The CEO, the Board of Directors and Executive Compensation: Economic and Psychological Perspectives

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How do boards of directors of large US corporations set the compensation levels for chief executive officers (CEOs)? Economic theories are based on the presumption that an independent board of directors will safeguard shareholders' interests and minimize opportunism on the part of management. Explicit in these formulations is the assumption that outside or independent directors (i.e. non-management directors) are more able to do this than insiders. But is this a reasonable assumption? Drawing on psychological theories of small group dynamics and social influence, we investigate the extent to which the board of directors may be influenced or captured by the CEO such that executives receive higher levels of compensation than performance or economic theories would predict. Results of a review of the descriptive evidence for the operation of boards and two empirical studies suggest that social influence may be responsible for significant increments in CEO compensation beyond what economic theories predict. The implications of these findings for both theories of governance and the operation of boards of directors is discussed.

1. *Pay and Corporate Governance: Economic and Psychological Perspectives*

What determines the compensation of the chief executive officers (CEOs) of large corporations? Given the very large sums paid to these people, this question has understandably drawn the attention of economists (Jensen and Murphy, 1990; Jarrell, 1993), accountants (Lambert *et al.*, 1993), organizational theorists (Tosi and Gomez-Mejia, 1989), consultants (Crystal, 1991) and regulators (Byrne, 1993). In spite of a considerable amount of

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theory and research on the topic, no clear, convincing answer to the question has emerged. One understandable reason for the continued interest in the topic seems to be the lack of any strong, obvious associations between CEO pay and firm performance. For example, Baker *et al.* (1988, p. 611) have noted that 'the empirical relation between the pay of top level executives and firm performance, while positive and statistically significant, is tiny. On average, each $1000 change in shareholder wealth corresponds to an increase in this year's and next year's salary and bonus of only two cents'. This lack of any strong association raises several disturbing issues. For example, on what basis are CEOs being rewarded if not for performance? How can the board of directors and the compensation committee justify a CEO's salary? Indeed, is the board operating in a way that maximizes shareholder wealth? Are the directors truly independent of management or has management co-opted the board?

Along with the growing public interest in the practical ramifications of these issues, there has also been increased attention by academics to the theoretical aspects of corporate governance and executive pay. Part of this interest stems from the seeming inconsistency between CEO pay and firm performance and the predictions of economic theory which imply that managerial and product markets should lead to executive compensation contracts which maximize firm value (Frank, 1984). Yet, as Jensen and Murphy (1987, p. 43) observe, 'actual compensation contracts look very different from those predicted by economic theory. The failure of theory to explain actual compensation arrangements suggests that the theory is wrong.' They suggest that what is missing from the more theoretical approaches is any consideration of the political forces which may characterize the executive wage setting process.

This concern calls attention to the role of the board of directors in governing the corporation and setting CEO compensation. As will be reviewed, there are several themes to the theoretical work in this domain that have distinct implications for the design and delivery of executive pay plans. This paper reviews these theoretical perspectives as they impact on the executive pay–corporate governance nexus. This will include a discussion of economic, institutional, and psychological factors that may affect how the board of directors determine executive salaries and bonuses. Based on a recent observation by O'Reilly *et al.* (1988, p. 272) that 'CEOs can, under some circumstances, influence the decision making of the board . . . directly through social influence', we investigate how CEOs may 'manage' their boards in ways that result in excess remuneration.

We start with a review of the economic perspectives on pay and governance, including both principal-agent theory and transaction cost economics

(TCE). This is followed by a discussion of the theoretical and legal foundations of corporate governance. After a brief summary of the actual practice observed in this area, hypotheses are developed regarding board structure and pay. These hypotheses are further developed in the context of the role of social influence in corporate governance—specifically in terms of reciprocity, authority and liking. Two empirical studies are then described that test the hypotheses. The paper concludes with an evaluation of the results of these tests in light of the current policy debate regarding CEO compensation and corporate governance.

2. *Pay and Governance: Economic Perspectives*

Comments on the problem of corporate governance, or at least the governance of limited stock companies, can be found in the works of most classical economists. In a now famous section of *The Wealth of Nations*, Smith (1976, p. 264) writes of the 'negligence and profusion' that attend the separation of ownership from control. Mill (1848, p. 141) describes such managers as having 'no interest in the result but that of preserving their salaries', going on to suggest the linking of managerial pay and profits. And Marshall (1919, p. 317) laments the fact that 'directors can generally keep their positions by faithful and steady work, without showing special initiative'.

It is, however, to the empirical work of Berle and Means (1932) that most of the recent work in this area can trace its roots. These authors documented the extent to which corporate wealth had become concentrated in the hands of a relatively few corporations. Due to the widely held nature of these corporations, the incumbent management found themselves in positions of substantial discretionary power. And, as Berle and Means (1932) emphasize, the unchecked position of incumbent managements was further enhanced by the development of the system of proxy voting, with most proxy votes being signed over to the incumbent management. Taken together, Berle and Means (1932, p. 347) argued that this puts shareholders in a distinct category of property that gives 'possessors an interest in an enterprise but gives them no control over it'. This situation then leads to the major question raised by Berle and Means: 'Have we any justification for assuming that those in control of the modern corporation will also choose to operate it in the interests of the shareholders?' (1932, p. 121).

A careful study by Gordon (1945) of business leadership in large US corporations highlighted the extent to which the profit maximizing goal of such large enterprises could be diverted by the CEO's personal agenda. As Gordon emphasized, this could involve the subgoal pursuit of power, prestige and adventure rather than simply profit maximization for shareholder

wealth. Specific models of the firm that addressed this self-serving management theme soon followed. For example, Baumol (1959), impressed by the close association between top executive pay and corporate sales, as documented in Roberts (1959), built a model based on revenue maximization. Marris (1964) focused on corporate growth, which he noted had a direct link to executive pay. And Williamson (1963) explicitly modelled the 'expense preferences' (p. 1034) of executives—prominent among these being a taste for emoluments.

The recognition that subgoal pursuit by executives was but one facet of a general problem that confronted all levels of the employer–employee relationship led to two distinct theoretical approaches to the problem: agency theory or the principal-agent perspective (e.g. Fama, 1980), in which the firm is viewed as a nexus of contracts among owners, managers and employees; and transaction cost economics (TCE), where the firm is regarded as a governance structure (Williamson, 1975, 1985).

Agency Theory

The agency literature addresses Smith's original problem of the principal wishing to induce an imperfectly supervised agent to choose actions that are in the principal's own interest, i.e. designing incentives that align these interests. Jensen (1983) divides this literature into two parts. The first, to which he himself has contributed, he labels the 'positive theory of agency' while the second he refers to as 'principal-agent', more descriptively translated by Williamson (1985, p. 28) as 'mechanism design'.

Both approaches place emphasis on *ex ante* bargaining; that is, before the commencement of the employment relationship terms and conditions are agreed upon that will, if adhered to, result in efficiently directed work. Credible arrangements with respect to the enforcement of the details of such contracts generally ensure that there is no serious 'cheating'. The positive theory of agency, as characterized by Jensen and Meckling (1976), Fama (1980) and Fama and Jensen (1983), concentrates on what may be called macro issues, relating as they do to the contracting environment. In the corporate governance context, the 'expert board' assumes a critical role. By separating 'the ratification and monitoring of decisions from initiation and implementation of decisions' (Fama and Jensen, 1983, p. 302), the expert board facilitates contract enforcement. Enforcement is effected through the board's 'power to hire, fire, and compensate the top level decision managers and to ratify and monitor important decisions' (Fama and Jensen, 1983, p. 311). There is, therefore, a threat of '*ex post* settling up' (Fama, 1980, p. 306) that operates through the internal and external managerial labor mar-

ket. It is clear in this story that everywhere and always the board acts for the principal. There is no question here of board 'capture' by management, which arises if the number of inside executives on the board grows large enough to numerically dominate the board, or if the nomination process allows insiders to control the selection of outside directors in such a way that they are always sympathetic to the incumbent management. Theoretically, such a prospect is eliminated through the divisive competitive forces of the internal managerial labor market. The outside experts are kept vigilant out of regard for their own reputations or human capital. It is this vigilance which is meant to inhibit the formation of coalitions among rival executives.

Mechanism Design

The more micro approach of the mechanism design literature suggests effecting a convergence of interest by devices such as having the agent hold shares of (or options on) the corporation's stock. This solution is not, however, as simple as it might first seem. Morck *et al.* (1988) have documented the effect of excessive management shareholdings leading to a form of entrenchment that distorts managerial incentives. And the problems of risk aversion and imperfect capital markets imply that even if such solutions were desirable, they cannot always be effected (Lambert *et al.*, 1991a).

The ordinary shareholder can eliminate the specific risk arising from a particular company's shares by holding a diversified portfolio. But incentive considerations point to the executive owning a relatively large undiversified holding of shares in his own company. This leaves the executive exposed to short-term fluctuations in the company's fortunes which, combined with a difficulty in borrowing on the basis of such a security (particularly given the executive's insider position), may well place unacceptable constraints on the executive's standard of living. Nevertheless, the mechanism design school does predict that, to the extent it is viable, pay should be linked to performance. And in the case of the CEO it rests with the board, acting on behalf of the principal, to design the appropriate contract or mechanism.

One specific development in the mechanism design school deserves a brief mention as it breaks the link between pay and both *ex ante* and *ex post* contemporaneous marginal product. This is the rank-order tournament form of remuneration contract suggested by Lazear and Rosen (1981). They show that when individual performance is difficult to measure in a cardinal way, and when each agent's performance is subject to common random shocks, then compensation on the basis of relative performance can have advantages over alternative payment schemes. Promotion, based on relative performance, up from the ranks of vice president to the position of CEO can be viewed,

from this perspective, as winning the prize in a quasi rank-order tournament. Empirical tests of this theory have produced mixed results (O'Reilly *et al.*, 1988; Lambert *et al.*, 1993; Main *et al.*, 1993). Once again, however, an independent board is required to act for the principals in specifying the prizes in the tournament and thereby controlling the possibility of dysfunctional politics (Milgrom and Roberts, 1988).

Transaction Cost Economics

An alternative and quite distinct theoretical approach that can be used to explain the long run existence of subgoal pursuit is TCE (Williamson, 1988). Owing its origins to a seminal analysis by Coase (1937), TCE presents the firm as a governance structure which offers a lower cost of coordinating certain activities than alternative contracting modes (e.g. open market transactions). Which tasks will be left to market transactions and which performed within the firm depends on considerations of bounded rationality and small group opportunism. Moving from market relationships to governance structures involves moving away from the high powered incentives of the market to low powered governance devices (Williamson, 1985, Ch. 6). In the marketplace, the wrong action (e.g. producing a low quality product) meets with the impersonal reaction of a loss in sales. Within a governance structure, however, the wrong action will likely meet with disciplinary actions that are, in general, slower and less definitive. In this sense, the move away from markets and towards an internal governance structure results in what Williamson (1988, p. 574) labels a 'fundamental transformation' whereby what was *ex ante* large numbers bidding, with at most a small zone for negotiation, becomes what is essentially a bilateral bargaining situation with a much larger range of possible outcomes.

One distinction from the agency literature is that TCE relies on an *ex post* resolution of disputes by fiat, while agency relies on an *ex ante* optimizing of contractual arrangements which, while permitting *ex post* adjudication by some third party, generally assumes that compliance is self-enforced. For Williamson (1985, p. 324) 'the board of directors should be regarded principally as a governance instrument of shareholders' and (p. 317) 'management participation should not become so extensive as to upset that basic board purpose. Where it does, managerial discretion is apt, sooner or later, to manifest itself in self-dealing and subgoal pursuit.' Executive compensation must be determined by an independent compensation committee lest the managers appear to 'write their own contracts with one hand and sign them with the other' (p. 313).

As is clear from the preceding review, economic theories of governance

rest firmly on the presumption that the board of directors is an independent overseer of senior management, and that they represent the shareholders. That is, in order for economic theory to apply usefully to the governance of the corporation, board members must be truly independent of the CEO. But are directors truly independent representatives of shareholder interests? Two bodies of evidence will be reviewed suggesting that boards, rather than being independent and expert overseers, may be subtly but importantly influenced by the CEO and relatively uninformed about the decisions that they are required to make. The first literature reviewed concerns the actual operation of boards of directors and suggests that they are often influenced by the CEO. The second perspective draws upon social psychological theory to understand how the CEO may, consciously or unconsciously, use social influence processes to manage the board. Based on this evidence, a series of empirical tests are then made examining the possibility that social influence may account for the levels of CEO compensation set by the board.

3. *The Board of Directors in Theory and Practice*

At a general level, students of corporate governance show a remarkable consensus as to the desired role of the board of directors in governing the corporation. Typically, these writers agree that the board has the following duties and responsibilities: (i) overseeing of management to include the selection, monitoring, evaluation, compensation, and replacement of the CEO; (ii) the management of the board to include the selection and replacement of board members; (iii) reviewing the firm's financial performance and approving the allocation of funds; and (iv) insuring compliance with the law and corporate social responsibility (e.g. Lorsch, 1989; Walsh and Seward, 1990; Jacobs, 1991). Theoreticians and empirical researchers use these general responsibilities as a basis for their research on boards. Thus, Fama (1980, p. 294) argues that the board's 'most important role is to scrutinize the highest decision makers in the firm'. Mizruchi (1983, p. 433) suggests that 'the ultimate center of control' in a publicly held organization is the board. Gilson and Kraakman (1991, p. 873) assert that 'in the corporate governance debate, all arguments ultimately converge on the role of the board of directors in general, and on the role of outside directors'. At this general level there is great agreement as to the role of the board of directors in the governance of US corporations. But is this consensus justified in practice? Are boards of directors organized and acting as stewards of shareholders' interests or are they under the sway of management? This section addresses two topics that underlie this question. First, we briefly review the legal and regulatory foundations for the board of directors. Second, we

examine the evidence for how boards of directors actually function. Based on the discrepancy between theory and practice, we draw upon theories of social influence to explain the functioning of boards not as legal entities but as operating groups subject to organizational norms (e.g. Elster, 1989; Bendor and Mookherjee, 1990; Cialdini, 1993). We then report two empirical studies to test this theory.

The Legal Foundation for Boards of Directors

Although the general principles which govern boards of directors appear to be clear, the legal reality seems much less so. While corporations have a long history in English and US common law, there are questions as to specifically how boards are to be constituted and function. In the early 19th century in the USA, corporate directors were typically selected from among the shareholders and not compensated. The idea that they were shareholders was deemed sufficient incentive to motivate them to act in the best interests of the corporation. This practice continued until well into the 20th century (Braiotta and Sommer, 1987).

As public concern for what was seen as an excess of corporate power grew, legislative constraints were imposed on corporations. The Sherman Antitrust Act, the Securities Act of 1933 and the Securities Exchange Act of 1934 sought to reform some of these abuses. More recently, the Securities Exchange Commission (SEC) has been a primary enforcement authority for matters of corporate governance, including the roles and responsibilities of the board of directors. While other industrial and professional groups such as the Business Roundtable, the American Bar Association and the American Institute of Certified Public Accountants have views and opinions on matters of corporate governance, the SEC remains the most prominent player. For instance, after the collapse of the Penn Central, the SEC sued various parties, including three outside directors (Braiotta and Sommer, 1987). They have also criticized outside directors for inaction and indifference, and have required greater disclosure of information, such as compensation of senior management, in public documents.

In 1977, the SEC organized a Task Force on Corporate Accountability which concluded that, in public companies, 'the board should include at least a majority of genuinely independent directors and that . . . companies should have functioning, effective auditing, nominating, and compensation committees' (Braiotta and Sommer, 1987, p. 10). Thus, it is only within the past several decades that general guidelines for what constitutes an appropriate structure of the board of directors and how it should function have been promulgated. However, while these guidelines have been suggested,

there remains no binding legal requirement that public companies adopt them.

Indeed, there has been considerable debate and resistance from individual corporations and groups such as the Business Roundtable as to the usefulness of these suggestions. In an attempt to promote a standard of practice, the New York Stock Exchange in 1977 adopted a requirement that issuers of listed securities must have an audit committee made up solely of 'directors independent of management and free from any relationship that, in the opinion of its Board of Directors, would interfere with the exercise of independent judgement as committee members' (New York Stock Exchange, 1977, p. 1). This was interpreted as a committee with at least two outside directors. However well-intentioned the requirements for having a majority of outside directors may be, this policy is interpreted only as 'good corporate practice'. In fact, committees of the board are a comparatively recent development and statutes authorizing their appointment vary widely in detail and across jurisdictions. In sum, rather then having a clear, well codified set of laws and regulations governing boards, most board organization is dictated by suggested guidelines and varies substantially in practice.

A similar picture exists for the specific duties and responsibilities of individual directors. On the one hand, there is what appears to be a specific legal stipulation of the duties of a director, to include the duty of: (i) care (i.e. to act in good faith as a prudent person in the best interests of the corporation); (ii) loyalty (i.e. to avoid conflicts of interest); and (iii) business judgement (i.e. to exercise rational decision-making). While it is sensible at a general level that directors need to be accountable to their shareholders, at a practical level there can be substantial ambiguity. Lorsch (1989, p. 11) argues that while 'the directors' duties are clear, at least in legal theory . . . in an era of institutional ownership, leveraged buyouts, and unfriendly takeovers, understanding who the shareholders are and where their real interests lie . . . is difficult'. In reality, the duties of a director are often uncertain. As one director interviewed by Lorsch (1989, p. 48) lamented, 'I think the most pressing issue that now confronts corporate directors is the question of who are the constituencies that they represent . . . Some companies have 60 to 70 percent institutional investors . . . now we have a shareholder who's with you on a Tuesday and on a Wednesday he's gone and then he's back again on a Friday. How do you attend to his interests?' After interviewing over 80 directors and surveying another several thousand more about the role of the board and the responsibilities of directors, Lorsch (1989, p. 63) concludes that, 'with no precise legal definition of what directors must do to govern, their actual duties have been worked out in each boardroom'.

The Board of Directors in Practice

In practice, most boards of large, publicly held corporations conform roughly, but not perfectly, to the guidelines reviewed above. For instance, most boards have executive, audit, nominating and compensation committees (Harrison, 1987; Kesner, 1988; Lorsch, 1989). Both Lorsch (1989) and Kesner (1988) report an average board size of 13. Lorsch (1989) reports that 74% of directors are outsiders, of whom 69% are non-management directors with no other contact with the company and 5% are bankers, lawyers, retired executives or consultants with some company attachment. Thus, a typical board of a large, public corporation will have four inside and nine outside directors. Over 60% of the outsiders are likely to be CEOs or executives of other companies. For major companies, the CEO also acts as chairman of the board in over 80% of the cases (Dobrzynski, 1991b). In this regard, the CEO/chairman is both the principal employee of the company and the chief representative of the shareholders at the same time—a practice followed by only 25% of British firms, 11% of Japanese firms and no German firms at all (Jacobs, 1991; Main and Johnston, 1995; Schaede, 1994).

How do people become directors of large companies? Formally, directors are nominated by the board of directors and elected by a proxy vote of the shareholders. The first step in this process is candidate identification. Here the formal role may rest with the nominating committee of the board, which is charged with reviewing potential candidates to fill vacancies on the board. In fact, there is ample evidence to suggest that the process of identifying and electing new directors is dominated by the CEO. For instance, a 1990 survey of directors conducted by Korn Ferry on how board candidates are surfaced listed 'recommendation of the chairman' as the most common method (Jacobs, 1991). Lorsch (1989, p. 20) strongly echoes this finding, reporting that, 'traditionally, however, in most companies, selecting directors has been the responsibility of the CEO, who chose the candidates, then recommend them to the board for approval'. In his survey of directors, this CEO domination is pervasive, with over 99% of directors agreeing that the CEO has considerable power on a majority of board issues, including selection of new board members. One director interviewed by Lorsch (1989, p. 77) reported that, 'the CEO shapes the board very much the way he wants, not only by bringing people in, but also getting people he doesn't want off the board . . . '. Another commented that 'I think the strongest person in the process is definitely the CEO. He is the executive officer of the company, and directors are not really equipped to perform those functions' (p. 22). Still another director indicated that 'I think CEOs feel, justifiably, that they

are entitled to select people of judgment, but who will also feel sympathetic to them' (p. 22). In this way, whether through deference of the board or through his role as chairman or his role on the nominating committee, the CEO appears to dominate the selection, election and replacement of board members.

This influence is further solidified through the proxy voting process through which nominated directors are confirmed. First, until very recently, SEC regulations required that if over nine investors discussed proposing a candidate for the board, or any other issue that might result in a proxy vote, they had to file the content of their discussions with the SEC. This requirement applied to all investors regardless of how much stock they collectively owned. The process of proposing alternative candidates through the proxy process can be prohibitively expensive. To win such a contest requires hiring lawyers to prepare mailings, advertising and hiring a solicitation firm. For example, Jacobs (1991) reports that when Robert Monks challenged the Sears board in an election, Sears budgeted $5.6 million and assigned 30 people to work at keeping Monks from being elected. Even the vote tabulation process works against challenges by permitting management to monitor votes as they are cast, thus giving management the opportunity to selectively lobby large shareholders to change their votes before the election deadline closes. For these reasons, even major shareholders such as pension funds have been reluctant to challenge the slate of directors offered by management and, when they have challenged, they have almost never succeeded (Gilson and Kraakman, 1991). This leads Jacobs (1991, p. 79) to conclude that 'the belief that the owners truly decide who sits on corporate boards and are able to replace an ineffective director is one of the greatest business myths in America'.

However, the control exercised by the CEO over the board is not limited solely to selecting directors. While, in principle, board members are charged with selecting, monitoring, rewarding, and, if necessary, replacing the CEO, the reality is far more ambiguous. Aside from participating in the selection of outside directors, the CEO can influence the board in other ways. For instance, when acting as the chairman, the CEO sets the agenda for the board and controls the meetings (Mizruchi, 1983; Walsh and Seward, 1990). In his interviews, Lorsch (1989, p. 82) reports one director as saying that the ' . . . CEO influences the composition of the board first, and sets the tone of what's considered on the agenda, what information is available, how issues are dealt with in committee or by the full board, and who is put on what committee'. Another director says 'all the CEOs I know made it clear they're in charge. They have control over committee appointments, they can open or shut issues, and they certainly control the agenda . . . '

(Lorsch, 1989, p. 78). Dobrzynski (1991b) observes that CEOs have the attitude that 'it's my company and my board'.

In addition to the potential control from holding the position of chairman and conducting board business, directors themselves are often reluctant to oppose the CEO and often develop norms against actively challenging the CEO. Mace (1971, p. 80) found that 'those members of the board who elected to challenge the president's powers of control were advised . . . that such conduct was inappropriate or asked to resign'. Mueller (1979, p. 106) reports that ' . . . many boards tend to develop a clubbable, if elusive, characteristic of organizations which place internal harmony and fitness before such attributes as objectivity and independent judgement'. Recalling that the majority of outside directors are themselves active CEOs or connected to the firm as consultants, investors or former executives, they may, as Patton and Baker observe (1987, p. 91), ' . . . value each other's friendship and want to keep their seats'. Lorsch (1989, p. 91) quotes one of his interviewees as noting that ' . . . despite an appearance of openness and candor, the reality is often quite different. A subtle set of unspoken norms, in fact, dictates the actual course of behavior in the boardroom. Even the ideal outward behavior of a CEO doesn't necessarily result in effective contributions from directors.' This leads Lorsch (1989, p. 95) to conclude that ' . . . in many boardrooms important issues aren't discussed openly, nor in a timely fashion . . . The biggest taboo, however, is against open criticism of the CEO's activities . . . ' Magnet (1992, p. 86), for example, notes how 'a culture of quietism reigns in many boardrooms'. Directors who raised issues critical of the CEO or the company's performance were sanctioned by fellow board members. 'Nobody spoke to me at the next two board meetings. It was no-no. Socially, I'd pulled a tremendous gaffe' (p. 86). Another director who challenged the CEO left the board and noted that neither the CEO nor his wife has ever spoken to him again. This portrait of board functioning contrasts sharply with the theoretical ideal of a group of vigilant, informed and impartial principals objectively monitoring the performance of top management so as to serve the shareholders' interests.

Why should this be? Several potential causes have already been suggested. First, the legal roles and responsibilities of the board are not nearly so clear as theory suggests. Board members often conflict about who the shareholders are and what actions should be taken to serve their interests. As one director suggested, 'one thing that substantially muddies the water about this so-called constituency-governance problem is that more and more people are coming to the realization that the shareholders are a bunch of 26-year olds sitting behind their trading desks, and that the people who have the best interest of the company and its employees at heart are really those in

management' (Lorsch, 1989, p. 47). The evidence is clear that for major public US corporations a majority of the stock may be held by large institutional investors whose motives may be very short-term. Pension fund managers, for example, are evaluated on annual fund performance and are unlikely to stay with investments that will not increase their short-term yields. Jacobs (1991) reports that 25 years ago shares of large companies were held for an average of 8 years. By 1987 this holding period had declined to a little over 1 year. Further, many institutional investors that do hold stocks for a longer period of time do so following a stock index strategy such that actively monitoring the management of one or a few firms may run counter to the performance of the overall portfolio (Gilson and Kraakman, 1991).

A second reason boards may not be as vigilant and impartial as theory suggests is that board members are often selected by CEOs and are reluctant to challenge their formal and informal authority, especially when the CEO also serves as chairman. Part of this hesitancy may be predicated on simple expertise. The CEO has intimate knowledge of the firm's operation. Most board members have limited time to devote to the job of director and no dedicated staff to assist them. Korn Ferry reports that in 1990, the typical board member of a US corporation spent just 94 hours per year on his role as a director (Jacobs, 1991). Lorsch (1989) reports a comparable figure, with his average director spending 14 days per year, including travel time and preparation. Board members typically function without any staff support, and as active CEOs themselves may serve on multiple boards. This can result in an information asymmetry in which the CEO has far more knowledge and control over information flow than the board. Crystal (1993), for example, describes how in 1992 Vernon Jordan served as a director for ten major companies and was active in numerous other activities and the management of his own law firm. For just the ten boards on which he served, Jordan should have attended 79 meetings of the full board and 95 committee meetings during 1992. For this reason, it is not surprising that a board member might be less informed than the CEO and reluctant to actively challenge the chairman/CEO. This may be more likely given that many directors accept board positions because they believe it an honor to be asked and feel that the existing senior management is of high quality. That is, directors are unlikely to accept appointments to boards with managements they believe to be inept. Once on the board, the average director finds himself or herself among an elite group of similar others. In this situation, the real determinants of their behavior may be more psychological than economic.

How might these considerations affect the relationship between governance and executive compensation? Recall that agency theory and transaction

cost economics rely heavily on the concept of an independent board of directors to represent the shareholders' interests in order for the theory to work. In this view, the more independent the directors are, the more they will be able to fulfill their role of representing the shareholders and minimizing possible opportunism on the part of management. With more independent directors, the board should be able to more objectively gauge the performance of management and reward it appropriately, while preventing an upward drift in top management earnings through rent appropriation. This suggests the following hypothesis.

Hypothesis 1a. Ceteris paribus, boards of directors with a higher proportion of outside (non-executive) directors will provide lower levels of CEO compensation than boards with proportionately fewer outside directors.

However, the literature reviewed above suggests that board members may not be the impartial monitors that these theories assume. Directors may feel obligated to the CEO, either for the privilege of serving on the board or the emoluments that membership provides. Based on similarity of experience or demographic attributes, board members may identify with the CEO and want him or her to succeed. Directors may also have less time or expertise than the CEO and be reluctant to challenge his or her authority. A larger number of outsiders may also create a sense of legitimacy that makes easier the granting of large pay awards. For these and many other reasons, a subtle process of social influence may affect the manner in which the directors conduct their duties and render the board far less independent than economic theory proposes. Some empirical evidence supports this view. For instance, several studies of golden parachutes found that having more outside directors was positively associated with the probability of a CEO being given a golden parachute (e.g. Singh and Harianto, 1989; Wade *et al.*, 1990). Cochran *et al.* (1985, p. 620) reported that 'the principal and surprising result of this study was that firms with comparatively higher percentages of directors who are insiders are less likely to give management golden parachute contracts'. In a study of the boards of 193 companies, Boyd (1993, p. 15) also reports that, 'contrary to expectations, the ratio of insiders was negatively associated with compensation'. This suggests the opposite hypothesis.

Hypothesis 1b. Ceteris paribus, boards of directors with a higher proportion of outside directors will provide higher levels of CEO compensation than boards with proportionately fewer outside directors.

4. *The Role of Social Influence in Corporate Governance*

The preceding discussion suggests that boards, instead of being independent

evaluators of management, may, under some circumstances, be strongly influenced by the CEO. Why should this be? The answer to this question is evident in research on the social psychology of groups and the role of social influence in shaping group dynamics (e.g. Shaw, 1981; Coleman, 1991; Cialdini, 1993). To understand how directors might act as they make decisions about whether to reward or replace a CEO, we need to view the board of directors as a social group, subject to both informational and normative social influence processes. From this perspective, norms of reciprocity, authority, and similarity and liking (e.g. Gouldner, 1960; Cialdini, 1993) may operate to shape directors' perceptions and decisions. What follows is a brief review of these norms and how each may affect director's decisions about CEO compensation.

Reciprocity

In his book *Influence*, Cialdini (1993) describes how fundamental norms of reciprocity are found in all societies. He quotes Leakey (1984, p. 30) as noting that 'we are human because our ancestors learned to share their food in an honored network of obligation'. In all societies, people feel an indebtedness when others do them a favor—an obligation to give, to receive and to repay (Elster, 1989; Bendor and Mookherjee, 1990). Most people are uncomfortable if beholden to others and do not like those who fail to reciprocate. The power and pervasiveness of this norm often goes unnoticed and, as Cialdini describes, provides the basis for certain very effective influence strategies. In a demonstration of the power of the norm of reciprocity, Regan (1971) conducted an experiment in which a subject found himself participating in a task with another subject (a confederate). In one experimental condition, during a rest period the confederate left the room and returned with two soft drinks, one for the subject and one for himself. In the second condition, the confederate left the room but returned empty handed. Later, after completion of the experimental task, the confederate asked the subject to purchase some raffle tickets. Predictably, far more tickets were sold to subjects who had received the unsolicited soft drink. The average value of the raffle tickets sold exceeded the cost of the soft drink by 500%. Analysis showed that this effect occurred even if the subject did not like the confederate; that is, the norm of reciprocity overwhelmed even personal liking. In a similar demonstration, Kunz and Woolcott (1976) reported sending Christmas cards to a set of total strangers. A majority of these people, whom they had never met, responded in kind. Cialdini *et al.* (1992, p. 30) note that 'we report liking those who report liking us . . . We also cooperate with those who cooperate with us and compete with those who compete.'

Thus, reciprocity is a norm that obligates us to return favors, independent of our liking of others.

In the context of corporate governance, how might norms of reciprocity operate? Recall that under some circumstances the CEO may actively influence the selection of new directors. For instance, if the CEO is on the board prior to the addition of new directors, a newly appointed board member may feel a sense of obligation to the CEO. After all, the CEO had the persipacity to recognize the contribution the new director could make. It would not take a new addition to the board very long to appreciate that he or she was nominated and elected with the implicit or explicit approval of the CEO. This would be even more obvious if the CEO also served on the nominating committee.

Serving on the board of a major corporation brings a number of perquisites. First, there is the status attached to the role. Second, there are considerable rewards. A Korn Ferry report indicated that in 1990 the average director of a major US corporation was paid over $32,000 as a retainer and for attending meetings. Some firms, such as Pepsico, paid as much as $78,000 (Dobrzynski, 1991a). Collingwood (1992) reported that the average total director compensation for major companies had climbed to $47,000. Some companies provide automobiles, life and medical insurance, stock options, retirement programs, charitable donations in the name of the board member, travel on corporate aircraft and the use of corporate facilities (Crystal, 1991). John Grant (1992), who served on the boards of three Fortune 500 firms, noted that management consciously does 'favors' for board members (e.g. cruises, parties) and that 'none of this enhances director objectivity'. Crystal (1993) estimated that the total compensation earned by Vernon Jordan, who served on ten boards, was $686,000 in 1991. Lublin (1991), for instance, reports that Don Jacobs, the Dean of Northwestern's Kellogg School of Management, earned at least a third more in direct compensation from his service on corporate boards than he did from his academic job. Aside from the personal compliment paid in being asked to serve on the board, these perks represent a substantial favor: an obligation that the norm of reciprocity suggests needs to be repaid. Repayment of this obligation may take many forms, including a more favorable reading of the CEO's plans and actions, less willingness to criticize, increased patience with poor performance and approval of increases in compensation. This suggests the following hypotheses.

Hypothesis 2a. Ceteris paribus, CEOs appointed to the board of directors prior to directors serving on the compensation committee will receive higher levels of compensation than CEOs appointed to the board afterwards.

Hypothesis 2b. Ceteris paribus, CEOs on a formal nominating committee will receive higher levels of compensation than those who are not on the committee.

Authority

A second widespread norm that can influence the behavior of individuals in groups is deference to authority. For instance, in his classic study, Milgram (1974 demonstrated the unsettling tendency of subjects' willingness to deliver what they believed to be fatal electric shocks to other subjects participating in an experiment on learning. In a series of replications, the results were clear: over two-thirds of the subjects delivered the highest level of electrical shocks. While a number of these replications focused on alternative explanations for the findings (e.g. the participants were not aware of the danger to the subject receiving the shocks; subjects had sadistic tendencies), the essential result remained. Milgram notes that what accounts for deference to authority is how 'relationship overwhelms content' (1974, p. 175); that is, the relationship between the authority figure and the subject may become more salient than the content of the decision. The evidence for our respect for authority is substantial. Wilson (1968), for example, introduced a visitor to a series of classes and asked, after each class, for an estimate of the visitor's height. In each class, the title of the visitor was changed, varying from student to lecturer to professor. With each increase in title, the estimated height increased by half an inch.

As suggested previously, a chairman/CEO may use his or her authority not only to shape the board, but also to control the agenda, filter information and actively manage the directors. CEOs are sometimes explicit about this use of authority. Lublin (1992) cites Robert H. Malott, FMC's recently retired CEO, as saying, 'I am used to running my own board'. Lorsch (1989) provides numerous equivalent examples. From the director's standpoint, there is often an acceptance of this authority as right and proper, typically manifest in norms against challenging the CEO's wishes and against talking among board members outside the boardroom. Clearly, the perceived expertise of the CEO should be enhanced when the director lacks management experience. Lorsch (1989, p. 82) quotes one director as saying 'I think the CEO . . . sets the tone of what's considered on the agenda, what information is available, how issues are dealt with . . . and who is put on which committee'. In this way, the CEO's authority can be used to actively affect how directors perceive issues and make decisions. Directors, from their perspective, usually accept this authority as legitimate and do not challenge it. This suggests the following hypotheses.

Hypothesis 3a. Ceteris paribus, CEOs who also serve as chairmen of the board will receive higher levels of compensation than CEOs who are not chairmen.

Hypothesis 3b. Ceteris paribus, CEOs with boards of directors having a higher proportion of individuals who are not top executives will receive higher levels of compensation than those with boards with proportionately more CEOs.

Similarity and Liking

The third mechanism that can promote the use of social influence rests on our similarity and potential liking for others. If we care about another person and what he or she thinks about us, it becomes more difficult to disagree with him or her. What is important to note about this effect is how widespread and unobtrusive the tendency is. It is also easy to manipulate. For instance, direct sales organizations routinely use a thin veneer of similarity and friendship to promote sales (e.g. Biggart, 1989). Shaklee's, for example, uses a method in which a salesperson makes a contact using the name of a mutual friend who suggested the call. Turning away the salesperson under these circumstances is difficult, almost like rejecting the friend. Other organizations such as cults have discovered the power of similarity and liking to influence others and produce assent (O'Reilly and Chatman, 1995).

There are two foundations to this approach to social influence. First, in order to recognize what are 'correct' or 'incorrect' attitudes or behavior, we often rely on the behavior or words of others for signals about how to behave, especially in new or uncertain settings or when old ways of behaving are no longer working successfully (e.g. Bandura, 1977). Second, we are more likely to pay attention to the attitudes and behavior of others as a guide for our own behavior when we see them as similar to ourselves (Byrne, 1971). For example, Evans (1963) found customers to be more likely to buy from salespeople who were similar on characteristics such as age, religion and politics. Hornstein *et al.* (1968) conducted an experiment in which a 'lost' wallet was left on a street. In addition to money, the wallet contained information that would allow the finder to make a similarity judgement. Only 33% of the wallets were returned when the finder was dissimilar whereas 70% were returned when the finder was similar to the owner. In an organizational context, Tsui and O'Reilly (1989) found that being different in education, sex, and race was associated with increased role ambiguity and unfavorable performance evaluations in superior–subordinate dyads. Numerous other studies have documented the tendency of people to use physical and social status characteristics to categorize others and to use these as a basis for liking or attraction (e.g. Stangor *et al.* 1992). Similarity not only promotes attraction and liking, it also helps support the validity of our own beliefs and enhances our self-worth.

What is the evidence that these propensities might affect boards of

directors? First, Lorsch (1989, p. 18) offers numerous examples of how similarity operates in the selection of directors. 'I think CEOs like to have other CEOs on their boards because they feel they have had similar experiences and they are meeting the same challenges.' Second, perhaps because of this similarity, board members often becomes friends with the CEO. Jacobs notes that 'when directors are close personal friends of the CEO, it is harder for them to truly focus on the shareholders' interests' (1991, p. 81). It is hard to imagine a select group of similar people, the majority of whom are white, college educated male executives, not having enough in common to promote friendship. Gilson and Kraakman (1991) note that in spite of legal definitions of 'independence', there is no requirement that directors be socially independent. Under these circumstances, it seems likely that board members, especially those who are recently appointed, will look to others for agreement about what is correct behavior. O'Reilly *et al.* (1988) draw upon this tendency to argue that CEO compensation will be affected by the salary levels of members of the board; that is, executives serving as outside board members will use their own executive salaries to benchmark judgements about the salary of the focal CEO. Following March (1984), they note that setting a CEO's compensation is basically an ambiguous task. There are no objective standards to use to set a compensation level; rather, the process is largely comparative. They show that after controlling for a series of economic determinants of compensation, the salary level of outside board members is a significant determinant of CEO pay. Westphal and Zajac (1994), in a study of over 400 large companies, report that more powerful CEOs are more likely to appoint to their boards directors who are demographically similar than are less powerful CEOs. This similarity is also associated with increased compensation. Thus, the greater the similarity and attraction that exists between the CEO and the board, the greater the potential for the CEO to exert social influence. This suggests the following hypothesis.

Hypothesis 4. Ceteris paribus, the more similar the board members are to the focal CEO on demographic characteristics, the higher the CEO's compensation.

Overall, these hypotheses are based on the general notion that the board of directors may be subject to the same dynamics that characterize other groups. Specifically, these hypotheses are predicated on the idea that the board–CEO relationship is one that may be characterized, consciously or unconsciously, by the use of social influence by the CEO to manage or control the board. Three potential bases of influence are used to develop hypotheses: reciprocity, authority, and similarity and liking. These bases, however, are not the only sources of influence available to the CEO. Belliveau *et al.* (1994) have demonstrated that CEO salaries can be affected by social

status differences between the CEO and the chair of the compensation committee. Processes of incremental commitment, consistency and scarcity may also be operating (Cialdini, 1993). For example, directors may easily become incrementally committed to their CEO (O'Reilly and Caldwell, 1981). First, they voluntarily choose to serve on the board. This decision is both explicit and highly public. They expend time and effort in this activity; time that may be valuable given the press of their other duties. These conditions may lead them to feel invested in their membership on the board and to justify their investment through a commitment to the CEO who appointed them. This process may lead them to ignore or reinterpret information that suggests that they made a wrong decision or that the firm's management is doing poorly. Further, board members may perceive CEO talent to be scarce, thereby increasing the potential influence of the CEO. For those directors who are themselves CEOs, this interpretation only heightens their own sense of self-worth. When combined, these mechanisms may help a CEO to shape both the composition and conduct of the board—not necessarily in a conscious or manipulative way, but simply in the spirit of attempting to persuade the board of the validity of his or her point of view. The following two studies report empirical investigations of these hypotheses.

5. *Study No. 1*

In order to test for the hypothesized effects of social influence on executive compensation, alternative explanations such as economic determinants must be controlled for. First, previous research and theory has suggested that both firm size and performance should be related to executive compensation (e.g. Murphy, 1985; Lambert *et al.*, 1991b; Main *et al.*, 1993). Recent research has shown that the ability of the board to monitor CEO performance and set pay appears greater in owner-controlled firms (Tosi and Gomez-Mejia, 1989; Wade *et al.*, 1990). Hence, the impact of social influence needs to be examined independent of these effects. Similarly, O'Reilly *et al.* (1988) have already demonstrated what they argue are social comparison effects; that is, the average salary of the compensation committee members has been shown to have significant independent effects on the focal CEO's pay. CEO tenure in the job was included to insure that any findings for social influence were not confounded with experience (Hill and Phan, 1991). These five variables (firm size, firm performance, owner control, average compensation committee salary level, and CEO tenure) are used as control variables prior to investigating any social influence effects.

Methods

Sample. The first sample consisted of 105 firms, representing nine industries, and was drawn from *Business Week*'s (6 May 1985) annual survey of executive compensation for the year 1984. Given the need to control for industry effects when examining executive compensation, the nine industries selected were those with a maximum number of firms per industry represented. Because of lack of data on compensation and board variables, 12 firms were eliminated from the sample. In addition, Mesa Petroleum was dropped because of its CEO's (T. Boone Pickens) emphasis on takeover activities rather than traditional business operations. Chevron was taken out of the sample because it was undergoing a major restructuring as a result of its merger with Gulf during 1984. Finally, two firms were dropped because they were effectively subsidiaries of other firms (e.g. North American Philips). This left a sample of 89 firms. Since most of the hypotheses concerned the relationship between the CEO and the compensation committee, five firms which had no such committee were dropped from many of the analyses. However, a base model including these firms was run to estimate the impact on a CEO's salary of having no compensation committee.

While *Business Week*'s compensation survey was not random and emphasized large firms, the range in size varied widely from $320 million in assets to over $42 billion. Further, because of large firms' disproportionate impact on the economy and employment, we believe that compensation practices in these firms merit close attention.

Measures. Each CEO's cash compensation, base and bonus, for the year 1984 was obtained from *Business Week*'s (6 May 1985) survey. Company sales as well as each firm's return on equity were also taken from this source. Each salary was cross-checked against proxy statements to ensure accuracy. Because O'Reilly *et al.* (1988) argued that outside directors may anchor their judgements concerning the appropriate compensation for the CEO on their own salaries, the average salary of executives on the compensation committee was included as a control variable. Salaries and sales were logged to insure that extreme values did not drive the results. All other board and CEO data were obtained from calendar year 1984 proxy reports for each of the firms in the sample. Firm size was measured as 1984 sales (in millions of dollars). Performance was measured using 1984 return on equity. Size and performance data were obtained from *Business Week*'s annual survey of compensation for 1984. Eight industry dummy variables were also used as controls.

To measure the degree of influence that an outside owner can exert, owner

control was operationalized as a dummy variable that took the value of 1 if 5% or more of the outstanding stock was owned by a single individual or organization, and zero otherwise (Gomez-Mejia *et al.*, 1987).[1] The number of outsiders on the board was also computed. Outsiders were those directors who were not likely to have a detailed knowledge of the internal operations of the firm and were generally defined as individuals who had never worked for the firm or its subsidiaries in an executive position.

Board Independence. The percentage of board members who were outsiders (i.e. were not current or former employees, major consultants or significant shareholders) was computed by dividing the number of outsiders by the total number of directors on the board.

Reciprocity. To measure the degree to which norms of reciprocity may be operating on the board, two dummy variables were constructed. The first indicated whether the CEO was appointed to the board before the chair of the compensation committee. For those firms for which no clear chair of this committee was designated, the average tenure of the entire committee was used in lieu of the chairman's tenure. This was necessary for 15 firms. The second indicator of reciprocity was whether the CEO was a member of a formal nominating committee of the board.[2] The logic behind both variables was that the board members appointed after the CEO or those selected by a nominating committee with the CEO as a member would be likely to feel a sense of obligation based on reciprocity.

Authority. The degree to which committee members are likely to defer to the CEO's authority may rest on the characteristics of the CEO as well as the committee's demographic characteristics. CEO authority was indexed by a dummy variable indicating whether the CEO also held the position of chairman of the board. In a few cases in which no chairman was named, it was assumed that the CEO held this position.

If a committee member was not also a top executive, he or she might be more likely to accede to the CEO's wishes because of the CEO's higher perceived status and expertise in the field of business. Consequently, the percentage of the compensation committee that were not themselves execu-

[1] If it was noted in the proxy statement that an institutional investor holding 5% of the stock actually controlled less than 5% of the voting rights, the firm was designated as manager-controlled rather than owner-controlled.

[2] If the firm had no formal nominating committee, the variable was set to zero. In this instance, it was assumed that the CEO would be less involved in the selection process than if there existed a formal committee on which he served. Further, in the absence of a formal nominating committee, the obligation felt by the incoming outsider will be more diffuse and the social influence effect reduced.

tives was computed. A top executive was considered to be someone who currently held the position of CEO, chairman of the board of another firm or president.

Similarity. Previous research has demonstrated that similarity and attraction may be indexed by a number of demographic, attitudinal, and background variables (e.g. Tsui and O'Reilly, 1989; Stangor *et al.*, 1992). One frequently used variable in this research is age similarity. Although not the most powerful indicator, data limitations confine our test of similarity to this demographic variable. Two similarity measures were computed using the ages of the CEO and the compensation committee members. The first was the percentage of compensation committee members who were 65 or under. Since most CEOs are age 65 or under (sample mean age for CEOs = 58.9) and by definition not retired, those committee members under 65 are likely to be more similar to the CEO than those who are older and retired. A second similarity index was computed using a Euclidian distance measure often used in studies of organizational demography (e.g. O'Reilly *et al.* 1989):

$$D = \left[\sum_{i=1}^{N} \frac{(\text{CEO age} - \text{compensation committee member age})^2}{n} \right]^{1/2} .$$

Essentially this measure is the age distance of the CEO from the average of all other members of the committee. The smaller the value, the more similar the CEO is in age to the compensation committee.

Timing Issues. The fact that all variables except salary, firm size and performance were taken from 1984 proxy statements creates several timing issues. Over 90% of the firms' fiscal years coincided with the calendar year. The remaining 10% had a fiscal year that ended in September or October. Their proxy statements were based on meetings that took place in November or December of 1984. Thus, the proxy information for the majority of firms is measured near the beginning of 1984, while for 10% of this sample the measure is taken near the end of the year. The error introduced here is likely to be small since it is unlikely that major changes in committee membership took place during a single year. Moreover, it is improbable that CEO salaries lead directly to changes in committee membership.

A related issue is that occasionally committee members named on the proxy as compensation committee members would not be standing for re-election to the board. In these cases, those missing were left out of any analyses and the remaining members were used. In two firms that had their

annual meeting at the beginning of 1984, the compensation committee chair was not up for re-election to the board. Since the date at which the compensation chair was appointed to the board is a key variable, the 1985 proxy statement was inspected to determine who chaired the compensation committee during 1984. This person's board appointment date was used.

Results and Discussion

Means, standard deviations and correlations among the variables are reported in Table 1. As sometimes reported in previous studies, size and firm performance are not strongly related ($r = -0.08$, NS). CEO compensation is positively related to firm size ($r = 0.58$, $P < 0.01$) and ROE ($r = 0.31$, $P < 0.01$) and is negatively related to owner control ($r = -0.32$, $P < 0.01$). The set of independent variables are relatively uncorrelated with each other, suggesting that multicollinearity is not a problem.

Since hypotheses 2–4 are directional, one-tailed tests of significance are reported. Results for hypothesis 1 use two-tailed significance tests. Table 2 presents the regression results. Model 1 in Table 2 presents the results using only the five control variables. As is evident, firm size and performance are related to CEO compensation. Both sales and return on equity are significant predictors of CEO pay. Consistent with previous research (Gomez-Mejia *et al.*, 1987), owner control is negatively related to CEO pay; that is, firms in which a single investor holds more than 5% of the common stock have CEOs who are paid less than in firms with a more dispersed ownership. Tosi and Gomez-Mejia (1989) argue that owner control is associated with increased monitoring of the CEO by the board. CEO tenure is not significantly associated with compensation. Finally, as reported previously with this same data set (O'Reilly *et al.*, 1988), the average salary of the compensation committee has a positive effect on CEO pay.

Models 2–10 in Table 2 are tests for the impact of social influence on the pay–governance relationship. Model 2 tests for the impact of the presence or absence of a compensation committee (recall that five firms did not use a compensation committee). Results show that the CEOs of companies without a compensation committee are paid 24% more than CEOs whose board does have a compensation committee. While no specific hypothesis was postulated, this finding is consistent with an interpretation of increased influence by the CEO. Recall that the regulatory guidelines suggest that for the purpose of good practice, firms should have a compensation committee composed of outside directors. The lack of such a committee may indicate that the CEO has sufficient control over the board to ignore these guidelines. Boards with committees offer lower levels of pay to the CEO. However, this

TABLE 1. Correlations Among Variables

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Log CEO salary	6.58	0 312												
2. Log sales	5 84	0 939	0.58***											
3 Return on equity	14.63	7 08	0 31***	−0.08										
4. Own control	0.405	0 494	−0.32***	−0.37***	−0.07									
5 CEO tenure	7.57	6 34	0 07	− 0.04	−0 24**	0 15								
6. Log average salary CC[a]	6.51	0 297	0 26**	0.24**	−0.04	0 03	0 08							
7. Percentage of outsiders	0 685	0.115	−0 03	−0 02	−0 11	−0 16	−0 03	−0 04						
8. CEO appointed before CC chairman	0.583	0 496	0.14	−0 10	−0 09	−0 01	0 58***	−0 10	−0 05					
9. CEO on nominating committee	0 440	0 499	0.20*	0 04	− 0 06	0 05	0 23**	−0 03	−0 03***	0 07				
10. CEO is chairman of the board	0 845	0 364	0 14	−0 07	−0 01	−0 05	0 20*	0 18*	0 10	0 17	0 05			
11 Percentage non-CEOs on composition committee	0.553	0.275	−0 04	−0 09	−0 15	0 20*	0 02	0 02	−0 17	−0 12	−0 09	−0 04		
12. Percentage CC members under 65	0.639	0.258	0 24**	−0 00	0 21**	0 04	0 07	−0.02	−0 02	0.13	0 18*	−0.01	−0 27***	
13 CC distance in age from CEO	9 23	4.48	−0 29***	−0 16	−0.16	0 04	−0 08	−0.09	−0 09	−0 21**	−0.17	−0 09	0.04	−0 37***

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$.

[a] CC = compensation committee

TABLE 2. Social Influence Determinants of Logged CEO Compensation—Study 1

Independent variables[a]	1	2	3	4	5	6	7	8	9	10
1. Log sales	0 156**	0 167**	0.185**	0 190**	0 185**	0 189**	0 187**	0 181**	0 179**	0.206**
	(0 0332)[b]	(0 0336)	(0 0290)	(0 0284)	(0 0272)	(0.0290)	(0.0289)	(0.290)	(0.0290)	(0 0250)
2 Return on equity	0.0114**	0.00882*	0 0144**	0 0137**	0 0135**	0 0138**	0.0145**	0 0123**	0 0127**	0.0147**
	(0.00365)	(0.00394)	(0 00399)	(0 00385)	(0 00370)	(0 00392)	(0 00393)	(0.00392)	(0 00403)	(0.00352)
3. Owner control	−0 105	−0.131*	−0 113*	−0 112*	−0 127*	−0.114*	−0 128*	−0.125*	−0 126*	−0 102*
	(0 0654)	(0 0666)	(0 0599)	(0 0572)	(0 0548)	(0 0583)	(0.0583)	(0.0568)	(0 0579)	(0 0505)
4. CEO tenure	0 00624	0.00467	0 0106**	0 00493	0 00824*	0.00956**	0 107**	0.00960**	0.00958**	−0 000119
	(0.00387)	(0 00394)	(0.00375)	(0.00466)	(0.00359)	(0 00382)	(0 0372)	(0 00366)	(0.00377)	(0 00410)
5. Log average salary CC committee	0.189*	0.202*	0 176*	0.194**	0 197**	0 155*	0.171*	0.179*	0 169*	0.241**
	(0.0945)	(0 0937)	(0 0819)	(0 0805)	(0 0770)	(0 0828)	(0 812)	(0 0795)	(0 0809)	(0.0715)
6. No CC committee		0 240								
		(0 146)								
7. Percentage of outsiders			0.177							0 545**
			(0.219)							(0 206)
8 CEO appointed before CC chairman				0.113*						0 156**
				(0.0584)						(0 0529)
9. CEO on nominating committee					0 142**					0 206**
					(0.0453)					(0.0461)
10. CEO is chairman of the board						0 764				0.0413
						(0.0667)				(0 0562)
11. Percentage non-CEOs on compensation committee						0 0977				0 280**
						(0.0848)				(0 0791)
12. Percentage CC members under 65								0 189*		0.200*
								(0 0897)		(0 0863)
13 CC distance in age from CEO									−0 00730	0.00648
									(0 00531)	(0.00516)
14. Constant	4 41**	4.28**	4.12**	4.02**	4 02**	4 26**	4 17**	4.14**	4.38**	2.78**
	(0.612)	(0.610)	(0 566)	(0 529)	(0 502)	(0.528)	(0 530)	(0.517)	(0.537)	(0 557)
Adjusted R^2	0.44	0.46	0 57	0 59	0.63	0 58	0.58	0.60	0 58	0 71
N	89	89	84	84	84	84	84	84	84	84

* $P < 0.05$; ** $P < 0.01$ (one tailed test).

[a] Industry dummies included but coefficients not reported.

[b] Figures in parentheses are standard errors.

result should be interpreted with caution, since only five of the 89 firms had no compensation committee.

Model 3 tests hypothesis 1, which examines the effect of outside directors on CEO compensation. Recall that economic theories largely assume that outside directors are more independent. Previous research, however, has found that boards with a higher proportion of outside directors may be more generous to CEOs. Although the coefficient for the percentage of outside directors on the compensation committee is not significant, it is positive. In model 10, with all variables entered, the effect is both positive and significant. This result is counter to hypothesis 1a and indicates that the higher the percentage of outside directors, the more compensation the CEO receives. Based on the size of the coefficient, an increase of approximately 20% in the numbers of outsiders on the committee is associated with a 10% increase in CEO pay. Given that model 10 includes controls for firm size and performance, this indicates that outside directors are more generous. On the face of it, this does not seem consistent with economic theory (e.g. Fama and Jensen, 1983; Williamson, 1985), although it could be consistent with norms of reciprocity, authority and liking.

Models 4 and 5 test hypotheses 2a and 2b, which postulate that norms of reciprocity may lead board members to increase the CEO's compensation. Model 4 reveals that CEOs who are appointed to the board before the chair of the compensation committee receive, on average, 11% more pay than those CEOs who achieved board status after the compensation committee chair. Model 5 shows that being on a nominating committee is associated with a 14% increase in compensation. Both of these effects are independent of firm size, performance and CEO tenure, and, as such, would not be predicted by economic theory. They are, however, consistent with norms of reciprocity.

Hypotheses 3a and 3b proposed that CEOs who had greater authority over the board would also receive higher pay. Model 6 shows that CEOs who also hold the role of chairman of the board do not earn significantly more money. Hypothesis 3b proposes that boards with proportionately more non-CEOs could be more susceptible to the CEO's influence. Model 7 shows this effect to be non-significant. However, the full equation and appropriate test, shown in model 10, does show a significant effect consistent with hypothesis 3b; that is, having a proportionately larger number of non-executives on the board is associated, all other things being equal, with higher levels of compensation. While this is not a definitive test of the social influence associated with authority, it is consistent with this interpretation and independent of reciprocity and similarity effects.

Finally, hypothesis 4 argues that social similarity and liking may increase

a CEOs social influence. Two tests of this effect were conducted. The logic here is that the more similar the CEO is to the compensation committee in age, the higher should be his or her compensation. First, the results in model 8 show a significant effect for age similarity assessed as the proportion of committee members under age 65. Given that CEOs in this sample were younger than 65, it was expected that having a younger committee would increase the chances for similarity effects and thereby lead to a higher compensation level. Model 9 tests for similarity using a demographic distance measure based on age (O'Reilly *et al.*, 1989). Being less distant is positively, though not significantly, associated with more compensation. Again, while these results are not direct or comprehensive tests of similarity, they are consistent with this interpretation and occur after controlling for a large number of alternative explanations.

Model 10 presents the full equation and permits an assessment of the independent effects of all variables, including the controls. Overall, the results are consistent with the general hypothesis that social influence may affect the CEO pay–governance process. First, having proportionately more outside directors is associated with higher levels of CEO compensation. This finding seems contrary to what economic theory would predict. Second, adding a set of variables postulated to index social influence increases the adjusted R^2 from 44 to 71%—in practical terms, a significant change. Third, although the indicators of social influence are not complete, it is hard to construct plausible reasons other than social influence that would explain, for example, why CEOs who are appointed to the board prior to the chair of the compensation committee should have significantly higher earnings. Of course, the evidence is inferential in that measures of social influence used here are structural and not direct assessments of the social influence process. However, the findings are consistent with the premise that boards of directors, like groups everywhere, may be subject to norms of reciprocity, authority, and similarity and liking. CEO compensation committees are affected by variables such as the CEO serving on the nominating committee and the proportion of non-CEOs on the committee. These effects occur after controlling for economic determinants of executive compensation and CEO tenure. In this regard, the test of social influence may be a conservative one, since CEO tenure may also capture some aspects of social influence.

Overall, there is evidence in this study consistent with both economic and psychological theory. Consistent with previous research, CEO pay is weakly related to measures of firm size, performance and ownership (e.g. Gomez-Mejia *et al.*, 1987; Baker *et al.*, 1988). However, unlike the assumption often prevalent in economics that the board is composed of independent directors, we find evidence suggesting that boards may be characterized by

social influence processes such that directors may become identified with or captured by management. Consistent with social psychological theory and research, board members may be susceptible to norms of reciprocity, authority, and similarity and liking.

6. *Study No. 2*

While Study No. 1 provided support for the potential effects of social influence, a number of shortcomings exist with the sample. First, the sample size is relatively small ($n = 89$) and somewhat dated (1984). Second, the controls for the economic determinants of CEO compensation are limited (sales, ROE). Although the data on board composition are detailed, data on economic variables are comparatively weak and the pay measure is restricted to current compensation (base and bonus). Therefore, Study No. 2 was conducted in order to replicate the major findings of the first study. The replication uses a larger sample, a more comprehensive measure of CEO compensation and better controls for the economic determinants of CEO compensation, albeit with less information on the board.

Methods

To corroborate the effects of social influence in the CEO compensation setting process, a sample of firms was chosen from the 1990 portfolio of the California Public Employees Retirement System (CALPERS). This portfolio was chosen because data (CEO compensation, proxy statements, etc.) were readily available on the constituent firms. For reasons that will become clear, only publicly traded corporations that had at least one outside director sitting on the compensation committee of the focal firm who was also a CEO in another firm in the CALPERS data were included in the analyses. This generated a sample group of 291. In 16 firms there was insufficient detail on current compensation, although a measure of total compensation was available in all cases.

Measures. The data utilized appeared in 1989 proxy statements and pertain to the calendar year 1988. For each company, COMPUSTAT was used to derive data on sales, return on assets and the stock market beta based on the previous 60 months. COMPUSTAT was also used to obtain data to compute the market return to shareholders.

The proxy statement was used to derive details on CEO compensation. This was computed to include not only the log of total cash compensation (TCC, base plus bonus) as used in Study No. 1, but also the log of total

direct compensation (TDC), which includes an estimate of long-term compensation based on a market valuation of restricted shares/units, performance shares/units and stock options issued during the period. Stock options were valued using a version of the Black–Scholes option pricing formula. All these items were valued using contemporaneous market values. The rationale for this can best be illustrated using stock options. Stock options granted to a CEO can produce an income stream dependent on the fortunes of the company. The measure of what has actually been given as compensation is the cash equivalent that would be necessary to recreate that income stream. That cash equivalent is simply the money necessary to purchase on the open market the same number of options with the same strike price. The Black–Scholes formula provides this estimated value.

The proxy statements also provide data on the number of inside and outside directors; who sits on the board committees; the date of appointment of the CEO to the company and the CEO post; and the date of appointment of each director to the board. Although these data do not allow for the replication of all social influence variables as measured in Study No. 1, they do provide for two influence variables: whether the CEO also serves as chairman, a measure of authority; and, most importantly, whether the CEO was appointed to the board prior to the outside member of the compensation committee, a measure of reciprocity. In this study, however, rather than focus solely on the compensation committee chair, we based our social influence indicators on whether the CEO of one of the firms in the database also sat on the compensation committee of the focal firm. This sample of 291 firms permitted us to examine the effects of both TCC and TDC.

Results

Models 1–4 in Table 3 present a set of regressions examining the relationships between economic and social influence variables and CEO compensation. Models 1 and 2 include a set of economic performance variables as well as measures of social influence and examine their relationship with the log of CEO's TCC. Models 3 and 4 examine the effect of these variables on the log of CEO's TDC, which includes base, bonus and value of long-term stock options or performance units. In all models, the log of the size of the firm is significantly related to both measures of compensation. For instance, TDC as shown in model 4 of Table 3 rises 0.32% for every percentage increase in sales.

Performance in these equations is captured by both accounting returns (ROA) and by stock market returns. Both effects are statistically significant, although of modest impact. A one percentage point increase in ROA results

in a 1.2% increase in TDC, while a similar increase in shareholder return results in an increase of 0.3% in TDC. Both effects operate at the same time. The small magnitude of these effects is consistent with previous studies that have found weak CEO pay–performance relationships (e.g. Baker *et al.*, 1988).

The risk characteristic of the firm is indexed by the stock market beta; that is, the correlation between the stock return of the firm and that of the market over the previous 60 months. The beta is significant, with a coefficient that suggests that higher compensation goes to CEOs of corporations that have more volatile stocks. Overall, the relationships between CEO compensation and economic variables are consistent with previous research. Higher performance, larger size and firms in more volatile industries have CEOs who earn more.

The results in Table 3 also provide evidence for the effect of social influence on CEO compensation. Consistent with the results of Study No. 1 and O'Reilly *et al.* (1988), the compensation of the outside director who serves on the compensation committee has a significant and positive effect on the focal CEO's own compensation. In Table 3, the log of the outsider's TDC has an elasticity of roughly 0.1. Thus, a 10% increase in the outside director's total compensation is associated with a 1% rise in the focal CEO's TDC. The magnitude of this effect is less in this study than the first, but still represents a practically significant amount. For instance, for this sample the mean CEO's TDC is $1,267,100 and the mean outside director's TDC is $1,396,700. Appointing to the compensation committee an individual whose TDC is $2 million rather than an average paid outsider will result, all other things being equal, in an increase of roughly $56,000 for the average focal CEO. It is also clear from the findings of model 4 in Table 3 that if the outside director who sits on the compensation committee was appointed after the focal CEO, then the focal CEO's TDC increases by 13%. Again, using the average TDC for this sample, having a CEO who was appointed before the outside executive was appointed to the board is worth approximately $165,000. A fortunate CEO who was in post when the above-mentioned outsider was appointed could, therefore, hypothetically increase his compensation by over $220,000 without any change in the performance of the firm.

It should be noted that these influence effects are found even when there is control for CEO tenure in office. Tenure in office could itself be taken as a measure of social influence, with longer serving CEOs having more ability to shape their boards. In this sense, the findings for social influence variables may be conservative. As also shown in Table 3, and unlike the results reported in Study No. 1, serving as chairman of the board has no significant

TABLE 3. Social Influence Determinants of CEO Compensation, Stock Options and Restricted Stock—Study 2

Independent variables[a]	Total cash compensation		Total direct compensation		Stock options		Restricted stock	
	1	2	3	4	5	6	7	8
1. Log sales	0 302***	0 297***	0.345***	0 342***	0.297***	0 327***	0 184***	0 228***
	(0 0172)[b]	(0 0178)	(0.0199)	(0 0206)	(0 0802)	(0.0855)	(0.0728)	(0.0816)
2 Return on assets	0.875***	0 770***	1.17***	1 11**	2.75**	3 57**	1 65	1 79
	(0.280)	(0.282)	(0 324)	(0 327)	(1.44)	(1.63)	(1.47)	(0 271)
3. Stock market return	0.226**	0.222*	0.302**	0 292**	−0.0117	0.0185	0 332	0.271
	(0.105)	(0.104)	(0 122)	(0 120)	(0.443)	(0 457)	(0.466)	(0.486)
4 Beta	0 169***	0 161***	0.230***	0 229***	0 288	0 322	0.0598	0 0491
	(0 0612)	(0.0608)	(0 0710)	(0 0706)	(0.248)	(0.254)	(0.266)	(0 275)
5. Log outside directors compensation		0 0787*		0 0937**		−0.0785		0.167
		(0.0409)		(0 0365)		(0 140)		(0.139)
6 Percentage of outsiders		−0 198		0.165		1 74**		1 86**
		(0 189)		(0 219)		(0 822)		(0 893)
7. CEO appointed before outsider		0 126**		0.120***		−0 328*		0 397**
		(0.0412)		(0 0477)		(0 182)		(0 189)
8. CEO is chairman of the board		−0.0356		−0 0238		0 163		0.155
		(0.0506)		(0 0587)		(0 218)		(0 233)
9. Constant	11.03***	10 11***	10 81***	9 35***	−2.45***	−2 92	−2 43***	−6.91***
	(0 166)	(0.566)	(0.192)	(0 536)	(0 765)	(2.01)	(0.739)	(2 19)
Adjusted R^2	0 62	0 63	0.62	0.64	0.06	0 07	0 03	0 06
N	274	274	274	274	274	274	274	274

* $P < 0.05$; ** $P < 0.01$ (one tailed test).

[a] Industry dummies included but coefficients not reported.

[b] Figures in parentheses are standard errors.

effect on either CEO cash compensation or total direct compensation for this sample.

Before discussing the implications of these findings, one further assessment of the extent of social influence in the pay determination of the CEO is shown in Table 3. Models 5–8 report probit results for whether the CEO has been awarded stock options and/or 'restricted stock'. As Crystal (1989) explained, restricted stock is similar to an executive stock option but without the downside risk. With restricted stock, the executive is awarded the actual shares in entirety, usually subject to a vesting period. Unlike stock options that may prove to be worthless if the strike price is higher than the actual price of the stock at the time of option, restricted stock is worth whatever the market value of traded company stock is. There is no strike price and the executive is always in the money, unless the firm goes bankrupt. He or she is also entitled to any dividends and can vote the stock even before the vesting period ends. Thus, even if the CEO presides over a decline in the value of the stock, restricted stock will still have a positive value while stock options may not. Given the less demanding nature of restricted stock versus stock options, it is interesting to ask whether the likelihood of these components of long-term compensation is conditioned by social influence considerations.

The dependent variable in models 5 and 6 is set to unity if the CEO has been granted stock options that year. Otherwise it is zero. From the probit estimates presented in Table 3, it can be seen that the issue of stock options is more likely in larger companies with sound accounting performance, high betas and a high proportion of outsiders on the board. The grant of options is negatively related to CEO tenure in office. This is consistent with Gibbons and Murphy (1992). There is, however, no role for social influence.

Approximately 27% of the CEOs in the sample were awarded the less demanding restricted stock form of deferred compensation. Model 8 in Table 3 presents the probability of holding restricted stock as a function of both economic and social influence variables. Although the results are not strong, they reveal an interesting pattern. If the CEO was on the board prior to the appointment of the outside compensation committee member, he or she is significantly more likely (12% more likely when evaluated at the sample mean) to have been awarded restricted stock. Thus, if a CEO prefers the certainty of some payoff from having restricted stock, being able to help appoint new outside board members seems to be a worthwhile option. This is consistent with the expected impact of reciprocity norms. Interestingly, the results in Table 3 also show that having more outsiders on the board increases both the probability that the CEO will receive stock options and the probability of receiving restricted stock. Again, this is consistent with

an interpretation of social influence and inconsistent with economic theory; outsiders who are themselves executives may be more similar to the focal CEO and more likely to award long-term compensation.

7. *Conclusions*

Overall, these results are generally consistent with previous economic research showing weak associations between firm size and performance and CEO compensation. What is less easily explained by theories such as TCE and agency theory is the role played by social influence on the board. Both studies reported here demonstrate that the compensation level of an outsider who sits on the compensation committee is significantly associated with the pay level of the focal CEO. Further, CEO compensation is likely to be significantly higher if the outside member who serves on the compensation committee was appointed after the focal CEO joined the board. A similar finding is reported by Lambert *et al.* (1993). This is consistent with the operation of norms of reciprocity and suggests that social influence may affect the compensation setting process. The fact that even after controlling for economic fundamentals and CEO tenure there remained evidence of such influence raises questions about the way in which corporate governance is modeled by economists (e.g. Finkelstein and Hambrick, 1989).

Certainly TCE and agency theory place considerable emphasis on the operation of the board as an independent representative of the principals or owners of the enterprise. In terms of TCE, the board lies at the heart of the entire governance system as the central rule-maker and arbiter of disputes. Williamson (1985, p. 299) is quite direct in arguing that ' . . . the board of directors should be regarded primarily as a governance structure safeguard between the firm and owners of equity capital and secondarily as a way by which to safeguard the contractual relation between the firm and its management'. In his view, 'management participation on the board of directors is the problem, not the solution' (p. 311). In this sense, the safeguard rests with an ostensibly independent (i.e. non-executive) board of directors.

Without an independent board, the corporate entity quickly breaks down into internecine rent seeking activity. The fact that the CEO's pay may itself be characterized as containing certain rent-like components obtained through the use of social influence does not augur well for efficient corporate governance. Overall, the findings here suggest that efficient corporate governance may be difficult to obtain so long as the CEO is able to exercise social influence over the board. It may be no coincidence that in Germany, where CEOs are never on the supervisory board, executive salaries are much lower. A certain amount of 'slack' in the system need not, of course, be inconsistent

with organizational viability. This may only be another manifestation of the price paid for moving from the effective but transaction costly high-powered market relationships to the less costly transactions of low-powered governance relationships.

In a similar way the findings presented here suggest that, at the very least, there is some imperfection in contract or mechanism design. If the interests of the principals are to be protected through the thoughtful design and implementation of incentive devices, then surely they should be in evidence at the very top of the firm where there is an explicit arrangement for the representation of the principals through outside board members. Payment of the CEO based on factors that are seemingly unrelated to the interests of the principals or shareholders suggests that there is slippage in the assumptions of agency theory. This does not mean that there is necessary a fatal flaw in this formulation. Hart (1988) motivates such incomplete contracts from the perspective of a residual right of control. However, the uncomfortable fact remains, as Baker *et al.* (1988) point out, that if the board is not acting on behalf of the principals, then how can it be assumed that any contracts being designed or implemented are in the interests of the principals? This point has been forcefully stated by Jensen (1989, p 64) in a break with his earlier agency theory thinking. 'The idea that outside directors with little or no equity stake in the company could effectively monitor and discipline the managers who selected them has proven hollow at best.'

The evidence presented here suggests that the possibility of management influence over the board needs to be confronted in terms of how we model corporate governance. This study and others raise the possibility that CEOs and boards may not have the arm's length distance theories assume (e.g. Finkelstein and Hambrick, 1989; Wade *et al.*, 1990; Belliveau *et al.*, 1994). The development of principal agent theory and TCE are a welcome move away from portraying the firm as a nexus of profit-maximizing algorithms to a more realistic view of governance as an arena in which human frailties and divergence of interests are allowed to influence events. As Milgrom and Roberts (1992, p. 50) claim, ' . . . the value maximization criterion does not describe how organizations behave. Organizations then may serve a variety of conflicting individual interests, rather than maximizing a single overall objective.' From the discussion and results presented above, it seems that a fruitful avenue for the development of this new view of organizations would be to account for the social influence processes that characterize human interactions even in the boardroom.

What the results presented here suggest is that the process through which directors are selected and the board operates may, without conscious opportunism or manipulation by the CEO, affect the decision-making of indepen-

dent directors. Indeed, if the question posed is not 'how much should a CEO be compensated?' but 'how is the compensation decision actually made?', one has to acknowledge that the board and the CEO are likely to be subject to the dynamics that characterize most small decision-making groups. The descriptive and empirical evidence for actual board functioning is consistent with this conclusion (Lorsch, 1989; Tosi and Gomez-Mejia, 1990).

It is not clear whether recent changes in SEC regulations will affect the processes suggested here. These new rules focus primarily on the reporting of CEO compensation, not its determination. They mandate greater clarity in the format of compensation tables, the specification of a comparison group, and an explicit rationale for linking pay and performance. While greater disclosure may be helpful, these requirements do seem likely to affect the operation of norms of reciprocity, authority and liking or other processes through which social influences may operate. The counter-intuitive result that boards with numerically more independent directors may be less independent in the compensation setting process would appear to be largely unaffected by such changes, although the rationalization for CEO pay may be more explicit.

Corporate governance in the USA relies heavily on the board of directors as the linchpin that aligns the interests of shareholders and management. As we have shown, much current theory of governance assumes that, in order to be effective, boards of directors must be independent. The qualitative descriptions we have reviewed and the empirical results we have presented suggest that there is a gap between theory and practice. Increasing the number of outsiders on the board is no guarantee that these directors will behave independently. Gilson and Kraakman (1991) point out that simply appointing as outside directors individuals who do not have a stake in retaining management does not insure that they will have the requisite time, expertise or motivation to effectively monitor management's performance. Outside directors are involved in a social exchange relationship with the CEO. Arguments that such directors will be diligent in their monitoring activities because of a sense of noblesse oblige or somehow the market will punish them if they fail do not seem very persuasive. If our goal is to understand how boards function, it seems important to incorporate both economic and non-economic factors in our models and research.

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