derived by using the book value of total asset minus the book value of equity plus the market value of

⁹ There are 14 BHCs that failed to recover by the end of 1994. However, because few of them have compensation data available, they are not included in the sample.

¹⁰ The unhealthy group has also been divided into two smaller groups by their recovery date, either before or after FDICIA. However, further research shows that there is no significant difference between them.

¹¹ Compensation data are collected for six additional BHCs. However, because these companies failed in 1992 and 1993, the post-FDICIA data are not sufficient to form a group. Hence, these BHCs were deleted from the sample. They are listed in Appendix C.

¹² All of the results are recalculated using only 1990 and 1992 data for the pre-FDICIA and post-FDICIA periods, to make sure that the reporting change does not bias the result. The conclusion remains the same.

equity. The three data sets--compensation data, banks' accounting data, and stock market data--are merged together according to the BHCs.

4. The Variables and Model Specification

Compensation policy uses many mechanisms to provide value-increasing incentives that improve CEOs' performance. Performance-based dismissal is one of them. Jensen and Murphy (1990) find a negative relationship between net-of-market firm performance and the probability of managerial turnover. Their findings suggest that managers are more likely to leave after bad years than after good years and are disciplined by a credible threat of dismissal. However, I find only a very few CEO turnovers for banks. This is probably due to the regulated nature of the banking industry, where dismissal does not seem to serve as a credible threat for bad performance. Therefore, the pay-performance relationship study here focuses on the pecuniary pay of the CEOs and excludes the threat of dismissal as an influencing factor.

Pecuniary compensation can be classified into two categories, cash and stock-based. Cash compensation consists of salary and bonus. Both of them are related to only short-term performance. They are inseparable in 1989 due to the historic reporting format of SEC filings. Stock-based compensation, which consists of options and restricted stock awards, provides an incentive for good managerial performances in the long run. The value of options held at the end of year T is valued by applying the Black-Scholes (1973) valuation formula, which allows for continuously paid dividends (Murphy [1985], Jensen and Murphy [1990]) as follows:

$$C = N [S e^{-dT} \Phi(Z) - X e^{-rT} \Phi(Z - \sigma\sqrt{T})]$$

$$\text{where } Z = \frac{[\ln(S/X) + T(r - d + \sigma^2/2)]}{\sigma\sqrt{T}}, \text{ where}$$

C is the award value of the stock options;

N is the number of shares covered by awards;

S is the common stock price from CRSP;

X is the option exercise price from the proxy statement;

r is the continuous risk-free interest rate, which is proxied by the market yield on 5-year

Treasury bonds in year t (see the *Federal Reserve Bulletin*);

$\Phi (\cdot)$ is the cumulative standard normal distribution function;

T is the time of options expiration, with 10 years used as the proxy, following Houston and James (1992), and Hubbard and Palia (1995);

d is the continuous dividend yield defined as $\ln (1 + \text{dividend per share/closing stock price})/12$ of the previous year; and

σ is the standard deviation of the stock return of the previous year.

Both the cash and stock-based compensation are scaled by total compensation, which is the sum of salary, bonus, restricted stock awards, options, and other compensation. This is consistent with Mehran (1995), who finds that the compensation structure, not the level, of compensation motivates managers. Total compensation is scaled by the market value of equity at the end of that year.

The level of risk that banks take can be highly influenced by CEOs' compensation structure. When a large fraction of CEOs' compensation is tied to performance, they might have a good incentive to accept more risk than CEOs whose pay is insensitive to performance. The bank's risk, which is proxied by the standard deviation of the stock return of that year, is also included as a control variable.

A number of empirical studies (see Ciscell and Carroll [1980] for a survey) have found a positive relationship between firm size and salary, and this phenomenon is confirmed in my analysis of banks. Rosen (1990) explains it using the firm as a hierarchical control structure. He finds that the competitive labor market allocates the more talented CEOs to larger firms, since the marginal productivity of their actions is magnified across the lower levels of the hierarchy. However, how the compensation structure is related to firm size is not yet known. Thus, I include the log transformation of a bank's total assets (LNTOTAST) as the size variable to control for that factor.

Whether the accounting-based variable or the stock-based variable is a more appropriate proxy for performance is still a controversial issue. Some papers, like Crawford, Ezzell, and Miles (1993), Houston and James (1993), Murphy (1985, 1986), and Jensen and Murphy (1990), use stock return as the proxy for performance. They find that CEO wealth change is quite insensitive to stock return. However, there is also a significant amount of research documenting the extensive use

of accounting earnings as a basis for CEO compensation. Sloan (1993), Paul (1992), and Lamber and Larcker (1987) argue that because stock returns are heavily influenced by the overall economy, they reflect lots of systematic risk instead of a firm's individual performance. The major part of the stocks' movement is beyond the CEOs' control. Thus, it is uncertain how many managerial contracts are based on market performance rather than accounting performance. Following Barro and Barro (1990), I include both stock returns (RET) and accounting earnings (ROA) as performance proxies, because each is important in determining the CEO compensation structure and their correlation is low.

The ordinary-least-squares regression is used to observe the relationship between CEOs' compensation structure and performance.¹³ The following equation is used for the regression:

$$\text{compensation ratio} = a + b_1 \text{LNTOTAST} + b_2 \text{ROA} + b_3 \text{RET} + b_4 \text{RISK} + \varepsilon.$$

I pool together cross-section and time-series observations and do the regressions for pre-FDICIA, post-FDICIA, and entire sample periods. Missing observations for the compensation data leave us with a total of 675 observations, 510 for the healthy group and 165 for the unhealthy group. The analyses are focused on the comparison between pre- and post-FDICIA periods across groups. Recall that all the hypotheses are related to banks' growth opportunity, which is measured by market-to-book value of total assets (see Yermack [1995] and Smith and Watts [1992]). The book value of total assets is used as a surrogate for assets in place. The firm with a lower proportion of assets in place will have better chance to grow. The FDICIA might affect banks' growth opportunities by putting more restrictions on problem banks' investment activities and it may influence healthy banks' investment opportunities as well.

5. Empirical Results

The regression estimates for total compensation are provided in table 1. They are divided into three panels to facilitate comparison between the unhealthy and the healthy group; the healthy group in the pre-FDICIA period versus the post-FDICIA period; the unhealthy group in the pre-FDICIA period versus the post-FDICIA period. The comparison result of compensation structure change is provided in table 2, which also includes Tobin's Q,

the most important factor for the hypotheses testing. The cash compensation results are shown in table 3, while the stock-based compensation results are in table 4.

5.1 Total compensation

Healthy banks' growth opportunity, proxied by Tobin's Q, is found to increase significantly, from 1.17 in the pre-FDICIA period to 1.28 in the post-FDICIA period ($t=2.12$). However, Tobin's Q of the unhealthy group (see table 2) dropped from 1.38 to 1.10 ($t=1.36$). This is consistent with the results of Liang, Mohanty, and Song (1996). Since the FDICIA did change the banks' investment opportunities, the FDICIA hypothesis does not apply in this study.

Table 1 presents the results for total compensation regressions. Panel A compares the results of the unhealthy versus the healthy group. It is found that the healthy group's total compensation is tied more to stock returns than that of the unhealthy group.¹⁴ The difference of their coefficient estimation is significant at the 1 percent level. However, the total compensation of the unhealthy group is more closely tied to accounting earnings than is that of the healthy group, with a coefficient difference that is significant at the 10 percent level. The healthy group's sensitivity of total compensation to risk is much lower than the unhealthy group's, with a coefficient difference that is significant at the 1 percent level. The size effect of the healthy group is also significantly lower than that of unhealthy group. Thus, the across-group comparison shows that the healthy group's total compensation is more associated with market performance and has less to do with bank stock risk and bank size, while the unhealthy group's total compensation is more closely associated with accounting earnings.

Panel B compares the regression results of total compensation for the healthy group across periods. The data show that the relationship of total compensation to performance has changed dramatically. The coefficient estimates of total compensation to ROA and RET changed from positive in the pre-FDICIA period to negative in the post-FDICIA period, and

¹³ For the stock-based compensation regressions, the Tobit model is used. Those results are not substantially different from OLS and thus are not reported here.

the coefficient differences are significant for both ROA and RET at the 1 percent level. Recall that Tobin's Q increased significantly for the healthy group between the pre-FDICIA to the post-FDICIA period. Thus, total compensation's becoming less sensitive to performance in the post-FDICIA period is consistent with the agency cost hypothesis and contradicts the contracting hypothesis.

Panel C compares the regression results of the unhealthy group across periods. It is found that the total compensation of the unhealthy group is less related to size in the post-FDICIA period, and the coefficient differences are significant at the 5 percent level. This signals the positive effect of restricting usage of the too-big-to-fail policy. On the pay-performance relationship, it is found that the sensitivity of total compensation to stock return has dramatically increased across periods, from an estimation coefficient of -123.27 to 40.61, over weighting the decreased sensitivity of total compensation to accounting earnings (from -0.009 to -2.3003). Recall that Tobin's Q for the unhealthy group dropped from 1.38 to 1.10 from pre- to post-FDICIA. Thus, the dominance of total compensation's increased sensitivity to stock returns is also consistent with the agency cost hypothesis. Since the unhealthy groups' average total assets are larger in the post-FDICIA period than that in the pre-FDICIA period, this phenomenon differs from Garen (1994), who finds that CEOs' pay-performance sensitivities are negatively related to firm size. This difference reflects the substantial influence of the FDICIA regulation.

As a whole, with the change in Tobin's Q and in pay-performance sensitivity, the empirical evidence is clearly consistent with the *agency cost hypothesis*. For the healthy group, with increasing growth opportunity, the pay-performance sensitivity has been reduced after enactment of the FDICIA, while pay-performance sensitivity has grown for the unhealthy group with the decrease in growth opportunity.

5.2 The Compensation Structure Change

¹⁴ Although the level of total compensation is positively correlated with ROA and RET (not reported here), the total compensation scaled by the market value of equity is sometimes negatively related to ROA or RET. This is probably due to the disproportional change in CEOs' total compensation and the market value of equity.

It is interesting to see how FDICIA regulation affects CEOs' compensation structure across groups and across periods. The comparison of changes in compensation structure is shown in table 2.

Panel A shows the compensation structure change of the healthy group across periods. Between pre- and post-FDICIA, the salary ratio dropped from 67.7% to 52.3%, while the bonus ratio increased from 16.6% to 18.4%, the restricted stock awards ratio increased from 4.5% to 7.1%, and the options increased from 20.8% to 36%. All the above changes are significant at the 5 percent level or higher, except the bonus. Notice that only the salary ratio is significantly lower in the post-FDICIA period; almost all the weights of incentive-based compensation for the healthy group are significantly higher. This means that the compensation structure became more incentive-based for the healthy group in the post-FDICIA period.

The same trend is observed for the unhealthy group (panel B), for which the salary ratio dropped significantly, from 77.8% to 59.1% from the pre-FDICIA period to the post-FDICIA period. The bonus ratio increased significantly from 8.3% to 14.4%, while the options' ratio increased significantly from 12.4% to 21.3%. The only insignificant change occurred in the restricted stock ratio, which increased from 2.2% to 4.0% with $t = 1.19$. Thus, for both the healthy and the unhealthy group, the compensation structure became more incentive-based. It is important to notice that the FDICIA's impact on compensation structure change did not differ between the healthy and the unhealthy group.

Panel C of table 2 lays out the average compensation structure difference between these two groups. It shows that the compensation structure of the healthy group is much more incentive-based than that of the unhealthy group. For the healthy group, the salary ratio is 59.3%, significantly lower than the unhealthy group's 67.8%. The bonus ratio of the healthy group (17.8%) is significantly higher than that of the unhealthy group (11.7%). The restricted stock ratio of healthy group (6.0%) is also significantly higher than that of the unhealthy group (3.2%). In addition, the healthy group has a significant higher option ratio (27.6%) than the unhealthy group (17.2%). The average of the stock returns for the healthy group is 1.19,

while for the unhealthy group it is 0.22. They are significantly different from one to another at the 1 percent level ($t=10.23$). The average of accounting earnings of the healthy group (-0.31), is also significantly different from that of the unhealthy group (-1.10). The results in this panel provide evidence that banks whose CEO compensation structure is more incentive-based perform better than banks whose CEO compensation structure is less incentive-based. This finding is consistent with the argument in Jensen and Murphy (1990) that equity-based compensation rather than cash compensation gives managers the correct incentive to maximize their firms' value.

5.3 Cash Compensation

How cash compensation is related to bank performance, risk, and size is also an interesting issue. Mehran (1995) only addresses the issue of how the ratio of equity-based compensation responds to performance, without considering the ratio of cash compensation. Barro and Barro (1990), Hubbard and Palia (1995), and Smith and Watts (1992) examine how the level of cash compensation is related to performance, but not how the ratio of cash compensation relates to performance.

Results on the ratio of cash compensation are reported in table 3. The across-period change for the healthy group is reported in panel A, while panel B shows the results for the unhealthy group in both periods. For the healthy group, the ratio of cash compensation is negatively related to bank size significantly in both periods. This means that for a bigger healthy bank, the CEO's cash compensation will be less important than for a smaller bank. Notice that there are no significant coefficient changes for the cash compensation ratio related to bank size across periods for the healthy group. However, this change is significant for the unhealthy group. In panel B, although the cash compensation ratio is not significantly related to size in the pre-FDICIA period, it is significant at the 1 percent level in the post-FDICIA period. This means that among unhealthy banks, CEO compensation structure is more incentive-based for larger banks than for smaller ones. This could be interpreted as a positive effect of restricting the use of the too-big-to-fail policy.

With regard to the relationship between the cash compensation ratio and performance, I find that the cash compensation ratio is only significantly related to stock return negatively for the unhealthy group. This means that unhealthy banks' CEO compensation is more incentive-based for the banks whose stock returns are higher. This is also consistent with Jensen and Murphy (1990).

The other interesting phenomenon I find is that, for both healthy and unhealthy groups, the cash compensation ratio is tied more to accounting earnings and less to stock returns in the post-FDICIA period. The coefficient difference of this change is significant for both healthy and unhealthy groups. Notice that in the post-FDICIA period, the ratio of cash compensation decreased for both groups. As CEOs' total compensation became more incentive-based, with increased weight on restricted stock and options for both groups, cash compensation became more sensitive to accounting earnings, thus balancing the overall change. This shows that although stock returns play a more important role as the emphasis on equity-based incentives increases, accounting performance is still important. Because cash compensation is still the main portion of CEOs' compensation package (77.1% for the healthy group and 79.3% for the unhealthy group), accounting earnings still serve as the basic benchmark of performance. This phenomenon really provides some insight into the CEO pay-performance relationship. Lots of literature documents firms' increased use of equity-based incentives for CEO compensation, but it does not point out the fact that the major part of CEOs' compensation, usually over 60 or 70 percent of the total, became more sensitive to accounting performance. It might be misleading to ignore this phenomenon and think that accounting performance is no longer important.

5.4 Stock-based Compensation

The regression results for stock-based compensation are reported in table 4. In contrast to my results for cash compensation, for both healthy and unhealthy groups, stock-based compensation became more sensitive to stock returns and less sensitive to accounting earnings in the post-FDICIA period. Panel A shows that for the healthy group, stock-based compensation to accounting earnings changes from positively significant in the pre-FDICIA

period to negatively insignificant in the post-FDICIA period. However, its coefficient to stock return changed from positively insignificant in the pre-FDICIA period to 2.1451, which is significant at the 5 percent level, in the post-FDICIA period. The coefficient differences, for both ROA and RET, are significant at the 1 percent level across periods.

The same trend shows up for the unhealthy group (see panel B). The coefficient of ROA is positively significant in the pre-FDICIA period but became insignificant in the post-FDICIA. The coefficient of RET changed from 1.1008 (significant at the 5 percent level) in the pre-FDICIA period, to 2.1097 (significant at the 10 percent level) in the post-FDICIA period. The coefficient differences of ROA and RET are also significant across periods.

The results in table 4 should be considered in conjunction with the results of tables 2 and 3. Although the equity-based compensation increased in the post-FDICIA period for both groups, the share of equity-based compensation on average is still not the major part of compensation, being 20.4% for the unhealthy group and 33.6% for the healthy group in the full sample period. Thus, when interpreting the increased sensitivity of equity-based compensation to stock returns, one should keep the whole picture in mind. It is true that the ratio of equity-based compensation increased across periods' becoming more sensitive to stock returns and less sensitive to accounting earnings. However, the facts that cash compensation is still the main component of the overall compensation package and that it became more sensitive to accounting earnings should not be ignored.

For the unhealthy group, the ratio of stock-based compensation is significantly positively related to bank size only in the post-FDICIA period. This shows that larger banks' CEO compensation structure became more stock-based in the post-FDICIA period. This fact, like the results in table 3, shows the positive effect of limiting the use of the too-big-to-fail policy.

Overall, I find that the sensitivity of total compensation to performance is associated with banks' growth opportunities. The empirical evidence in this paper supports the *agency cost hypothesis*: After the FDICIA was enacted, the pay-performance sensitivity of healthy banks decreased, while their growth opportunities increased; the unhealthy banks' pay-

performance sensitivity increased, while their growth opportunities decreased. The CEOs' compensation structure became more incentive-based for both bank groups after enactment of the FDICIA. Cash compensation, which on average is still over 70 percent of the compensation package, became more sensitive to accounting earnings, while stock-based compensation became more sensitive to stock returns for both groups after enactment. For the unhealthy group, the empirical results show that CEOs' compensation structure is more incentive-based for the larger banks in the unhealthy group. This is consistent with limiting use of the too-big-to-fail policy.

6. Conclusion

The FDICIA has improved growth opportunities for healthy banks and restricted growth opportunities for unhealthy ones. Correspondingly, this study's empirical results support the agency cost theory predicting that CEOs' compensation should have lower pay-performance sensitivity to reduce the agency cost of debt and ease the underinvestment problem when the firms have higher growth opportunities. I find that after enactment of the FDICIA, total compensation became less sensitive to performance for CEOs of healthy banks and more sensitive for CEOs of unhealthy banks. This result contrasts with the contracting hypothesis of Smith and Watts (1992), which predicts that higher growth opportunities should be associated with firms' higher growth opportunities due to the increased information asymmetry between the manager and shareholders.

I also find that the CEOs' compensation structure became more incentive-based for both groups after the FDICIA was enacted. Cash compensation, the main component of CEO compensation, became more sensitive to accounting earnings in the post-FDICIA period, while equity-based compensation became more sensitive to stock returns. For the unhealthy group, the empirical results show that CEOs' compensation structure is more incentive-based for larger banks after the FDICIA. This evidence is consistent with the FDICIA limiting use of the too-big-to-fail policy.

Table 1: Total Compensation

Total compensation#	Intercept	Intotast	ROA	RET	RISK	N
Panel A						
Unhealthy	70.1774	-4.1227	-0.8657	-5.5846	0.3601	165
T-Stat	(4.86)***	(-3.97)***	(-0.86)	(-0.14)	(0.82)	
Healthy	21.7996	-1.2803	-0.1239	0.1094	0.0030	510
T-Stat	(6.35)***	(-5.47)***	(-0.31)	(0.34)	(0.07)	
T for coeff. diff.	(9.04)***	(-7.58)***	(-1.75)*	(7.95)***	(3.89)***	
Panel B						
Healthy-pre	25.0298	-1.5499	1.0114	0.154	-0.0486	198
T-stat	(2.87)***	(-2.62)***	(0.79)	(0.31)	(-0.30)	
Healthy-post	19.4921	-1.1191	-0.3295	-3.819	0.0172	312
T-stat	(9.50)***	(-8.03)***	(-1.49)	(-0.44)	(0.72)	
T for coeff. diff.	(1.61)	(-1.84*)	(3.39)***	(12.19)***	(-1.46)	
Panel C						
unhealthy-pre	43.2308	-2.3891	-0.0009	-123.269	2.04712	69
T-stat	(2.35)**	(-1.85)*	(0.00)	(-2.57)***	(3.50)***	
unhealthy-post	75.4149	-4.4507	-2.3003	40.612	-0.3414	96
T-stat	(3.60)***	(-2.91)***	(-1.18)	(0.63)	(-0.55)	
T for coeff. diff.	(-2.23)**	(1.98)**	(2.29)**	(-4.18)***	(5.45)***	

Total compensation is scaled by market value of equity.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table 2. Compensation Structure Change

Panel A: The Healthy Group			
	Pre-FDICIA Mean	Post- FDICIA Mean	T-Stat for mean difference
Tobin's Q	1.17	1.28	(2.12)**
Salary Ratio	67.7%	52.3%	(7.72)***
Bonus Ratio	16.6%	18.4%	(1.38)
Restricted Stock Awards Ratio	4.5%	7.1%	(2.04)**
Options Ratio	20.8%	36%	(6.98)***
Total Compensation	3.92	2.73	(2.28)**
Panel B: The Unhealthy Group			
	Pre-FDICIA Mean	Post- FDICIA Mean	T-Stat for mean difference
Tobin's Q	1.38	1.10	(1.36)
Salary Ratio	77.8%	59.1%	(4.72)***
Bonus Ratio	8.3%	14.4%	(2.98)***
Restricted Stock Awards Ratio	2.2%	4.0%	(1.19)
Options Ratio	12.4%	21.3%	(2.42)**
Total Compensation	13.27	14.23	(0.27)
Panel C: The Cross-Group Comparison			
	Unhealthy	Healthy	T-Stat for mean Diff
Salary Ratio	67.8%	59.3%	(3.67)***
Bonus Ratio	11.7%	17.8%	(5.04)***
Restricted Stock Awards Ratio	3.2%	6.0%	(2.89)***
Options Ratio	17.2%	27.6%	(4.72)***
Total Compensation	13.8%	3.26%	(5.92)***
ROA	0.22	1.19	(10.23)***
RET	-0.31	-1.10	(2.135)***

Table 3. Cash Compensation

Cash Compensation #	Intercept	Intotast	ROA	RET	RISK	N
Panel A						
Healthy-pre	1.7188	-0.0628	-0.0589	-0.0066	0.0054	130
T-stat	(5.69)***	(-3.11)***	(-1.15)	(-0.48)	(0.91)	
Healthy-post	1.6475	-0.0640	-0.0028	-1.0451	0.0014	312
T-stat	(10.09)***	(-5.77)***	(-0.16)	(-1.51)	(0.74)	
T-stat for coeff. diff.	(0.50)	(0.12)	(-3.40)***	(81.01)***	(2.19)**	
Panel B						
Unhealthy-Pre	1.0353	-0.0154	-0.0189	-1.1638	-0.0063	62
T-Stat	(4.07)***	(-0.85)	(-1.40)	(-1.89)**	(-0.86)	
Unhealthy-Post	1.5929	-0.0611	0.0078	-1.8895	-0.0021	94
T-Stat	(8.17)***	(4.27)***	(0.43)	(-3.16)***	(-0.37)	
T-stat for coeff. diff.	(-3.62)***	(4.08)***	(-2.52)**	(1.79)*	(-0.95)	

Cash-compensation, the sum of salary and bonus, is scaled by total compensation.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table 4. Stock-based Compensation

Stock-Based Compensation #	Intercept	Intotast	ROA	RET	RISK	N
Panel A						
Healthy-pre	-1.0879	0.0848	0.1174	0.0080	-0.0064	109
T-stat	(3.52)***	(4.05)***	(2.16)**	(0.59)	(-1.07)	
Healthy-post	-0.0907	0.0342	-0.0349	2.1451	0.0006	128
T-stat	(-0.45)	(2.55)**	(-1.19)	(2.36)**	(0.16)	
T-stat for coeff. diff.	(-5.33)***	(4.02)***	(5.49)***	(171.38)***	(-2.04)**	
Panel B						
Unhealthy-Pre	-0.1098	0.0214	0.0239	1.1008	0.0056	54
T-Stat	(-0.44)	(1.19)	(1.79)**	(1.80)**	(0.80)	
Unhealthy-Post	-0.7188	0.0666	-0.0124	2.1097	0.0022	78
T-Stat	(3.06)***	(3.77)***	(-0.67)	(3.49)***	(0.39)	
T-Stat For Coef.Diff.	(3.61)***	(3.63)***	(3.44)***	(-2.50)**	(0.78)	

Stock-based compensation, the sum of restricted stock awards and options, is scaled by total compensation.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

APPENDIX A

BANK HOLDING COMPANIES IN THE HEALTHY GROUP (125)

Company Name

1	AMSOUTH BANCORPORATION
2	BANC ONE CORP
3	BANCORP HAWAII
4	BANK OF BOSTON CORP
5	BANKERS TRUST NEW YORK CORP
6	BANKNORTH GROUP INC
7	BARNETT BANKS INC.
8	BB&T FINANCIAL CORP
9	CAPITAL BANCORPORATION INC.
10	CATHAY BANCORP INC.
11	CB BANCSHARES INC.
12	CCB FINANCIAL CORP
13	CENTRAL JERSEY BANCORP
14	CHASE MANHATTAN CORP
15	CHEMICAL BANKING CORP
16	CITICORP
17	CITIZENS BANCORP/MD
18	CITIZENS BANCSHARES INC.
19	CITIZENS BANKING CORP
20	CNB BANCSHARES INC.
21	COBANCORP INC.
22	COMERICA INC.
23	COMMERCE BANCSHARES INC.
24	COMMUNITY BANK SYSTEM INC.
25	COMPASS BANCSHARES INC.
26	CVB FINANCIAL CORP.
27	DEPOSIT GUARANTY CORP.
28	EVERGREEN BANCORP INC
29	F&M NATIONAL CORP.
30	FIFTH THIRD BANCORP
31	FIRST BANK SYSTEM INC.
32	FIRST COMMERCIAL CORP.
33	FIRST FINANCIAL CORP/WI
34	FIRST FINL BANCORP INC/OH
35	FIRST INTERSTATE BNCP
36	FIRST MERCHANTS CORP.
37	FIRST MICHIGAN BANK CORP
38	FIRST SECURITY CORP.
39	FIRST UNION CORP.

40 FIRST VIRGINIA BANKS INC
41 FIRST WESTERN BANCORP INC.
42 FIRSTAR CORP.
43 FIRSTMERIT CORP
44 FLEET FINANCIAL GROUP INC
45 FORT WAYNE NATIONAL CORP/IN
46 FOURTH FINANCIAL CORP.
47 FRONTIER FINANCIAL CORP.
48 FULTON FINANCIAL CORP
49 GBC BANCORP
50 HANCOCK HOLDING CO.
51 HARLEYSVILLE NATIONAL CORP.
52 HERITAGE FINL SVCS INC
53 HUNTINGTON BANCSHARES CORP.
54 IMPERIAL BANCORP
55 JEFFERSON BANKSHARES
56 JP MORGAN & CO
57 KEYCORP
58 KEYSTONE FINANCIAL INC.
59 KEYSTONE HERITAGE GROUP
60 MAGNA GRUOP INC.
61 MASON-DIXIE BANCSHARES INC.
62 MELLON BANK CORP.
63 MERCANTILE BANCORPORATION INC.
64 MERCANTILE BANKSHARES CORP
65 MERCHANTS NEW YORK BANCORP INC.
66 MERIDIAN BANCORP INC.
67 MICHIGAN NATIONAL CORP.
68 MID AMERICA BANCORP/KY
69 NATIONAL CITY BANCORPORATION
70 NATIONAL CITY CORPORATION
71 NATIONAL COMMERCE BANCORPORATION
72 NATIONS BANK CORP
73 NBD BANCORP INC.
74 NBT BANCORP INC.
75 NORTHE RN TRUST CORP
76 NORWEST CORP
77 OLD KENT FINANCIAL
78 OLD NATIONAL BANCORP
79 ONBANCORP INC.
80 ONE VALLEY BANCORP/WV
81 PARK NATIONAL CORP.
82 PEOPLES FIRST CORP.
83 PIKEVILLE NATIONAL CORP.
84 PNC BANK CORP.
85 PROVIDENT BANCORP
86 REGIONS FINL CORP
87 SEACOAST BANKING CORP.
88 SECOND BANCORP INC.

89 SECURITY BANC CORP.
90 SHAWMUT NATIONAL CORP
91 SHORELINE FINANCIAL CORP.
92 SIGNET BANKING CORP.
93 SIMMONS FIRST NATIONAL CORPORATION.
94 SOUTHERN NATIONAL CORPORATION
95 SOUTHTRUST CORP.
96 SOUTHWEST NATIONAL CORP.
97 STAR BANC CORP
98 STATE BANCORP INC.
99 STERLING FINANCIAL CORP
100 SUFFOLK BANCORP
101 SUNTRUST BANKS INC
102 SUSQUEHANNA BANCSHARES INC
103 TEXAS REGIONAL BANCSHARES INC
104 TRANS FINANCIAL BANCORP INC.
105 TRICO BANCSHARES
106 TRUSTCO BANK CORP NY
107 TRUSTMARK CORP.
108 UMB FINANCIAL CORP
109 UNION PLANTERS CORP.
110 UNITED BANKSHARES INC/WV
111 UNITED CAROLINA BANCSHARES
112 UNITED COUNTIES BANCORP
113 UNITED NATIONAL BANCORP
114 USBANCORP INC.
115 VALLEY NATIONAL BANCORP
116 VALLICORP HOLDINGS INC.
117 VERMONT FINANCIAL SERVICES CORP.
118 VICTORIA BANKSHARES INC.
119 WACHOVIA CORP
120 WASHINGTON TRUST BANCORP INC.
121 WELLS FARGO & CO.
122 WESTAMERICA BANCORPORATION
123 WILMINGTON TRUST CORPORATION
124 WORTHEN BANKING CORP
125 ZIONS BANCORPORATION

APPENDIX B

BANK HOLDING COMPANIES IN THE UNHEALTHY GROUP (36)

Company Name

1	ARROW FINANCIAL CORPORATION
2	BANK MARYLAND CORP.
3	BAYBANKS INC.
4	BNH BANCSHARES INC.
5	BROAD NATIONAL BANCORPORATION
6	CALIFORNIA BANCSHARES INC.
7	CAROLINA FIRST CORPORATION
8	CBC BANCORP INC
9	CENTRAL BANCORPORATION
10	CENTRAL FIDELITY BANKS INC.
11	CORNERSTONE FINANCIAL CORPORATION
12	CULLEN/FROST BANKERS INC.
13	FIRST CHICAGO CORP
14	FIRST EMPIRE STATE CORP
15	HIBERNIA CORPORATION
16	INDEPENDENCE BANCORP INC/NJ
17	INDEPENDENT BANKSHARES INC.
18	MID AM INC.
19	NATIONAL MERCANTILE BANCORP
20	NATIONAL PENN BANCSHARES INC
21	NORTH FORK BANCORPORATION INC.
22	PREMIER BANCORP INCORPORATED
23	PREMIER BANKSHARES CORPORATION
24	PROFESSIONAL BANCORP INC.
25	RAMAPO FINANCIAL CORPORATION
26	REDWOOD EMPIRE BANCORP
27	RIGGS NATL CORP WASH D C
28	SIERRA TAHOE BANCORP
29	SILICON VALLEY BANCSHARES
30	STATE STREET BOSTON CORP
31	SUBURBAN BANCSHARES INC.
32	SUMMIT BANCORPORATION the
33	SURETY CAPITAL CORPORATION
34	UST CORP.
35	VENTURA COUNTY NATIONAL BANCORP
36	WESTPORT BANCORP INC.

APPENDIX C

BANK HOLDING COMPANIES IN THE FAILED GROUP (6)

	Company Name
1	BSD BANCORP, INC.
2	COLUMBIA BANCORP, INC.
3	CONNECTICUT BANCORP, INC.
4	INDEPENDENT BANKGROUP, INC.
5	METRO BANCSHARES, INC.
6	NEW ENGLAND BANCORP, INC.

REFERENCES

- Baker, G. P., M. C. Jensen, and K. J. Murphy, 1988, Compensation and Incentives: Practice vs. Theory, *The Journal of Finance* 43, 593-616.
- Barro, J. R., and R. J. Barro, 1990, Pay, Performance, and Turnover of Bank CEOs, *Journal of Labor Economics* 8, 448-481.
- Benton, G. J., and G. G. Kaufman, 1997, FDICIA After Five Years, *Journal of Economic Perspectives* 11, 139-158.
- Berger, P. G., E. Ofek, and D. L. Yermack, 1997, Managerial Entrenchment and Capital Structure Decisions, *Journal of Finance* 52, 1411-1438.
- Black, F., and M. Scholes, 1973, The Pricing of Options and Corporate Liabilities, *Journal of Political Economy* 81, 637-654.
- Brickley, J. A., and C. James, 1987, The Takeover Market, Corporate Board Composition, and Ownership Structure: The Case of Banking, *Journal of Law and Economics* 30, 161-180.
- Ciscell, David H., and Thomas M. Carroll, 1980, The Determinants of Executive Salaries: An Econometric Survey, *Review of Economics and Statistics* 62, 7-13.
- Crawford, A. J., J. R. Ezzell, and J. A. Miles, 1995, Bank CEO Pay-Performance Relations and the Effects of Deregulation, *Journal of Business* 68, 231-256.
- DeGennaro, R. P., and J. B. Thomson, 1995, Anticipating Bailouts: The Incentive-Conflict Model and the Collapse of the Ohio Deposit Guarantee Fund, *Journal of Banking and Finance* 19 (November), 14401-1418.
- Eaton, J., and H. S. Rosen, 1983, Agency, Delayed Compensation, and the Structure of Executive Remuneration, *The Journal of Finance* 38, 1489-1505.
- Federal Reserve Board, 1986, Capital Maintenance: Supplemental Adjusted Capital Measure, 12 C.F.R. part 225, App. A (Regulation Y; Docket no. R-0567, January.
- Federal Reserve Board, 1989, Final Risk-based Capital Guidelines, Press Release, January.
- Garen, J. E., 1994, Executive Compensation and Principal-Agent Theory, *Journal of Political Economy* 102, 1175-1199.

- Gaver, J. J., and K. M. Gaver, 1993, Additional Evidence on the Association between the Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies, *Journal of Accounting and Economics* 16, 125-160.
- Gibbons, R., and K. J. Murphy, 1990, Relative Performance Evaluation for Chief Executive Officers. *Industrial and Labor Relation Review* 43, Suppl. 30s-51s.
- Gorton, G., and R. Rosen, 1995, Corporate Control, Portfolio Choice, and the Decline of Banking, *Journal of Finance* 50 (December), 1377-1420.
- Haubrich, J., 1994, Risk Aversion, Performance Pay, and the Principle-Agent Problem, *Journal of Political Economy* 102, 258-276.
- Houston, J., and C. James, 1993, An Analysis of the Determinants of Managerial Compensation in Banking, working paper, University of Florida.
- Hubbard, R. G., and D. Palia, 1995, Executive Pay and Performance Evidence from the U.S. Banking Industry, *Journal of Financial Economics* 39, 105-130.
- Jensen, M. C., and K. J. Murphy, 1990a, CEO Incentives: It's Not How Much You Pay, But How. *Harvard Business Review*, 138-153.
- Jensen, M. C., and K. J. Murphy, 1990b, Performance Pay and Top Management Incentives. *Journal of Political Economy* 98, 225-264.
- John, T.A., and K. John, 1993, Top-Management Compensation and Capital Structure, *The Journal of Finance* 58, 949-974.
- Kane, E. J., 1989, *The S&L Insurance Mess: How Did It Happen?* Washington, DC: The Urban Institute.
- Kane, E. J., and H. Unal, 1990, Modeling Structural and Temporal Variation in the Market's Valuation of Banking Firms, *The Journal of Finance* 45 (March), 113-136.
- Keeley, M. C., 1990, Deposit Insurance, Risk, and Market Power in Banking, *American Economic Review* 80 (December), 1183-1200.
- Kim, D., and A. M. Santomero, 1988, Risk in Banking and Capital Regulation, *The Journal of Finance* 47, 1219-1233.
- Lamber, R. A., and D. F. Larcker, 1987, An Analysis of the Use of Accounting and Market Measures of Performance in Executive Compensation Contracts, *Journal of Accounting Research* 25, 85-129.

- Lang, L., E. Ofek, R. Stulz, 1996, Leverage, Investment, and Firm Growth, *Journal of Financial Economics* 40, 3-29.
- Lang, L., and R. Stulz, 1994, Tobin's Q, Corporate Diversification, and Firm Performance, *Journal of Political Economy* 102, 1248-1280.
- Liang, Y., S. Mohanty, and F. Song, 1996, The Effect of the Federal Deposit Insurance Corporation Improvement Act of 1991 on Bank Stocks, *Journal of Financial Research* 19(2), 229-42.
- Mehran, H., 1995, Executive Compensation Structure, Ownership, and Firm Performance, *Journal of Financial Economics* 38, 163-184.
- Murphy, K. J., 1985, Corporate Performance and Managerial Remuneration: An Empirical Analysis, *Journal of Accounting and Economics* 7, 11-42.
- Myers, S., 1977, Determinants of Corporate Borrowing, *Journal of Financial Economics* 5, 147-175.
- Osterberg, W. P., and J. B. Thomson, 1996, Optimal Financial Structure and Bank Capital Requirements: An Empirical Investigation, *Journal of Financial Services Research* 10 (December), 315-332.
- Paul, J. M., 1992, On the Efficiency of Stock-based Compensation, *The Review of Financial Studies* 5, 471-502.
- Rosen, Sherwin, 1990, Contracts and the Market for Executives, National Bureau of Economic Research, working paper no. 3542.
- Shrieves, R. E., and D. Dahl, 1992, The Relationship between Risk and Capital in Commercial Banks, *Journal of Banking and Finance* 16, 439-457.
- Sloan, R. G., 1993, Accounting Earnings and Top Executive Compensation, *Journal of Accounting and Economics* 16, 55-100.
- Smith, C. W., and R. L. Watts, 1992, The Investment Opportunity Set and Corporate Financing, Dividend and Compensation Policies, *Journal of Financial Economics* 32, 263-292.
- Thomson, J. B., 1987, The Use of Market Information in Pricing Deposit Insurance, *Journal of Money, Credit and Banking* 19 (November), 528-537.