

**A Unified Analysis of Executive Pay:
The Case of the Financial Sector***

Eli Talmor

London Business School and University of California, Irvine

and

James S. Wallace

University of California, Irvine

April 2001

* We are thankful to Kuntara Pukthuanthong for capable research assistance, and to Robert Litzenberger, Gilad Livne, Dennis Oswald, Laura Starks, Asher Tishler and Robert Town for valuable suggestions. We are also grateful to seminar participants at the London Business School, University of Chicago, University of Colorado-Boulder, University of Exeter and Hebrew University for helpful comments. The first author acknowledges a financial grant from the Corporate Partners of the University of California, Irvine.

A Unified Analysis of Executive Pay: The Case of the Financial Sector

Abstract

This study examines executive compensation determinants in the U.S. financial services sector. Multiple theories of executive pay are discussed and tested using a relatively homogenous sample. We perform an in-depth look at the corporate governance and ownership structure of the companies selected. The analysis is conducted for the financial sector as a whole and for each of three sub-groups: commercial banks, brokerage and other non-depository institutions, and insurance companies. Variables that proxy for managerial strategic discretion and task complexity are found to best explain CEO compensation. Corporate governance, including board characteristics and external ownership, is the second leading determinant of pay variation, while firm performance and CEO specific characteristics seem to play the least role. We explore the simultaneous relationship between compensation, firm performance, and board strength and find evidence that the board of directors provides a monitoring function and that a strong board appears to be a substitute with incentive compensation for aligning incentives. These findings, when viewed with subsequent firm performance, support an efficient contracting argument.

A Unified Analysis of Executive Pay: The Case of the Financial Sector

1. Introduction

The structure of executive compensation has been subjected to extensive academic research in almost all fields of management. It involves issues ranging from labor economics and industrial organization, to accounting, finance, law, organization behavior and strategic management.¹ As a consequence, numerous theories have been advanced with each providing another aspect of the puzzle. The purpose of the current study is to consider many of these factors in a unified test. In doing so, we augment the compensation analysis with an in-depth look at the corporate governance and ownership structure of the companies selected. We choose to focus the study on the financial services sector. Financial companies are relatively homogenous in many of their operational characteristics, thereby allowing for a reasonable control of unspecified factors. Within the sector, we distinguish between three sub-groups: commercial banks, brokerage and other non-depository institutions, and insurance companies. These sub-groups while relatively homogeneous, still differ not only in terms of their primary services but also in their regulatory environment and institutional traditions, thereby allowing for testing hypotheses related to managerial job complexity and corporate governance.

Executive compensation in banks has been examined in several previous studies. Barro and Barro (1990) analyze the pay-for-performance relation for a sample of large commercial banks. They show compensation to be affected by both accounting and stock returns, and that the sensitivity of the relation diminishes with the experience of the CEO.² Crawford, Ezzell and Miles (1995) and Hubbard and Palia (1995) test for the effect of bank regulatory changes on the pay-performance relation. Both studies confirm executive pay sensitivity increases during the

¹ Research on executive compensation can be traced back as far as Taussig and Barker (1925). For a review of the literature, see Gomez-Mejia (1994) and Murphy (1999).

1980s following deregulation of commercial banks (e.g., the 1980 Depository Institution Deregulation and Monetary Control Act and legislation by nearly all states to allow interstate banking). Houston and James (1995) examine whether the form of compensation contracts in commercial banks promotes more risk taking. The authors find lower use of stock-based compensation in banks than in other industries. They interpret this evidence as being consistent with contracting theory but inconsistent with the incentive for increased risk taking resulting from depository insurance.³ For a sample of saving and loan institutions, Hermalin and Wallace (1998) show that allowing heterogeneity in the model specification results in a stronger correlation between firm performance on managerial compensation than that found in previous studies (notably, Jensen and Murphy, 1990b). These studies are only concerned with the pay-performance relation in depository institutions. Only sketchy evidence is available examining other financial institutions. Ke, Petroni and Safiedddine (1999) study the insurance industry, however they only allow for an accounting measure of performance and only consider cash compensation. Fields and Fraser (1999) examine the pay-performance in bank holding companies with securities activities around their introduction period and compare it to a handful sample of investment banks.

Our study departs from the previous literature in several ways. First, we consider all the segments of the financial industry in a unified test, thereby allowing for a more complete benchmarking of cross sectional differences. Second, we include additional variables to accommodate complementing theories of pay determination that have been advanced in the economic and business strategy literatures. In particular, we examine in detail the corporate governance structure (e.g., board characteristics) of the financial institutions in the sample and consider their contracting implications. We also look at the effect of CEO ownership on

² See also Elias and Schreiber (1998) on the positive linkage between operational performance measures and senior executive pay in Israeli commercial banks.

³ Recently, John, Saunders and Senbet (2000) have analytically linked bank capital regulation to management compensation and derive pricing of FDIC insurance premium that mitigate bank risk shifting incentives.

executive compensation and extend much of the previous literature by considering the incentive effects of not only direct share ownership, but also of CEO option holdings. In examining the sensitivity of our results to model specification, we allow corporate governance, firm performance, and compensation to be simultaneously determined. Finally we recognize that while examining the role of separate variables is informative, it is also insightful to consider them in groups, where each group of variables proxies for a different theory. This enables us to evaluate, for instance, the effect of firm performance in explaining variability in compensation practices, relative to the impact of corporate governance structure.

We find variables that proxy for managerial strategic discretion and task complexity best explain CEO compensation, both levels and structure. Corporate governance, including board characteristics and ownership structure, is the second leading determinant of pay levels; while for the compensation structure, CEO specific characteristics is the second leading determinant. Firm performance explains relatively little of the variation in executive compensation. Overall, we find evidence that the board of directors provides a monitoring function and that a strong board appears to be a substitute with incentive compensation for aligning incentives. These findings, when viewed with subsequent firm performance, support an efficient contracting argument.

The remainder of the paper is organized as follows. Section 2 reviews the main economic and strategic theories of executive compensation. Statistics pertaining to firm, CEO, compensation, and governance characteristics in the financial sector are presented in Section 3. Section 4 presents the results of the paper on the determinants of top executive remuneration for the financial sector as whole and the industry sub-groups. In Section 5, we summarize the main findings.

2. Theories of Executive Remuneration

2.1 Principal-Agent Theory and Firm performance

Economic theory of executive pay has focused on the design of optimal compensation schemes to align the interests of hired managers and shareholders. Agency theory has identified several factors by which these interests may differ; including the level of effort exerted by the manager and problems resulting from the unobservability of the agent's relevant skills. The design of optimal compensation contracts essentially trades-off between different incentive problems and risk-sharing considerations.⁴

Research has also been directed to the identification of proper performance standards for evaluation and compensation. A common concern expressed in these studies is that inappropriate performance yardsticks can create strong incentives for the wrong actions (Baker, 1992 and Gibbons, 1998). Two studies by Lambert and Larcker (1987) and Banker and Datar (1989) show that, given risk aversion, it is best to base performance evaluation on measures that minimize the noise relative to the information of the signal (i.e., signal-to-noise ratio). Both accounting and market return measures have been considered in the literature for top executive compensation, however no conclusion has been reached regarding which type is more appropriate. From the shareholders' perspective, return is generated from stock price changes and is not defined by accounting terms. Also, accounting numbers are ex-post measures and as such, can only relate to attained performance. In contrast, market-based performance, being an ex ante measure of value, reflects actions by managers as they induce future economic profits. However stock prices are a very noisy signal. Hence, measuring managerial performance based on shareholder return is subject to significant market-wide fluctuations that are not controllable

⁴ For a review of the incentives in firms, see Prendergast (1999) and Indjejikian (1999).

or accountable by the manager.⁵ In addition, share price may echo market speculations on such items as the likelihood of the company to be taken over, which does not reflect on the productivity of the manager. Earnings-based incentives do not suffer from many of these problems, and so shield managers from much of the noise associated with stock market fluctuations that are beyond the control of the individual manager. Indeed, the empirical literature has identified a strong linkage between accounting measures of return and top executive compensation (e.g., Lewellen and Huntsman, 1970, Sloan, 1993 and Joskow and Rose, 1994). A significant relation has also been found between CEO compensation and the stock market rate of return (e.g., Coughlan and Schmidt 1985, and Murphy, 1985). Accordingly, our study will consider two measures of firm performance, both the accounting measure of return on equity (ROE) and total shareholder return (RET) as determinants of compensation. We predict a positive relation between firm performance and the level of total compensation. The predicted association between firm performance and the structure of the compensation contract is less clear. However, since incentive compensation is used to motivate managers toward improved firm performance and since incentive compensation, especially the annual bonus, is often tied to realized performance, we predict a positive relation between firm performance and the percentage of incentive compensation.

H1A Ceteris paribus, a positive association will exist between firm performance and the level of CEO compensation.

H1B Ceteris paribus, a positive association will exist between firm performance and the percentage of CEO incentive compensation.

⁵ It is possible to devise a performance measure that controls for general market movements. However, most executive compensation studies find that relative performance does not affect compensation (Antle and Smith, 1986, Murphy, 1985, and Barro and Barro, 1990). Also, from an analytical standpoint, Diamond (1998) argues that it is better to ignore relative performance.

2.2 *Managerial Discretion and Task Complexity*

In a parallel strand, recent studies in strategic management argue that managerial strategic discretion and the complexity of their job may be important determinants of CEO compensation. Managerial discretion is defined as task complexity and the latitude of options top managers have in making strategic choices. Finkelstein and Boyd (1998) refer to managerial discretion as the extent to which an organization's form and fate sit within the control of its top managers. Central to this concept is the idea that the greater the level of discretion, the greater the potential impact of actions taken by the CEO on the firm and, hence, on the ability to directly influence its performance. Finkelstein and Hambrick use the phrase "managerial contributions are elusive" (1988, p. 547), while Henderson and Fredrickson conclude, "despite top executives' perceived importance in modern organizations we know painfully little about what they do or why some are more effective than others. Lacking a clear-cut way to assess the marginal contribution of CEOs, boards of directors may rely on proxies when assigning values to these contributions" (1996, p.599). Thus, both the level of executive compensation and the use of incentive compensation is expected to be higher in high discretion contexts, which is in accord with agency theory insights on the use of subjective measures, given the difficulties outlined above to measure performance.

We measure management discretion by company size, growth, outcome variability and regulatory environment. Company size provides an indication of managerial responsibility and job complexity. *Ceteris paribus*, the larger the size of the company, the greater is the manager's discretion to influence the absolute value of shareholders wealth.⁶ We predict a positive relation between firm size, proxied by the natural log of assets (ASSETS) and the level of CEO compensation. It is argued that it is more difficult to monitor management in larger firms (Smith and Watts, 1992, Eaton and Rosen, 1983, and Sloan, 1993). We therefore also predict a positive

⁶ Lazear and Rosen's (1981) tournament theory offers another explanation that ties executive compensation to company size.

relation between firm size and the percentage of incentive compensation. An important measurement of managerial discretion is the growth of operations. We use two growth measures, realized growth, proxied by actual sales growth over the prior three years (SALES3YR), and potential future growth, proxied by the firm ratio of market to book values (MKBK), as measures of managerial discretion. We predict each of these measures of managerial discretion will be positively associated with both the level of CEO compensation and the percentage of incentive compensation in the compensation contract.

H2A Ceteris paribus, a positive association will exist between firm size and the level of CEO compensation.

H2B Ceteris paribus, a positive association will exist between firm size and the percentage of CEO incentive compensation.

H3A Ceteris paribus, a positive association will exist between firm growth/investment opportunity and the level of CEO compensation.

H3B Ceteris paribus, a positive association will exist between firm growth/investment opportunity and the percentage of CEO incentive compensation.

High discretion also suggests a greater variability of outcomes. As Finkelstein and Boyd point out: “When multiple courses of action are possible, uncertainty and complexity go up, and it becomes more difficult to predict firm performance with much accuracy. High discretion contexts also tend to be inherently more risky because firms cannot easily rely on industry recipes or norms in their strategic direction” (1998, p. 181). Hence uncertainty and job complexity go together. We measure outcome variability as the standard deviation of ROE (σ ROE) measured over the preceding five years, and predict a positive association between our risk/outcome variability measure and the level of compensation. In addition, since monitoring is more difficult under higher uncertainty, we also predict a positive relation between σ ROE and the percentage of incentive compensation.

H4A Ceteris paribus, a positive association will exist between firm variability and the level of CEO compensation.

H4B Ceteris paribus, a positive association will exist between firm variability and the percentage of CEO incentive compensation.

Concerning sector sub-groups, job complexity is determined by industry concentration, competitiveness and product differentiability. In the financial sector, these factors are also a reflection of industry regulations. CEOs in more regulated industries have typically less discretion in their strategic choices such as entering new businesses and types of products. Although lessening in extent, the degree of regulation varies among the three sub-groups within the financial sector. While the past few decades have seen a trend toward deregulation away from the Glass-Steagall Act, the banking sub-group of the 1990s still faced regulation concerning what services could be provided as well as ownership restrictions. Similar, yet to a lesser degree than in the banking sub-group, insurance companies operate under the watchful eyes of regulators. Of the three sub-groups, brokerages and other non-depositories operate closer to non-regulated industries.⁷ CEOs in more regulated industries typically have less discretion in their strategic choices, and are therefore paid less than CEOs of lesser-regulated industries. Empirical findings support the fact that CEOs of regulated firms are paid less than in unregulated ones (Joskow, Rose and Shepard, 1993). In the context of banking, the effect of regulation is looked upon in Crawford et al (1995) and Hubbard and Palia (1995). Both studies report stronger pay-performance sensitivities following the move during the 1980s to deregulate banking services, in particular the 1980 Depository Institution Deregulation and Monetary Control Act, and legislation by nearly all states to allow interstate banking. We predict that both the level of compensation and the percentage of incentive compensation across the financial sector subgroups will be negatively related to the degree of regulation. We create a variable

⁷ See Skeel [1999] and Gibson et al. [1999] for a discussion of regulation in the financial sector.

(REGULATE) that is given the value 1 for the relatively more regulated banking sub-group, 2 for the insurance companies, and 3 for the relatively least regulated brokerage and non-depositories firms. Thus we predict a positive relation between REGULATE and the level of CEO compensation and the percentage of CEO incentive compensation.

H5A *Ceteris paribus*, a negative association will exist between firm regulation and the level of CEO compensation.

H5B *Ceteris paribus*, a negative association will exist between firm regulation and the percentage of CEO incentive compensation.

We should also point out that the concept of managerial discretion in strategy is closely related to the finance and accounting research on the link between investment opportunities and managerial marginal products. CEOs in firms with larger investment opportunities are expected to have more skills and be entitled to a higher level of pay. Moreover, firms with substantial investment opportunities are more difficult to monitor and therefore are more likely to use incentive plans that link compensation to indicators of firm performance (Smith and Watts, 1992).⁸

2.3 *CEO Variables*

We also account for two CEO specific factors. First, managerial tenure may be a determinant of compensation. This may be ambiguous though, as there are counteracting arguments on the relation between tenure and compensation. In terms of information asymmetry, the passage of time on the job allows managers the opportunity to accumulate a track record thereby improving their bargaining power. On the other hand, Hambrick and Finkelstein (1995) argue that long tenured CEOs may have a lower mobility, thereby lowering their bargaining power. Furthermore, “If the long-tenured CEO becomes very committed to established policies and

⁸ For further empirical evidence on the link between the investment opportunities set and compensation, see Bizjak, Brickley and Coles (1993), Gaver and Gaver (1993), Baber, Janakiraman and Kang (1996), and Mueller and Yun (1997).

strategies and gives little consideration to new directions, then the person's worth to the organization is diminished... As long as the firm experiences 'satisfactory' experience, the executive will not be replaced... However the CEO's pay may start resembling the figurehead role he or she may have evolved into" (p. 181). From a corporate governance standpoint, the longer the CEOs serve in their positions, the more influence they may accumulate over the nomination of board members, thereby weakening the board independence. Therefore, while we include the variable TENURE in our tests of executive compensation, we do not make any prediction as to the direction of the association.

Managerial stock ownership is probably the most intricate determinant of compensation. Morck, Shleifer and Vishny (1988) point out that the relation between firm performance and the degree of managerial share ownership is non-monotonic. At low levels managerial share ownership provides a better congruence of interest with outside shareholders. As their share ownership increases, managers gain a tighter control and may engage in non-value maximizing activities. However, at a higher ownership level, such activities have too high a personal cost and a closer realignment of objectives with outside shareholders is once again achieved. Stoughton and Talmor (1998) argue that managerial initial ownership position fundamentally influences the optimal mechanism-design compensation schedule. Depending on the relative bargaining power, they show that incentives provided by share ownership and option awards may act in opposite directions.

Much of the prior literature includes only actual stock ownership to proxy for the incentive effects of equity ownership and ignores stock options (e.g., Core, Holthausen, and Larcker, 1999). We follow the procedure outlined in Core and Guay (1998, 1999), where the sensitivity of the managers' option portfolio to a percentage change in the underlying stock price can be estimated. We combine the sensitivity of the manager's option holdings to their stock holdings, including beneficial ownership. We define the variable OWNER as the total combined

(stock plus options) sensitivity to a 1% change in stock price.

Prior empirical literature has found equity's incentive alignment effect to dominate, leading to a negative relation between OWNER and the level of manager compensation (e.g. Core, Holthausen, and Larcker, 1999). Mehran (1995) provides empirical evidence that equity based compensation is negatively related to CEO ownership, and therefore CEO equity ownership and incentive pay are substitutes for incentive alignment. We predict a negative relation between OWNER and both the level of total compensation and the percentage of incentive compensation.

H6A Ceteris paribus, a negative association will exist between CEO share ownership and the level of CEO compensation.

H6B Ceteris paribus, a negative association will exist between CEO share ownership and the percentage of CEO incentive compensation.

2.4 Corporate Governance and External Ownership

The need for corporate governance arises since managerial employment contracts cannot fully resolve the agency problems from the separation of ownership and control. Incomplete state verification and prohibitive costs make it unrealistic for shareholders to map the firm strategic choices and other managerial actions, thereby disallowing a sole reliance on a pure contracting specification to align interests. Corporate governance instruments that are used to augment the managerial employment contract include an effective board of directors, the presence of large outside share blockholders, institutional share ownership, and the possibility of takeover.

Of the different corporate governance mechanisms, "the board is the shareholders' first line of defense against incompetent management" (Weisbach 1988, p. 431). This used to be particularly true in the banking sector. In this highly regulated industry, federal and state legislation has significantly restricted ownership transitions and exclude bank acquisitions by non-financial firms. Bank acquisitions were therefore almost always friendly, making

disciplinary takeovers non-existent. This has greatly changed during the last decade, evidenced by the unprecedented wave of mergers that has taken place across all segments of the financial sector. The trend for consolidation was triggered by the new technologies of information processing leading to a vast increase in scale efficiency. Second, the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 has eliminated most of the geographical restrictions created by the McFadden Act. These changes have made takeovers a new powerful tool in addressing bank management problems. Nevertheless, the high degree of regulation to protect depositors and insurance buyers, coupled with remaining barriers on ownership transactions limit the use of market-based monitoring devices relative to other industries. An effective board of directors remains the prime instrument to monitor bank management.⁹

The implementation of board governance remains, however, a source of concern. In practice, shareholders vote for the slate of directors proposed by management, the very CEO these directors are supposed to monitor (Hermalin and Weisbach, 1998). Worse yet, the CEO usually has the veto power on the renewal or termination of a director's service term on the board. Consequently, directors are likely to feel obligated to the CEO both for the initial appointment and at his discretion for future renewals. This led scholars to question whether directors can be effective monitors. A counterargument, most forcefully expressed by Fama and Jensen (1983), is that directors' concern for developing reputation as experts in decision controls, provides them with the incentive to ensure the well-running of the company. This argument really applies to outside directors, as inside directors (i.e., other corporate officers on the board) are rarely in a position to challenge the CEO in the boardroom, and certainly are not expected to play a detrimental factor when setting the CEO compensation. Outside directors, however, may

⁹ The role of bank regulatory agencies is to ensure bank safety and soundness, not to monitor managers on behalf of shareholders. The only banking regulation that applies to the structure of the board of directors is the FDIC Improvement Act of 1991 that was triggered by the savings and loan and bank crises of the 1980s. This Act requires audit committees of bank boards be composed of non-officer directors. For a thorough perspective of the legal environment of the corporate governance of financial intermediaries, see Skeel (1999).

be concerned with the company compensation structure in the interest of shareholders to solidify a reputation capital as competent board members.¹⁰

Critics of corporate governance suggest that placing a large number of insiders on the board is a mechanism to minimize board control. Insiders are directors who are also officers of the firm. Weisbach (1988) provides empirical evidence that supports the view that insider are detrimental to board independence. He reports that CEOs of poorly performing firms are more likely to be removed in companies with outsider-dominated than insider-dominated boards. The National Association of Corporate Directors (NACD), in their Blue Ribbon Commission on director professionalism state, “Board independence is crucial to ensure that the board effectively carries out its mission and responsibilities, and fairly holds management accountable to shareholders.” (NACD 1996, p. 9). The NACD goes on to recommend that boards require that independent directors fill the substantive majority of board seats. In addition to being employed by the firm, relations that can compromise independence include director interlocks, and significant consulting or employment relations.

We denote the variable *INSIDE* as the ratio of executive directors to the total number of directors. Interlocked directors, denoted *LOCK*, is defined as inside directors who sit on the boards of outside director’s firms. Board members who are not full-time employees but affiliated with the company in another way, denoted *GRAY*, includes such individuals as consultants, lawyers and investment bankers or others who have a business relationship with the firm, as well as directors with family ties to a company employee, usually the CEO (Weisbach 1988). Gray directors may be less independent than other outsider directors because of their

¹⁰ Supporting evidence on the effective monitoring role of outside directors include Byrd and Hickman (1992) on the market reaction to tender offers, Weisbach (1988) on the sensitivity of CEO turnover to firm performance, and Brickley et al (1994) on the decision to adopt poison pills. For the banking industry, Brickley and James (1987) report that the presence of outside directors tends to reduce management perquisites.

family ties and business relations.¹¹ Each of these potential impairments of board independence, insiders, interlocked directors, and gray directors, are predicted to be associated with a lower level of monitoring and hence a higher level of CEO compensation. Lower levels of monitoring can potentially be mitigated through other means, such as incentive compensation. We therefore predict sources of reduced board independence will be associated with increased use of incentive compensation.

It is suggested that board effectiveness may depend on the director's commitment and ability. With regard to commitment, the NACD states, "Obviously, director professionalism requires a significant dedication of time. In addition to limitations of the calendar, which restrict the amount of time for thinking, advising, and preparing for and attending meetings, there are limitations of the mind, which restrict the number of companies for which a director can maintain current knowledge. As a result, the number of boards on which an individual can serve and meet the standard set forth herein is necessarily limited." (NACD 1996, p. 11) Since serving on four or more independent boards is not common, we have selected a threshold number of three boards to define a busy outside director (denoted BUSY).

The NACD further favors "a strong director evaluation process to assure the board members retain the necessary energy, enthusiasm, commitment, and creativity to forestall habitual or simply reactive – and therefore less effective – director participation." (NACD 1996, p. 13). Among the NACD recommendations is a mandatory retirement age. To test the effect of aging on board effectiveness we denote OLD as the number of outside directors over age 65.

The CEO's power base widens when the CEO also serves as the chairman of the board. This led Jensen (1993) and others to recommend that the function of board chair be separated from the CEO. We define DUAL as a binary variable that indicates if a CEO duality exists.

¹¹ We classify a gray director who holds a block of five or more percent of shares as an outside director. Our reasoning is that a sizable ownership interest is more significant than considerations for past or affiliated business relations. We do not, however, apply this rule to family directors.

Board size may also be related to board effectiveness (Jensen 1993, Yermack 1996). Jensen (1993) argues for smaller boards in a view he refers to as overcrowding of the board. This attitude concerning the relative lower effectiveness of large board is also commonly expressed in the popular press. We define the total number of board members as TOTAL.

As with the potential impairments of board independence, each of the potential impairments to board effectiveness, BUSY, OLD, DUAL, and TOTAL, are predicted to be associated with a lower level of monitoring and a higher level of CEO compensation. As expressed above, the lower level of monitoring can potentially be mitigated through compensation contracts with a larger percentage of incentive-based compensation. We therefore predict sources of reduced board effectiveness will be associated with increased use of incentive compensation.¹²

Because the degree of board strength can result from a large number of factors, we create an overall measure of board strength from a composite of these seven individual board characteristics.¹³ Our procedure for the construction of the board strength variable (BOARD) appears in the appendix. BOARD is constructed such that a higher value represents a potentially more independent and effective board and therefore a theoretically stronger board.

H7A *Ceteris paribus*, a negative association will exist between Board strength and the level of CEO compensation.

H7B *Ceteris paribus*, a negative association will exist between Board strength and the percentage of CEO incentive compensation.

In addition to board characteristics, ownership structure may play an important role in corporate governance. Managerial ownership was discussed above. External ownership

¹² Fama and Jensen (1983) provide a counter-argument regarding busy board members when they argue that outside board members who hold multiple directorships have greater incentives to monitor corporate decisions because of their reputation capital as decision experts. In addition, Baysinger and Butler (1985) provide a counter-argument with regard to total board size when they argue that corporate boards have a variety of responsibilities in addition to monitoring management. Hence, a larger board may offer a more diverse set of talents to deal with these responsibilities, thereby increasing the board's overall effectiveness

¹³ Examples of studies that have created aggregate measures of board strength include Bushman, Chen, Engel and Smith (1999) and Milliron (2000).

structure may also play an important monitoring role in corporate governance. Whereas typical shareholders, because of their relatively small ownership interest, lack the incentive to actively monitor management, this may not be the case with large blockholders (Finkelstein and Hambrick, 1988, and Core, Holthausen, and Larcker, 1999). We note all cases where there exists an external party that holds at least a 5% share ownership and denote this variable **BLOCKS**. Since **BLOCKS** proxies for an underlying increase in monitoring, we predict a negative relation between **BLOCKS** and the level of CEO compensation. Increased monitoring should reduce any potential agency conflicts, thus lowering the need for incentive compensation. This is consistent with the finding in Mehran (1995) of a negative relation between equity-based compensation and blockholder ownership. We therefore also predict a negative relation between **BLOCKS** and the percentage of incentive compensation.

H8A *Ceteris paribus*, there will be a negative association between the existence of a large external blockholder and the level of CEO compensation.

H8B *Ceteris paribus*, there will be a negative association between the existence of a large external blockholder and the percentage of CEO incentive compensation.

2.5 *Summary*

Four strands of considerations have been discussed for influencing the design of executive compensation: principal-agent theory, managerial discretion, CEO characteristics, and corporate governance and external ownership. In this paper we explore the predictions of these theories both with respect to determinants of pay as well as the mix between fixed and incentive compensation. It should be stressed that the predictions of the theories above are not independent. As is pointed out, managerial discretion is related to economic-based research on the link between compensation and the investment opportunities set. Agency theory is also weaved into other considerations such as corporate governance. As for the specific variables, a few such as risk and CEO stock ownership may be identified with more than one theory. Table I

provides a summary list of the explanatory variables we use in subsequent regression analysis, along with their predicted effect on compensation.

(Insert Table 1 here)

3. Compensation and Governance Practices in Financial Institutions

The data for the study includes all the 160 financial institutions for which executive compensation data is available in Standard and Poor's ExecuComp database. The sector is split into three subgroups using two-digit SIC codes: depository institutions (commercial banks and thrifts; SIC 6000-6099), insurance companies (SIC 6300-6399), and brokerages and other non-depository institutions (SIC 6100-6299). The study uses data for the years 1992-1997.

The ExecuComp database includes all the compensation items from the annual proxy statement (Schedule 14a). It lists separately all major forms of cash compensation: salary, bonus, payout from long-term incentive plans, and other annual compensation (such as perquisites, payments to cover taxes, etc.). It also includes disclosed information regarding stock-based compensation: restricted stock awards, stock options grants and stock appreciation rights (option grants and restricted share ownership data are adjusted for stock splits occurring during the sample period). In addition, we gathered data on block ownership and board memberships directly from Schedule 14a. Company financials are obtained from Standard and Poor's Compustat.

We note that compensation reported in the ExecuComp database for executives who served as CEOs for part of a year is not distinguished from those who served a full year and is thus distorted. Clearly, if a CEO was appointed in October, the disclosed compensation is seriously biased downward. On the other hand, turnovers are occasionally associated with upward biases since the compensation at that time may include unusual items (such as golden

parachutes) of extraordinary magnitude. We identify all cases of CEO succession and remove the company year from our sample data. Tables II and III displays corporate and compensation summary statistics for the financial sector and its three sub-groups. For comparison purposes we have also included summary statistics for the 728 manufacturing (SIC 2000-3999) and 176 (non-financial) service companies (SIC 7000-8999) in the database (as before, observations pertaining to turnover years are removed). Selected operational characteristics for all the groups are displayed in Panel A. All figures are cross-sectionally pooled across the period 1992–1997, thus representing aggregate statistics for the entire period. The two size measures, sales and assets, are reported first. Median company sales in the financial sector is \$2.2 billion with assets of over \$15 billion. Both figures are much larger than for their non-financial counterparts. Within the financial sector average sales are roughly the same across the three sub-groups.

The market-based measure of performance, shareholder return (RET), indicates a substantially better performance by the financial sector than by the non-financial firms during the sample years, however ROE does not significantly differ. Panel A also includes statistics on net income, three-year growth rates in sales (SALES3Yr) and the ratio of the market to book value of equity (MKBK).

Panels B and C report summary statistics for the components of CEO compensation.¹⁴ Both the salary and bonus compensation are larger, on average, in the financial sector relative to the other sectors. A direct comparison, however, may be misleading in view of the average size difference between companies of the three sectors. In terms of the percentage mix of pay, the breakdown between cash CEO compensation (salary, bonus and long-term incentive plan payouts (LTIP)) vs. stock-based compensation (options and restricted stock) is about the same for the financial and non-financial sectors. However, in terms of the individual components,

¹⁴ The value of stock options granted is based on Black-Scholes valuation.

financial companies rely more heavily on bonus pay, LTIP and restricted stocks and less on base salary or stock options.

Comparing the three segments of the financial sector, salary averages are remarkably similar. For bonus, the segment of brokerages and non-depositories stands out with three to four times the payments of banks and insurance companies. Also the mean of restricted stock compensation is much larger for brokerages and non-depositories. Clearly, in terms of total compensation level, the mean of that sub-group, 5.4 million dollars, is much higher than for banks and insurance firms ('mere' \$3.5 million and \$3.1 million, respectively).¹⁵

(Insert Table II here)

Table III provides descriptive statistics of governance and external ownership blocks in the financial sector. Three characteristics are noticeably different in bank board composition compared to boards of insurance and brokerages firms: First, total board members is significantly larger in banks (16 vs. 11). Second, the fraction of officer representation on the board is smaller (mean of 16% compared to 36% in brokerages). Third, the percentage of outside directors with interlocking directorships (i.e., an inside officer of the firm serves on that outside director's Board) is much high for banks than for either of the two other sub-groups.

Depositories are also distinguished from the other financial institutions with respect to the

¹⁵ It is interesting to comment on the trends in compensation over the sample years. To avoid the sample selection influencing the reported change over time, we measure the trends using only companies with complete compensation data for the 1993-1997 period. Total compensation increase has grown at a comparable 18 percent rate per annum (compounded) for both the financial and non-financial sectors. Most of the increase came from executive stock options, for an average annual growth of 28 percent (for financial firms, the escalation in the use of stock options was primarily in 1997, when the median figure for the sample rose 53 percent from \$886,000 to \$1,356,000). Within the financial sector sub-groups, all components of pay rose fastest in the brokerage industry, most likely a reflection of the economic boom it experienced over the period.

external ownership variable. On average there is only one outside block in banks, compared to two blocks for the two other sub-groups.

(Insert Table III here)

4. Multivariate analysis of CEO compensation determinants

4.1 Analysis of Compensation Level

We conduct fixed-effects pooled time-series cross-section regression analysis to track the factors affecting the structure of CEO compensation in the financial sector, thus allowing us to control for unspecified firm specific differences. Since several studies argue that it is not so much the level of pay, but in what form it is made, that motivates managers (e.g., Jensen and Murphy, 1990a), we report results for both the level of CEO compensation (LEVEL) along with the percentage of CEO compensation that is incentive-based (INCENT).¹⁶ We define incentive based compensation as compensation with a more direct tie to performance, consisting of the annual bonus, long-term incentive payouts (LTIP), restricted stock, and stock option grants.

Table IV presents the regression results for the entire sample of financial service firms.¹⁷ We first discuss the results from the level of compensation model. Results from the compensation structure model are reported separately below. In order to lessen the effect of scale differences, we transform total compensation to a natural log and use the transformed variable as the dependent variable (Barro and Barro, 1990, Sloan, 1993). Total compensation is significantly associated with the accounting measure of firm performance, (ROE). This result is consistent with the literature, which has typically identified a strong linkage between accounting measures of return to top executive pay. However, we find a negative association between CEO

¹⁶ The structure and design of corporate executive compensation packages is examined by Lewellen et al (1987) and Mehran (1995).

¹⁷ A concern when interpreting output from regressions is the potential impact of influential observations. We first test for influential points by using Cook's D statistic. We remove seven observations from the sample based on comparing the Cook's D value to an F distribution.

compensation and the firm's stock return. Based on the mechanism design literature we suspect that the direction of the relationship may be circular as performance may be determined simultaneously with CEO compensation and Board makeup. We explore this issue in Section 4.3.¹⁸

(Insert Table IV here)

Three of the five measures of managerial discretion and job complexity are significant. Consistent with the previous literature, company size, measured by the natural log of assets (LNASSET) has a strong positive effect on executive pay (e.g., Ciscel and Carroll, 1980, Leonard, 1990, Schaefer, 1998, and Baker and Hall, 1998). Our proxy for future growth, MKBK, is also highly significant. Milbourn et al (1999) derive competing theories why banks are getting bigger even in the absence of cost efficiencies. The result in Table IV that growth is compensated independent of profitability is consistent with their hypothesis of the long-term value enhancement of growth. Our proxy for the relative level of regulation within the sub-groups, REGULATE, is positively associated with the level of CEO compensation. This finding is consistent with prior research, where a relatively higher regulatory environment yields a lower relative level of compensation. This result is supportive of contracting theory's assertion that regulation reduces the manager's marginal product and therefore justifies a lower level of compensation. Other things being equal, brokerage houses pay their top executives the highest, insurance firms are set in the middle and commercial banks pay the least.

Of our two CEO specific variables, only OWNER, the CEO's sensitivity to changes in the firm's stock price, proved statistically significant. CEOs whose equity holdings have a higher sensitivity to changes in the firm's stock price appear to act more like owners and accept

¹⁸ Indeed, RET displays a positive sign when solved simultaneously with compensation and board strength.

lower levels of compensation. While we do not test for their unobservable wealth change, it may be that their lower compensation is offset by higher capital gains through share appreciation.

Next, we consider the corporate governance variable BOARD. Recall that Board is a composite variable computed from seven individual variables proxying for board independence and efficiency. BOARD displays a significantly negative relation to CEO compensation. Thus stronger boards are associated with lower compensation after controlling for economic and ownership compensation determinants. This negative sign on BOARD can be interpreted as evidence that the board of directors plays an important role in monitoring and rewarding the CEO.¹⁹

Finally, external share ownership (BLOCKS) does not appear to have a significant effect on the level of CEO compensation, at least for our sample.

4.2 *Analysis of Incentive Compensation*

The last column in Table IV displays the results of our model examining the determinants of CEO incentive compensation percentage. Because incentive compensation is often tied to firm performance, we expected to find a positive association between both performance measures and the incentive mix. Consistent with our predictions and with the results reported above for the level of compensation, we find a significant positive relation between ROE and incentive compensation. However as was the case with the level of compensation and stock returns, we report a negative association between returns and incentive compensation mix.

Contracting theory posits more complex firms and firms with larger investment opportunity sets will be more likely to use incentive compensation to overcome the moral hazard conflict, since incentive pay serves to better align the interests of managers with the firm. We find strong support for this theory. ASSETS, our size variable, exhibits a significant positive

¹⁹ We examine an alternative hypothesis of management entrenchment in section 4.5.

relation with a larger emphasis on incentive compensation. This is consistent with theory that posits managers in larger firms are harder to monitor. MKBK, our proxy for the firm's investment opportunities is also significantly positive, as predicted. Finally, REGULATE is statistically significant and in the predicted direction. This is again consistent with contracting theory that argues regulation restricts the manager's investment opportunity set and hence reduces the need for incentive compensation.

BOARD is the other variable to display a significant relation with the percentage of incentive compensation. As we predict, BOARD displays a significantly negative relation in the incentive compensation regression. This negative sign on BOARD can be interpreted as evidence that the board and incentive contracts serve as substitutes for controlling CEOs.

Table V displays the same regressions separately for each of the three sub-groups of the financial services industry. Although variable significance varies across the sector segments, the signs are usually consistent. Highest R-squares are for the brokerage and other non-depository institutions, and lowest for the insurance sub-group.

(Insert Table V here)

4.3 Simultaneous Determination of Compensation and its Determinants

Theoretical work has argued that compensation policy is not determined separately from firm performance, firm governance, and ownership structures (Demsetz and Lehn, 1985, Hermalin and Weisbach, 1998). Instead, these relations may be simultaneously determined. Several empirical studies have provided evidence of the endogeneity of these relations (Boschen and Smith, 1995, and Anderson, Banker, and Ravindran, 2000).

We model a system of simultaneous equations that incorporates the relations between compensation level, compensation structure, firm performance, and board strength. Our system

recognizes five endogenous variables, LEVEL, INCENT, ROE, RET, and BOARD, along with the remaining exogenous variables appearing in Table IV. We employ a three-stage least squares estimation in order to increase the efficiency of our estimation by taking cross-equation correlations into account.²⁰

Table VI provides the results for our estimation of the five simultaneous equations. First, looking at the level of compensation equation, we note that nearly all coefficient signs and significance levels are consistent with results reported in Table IV, with a few changes. The first change is RET which becomes significant in the positive direction. This result supports our prediction, and is consistent with prior research findings. The second is $\sigma(\text{ROE})$, which is also gaining significance in the positive direction. This again supports our prediction, and is consistent with theory that based on risk sharing higher volatility should be associated with a higher level of compensation. The third change is SALE3YR which becomes significant. Finally, BLOCKS becomes significant in the positive direction, contrary to our prediction.

Results for the ratio of incentive compensation appear in the next column. The results are largely similar with those reported in Table IV. As is the case with the level of compensation, RET and $\sigma(\text{ROE})$ now yield significant positive relations, as predicted. ASSETS and MKBK, while retaining their positive coefficients, lose significance. SALE3YR gains significance as occurred with the LEVEL regression. Again as is the case with the level of compensation, BLOCKS becomes significant in the positive direction. This is in contrast with our prediction that external block ownership provides a substitute for incentive compensation. Instead, the evidence supports the argument that outside blockholders do not directly monitor management, but instead advocate improved board governance and *increased* use of incentive compensation (Milliron, 2000).

²⁰ A possible concern with three-stage least squares is the hazard of a mis-specification appearing throughout the system. We ran two-stage least squares and had qualitatively similar results, however significance was lower in many cases.

The results for the ROE and the RET regressions provide some evidence that there is a simultaneous relation between performance and the structure of compensation, and also between firm performance and the board of directors. After controlling for other economic and ownership determinants, there exists a statistically positive relation between the structure of compensation and performance and between board strength and performance. For our sample, a higher percentage of incentive compensation is associated with better performance as is a stronger board. Surprisingly, however, a higher level of total compensation is associated with lower firm stock return. Other findings are that, at least for our sample period, larger firms with more growth opportunities perform better.

The final column contains the results of the BOARD regression. After controlling for economic and ownership determinants, we note a negative association between board strength and both the level of total CEO compensation and the percentage of incentive compensation given to CEOs. This is consistent with our prior finding that stronger boards are associated with lower levels of compensation (a monitoring function), and that board strength and incentive compensation appear to be substitutes. Consistent with the prior columns, we also note a positive association between firm performance and board strength.

(Insert Table VI here)

4.4 Relative Role of Different Theories

So far we have discussed the effect of individual variables on CEO compensation. There is, however, the possibility of a great deal of overlap within classes of variables in the determination of executive compensation. Therefore, instead of examining statistical significance of individual variables, we turn our attention to the subject of how the four classes of variables, performance, CEO specific, discretionary, and governance, taken as groups, affect CEO compensation.

Table VII compares the R^2 values of various combinations of the variable in regressions on CEO compensation. The discretionary variables provide far more explanatory power than any other class of variables. This is not surprising given the traditional large explanatory power of firm size in explaining CEO compensation.²¹ Governance variables provide the next greatest explanatory power, however the R^2 values are much lower than those exhibited by the discretionary variables. Interestingly the performance variables, which are the primary focus of the compensation literature, only account for about 4% explanatory power, far lower than the discretionary variables, lower than the governance variables, and only greater than the CEO specific variables in the LEVEL regression.²²

(Insert Table VII here)

4.5 *Efficient Contracting or Entrenchment?*

As is the case with our findings, Core, Holthausen, and Larcker (1999) test early 1980s data and find that CEO's earn higher compensation when governance structures are less effective. They argue, however, that such findings are consistent with two possible explanations. The first explanation is that the board and ownership structure enables the CEO's influence over the board, leading to compensation in excess of equilibrium levels (i.e., management entrenchment). An alternative explanation is that the higher observed compensation is simply the result of efficient contracting, with a superior CEO receiving more compensation and more power over the board.

²¹ In order to 'level the playing field' we also ran the regression with only ASSETS and MKBK, so that there were only two independent variable, similar to the other groups. This did not alter our findings, with R^2 values of 40.37 for the LEVEL regression and 10.26 for the INCENT regression.

²² We also ran combinations of the four groups of variables (not shown). When combined with the discretionary variables, only the CEO specific variables added incremental explanatory power in the LEVEL regression ($R^2 = 43.16$) and only the CEO specific ($R^2 = 13.81$) and the Governance variables ($R^2 = 11.27$) added incremental explanatory power in the INCENT regression.

Core et al (1999) devise a test of these alternate hypotheses by examining the relation between CEO compensation and future performance. The authors first compute 'excess compensation' as the compensation in excess of a predicted level. They find a negative association between excess compensation and subsequent firm performance. In other words, paying higher compensation not only doesn't get the firm better performance, it actually leads to lower performance. The authors thus conclude that the board and ownership variables proxy for managerial entrenchment, and not for unobserved demand for superior CEOs.

In a similar spirit, we test our 1990s data to see if our governance and CEO specific variables are proxying for efficient contracting or CEO entrenchment. We define excess compensation in a manner similar to Core et al (1999).²³ The results of our tests are reported in Table VIII. Unlike Core et al (1999), we find no negative coefficients on our excess compensation variable. All coefficients are positive and four out of six are statistically significant. Not only do we not find support for entrenchment, there appears to be a positive correlation with future superior performance. Our results are consistent with those of Hayes and Schaefer (2000). In their study, the authors examine whether boards optimally contract on both observable and unobservable (to outsiders) measures of executive performance in constructing management compensation contracts. They find that variation in current compensation (i.e., excess compensation) is positively associated with future firm ROE. The authors interpret their results as evidence that boards appear to perform a vital governance role and that firms use compensation contracts to motivate and reward employees. Our contrasting results with Core et al. (1999) is consistent with the Milliron (2000) finding that director accountability,

²³ Core et al (1999) first define predicted excess compensation as the linear combination of their board structure and ownership variables using the estimated coefficients from a regression of compensation on economic, board structure, and ownership structure determinants. They next regress future firm performance on this excess compensation variable, along with several control variables. We use the same methodology, however our control variables differ slightly in order to be consistent with the economic control variables used in this study. We further reran the procedure by defining excess compensation as the residuals from regressing our full set of independent variables on CEO compensation. We next regress this measure of excess compensation on the firm's subsequent performance. This procedure is similar to that used in Hayes and Schaefer (2000). Our results are similar using either definition of excess compensation.

independence, and effectiveness have shifted during the 90s from the early 80s in the direction of increased board strength.

(Insert Table VIII here)

5. Summary

Four major strands have evolved within the executive compensation literature. In this paper we perform a comprehensive study of executive compensation determinants by providing a unifying analysis of these strands: principle-agency theory, managerial discretion, external ownership and corporate governance, and CEO specific characteristics. We examine financial sector data, which provides a relatively homogeneous setting.

Using data from the period 1992-1997, we first examine 17 individual variables (seven of these are combined in the BOARD variable), drawn from the four major classes of variables. We analyze both the financial sector as a whole, and three sub-groups: commercial banks, insurance companies, and brokerages and other non-depositories. We consider both the level of total compensation, consisting of salary, annual bonus, other annual compensation, and LTIP payout, the value of option grants and restricted stock grants, as well as compensation structure.

Looking at the financial sector as a whole, we find several consistencies in our findings, regardless of statistical methods employed. We first look at the determinants of the level of CEO compensation. The higher levels of the accounting measure of performance, ROE, appear to be positively associated with higher pay. When we allow for simultaneous estimation of compensation along with performance and board strength, our market measure of performance, RET, also appears to be positively associated with pay levels. For our sample of firms, larger firms with future growth potential pay their CEOs more. Within the financial services industry, firms facing a lower regulatory environment pay higher levels of compensation. Finally, the Board of Directors appears to play a monitoring role. Potentially stronger boards are associated

with lower CEO compensation.

We also report several consistent findings with regard to compensation structure, the percentage of total compensation in the form of incentive compensation. As is the case with the level of compensation, higher levels ROE appear to be positively associated with higher percentages of incentive compensation. Again, when we perform a simultaneous estimation of compensation along with performance and board strength, RET also appears to be positively associated with incentive compensation. Consistent with contracting theory, firms facing lower degrees of regulation use more incentive compensation. Finally we find a negative association between board strength and the percentage of incentive compensation. We interpret this as evidence that board strength and incentive compensation are substitutes for mitigating agency costs. These findings, when viewed with subsequent firm performance, support an efficient contracting argument.

While an analysis of individual variables is interesting and informative, we also wish to see the impact of the four groups of variables, both relatively and incrementally. Even though the study of the relation between executive pay and firm performance seems to dominate the literature, we find that our performance measures account for a relatively small amount of explanatory power. The bulk of the determination of executive compensation appears to be the result of managerial discretionary items such as the size of the firm, the firm's growth, riskiness, and regulatory environment. Governance variables, as a group, explain the second largest amount of compensation variability, although they provide relatively less explanatory power. Despite the great emphasis in the literature, firm performance as well as CEO wealth (stocks and options) are the weakest determinants of executive pay.

We find that director independence and effectiveness acts as a substitute to incentive compensation. Also, there is a positive association between firm performance and board strength. Together with the finding that companies that compensate 'excessively' tend to have higher

subsequent performance, there is support to the thesis of efficient contracting.

Appendix: Constructing a composite board strength variable.

The variable (BOARD) represents a composite variable measuring overall board strength. We give equal weight to each characteristic in the overall BOARD measure, however we also recognize the substitutability of measures within the board. We accomplish this through the following procedure:

1. Create a variable called INDEPENDENCE by summing the two mutually exclusive percentage variables INSIDE and GRAY.
2. Partition the sample observations into quartiles based on INDEPENDENCE and assign a score of 1 to observations in the top quartile, a score of 0 to observations in the middle two quartiles, and a score of -1 to observations in the bottom quartile. Higher scores represent greater board independence and therefore a theoretically stronger board. Using the same strategy, the observations are partitioned on LOCK.
3. Since the four remaining effectiveness measures are not mutually exclusive and are not of the same units, we cannot simply sum them together. Instead, we again partition the observations into quartiles based on each of the four effectiveness measures. As in step two, we assign scores based on quartile, with a score of 1 to the upper quartile and -1 to the bottom quartile. Higher numbers represent greater effectiveness and therefore a theoretically stronger board.
4. Finally, we add together the score for both the independence variables and the effectiveness variables to create an overall board strength measure. To recognize that these individual characteristics may be substitutes, we again partition the observations, this time based on the computed strength score. We assign a score of 1 to observations in the top quartile, a score of 0 to observations in the middle two quartiles, and a score of -1 to observations in the bottom quartile where the positive value represents a theoretically stronger board.

References:

- Anderson, M., R. Banker, and S. Ravindran (2000). "Executive Compensation in the Information Technology Industry," *Management Science* 46, pp. 530-547.
- Antle, R. and A. Smith (1986). "An Empirical Investigation of the Relative Performance Evaluation of Corporate Executives," *Journal of Accounting Research* 24, Spring, pp. 1-39.
- Baber, W.R., S.N. Janakiraman, and S.H. Kang (1996). "Investment Opportunities and the Structure of Executive Compensation," *Journal of Accounting and Economics* 21, pp. 297-318.
- Baker, G. (1992). "Incentive Contracts and Performance Measurement," *Journal of Political Economy* 100, pp. 598-614.
- Baker, G.P. and B.J. Hall (1998). "CEO Incentives and Firm Size," NBER Working Paper 6868, December.
- Banker, R. and S. Datar (1989). "Sensitivity Precision, and Linear Aggregation of Accounting Signals," *Journal of Accounting Research* 27, Spring, pp. 21-39.
- Barro, J.R. and R.J. Barro (1990). "Pay, Performance and Turnover in Bank CEOs," *Journal of Labor Economics* 8, October, pp. 448-481.
- Baysinger, B.D. and H.N. Butler (1985). Corporate Governance and the Board of Directors: Performance Effects of Changes in Board Composition," *Journal of Law, Economics and Organization* 1, Spring, pp. 101-124.
- Bizjak, J.M., J.A. Brickley, and J.L. Coles (1993). "Stock-based Incentive Compensation and Investment Behavior," *Journal of Accounting and Economics* 16, pp. 349-372.
- Boschen, J.F. and K.J. Smith (1995). "You Can Pay Me Now and You Can Pay Me Later: The Dynamic Response of Executive Compensation to Firm Performance," *Journal of Business* 68, October, pp. 577-608.
- Brickley, J.A., J.L. Coles, and R.L. Tory (1994). "Outside Directors and the Adoption of Poison Pills," *Journal of Financial Economics* 35, June, pp. 371-390.
- Brickley, J.A. and C.M. James (1987). "The Takeover Market, Corporate Board Composition, and Ownership Structure: The Case of Banking," *Journal of Law and Economics* 30, April, pp. 161-180.
- Bushman, R., Q. Chen, E. Engel, and A. Smith (1999). "The Sensitivity of Corporate Governance Systems to the Timeliness of Accounting Earnings," Working paper, University of Chicago.
- Byrd, J.W. and K.A. Hickman (1992). "Do Outside Directors Monitor Managers?" *Journal of Financial Economics* 32, pp. 195-221.
- Ciscel, D.H. and T.M. Carroll (1980). "The Determinants of Executive Salaries: An Econometric Survey," *Review of Economics and Statistics* 62, pp. 7-13.
- Coughlan, A. and R.M. Schmidt (1985). "Executive Compensation, Managerial Turnover and Firm Performance: An Empirical Investigation," *Journal of Accounting and Economics* 7, pp. 43-66.
- Core, J.E. and W. Guay (1999). "The Use of Equity Grants to Manage Optimal Equity Incentive Levels,"

- Journal of Accounting and Economics* 28, pp. 151-184.
- Core, J.E. and W. Guay (1998). "Estimating the Incentive Effects of Executive Stock Option Portfolios," Working paper, University of Pennsylvania.
- Core, J.E., R.W. Holthausen, and D.F. Larcker (1999). "Corporate Governance, Chief Executive Officer Compensation, and Firm Performance," *Journal of Financial Economics* 51, pp. 371-406.
- 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, pp. 231-256.
- Demsetz, H. and K. Lehn (1985) "The Structure of Corporate Ownership: Causes and Consequences," *Journal of Political Economy* 93, pp. 1155-1177.
- Diamond, P. (1998). "Managerial Incentives: On the Near Linearity of Optimal Compensation," *Journal of Political Economy* 106, pp. 931-957.
- Eaton, J. and H. Rosen (1983) "Agency, delayed compensation and the structure of executive remuneration," *Journal of Finance* 38, pp. 1489-1505.
- Elias, R. and B.Z. Schreiber (1998). "Executive Pay in the Israeli Banking System," Bank of Israel working paper, August.
- Fama, E.F. and M.C. Jensen (1983). "The Separation of Ownership and Control," *Journal of Law and Economics* 26, pp. 301-325.
- Fields, L.P. and D.R. Fraser (1999). "On the Compensation Implications of Commercial Bank entry into Investment Banking," *Journal of Banking and Finance* 23, pp. 1261-1276.
- Finkelstein, S. and J. Boyd (1998). "How Much Does the CEO Matter? The Role of Managerial Discretion in the Setting of CEO Compensation," *Academy of Management Journal* 41, April, pp. 179-199.
- Finkelstein, S. and D.C. Hambrick (1988). "Chief Executive Compensation: A Synthesis and Reconciliation," *Strategic Management Journal* 9, pp. 543-558.
- Gaver, J. and K. 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, pp. 125-160.
- Gibbons, R. (1998). "Incentives in Organizations," *Journal of Economic Perspectives* 12, Fall, pp. 115-132.
- Gibson, Dunn & Crutcher LLP (1999). The Gramm-Leach-Bliley Act, P.L. 106-102, Financial Services Modernization, Working Summary No. 4.
- Gomez-Mejia, L.R. (1994). "Executive Compensation: A Reassessment and A Future Research Agenda," *Research in Personnel and Human Resources Management* 12, JAI Press, pp. 161-222.
- Hambrick, D.C. and S. Finkelstein (1995). "The Effects of Ownership Structure on Conditions at the Top: The Case of CEO Pay Raises," *Strategic Management Journal* 16, March, pp. 175-193.
- Hayes, R. and S. Schaefer (2000). "Implicit Contracts and the Explanatory Power of Top Executive Compensation for Future Performance," *RAND Journal of Economics* 31, pp. 273-293.

- Henderson, A.D. and J.W. Fredrickson (1996). "Information-Processing Demands as a Determinant of CEO Compensation," *Academy of Management Journal* 39, pp. 575-606.
- Hermalin, B.E. and N.E. Wallace (1998). "Firm Performance and Executive compensation in the Savings and Loan Industry," University of California Berkeley working paper, February.
- Hermalin, B.E. and M.S. Weisbach (1998). "Endogenously Chosen Boards of Directors and Their Monitoring of the CEO," *American Economic Review*, March, pp. 96-118.
- Houston, J. F. and C. James (1995). "CEO Compensation and Bank Risk: Is Compensation in Banking Structured to Promote Risk Taking?" *Journal of Monetary Economics* 36, pp. 405-431.
- Hubbard R.G. and D. Palia (1995). "Executive Pay and Performance: Evidence from the U.S. Banking Industry," *Journal of Financial Economics* 39, pp. 105-130.
- Indjejikian, R.J. (1999). "Performance Evaluation and Compensation Research: An Agency Perspective," *Accounting Horizons* 13, June, pp. 147-157.
- Jensen, M.C. (1993). "The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems," *Journal of Finance* 48, July, pp. 831-857.
- Jensen, M.C. and K.J. Murphy (1990a). "CEO Incentives- It's Not How Much You Pay, but How," *Journal of Applied Corporate Finance*, pp. 36-49.
- Jensen, M.C. and K.J. Murphy (1990b). "Performance Pay and Top-Management Incentives," *Journal of Political Economy* 98, April, pp. 225-264.
- John, K., A. Saunders, and L.W. Senbet (2000). "A Theory of Bank Regulation and Management Compensation," *Review of Financial Studies* 13, Spring, pp. 95-125.
- Joskow, P.L. and N.L. Rose (1994). "CEO Pay and Firm Performance: Dynamics, Asymmetries, and Alternative Performance Measures," MIT working paper, December.
- Joskow, P.L., N.L. Rose, and A. Shepard (1993). "Regulatory Constraints on CEO Compensation," *Brookings Papers on Economic Activity – Microeconomics*, 1, pp. 1-58.
- Ke, B., K. Petroni, and A. Safieddine (1999). "Ownership concentration and sensitivity of executive pay to accounting performance measures: Evidence from publicly and privately-held insurance companies," *Journal of Accounting & Economics* 28, pp. 185-209.
- Lambert, 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, Supplement, pp. 85-125.
- Lazear, E.D. and S. Rosen (1981). "Rank Order Tournaments as Optimum Labor Contracts," *Journal of Political Economy* 89, October, pp. 841-864.
- Leonard, J.S. (1990). "Executive Pay and Firm Performance," *Industrial and Labor Relations Review* 43, February, pp. 11s-29s.
- Lewellen, W.G. and B. Huntsman (1970). "Managerial Pay and Corporate Performance," *American Economic Review* 60, September, pp. 710-720.
- Lewellen, W.G., C. Loderer, and K. Martin (1987). "Executive Compensation and Executive Incentive Problems: An Empirical Analysis," *Journal of Accounting and Economics* 9, December, 287-310.

- Mehran, H. (1995). "Executive Compensation Structure, Ownership, and Firm Performance," *Journal of Financial Economics* 38, June, pp. 163-184.
- Milbourn T.T., A.W.A. Boot, and A.V. Thakor (1999). "Megamergers and Expanded Scope: Theories of Bank Size and Activity Diversity," *Journal of Banking and Finance* 23, pp. 195-214.
- Milliron, J. (2000). "Board of Director Alignment and the Design of Executive Compensation Contracts," PhD Thesis, University of Chicago.
- Morck, R., A. Shleifer, and R.W. Vishny (1988). "Management Ownership and Market Valuation--An Empirical Analysis," *Journal of Financial Economics* 20, pp. 293-315.
- Mueller, D.C. and S.L. Yun (1997). "Managerial Discretion and Managerial Compensation," *International Journal of Industrial Organization* 15, July, pp. 441-454.
- Murphy, K. J. (1985). "Corporate Performance and Managerial Remuneration: An Empirical Analysis," *Journal of Accounting and Economics* 7, April, pp.11-42.
- Murphy, K. J (1999). "Executive Compensation," in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics* 3, North Holland, Chapter 38.
- National Association of Corporate Directors, (1996). "NACD Blue Ribbon Commission Report on Director Professionalism."
- Prendergast, C. (1999). "The Provision of Incentives in Firms," *Journal of Economic Literature* 37, March, pp. 7-63.
- Schaefer, S. (1998). "The Dependence of Pay-Performance Sensitivity on the Size of the Firm," *Review of Economics and Statistics* 80, August, pp. 436-443.
- Skeel, D.A. (1999). "The Market Revolution in Bank and Insurance Firm Governance: its Logic and Limits," *Washington University Law Quarterly* 7, Summer, pp. 433-459.
- Sloan, R.G. (1993). "Accounting Earnings and Top Executive Compensation," *Journal of Accounting and Economics* 16, January-July, pp. 55-100.
- Smith, C. and R. Watts (1992). "The Investment Opportunity Set and Corporate Financing, Dividends, and Compensation Policies," *Journal of Financial Economics* 32, pp. 263-292.
- Stoughton, N.M. and E. Talmor (1999). "Managerial Bargaining Power in the Determination of Compensation Contracts and Corporate Investment," *International Economic Review* 40, February, pp. 69-83.
- Taussig, F.W. and W.S. Barker (1925). "American Corporations and their Executives: A Statistical Inquiry," *Quarterly Journal of Economics*, November, pp. 1-51.
- Weisbach, M.S. (1988). "Outside Directors and CEO Turnover," *Journal of Financial Economics* 20, pp. 431-460.
- Yermack, D., (1996). "Higher market valuation for firms with a small board of directors," *Journal of Financial Economics* 40, pp. 185-211.

Table I

Variable definitions and predicted effect on compensation.

| Variable | Acronym | Definition | Predicted effect on the level of compensation | Predicted effect on the percentage of incentive compensation |
|--------------------------------------|----------------------|---|---|--|
| Return on equity | ROE | Net income divided by average total equity | + | + |
| Shareholder return | RET | Dividends plus stock appreciation divided by beginning of the year share price (adjusted for dividends) | + | + |
| Natural log of assets | ASSETS | The natural log of total assets | + | + |
| Standard deviation of ROE | $\sigma(\text{ROE})$ | Standard deviation of return on equity over trailing five years | + | + |
| 3 year growth in sales | SALES3YR | Three year least square annual growth rate of sales | + | + |
| Market to Book | MKBK | The ratio of the market value of equity to the book value of equity | + | + |
| Regulation | REGULATE | An indicator variable given the value 1 for banks, 2 for insurance companies, and 3 for brokerages and other non-depositories. | + | + |
| CEO tenure | TENURE | Number of years as CEO | + | - |
| Sensitivity of CEO equity | OWNER | Sensitivity of CEO stock and option holding to a 1% change in stock price. | - | - |
| 5% shareholder blocks | BLOCKS | Number of 5% or greater blocks of stock owned by outsiders | - | +/- |
| Board Strength | BOARD | A composite board strength variable made up of the below seven variables. BOARD is constructed such that a larger value represents a theoretically stronger Board | - | - |
| Insiders on the Board | INSIDE | Percentage of the Board's Directors that are executives of the Company | + | + |
| Director Interlocks | LOCK | Percentage of outside directors where an inside officer of the firm serves on that outside director's Board | + | + |
| Gray Board members | GRAY | Percentage of the Board's Directors that are either family members of the CEO or have contracts with the Company | + | + |
| Busy Board members | BUSY | Percentage of the Board's Directors that are outside directors and sit on at least two other Boards | + | + |
| Old Board members | OLD | Percentage of the Board's Directors that are outside directors and are over 65 | + | + |
| Joint CEO and Chairmanship | DUAL | Percentage of CEOs that are also the Chairman of the Board | + | + |
| Total Board size | TOTAL | Total number of Board members | + | + |
| Total compensation | LEVEL | Salary, other annual, annual bonus, LTIP, restricted stock granted, and stock options granted | | |
| Percentage of incentive compensation | INCENT | (Annual Bonus + LTIP + restricted stock + stock options) / total compensation | | |

Table II

Descriptive statistics on firm, and CEO characteristics, based on 1992-1997 data for 76 banks, 59 insurance firms, 25 brokerages and other non-depository institutions, 176 non-financial service firms and 728 manufacturers.

Panel A: Firm Characteristics:

| | Banks | | Insurance | | Other | |
|-----------------------------------|----------|--------|-----------|--------|---------|--------|
| | Mean | Median | Mean | Median | Mean | Median |
| Sales (M\$) | 4,020 | 2,214 | 4,651 | 2,466 | 4,824 | 1,867 |
| Assets (M\$) | 48,097** | 28,945 | 20,673** | 7,138 | 45,973 | 9,605 |
| Net Income (M\$) | 525.9** | 270.2 | 356.3** | 213.5 | 351.67 | 193.31 |
| Return on Equity (ROE) | 15.40 | 16.07 | 13.78** | 13.85 | 19.86** | 19.16 |
| Share Return (RET) | 32.57* | 30.84 | 25.53** | 25.44 | 31.39 | 27.20 |
| 3 Year Growth in Sales (SALES3Yr) | 10.16** | 9.29 | 13.94* | 10.38 | 13.32 | 12.84 |
| Market to Book (MKBK) | 2.02 | 1.74 | 1.97 | 1.71 | 2.70** | 1.71 |

| | All Financial Services | | Manufacturing | | Services | |
|-----------------------------------|------------------------|--------|---------------|--------|----------|--------|
| | Mean | Median | Mean | Median | Mean | Median |
| Sales (M\$) | 4,365 | 2,233 | 4,326 | 1,157 | 1,478** | 563.0 |
| Assets (M\$) | 37,506 | 15,592 | 4,905** | 1,017 | 1,838** | 612.8 |
| Net Income (M\$) | 438.8 | 242.9 | 234.9** | 50.8 | 88.5** | 27.4 |
| Return on Equity (ROE) | 15.39 | 15.65 | 13.28 | 14.86 | 21.36 | 13.48 |
| Share Return (RET) | 29.77 | 28.05 | 20.11** | 14.31 | 25.05 | 17.70 |
| 3 Year Growth in Sales (SALES3Yr) | 12.00 | 10.13 | 14.64** | 8.82 | 28.33** | 17.49 |
| Market to Book (MKBK) | 2.09 | 1.72 | 3.02** | 2.57 | 3.79** | 3.17 |

Panel B: Components of CEO Compensation

| | Banks | | Insurance | | Other | |
|--------------------------|------------------------|--------|----------------|--------|----------------|--------|
| | Mean | Median | Mean | Median | Mean | Median |
| Salary (000\$) | 846.99 | 786.64 | 804.36 | 738.99 | 866.03 | 734.71 |
| Bonus (000\$) | 933.79 | 501.44 | 640.16** | 433.50 | 2,548** | 1,513 |
| LTIP (000\$) | 229.20 | 0.00 | 265.52 | 0.00 | 182.14 | 0.00 |
| Restricted Stock (000\$) | 381.41 | 0.00 | 116.83** | 0.00 | 625.09* | 0.00 |
| Options (000\$) | <u>1,099</u> | 566.40 | <u>1,232</u> | 586.15 | <u>1,204</u> | 209.00 |
| Total | <u>3,490</u> | | <u>3,059**</u> | | <u>5,425**</u> | |
| | All Financial Services | | Manufacturing | | Services | |
| | Mean | Median | Mean | Median | Mean | Median |
| Salary (000\$) | 833.47 | 755.15 | 631.05** | 550.00 | 550.8** | 459.55 |
| Bonus (000\$) | 1,040 | 503.94 | 514.41** | 338.35 | 565.5** | 231.00 |
| LTIP (000\$) | 236.54 | 0.00 | 163.03* | 0.00 | 52.65** | 0.00 |
| Restricted Stock (000\$) | 314.63 | 0.00 | 157.85** | 0.00 | 202.19 | 0.00 |
| Options (000\$) | <u>1,163</u> | 561.80 | <u>1,122</u> | 386.85 | <u>1,915*</u> | 348.61 |
| Total | <u>3,588</u> | | <u>2,588**</u> | | <u>3,286</u> | |

Table II (Continued)

Panel C: Compensation Percentages

| | Banks | Insurance | Other |
|------------------|---------------|---------------|---------------|
| Salary | 36.02 | 38.19* | 28.30** |
| Bonus | 26.52 | 21.54** | 42.59** |
| LTIP | 5.79 | 6.64 | 2.67** |
| Restricted Stock | 7.07* | 3.44** | 8.50 |
| Options | 24.60 | 30.19** | 17.94** |
| | <u>100.00</u> | <u>100.00</u> | <u>100.00</u> |
| | All Financial | Manufacturing | Services |
| Salary | 35.83 | 40.76** | 41.09** |
| Bonus | 26.74 | 22.30** | 20.33** |
| LTIP | 5.70 | 3.73** | 1.49** |
| Restricted Stock | 5.89 | 4.02** | 3.78** |
| Options | 25.84 | 29.19** | 33.31** |
| | <u>100.00</u> | <u>100.00</u> | <u>100.00</u> |

Variable definitions:

| | |
|------------------|---|
| Bank | Commercial banks defined as firms with SIC from 6000-6099 |
| Insurance | Insurance firms defined as firms with SIC from 6300-6399 |
| Other | Brokerages defined as firms with SIC from 6200-6299 and other non-depositories defined as firms with SIC from 6100-6199 |
| Manufacturing | Manufacturing defined as firms with SIC from 2000-3999 |
| Services | Services defined as firms with SIC from 7000-8999 |
| Sales | Total net sales for the year |
| Assets | Total assets |
| Net Income | Net income before extraordinary items. |
| Salary | Salary and other annual compensation |
| Bonus | Annual bonus |
| LTIP | Long-term Incentive Plan payouts |
| Restricted Stock | Value of restricted stock granted |
| Options | Black-Scholes aggregate value of stock options granted |

** Significant at the 1% level

* Significant at the 5% level

The significance tests are based on two-sample t-tests of the mean difference. For Banks, Insurance, and Other, each group is compared to All Financial firms with the respective group of firms deleted. In the case of Manufacturing or Services, these groups are compared to All Financial firms without any deletions.

Table III

Descriptive statistics on corporate governance characteristics; 76 banks, 59 insurance firms, and 25 brokerages and other non-depository firms, based on data for 1992-1997.

| | Banks | | Insurance | | Other | |
|--------------------------------|---------|--------|-----------|--------|---------|--------|
| | Mean | Median | Mean | Median | Mean | Median |
| DUAL (%) | 90.33** | 100.00 | 77.39** | 100.00 | 86.59 | 100.00 |
| Total Board Members (TOTAL) | 15.79** | 16.00 | 10.95** | 11.00 | 12.57 | 11.50 |
| Insiders (INSIDE) (% of Total) | 15.58** | 13.33 | 21.19 | 16.67 | 36.15** | 30.00 |
| Gray (GRAY) (% of Total) | 4.53 | 0.00 | 4.84 | 0.00 | 2.79** | 0.00 |
| Busy (BUSY) (% of Total) | 46.11 | 50.00 | 44.44 | 46.15 | 38.70* | 37.50 |
| Old (OLD) (% of Total) | 23.76* | 21.05 | 21.48 | 20.00 | 20.84 | 20.00 |
| Interlock (LOCK) (% of Total) | 15.00** | 0.00 | 6.09* | 0.00 | 3.66** | 0.00 |
| Outside Blocks (BLOCKS) | 1.02** | 1.00 | 2.00** | 2.00 | 1.88** | 2.00 |

** Significant at the 1% level

* Significant at the 5% level

The significance tests are based on two-sample t-tests of the mean difference. Each group of firms is compared to All Financial firms with the respective group of firms deleted.

Table IV

Determinants of CEO compensation for financial services firms; fixed effects pooled regression analysis using data from 1992 to 1997; t-statistics in parentheses.

| Independent Variable | All Financial Services Firms | |
|-------------------------|------------------------------|-----------------------|
| | LEVEL | INCENT |
| INTERCEPT | -1.023 (-1.160) | -1.191 (-4.138)** |
| ROE | 0.015 (4.277)** | 0.004 (3.211)** |
| RET | -0.002 (-2.232)* | -0.001 (-2.638)** |
| ASSETS | 0.686 (6.560)** | 0.121 (3.546)** |
| $\sigma(\text{ROE})$ | -0.002 (-0.214) | 0.002 (0.827) |
| SALES3YR | -0.003 (-1.348) | -0.001 (-1.270) |
| MKBK | 0.193 (5.287)** | 0.043 (3.632)** |
| REGULATE | 0.563 (1.877)* | 0.181 (1.853)* |
| TENURE | 0.009 (1.216) | -0.001 (-0.498) |
| OWNER | -7.16e-06 (-2.206)* | -1.36e-06 (-1.287) |
| BLOCKS | -0.107 (-1.522) | -0.007 (-0.324) |
| BOARD | -0.019 (-1.827)* | -0.011 (-3.043)** |
| N | 491 | 491 |
| Adjusted R ² | 25.33 | 5.22 |

Variable definitions:

Total Compensation Salary, other annual, annual bonus, LTIP, restricted stock granted and stock options granted
 Incentive (Annual Bonus + LTIP + restricted stock + stock options) / total
 Compensation compensation

** Significant at the 1% level, one-tailed

* Significant at the 5% level, one-tailed

Table V

Determinants of CEO compensation for Banks, Insurance Companies, and Other Financial Services firms; fixed effects pooled regression analysis using data from 1992 to 1997; t-statistics in parentheses.

| Independent Variable | Banks | | Insurance | | Other | |
|-------------------------|-----------------------|-----------------------|------------------------|-----------------------|--------------------|---------------------|
| | LEVEL | INCENT | LEVEL | INCENT | LEVEL | INCENT |
| INTERCEPT | -1.531 (-0.859) | -1.160 (-1.954)* | -0.187 (-0.165) | -1.045 (-2.901)** | 2.248 (1.388) | -0.013 (-0.042) |
| ROE | 0.012 (2.009)* | 0.002 (1.287) | 0.016 (3.392)** | 0.004 (2.507)** | 0.026 (2.190)* | 0.003 (1.334) |
| RET | -0.002 (-2.065)* | -0.007 (-2.277)* | -0.001 (-0.943) | -0.001 (-1.367) | 0.002 (0.778) | -0.002 (-0.513) |
| ASSETS | 0.886 (4.901)** | 0.171 (2.841)** | 0.825 (6.705)** | 0.170 (4.354)** | 0.612 (3.294)** | 0.078 (2.171)* |
| $\sigma(\text{ROE})$ | 0.003 (0.384) | 0.004 (1.597) | -0.015 (-0.801) | -0.008 (-1.321) | -0.019 (-0.765) | 0.002 (0.364) |
| SALES3YR | -0.001 (-0.136) | -0.001 (-0.552) | -0.007 (-1.536) | -0.001 (-0.428) | 0.010 (1.224) | 0.003 (1.584) |
| MKBK | 0.174 (3.266)** | 0.044 (2.499)** | 0.260 (3.532)** | 0.076 (3.243)** | -0.023 (-0.430) | 0.008 (0.773) |
| TENURE | -0.002 (-0.232) | -0.005 (-1.474) | 0.017 (1.628) | 0.002 (0.538) | -0.014 (-0.519) | -0.005 (-0.885) |
| OWNER | -8.63e-06 (-0.356) | -6.21e-06 (-0.768) | -6.23e-06 (-1.692)* | -1.47e-06 (-1.258) | 0.000 (0.368) | 1.33e-06 (0.230) |
| BLOCKS | -0.119 (-1.473) | -0.016 (-0.609) | -0.157 (-1.062) | -0.004 (-0.095) | 0.071 (0.223) | 0.005 (0.082) |
| BOARD | -0.022 (-1.484) | -0.010 (-1.986)* | -0.001 (-0.440) | -0.010 (-1.833)* | 0.014 (0.472) | 0.003 (0.594) |
| N | 258 | 258 | 213 | 213 | 57 | 57 |
| Adjusted R ² | 65.26 | 45.64 | 23.81 | 9.8 | 73.20 | 49.97 |

** Significant at the 1% level, one-tailed

* Significant at the 5% level, one-tailed

Table VI

Determinants of CEO compensation for financial services firms; simultaneous estimation using three-stage least squares. Data from 1992 to 1997; t-statistics in parentheses.

| Independent Variable | LEVEL | INCENT | ROE | RET | BOARD |
|----------------------------|------------------------|-----------------------|----------------------|-----------------------|-----------------------|
| INTERCEPT | 1.703 (2.352)** | -0.535 (-2.052)* | 10.228 (1.067) | 54.031 (2.837)** | -1.332 (-0.300) |
| ROE | 0.057 (6.381)** | 0.021 (6.877)** | | -2.565 (-13.790)** | 0.369 (10.254)** |
| RET | 0.055 (4.030)** | 0.021 (4.478)** | -0.697 (-7.451)** | | 0.330 (5.423)** |
| LEVEL | | | 1.114 (1.001) | -16.356 (-4.575)** | -2.150 (-5.303)** |
| INCENT | | | 23.596 (8.617)** | 57.927 (6.362)** | -9.029 (-18.174)** |
| ASSETS | 0.271 (5.033)** | 0.005 (0.276) | 0.194 (0.248) | 7.220 (4.140)** | 0.541 (1.565) |
| $\sigma(\text{ROE})$ | 0.053 (3.461)** | 0.012 (2.276)* | -0.516 (-2.786)** | -0.673 (-1.988)* | 0.250 (2.824)** |
| SALES3YR | -0.019 (-2.190)* | -0.008 (-2.664)* | 0.205 (2.281)* | 0.092 (0.636) | -0.116 (-2.551)** |
| MKBK | 0.176 (2.363)** | 0.029 (1.081) | 2.397 (2.456)** | 18.493 (10.263)** | 0.254 (0.560) |
| REGULATE | 0.170 (4.340)** | 0.048 (3.457)** | -1.401 (-3.122)** | -0.269 (-0.337) | 0.822 (3.738)** |
| TENURE | 0.006 (0.619) | -0.002 (-0.603) | 0.025 (0.187) | 0.127 (0.528) | -0.004 (-0.060) |
| OWNER | -9.72e-06 (-2.222)* | -1.60e-06 (-1.046) | 2.84e-05 (0.480) | -1.70e-04 (-1.494) | -3.27e-05 (-1.209) |
| BLOCKS | 0.291 (1.688)* | 0.122 (1.941)* | -3.236 (-1.463) | -2.140 (-0.535) | 1.764 (1.707)* |
| BOARD | -0.169 (-6.746)** | -0.063 (-7.345)** | 2.105 (8.785)** | 2.954 (3.706)** | |
| System Adj. R ² | 41.07 | | | | |
| N | 405 | | | | |

** Significant at the 1% level, one-tailed

* Significant at the 5% level, one-tailed

Table VII

The individual contribution each class of variables to the explanatory power of the models; fixed effects pooled regression analysis for All Financial Companies using data from 1992 to 1997; t-statistics in parentheses.

| Independent Variable | Performance | | CEO | | Discretionary | | Governance | |
|-------------------------|--------------------|--------------------|---------------------|---------------------|--------------------|----------------------|--------------------|----------------------|
| | LEVEL | INCENT | LEVEL | INCENT | LEVEL | INCENT | LEVEL | INCENT |
| INTER-CEPT | 7.556 (120.4)** | 0.577 (31.54)** | 7.584 (97.50)** | 0.621 (27.64)** | 0.452 (0.549) | -0.703 (-2.629)** | 7.885 (119.9)** | 0.642 (34.46)** |
| ROE | 0.012 (3.016)** | 0.003 (2.800)** | | | | | | |
| RET | 0.003 (3.711)** | 0.000 (1.509) | | | | | | |
| ASSETS | | | | | 0.660 (6.378)** | 0.113 (3.372)** | | |
| σ (ROE) | | | | | -0.004 (-0.545) | 0.001 (0.388) | | |
| SALES3YR | | | | | -0.003 (-1.308) | -0.001 (-1.020) | | |
| MKBK | | | | | 0.208 (6.498)** | 0.041 (3.917)** | | |
| REGULATE | | | | | 0.213 (0.762) | 0.056 (0.616) | | |
| TENURE | | | 0.026 (3.006)** | 0.001 (0.587) | | | | |
| OWNER | | | 1.30e-06 (0.338) | 4.37e-07 (0.393) | | | | |
| BLOCKS | | | | | | | -0.089 (-1.044) | -0.005 (-0.227) |
| BOARD | | | | | | | -0.021 (-1.621) | -0.011 (-3.065)** |
| N | 491 | 491 | 491 | 491 | 491 | 491 | 491 | 491 |
| Adjusted R ² | 3.91 | 3.76 | 0.88 | 9.10 | 40.37 | 10.74 | 4.65 | 6.30 |

** Significant at the 1% level, one-tailed

* Significant at the 5% level, one-tailed

Table VIII

Excess total compensation as a predictor of future firm performance; two stage regression analysis using data from 1992 to 1997; t-statistics in parentheses.

| Independent Variable ¹ | AVG2ROE | ROE1 | ROE2 | AVG2RET | RET1 | RET2 |
|-----------------------------------|---------------------|-----------------------|---------------------|----------------------|-----------------------|----------------------|
| INTERCEPT | 1.506 (0.557) | 0.107 (0.038) | 0.896 (0.272) | -9.816 (-1.185) | 28.636 (2.446)** | -9.946 (-0.844) |
| EXCESS COMP | 1,290 (2.807)*** | 973.2 (2.205)** | 1,325 (2.368)** | 2,223 (1.873)* | 222.9 (0.132) | 2,453 (1.280) |
| ASSETS | 0.720 (3.433)*** | 0.780 (3.362)*** | 0.809 (3.169)*** | 1.505 (2.379)** | 0.865 (0.936) | 0.584 (0.650) |
| $\sigma(\text{ROE})$ | -0.032 (-0.561) | -0.259 (-4.400)*** | -0.026 (-0.369) | 0.333 (2.260)** | 0.742 (3.539)*** | 0.860 (4.355)*** |
| REGULATE | -0.032 (-0.284) | 0.013 (0.098) | -0.026 (-0.191) | -0.843 (-2.462)** | -2.028 (-3.821)*** | -1.095 (-2.289)** |
| SALES3YR | -0.010 (-0.387) | -0.109 (-3.960)*** | 0.005 (0.156) | 0.257 (2.964)*** | 0.127 (1.157) | -0.089 (-0.780) |
| MKBK | 3.610 (8.806)*** | 4.868 (11.431)*** | 3.094 (6.205)*** | 1.463 (1.220) | -0.824 (-0.455) | 0.178 (0.102) |
| N | 272 | 381 | 272 | 199 | 360 | 262 |
| Adjusted R ² | 23.61 | 27.41 | 13.37 | 45.40 | 38.62 | 46.07 |

*** Significant at the 1% level, two-tailed

** Significant at the 5% level, two-tailed

* Significant at the 10% level, two-tailed

¹ Each regression also includes year dummy variables not reported.

| | |
|-------------|---|
| AVG2ROE | Average firm ROE for the two following years. |
| ROE1 | ROE for the firm in year t+1 |
| ROE2 | ROE for the firm in year t+2 |
| AVG2RET | Average firm RET for the two following years. |
| RET1 | RET for the firm in year t+1 |
| RET2 | RET for the firm in year t+2 |
| EXCESS COMP | Compensation in excess of the total compensation predicted based on compensation predicted given pooled cross-sectional coefficients and the firm specific characteristics. |