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GETTING THEM TO THINK OUTSIDE THE CIRCLE: CORPORATE GOVERNANCE, CEOS' EXTERNAL ADVICE NETWORKS, AND FIRM PERFORMANCE

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This article contributes to the social networks literature by examining how corporate governance factors influence CEOs' external advice-seeking behaviors. We incorporate insights from social networks research into an agency theory perspective to predict, and demonstrate empirically, that governance factors recommended by agency theory increase CEOs' tendencies to seek out advice contacts who are likely to offer perspectives on strategic issues that differ from their own; these advice-seeking behaviors ultimately enhance firm performance. Accordingly, this article also contributes to the corporate governance literature by describing how and why CEOs' advice networks mediate the effects of governance factors on firm performance.

This article examines how corporate governance factors influence CEOs' informal social contacts with colleagues at other companies and how these networking behaviors mediate the effects that corporate governance factors ultimately have on firm performance. Although the firm-level performance implications of CEOs' informal social contacts with executives at other firms have been only infrequently researched, McDonald and Westphal (2003) provided some preliminary evidence that these contacts can have important effects on firm-level success. The central focus of the MacDonald and Westphal study was on how CEOs' external advice networks mediate firms' strategic responses to recent poor firm performance. Nevertheless, the study also reported supplementary exploratory analyses that indicated that the firms of CEOs who frequently seek advice from executives at other firms with whom they do *not* share friendship ties or common functional backgrounds subsequently outperform the firms of CEOs who seek advice from such executives relatively infrequently. Drawing on the wider networks literature (Granovetter, 1973; see Burt [2000, 2004] for reviews), these researchers explained these firm-level performance benefits by suggesting that exposure to alternative points of view enhances CEOs' abilities to identify and develop high-quality solutions to the strategic challenges facing their companies.

Although CEOs and their firms appear to benefit when the CEOs seek out alternative points of view on strategic issues, descriptive statistics from McDonald and Westphal (2003) also showed that CEOs tend to consult with nonfriends and socially dissimilar advice sources relatively infrequently.[1] These results are consistent with much prior social networks research demonstrating that people prefer to interact with others with whom they share social similarities or strong social bonds and that these preferences for "homophilous" and strong ties routinely manifest in decision makers' information and advice networks (see McPherson, Smith-Lovin, and Cook [2001] for a recent review). McDonald and Westphal (2003) proposed that CEOs prefer the advice of other-firm contacts with these attributes because such contacts are especially likely to hold opinions that are similar to their own. They further suggested that regular exposure to the confirmatory views of friends and similar others provides CEOs

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[1] In the McDonald and Westphal (2003) study, roughly three out of four of a typical CEO's advice interactions were with colleagues who were categorized as personal friends.

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with psychological benefits by helping them to create and sustain a subjective sense of certainty about their beliefs and assumptions on strategic issues, which ultimately enhances their subjective feelings of confidence in their images of themselves as effective strategic decision makers.

The above discussion suggests that CEOs face a trade-off between two kinds of benefits as they seek advice from colleagues at other firms. On the one hand, seeking the views of friends and similar others provides them with largely self-serving and immediate psychological benefits by satisfying their desires to establish and sustain a *subjective* sense of certainty about their own perspectives on the strategic issues facing their firms. On the other hand, seeking advice from *non*friends and *dis*similar others provides access to novel points of view that can enhance the *objective* quality of their strategic choices, and ultimately firm performance. The nascent literature on the issue indicates that shareholders' interests are clearly better served to the extent that CEOs focus their advice seeking on this latter set of contacts, but there has been little systematic examination of factors that might enhance CEOs' willingness to do so. Especially lacking is research on organizational policies, structures, or practices that corporate stakeholders can actively shape to promote performance-enhancing networking by CEOs.

Accordingly, in this study we consider how corporate governance factors, including CEO incentive alignment and board monitoring of CEOs, might shape their advice-seeking behaviors. Corporate governance scholars have been acutely interested in how governance mechanisms that align the interests of top managers with the chief concerns of shareholders can reduce the agency costs that arise when managers pursue actions that benefit them as individuals but simultaneously harm shareholders (Shleifer & Vishny, 1997). To date, agency theorists have focused primarily on the agency costs associated with CEOs' tendencies to pursue actions that serve their individual financial or other material interests at the expense of shareholders' interests (see Johnson, Daily, and Ellstrand [1996] and Zahra and Pearce [1989] for reviews). In contrast, we suggest that it is important to recognize that shareholder interests may also be compromised when CEOs engage in self-serving behaviors that are motivated by psychic rather than material benefits. Infrequently seeking advice from nonfriends and dissimilar others represents a notable example of such behaviors. Thus, we examine how corporate governance mechanisms, such as financial incentives and board monitoring of CEO decision making, influence how CEOs navigate the trade-off between the self-serving psychic benefits that come from seeking advice from other-firm executives with whom they share friendship ties or a common functional background on the one hand, and an improvement in decision quality resulting from seeking advice from other-firm executives with whom they do *not* share friendship ties or a common functional background on the other hand.

In developing our conceptual model, we incorporate insights from the social networks literature into an agency theory–based perspective. Central to our model are a predicted positive relationship between both CEO stock ownership and CEO performance-contingent compensation and the frequency with which CEOs seek advice from contacts at other firms with whom they do not share either friendship ties or a common functional background. We also hypothesize that intense board decision monitoring will have similar effects on CEOs' networking behaviors and propose that these effects will be amplified when outside directors have high levels of executive experience. Finally, we extend our theory to consider how CEOs' advice networks might mediate the performance implications of the corporate governance factors we study. More specifically, we predict that CEOs' seeking of advice from executives at other firms with whom they do not share friendship ties or a common functional background will mediate the effects of CEO incentive alignment and board monitoring on overall firm performance.[2] Analyses of data from an original survey of outside directors and CEOs of a sample of large U.S. corporations as well as information about these directors, CEOs, and firms from conventional archival sources provide consistent empirical support for our conceptual model. A primary contribution of our theory is to the social networks literature, which contains little research on the determinants of variation in individuals' networking behavior. For instance, researchers have given little consideration to factors that lead individuals to seek advice and counsel from others who are likely to provide contrary points of view, despite considerable evidence of the performance benefits of advice from such network ties (see Mehra, Kilduff, and Brass [2001] for a notable exception; and see Borgatti and Foster [2003] for a discussion of this issue). Our theoretical model is perhaps the first to examine how fundamental corporate governance measures, such as the

[2] Donald and Westphal (2003) referred to "advice seeking from" other-firm executives. The "seeking of advice from" other-firm executives used here is conceptually identical.

alignment of CEOs' interests with those of shareholders and board monitoring, influence CEOs' informal social interactions with executives at other firms in ways that have important implications for firm performance. More generally, our theory suggests how organizational governance or control factors may prompt managers to engage in networking behaviors that have positive performance effects. By extension, this study makes a noteworthy contribution to the corporate governance literature in that it is likely the first to examine how CEOs' social networks mediate the firm-level performance effects of corporate governance factors. Unlike most prior governance research, which has focused on the *content* of decisions made by self-interested managers, our study looks at how at least one aspect of the *process* used by managers—namely, advice seeking directed toward colleagues at other firms—mediates the effects of common corporate governance measures on firm performance.[3] Moreover, the findings of this study provide rare evidence of how the strategic decision-making process can influence decision makers' abilities to identify effective firm strategies (Eisenhardt & Zbaracki, 1992).

THEORY AND HYPOTHESES

An agency theory perspective suggests that, for a number of reasons, the owners of modern corporations (i.e., shareholders) ultimately cede control of the day-to-day management of firm operations to professional managers (Berle & Means, 1932). Agency theory further indicates that managers' personal goals and objectives routinely diverge from those of shareholders and that, under these conditions, self-interested managers frequently exploit their control over company operations to advance their own material interests at the expense of shareholders' principal objectives (Jensen & Meckling, 1976). Corporate governance researchers have documented a range of policies that materially benefit managers while producing agency costs for stockowners (see Shleifer and Vishny [1997] for a review). At the same time, corporate governance factors can also be employed to remedy this agency problem, at least in part, and thereby reduce the agency costs associated with managers' self-interested actions.

In keeping with the premise of the theory described above, a central purpose of a number of governance mechanisms recommended by an agency perspective, and actively advocated by corporate governance reformers, is to increase the alignment of managers' personal interests with the core interests of shareholders, key among which is strong firm financial performance (Daily, Dalton, & Rajagopalan, 2003; Dalton, Daily, Certo, & Roengpitya, 2003; Eisenhardt, 1989; Jensen & Murphy, 1990). Such alignment essentially increases the personal consequences to CEOs of meeting, or failing to meet, firm performance targets. Two general mechanisms for aligning managerial interests with those of shareholders and thus rendering CEOs more concerned with firm performance outcomes are (1) financial incentives that enhance the personal rewards (sanctions) that CEOs receive upon meeting or exceeding (failing to meet) firm performance objectives, and (2) board monitoring of CEOs that more tightly couples the effectiveness of CEOs' strategic decision making with the rewards (sanctions) that they receive from their boards (Beatty & Zajac, 1994; Zajac & Westphal, 1994). In the discussion that follows, we develop theoretical arguments that suggest how CEO incentive alignment and board monitoring will, by increasing CEOs' concerns with achieving superior firm performance, enhance CEOs' willingness to seek out advice contacts at other firms who are particularly likely to offer perspectives on strategic issues that differ from their own. We also suggest why CEOs' networking behaviors will mediate the effects of the governance mechanisms discussed above on firm performance.

CEO Financial Incentives

In the economic view in which agency theory is grounded, personal wealth is an especially important source of subjective utility. Accordingly, agency theorists have argued that, to the extent that they receive financial rewards when their firms are successful, firm executives are more willing to forgo actions that provide them with direct material benefits to instead engage in behaviors that enhance firm performance (Beatty & Zajac, 1994; Daily, Dalton, & Rajagopalan, 2003; Dalton et al., 2003; Jensen & Murphy, 1990; Shleifer & Vishny, 1997; Westphal & Zajac, 1994). This alignment of CEOs' financial interests with the interests of the shareholders is frequently achieved through CEO stock ownership and other performance-based compensation, both of which strengthen the link between firm performance and CEOs' individual wealth and lead to an increase in the potential financial rewards that they receive for achieving firm success (e.g., Core & Qian, 2001; Guay, 1999; Morck, Shleifer, & Vishny, 1990; Smith & Watts,

[3] "Advice seeking directed toward" is also the same as "advice seeking from," as used in McDonald and Westphal (2003).

1992; see Core, Guay, and Larcker [2003] and Daily, Dalton, and Cannella [2003] for reviews).

A number of empirical studies in the governance literature have demonstrated that CEOs' stock ownership elevates the individual "utility" to them of firm success by strengthening the link between firm performance and their wealth (Daily, Dalton, & Rajagopalan, 2003; Dalton et al., 2003; Jensen & Murphy, 1990). Performance-contingent compensation mechanisms such as stock options, restricted stock, and performance shares have a similar impact on the link between firm performance and CEO employment income and are typically designed to motivate executives to work to improve firm financial and stock market performance over an extended time horizon (e.g., at least five years) (Jensen & Murphy, 1990; Rajagopalan, 1997). Empirical studies have also demonstrated how financial incentives can increase CEOs' willingness to eschew behaviors that will provide them, as individuals, with monetary and other material rewards in favor of behaviors that will benefit shareholders (see Dalton et al. [2003] and Shleifer and Vishny [1997] for reviews).

CEO External Advice Networks

As discussed further below, research on social networks has suggested how CEO seeking of advice from nonfriends and "self-dissimilar" others has positive effects on firm performance. Nevertheless, despite evidence of clear performance benefits of maintaining a network that provides regular access to nonredundant information and alternative points of view, people demonstrate a consistent preference for interaction with those with whom they share either strong social bonds or a similar background. Theory and research in both sociology (Lazerfeld & Merton, 1954) and social psychology (Byrne, 1971) have suggested that people who share strong social ties tend to hold similar points of view on relevant issues and that this similarity occurs for at least two reasons. First, individuals with similar beliefs are more likely to form strong social ties such as friendship ties (Lazerfeld & Merton, 1954; Marsden, 1988; see McPherson, Smith-Lovin, and Cook [2001] for a review). Second, the frequent interaction that tends to occur between friends results in their opinions becoming even more similar over time (Hackman, 1983; Marsden & Friedkin, 1993; Rogers & Kincaid, 1981; Tichy, 1981). In addition, much social science research has also indicated that similarities in background and prior experiences are often associated with similarities in points of view. Specific to the concerns of this study, research by management scholars has demonstrated that managers with similar functional backgrounds develop similar mental models (Beyer, Chattopadhyay, George, Glick, ogilvie, & Pugliese, 1997; Dearborn & Simon, 1958) and diagnose strategic issues in similar ways (Finkelstein & Hambrick, 1996). Thus, in general, people tend to interact primarily with a small, regular circle of information sources that is predominantly made up of others who tend to offer points of view that are similar to their own.

A number of studies in the management literature (e.g., Ibarra & Andrews, 1993) have shown that managers, including CEOs (McDonald & Westphal, 2003), prefer to interact with others who are similar to themselves or with whom they share strong social bonds. Avoiding frequent interactions with colleagues at other firms who hold views on strategic issues that are significantly different from their own provides CEOs with some important psychic rewards. For example, avoiding interaction with dissimilarly minded others leaves them more certain about their strategy-related beliefs and more confident about their effectiveness as decision makers and firm leaders. Exposure to contradictory views, on the other hand, creates subjective uncertainty for them regarding their important preexisting beliefs and assumptions that can in turn undermine their confidence in their view of themselves as effective decision makers. However, seeking advice from executives at other firms with whom they do not share either friendship ties or a common functional background would be likely to improve the objective quality of their decisions, as well as firm performance. Thus, from the shareholders' perspective, CEO preferences for avoiding interaction with dissimilarly minded colleagues at other firms create agency costs in the form of relatively poor decision quality and firm performance (McDonald & Westphal, 2003). In this light, it seems reasonable to conceptualize CEOs' tendencies to interact only infrequently with nonfriend and self-dissimilar executives at other firms as a social psychological dimension of the agency problem.

CEO-Shareholder Interest Alignment and CEOs' External Advice Networks

Taken together with our prior discussion, the arguments presented above suggest that incentive alignment through high levels of CEO stock ownership and performance-contingent compensation can, at least partially, remedy this aspect of the agency problem. Said differently, in line with prior arguments regarding the influence of financial in-

centives on managers' propensities to forgo self-interested behaviors to instead pursue shareholders' desires for long-term firm success, we suggest here that financial incentives will also increase CEOs' tendencies to forgo networking behaviors that provide them with psychic benefits in favor of alternative networking behaviors that they believe will enhance the quality of their strategic decisions and thereby promote firm success. More specifically, we expect that, in their efforts to make superior decisions, CEOs who are motivated by potential financial rewards for achieving superior firm performance will seek out a wider range of opinion on strategic issues than other CEOs.

Decision-making experts almost invariably recommend that individuals search comprehensively for possible solutions to the challenges they face and actively consider alternative points of view (e.g., Nutt, 2004; Russo & Schoemaker, 1989, 2002). Many managers, especially executives, are likely to have been exposed to such expert prescriptions as part of their academic (e.g., MBA courses on decision making) and/or nonacademic training on effective decision making. Moreover, the psychological literature on individuals' lay theories of the determinants of effective decision making indicates that people tend to intuitively expect that they can make better decisions by seeking out a relatively wide range of opinion on decision-relevant issues. For example, decision-making research provides consistent empirical evidence that people are more willing to both search thoroughly for problem solutions (Petty & Cacioppo, 1979; 1990; Petty & Wegner, 1999) and consider alternative points of view (Kruglanski & Webster, 1996; Petty & Wegner, 1999) when they are making decisions with significant personal consequences. Thus, even CEOs who have not received formal instruction in effective decision-making techniques are likely to be aware at some level that their decisions will be of higher quality to the extent that they seek out a wider range of opinion on the strategic issues facing their firms.[4]

We further argue that as CEOs work to acquire additional perspectives on strategic issues, they will tend to reach outside the regular circles of advisors that they routinely rely upon. Research on social networks, as well as other behavioral research, has indicated that the advice contacts that CEOs rely upon most routinely are particularly likely to be executives with whom they share friendship ties or a common professional background (Ibarra & Andrews, 1993; McDonald & Westphal, 2003). As they seek out less-routine advice sources, CEOs will almost inevitably end up soliciting more information and advice from others with whom they lack such associations. Through their own past interactions with nonfriend and socially dissimilar sources, CEOs may also, at least at some level, recognize that these contacts have tended to provide them with fresh perspectives more frequently than have friends and socially similar sources. As previously mentioned, relevant network research has also indicated that the former set of contacts is, in fact, more likely than the latter to provide alternative points of view (see Burt [2004] and McPherson et al. [2001] for reviews). Thus, we expect that the basic desire to sample a wider range of opinions will increase the frequency with which CEOs seek the advice of other-firm executives with whom they do not share friendship ties or a similar functional background.

To sum up the arguments presented thus far, we suggest that CEOs' general tendencies to avoid interaction with other-firm executives with whom they do not share friendship ties and who have functional backgrounds different from their own provide them psychic benefits, such as the ability to create and maintain a subjective sense of certainty regarding their beliefs and assumptions and strong confidence in their own abilities as effective decision makers. However, this type of networking behavior can be seen as self-serving on the CEOs' part, creating an agency cost for shareholders, because the objective quality of their decisions, as well as firm performance, are likely to suffer. Thus, we propose that financial incentives will mitigate this agency cost, at least in part, by encouraging CEOs to step outside their routine advice sources as they seek a broader range of opinions in order to make better decisions; this broader advice seeking will, in turn, have a positive effect on firm performance. More formally:

[4] Descriptive data from our survey provide support for the premise that CEOs believe that seeking out alternative points of view on strategic issues is an effective way of enhancing the quality of their strategic decisions. Content analysis of 152 CEO responses to an open-ended survey question indicated that 91 percent of CEOs who were above average on measure(s) of one or more of the following—level of stock ownership, performance-contingent compensation, or board monitoring—stated that soliciting different points of view from colleagues on strategic issues was among "the most critical components of an effective strategic decision-making process." The responses were analyzed by three independent coders, the level of interrater agreement between whom was 96 percent.

Hypothesis 1. The level of a CEO's stock ownership has positive effects on the level of the CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background.

Hypothesis 2. The level of a CEO's performance-contingent compensation has positive effects on the level of the CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background.

Board Performance Monitoring and CEOs' External Advice Networks

As mentioned previously, agency theorists have argued that, in addition to providing financial incentives to CEOs, boards can also reduce agency costs, and thereby enhance firm performance, by closely monitoring CEOs (Chatterjee & Harrison, 2001; Daily, Dalton, & Cannella, 2003; Fama & Jensen, 1983; Hillman & Dalziel, 2003; Westphal, 1999). Directors who intensely monitor firm managers do not simply defer to them or act as "rubber stamps" for their decisions (MacAvoy & Millstein, 1999). Instead, the board members demand justifications and explanations for proposed strategic initiatives and constructively criticize management-proposed initiatives when they believe those initiatives are ill-advised (Andrews, 1986; Baysinger & Hoskisson, 1990; McNulty & Pettigrew, 1999). As Fama and Jensen (1983) suggested in their frequently cited development of the agency perspective on board monitoring, intense board monitoring is also reflected in close scrutiny of the effects of CEOs' strategic decisions on firm performance and the sanctioning of firm managers whose strategic choices have negative performance effects.

The strategy literature on board monitoring indicates that intense director scrutiny of CEO decisions and their performance consequences enhances directors' abilities to assess the impact of CEO strategic decisions on firm performance (Tosi & Gomez-Mejia, 1994; Westphal, 1999). Thus, CEOs are likely to expect tighter coupling between the quality of their strategic decisions and board sanctions as well as rewards when their boards are closely monitoring their decisions and performance. A number of empirical studies have suggested that independent boards, which are thought to more closely monitor CEO decision making and performance, are more willing and able to dismiss CEOs of poorly performing firms (Boeker, 1992; Cannella & Lubatkin, 1993; Warner, Watts, & Wruck, 1988; Weisbach, 1988). The evidence also indicates that board vigilance tends to strengthen the link between firm performance and elements of CEO compensation, such as CEOs' annual bonuses, that are determined primarily by directors' assessments of CEOs' effectiveness (Ittner, Larcker, & Randall, 2003; Larcker, 1983; Tosi & Gomez-Mejia, 1989; Ryan & Wiggins, 2004). Thus, CEOs who are closely monitored by their boards will be especially concerned with making high-quality strategic decisions that lead to superior firm performance and with avoiding ineffective strategic decisions that lead to poor performance.

In view of the above arguments, we expect that CEOs will be especially willing to forgo patterns of external advice seeking that provide them with immediate psychic benefits to the extent that they are intensely monitored by their boards. Instead, such CEOs will engage in networking behaviors such as seeking out the views of external advice contacts with whom they do not share either friendship ties or a common functional background with the objective of enhancing the quality of their strategic decisions and thereby improving firm performance. This line of argument points to the following hypothesis:

Hypothesis 3. The level of board monitoring has positive effects on the level of a CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background.

The Moderating Effects of Director Executive Experience

We argue here that close board monitoring will be especially likely to prompt CEOs to seek out cognitively distant advice contacts who lie outside their regular circles of advisors to the extent that outside directors also have relatively high levels of experience as executives at other firms. Governance scholars have recently supplemented agency theory arguments by proposing that vigilant directors are especially effective when they have extensive management experience that provides them with relevant knowledge and expertise (e.g., Hillman & Dalziel, 2003). A study by Carpenter and Westphal (2001) showed that directors were able to make more valuable contributions to the monitoring of strategic decision making and the evaluation of CEO performance to the extent that they had prior relevant management experience at other firms. Perhaps more importantly, qualitative re-

search on boards has suggested that firm executives believe that prior top management experience is a primary determinant of directors' ability to effectively evaluate their managerial decision making (Khurana, 2002; Lorsch & MacIver, 1989). This discussion points to the conclusion that CEOs will be especially concerned with making high-quality strategic decisions when vigilant directors also have significant prior experience as firm executives. Combined with prior discussion regarding the effects of CEO concerns with making high-quality decisions on CEO external networking behaviors, this line of argument suggests the following hypothesis:

Hypothesis 4. The positive relationship between the level of board monitoring of a CEO and the level of the CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background is more positive when outside directors have high levels of prior executive experience.

CEO External Advice Network as a Mediator of the Effects of Corporate Governance on Firm Performance

As mentioned previously, research on social networks has suggested that individual managers are more successful when their social networks are made up of others who can offer novel information as well as perspectives on relevant issues that are different from the managers' own. Burt (2004, 2005) discussed possible mechanisms through which social networks that provide exposure to fresh points of view enhance the quality of individuals' decisions. One important mechanism is that people who have relatively high levels of cognitive diversity in their social networks are more likely to be exposed to previously unconsidered problem solutions that they can simply generalize to their own situations. The extant empirical evidence supports the idea that individuals who have access to social ties who can provide them with nonredundant information (e.g., nonfriends) are better able to identify preexisting solutions to their problems (Hargadon & Sutton, 1997). This research suggests that CEOs who frequently interact with executives at other firms who tend to provide them with alternative perspectives on strategic issues (e.g., nonfriends) are aware of a wider range of possible strategic solutions that they can apply to the challenges facing their firms.

Individuals who have more cognitive diversity in their social networks are also better positioned to develop novel responses to the problems they face by synthesizing ideas that their social contacts suggest with their own ideas about how to respond to important challenges (Burt, 2004, 2005; Hargadon & Sutton, 1997; Perry-Smith & Shalley, 2003). A number of empirical studies in the management literature suggest that individuals who have ego networks that provide frequent exposure to alternative points of view are especially able to develop creative and innovative solutions to complex problems (Hansen, 1999; Hargadon & Sutton, 1997; Obstfeld, 2005; Perry-Smith, 2006; Rodan & Galunic, 2004). These studies suggest that CEOs who often interact with nonfriends and self-dissimilar others are especially well positioned to develop effective solutions to the strategic challenges facing their firms by synthesizing their own perspectives with alternative points of view provided by their external advice contacts. More broadly, given that cognitively diverse ego networks support creativity and innovation, CEOs who frequently seek out the views of differently minded advice contacts (e.g., self-dissimilar others) are better able to develop overarching firm strategies that depart in beneficial ways from the more conventional strategies pursued by their firms' rivals.

For the reasons just outlined, we anticipate that the firms of CEOs who interact relatively frequently with advice contacts at other firms with whom they do not share friendship ties or a common functional background will perform better than the firms of CEOs who interact less frequently with nonfriend and socially dissimilar contacts. Combined with prior argument that established how the governance factors of interest in this study will influence CEOs' external advice networks, the above discussion suggests the following hypotheses regarding the mediating role of CEOs' advice-networking behaviors:

Hypothesis 5a. A CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background mediates the relationship between the level of CEO stock ownership and firm performance.

Hypothesis 5b. A CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background mediates the relationship between the level of CEO performance-contingent compensation and firm performance.

Hypothesis 5c. A CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background mediates the relationship between the level of board monitoring and firm performance.

Hypothesis 5d. A CEO's advice seeking directed toward executives of other firms with whom he or she does not share either (i) a friendship tie or (ii) a common functional background mediates the relationship between the level of outside director prior executive experience and firm performance.

METHODS

Sample and Data Collection

The sample frame for this study included 600 companies randomly selected from the *Forbes* listing of the largest U.S. industrial and service firms. We measured board monitoring and CEO advice seeking with original survey data and measured the other independent and dependent constructs, including CEO ownership, performance-contingent compensation, and firm performance, with archival data. To measure board monitoring, we distributed a survey questionnaire to all outside directors of firms in the sample frame in January 1998. To measure advice seeking, we sent a separate questionnaire to all CEOs in the sample frame in January of the following year (1999). To ensure the highest possible response rate, we used feedback from the pretest (discussed below) to revise the format and instructions of the questionnaires, making them simpler to complete. The cover letters also described each survey as part of an ongoing research project that involved faculty at several major business schools, noting that hundreds of top managers and directors had participated in earlier phases of the project. The survey was also endorsed by directors at a major management consulting firm. We sent two further waves of questionnaires to nonrespondents. Response rates for the outside director and CEO surveys were 41 and 42 percent, respectively, and we obtained responses from the CEO and at least one outside director of 38 percent of the firms comprising the sample frame (n = 225 companies).

We assessed the representativeness of our survey sample in two ways. First, we ran Kolmogorov-Smirnov two-sample tests; these showed no significant differences between the distribution of respondents and nonrespondents for any of the variables measured with archival data, including CEO ownership, performance-contingent compensation, the executive experience of outside directors, market-to-book value, and return on assets. We also ran Heckman selection models as a multivariate test for sample selection bias (Heckman & Borjas, 1980). The selection equations included the archival variables listed above and variables that described certain characteristics of the survey, such as when the questionnaire was distributed and returned. The selection parameter was not significant in any of these models.

We obtained data on CEO compensation from corporate proxy statements, and data on firm diversification, size, performance, and industry membership came from Compustat. We obtained institutional ownership data from Thomson Financial (formerly Securities Data Company). Data on manager and director characteristics, including their functional backgrounds, came from *Standard & Poor's Register of Corporations, Directors, and Executives,* the *Dun & Bradstreet Reference Book of Corporate Management*, *Who's Who in Finance and Industry*, and proxy statements.

Measures

Advice-seeking interactions. We used a multi-item scale to measure CEO advice-seeking interactions. Prior research by McDonald and Westphal (2003) has used this measure. Qualitative studies of corporate governance and strategic decision making that describe how top managers themselves characterize their professional ties guided the original wording of the survey questions, and we further refined the items using feedback from a pretest that included in-depth interviews with 23 executives. Feedback from the pretest was also used to revise the instructions and layout of the questionnaires, as noted above. The survey scale included three items about the CEO's general propensity to seek advice from other top managers during the prior calendar year (1998). Specifically, each CEO was asked to indicate (1) how many times he or she had sought advice on strategic issues from a top manager at another company during the past 12 months, (2) to what extent he or she had sought the opinion of a top manager at another company about his or her firm's current strategy during that period, and (3) to what extent he or she had solicited advice from a top manager at another company about his or her firm's strategic options (McDonald & Westphal, 2003). For the first item, respondents were asked to indicate the number of interactions, and the latter two items used a five-point Likert-type format. Following prior studies in the top

management team literature, we defined executives as managers at the rank of senior vice president or above (e.g., Chaganti & Sambharya, 1987; Hambrick, Cho, & Chen, 1996). The interitem reliability of the scale was adequately high (α = .90). After each question, respondents were prompted to list the name(s) of the executives at other companies from whom they had sought opinions or advice on strategy during the prior 12 months (i.e., calendar year 1998) and to note the number of times they had done so. The number of reported interactions with specific individuals showed little variance across the three questions in the scale, which follows from the high reliability of items about respondents' general advice-seeking propensity. Further, McDonald and Westphal (2003) also provided evidence of the interrater reliability of this measure. Specifically, those authors demonstrated high levels of agreement between advice seekers and advice givers (both other firm executives and focal firm directors).

Following much prior research in the upper echelons literature (Finkelstein & Hambrick, 1996), we coded functional background into three categories: output-related functions (marketing and sales), throughput-related functions (operations, research and development, and engineering), and peripheral functions (e.g., finance and law) using archival sources.[5] To measure friendship ties between responding CEOs and their advice contacts, we asked respondents to indicate whether they considered each person from whom they had sought advice to be an acquaintance or a friend (cf. McDonald & Westphal, 2003). Prompting respondents to distinguish between friends and acquaintances has been shown to enhance the validity of survey measures of friendship (Jehn & Shah, 1997). This measure was highly correlated with two other questions that asked respondents to assess the closeness of their relationships with each contact (cf. Burt, 1992). Moreover, McDonald and Westphal (2003) provided evidence of the interrater reliability of this measure. Specifically, in a separate survey, the CEOs' advice contacts were asked to assess their relationships with individuals who had approached them for strategic advice during the prior 12 months. Using responses to these questions, McDonald and Westphal (2003) showed a high level of agreement between CEOs and responding advice contacts about the status of their relationship as friends (94 percent). We then created four count variables that indicated the number of times during the past year that a focal CEO had solicited strategic advice from managers at other companies who (1) were friends of the CEO, (2) were not friends of the CEO, (3) had a functional background similar to the CEO's, and (4) had a functional background different from the CEO's. We estimated the hypothesized interaction effects using the product-term method.

Board monitoring of CEO. We measured board monitoring of focal CEOs using a five-item scale in the director survey. Scale items were adapted from a measure of board monitoring developed by Westphal (1999) that has been shown to have acceptable internal consistency and interrater reliability (Carpenter & Westphal, 2001). Westphal (1999) also provided some evidence for the convergent and discriminant validity of the scale. The present scale assessed board monitoring for the prior calendar year (1997). The specific scale items captured key elements of board monitoring as conceived by Fama and Jensen (1983). The Appendix provides these items. We conducted factor analysis on the survey items using the principal factor method with promax rotation. The five items loaded on a single factor, which had an eigenvalue greater than 1.0 (factor loadings were above .5 on the common factor and less than .2 on other factors). The interitem reliability of the scale was high (α = .91). We also examined interrater reliability by comparing director responses for the subsample of firms with more than one responding director using the weighted kappa coefficient (n = 446). Kappa corrects for the level of agreement between respondents that would be expected by chance and weights agreement by the level of convergence between raters. Values above .75 are generally taken to indicate excellent agreement (Fleiss, 1981) and, as shown in the Appendix, values exceeded .75 for

[5] The hypothesized results were unchanged when in separate analyses we coded focal executives' functional background using survey responses. The results were also unchanged when we coded functional background into five categories: marketing and sales, operations, R&D, finance, and law. Following most prior research in the upper echelons literature, we coded functional background as the area in which an executive had spent more time than any other (cf. Chaganti & Sambharya, 1987; Michel & Hambrick, 1992; Westphal & Zajac, 1995). Moreover, we did not treat top management experience as a separate functional area, because the upper echelons perspective would suggest that previous experience in a particular area will influence an individual's subsequent perceptions and decision making as a top manager, thus strengthening strategic beliefs that were formulated through functional area experience—that is, because of confirmation seeking and related cognitive biases (Hambrick & Mason, 1984).

all five survey items. We generated factor scores using the Bartlett method.[6]

CEO ownership and performance-contingent CEO compensation. We operationalized CEO ownership as the number of common shares owned by a CEO divided by total common stock outstanding. Following several prior studies, we measured performance-contingent CEO compensation as the proportion of a CEO's total direct compensation comprised of long-term incentive pay (Carpenter & Sanders, 2004; Gomez-Mejia, 1994; Westphal, 1999). Total direct compensation, in turn, was comprised of the annual salary, short-term bonuses, and the value of long-term incentive grants made to a CEO in the prior year (Crystal, 1984). We valued stock options using the Black-Scholes method (Black & Scholes, 1973) and valued other long-term grants, such as performance shares and restricted stock, according to the market price on the date of grant (Crystal, 1984). Although there are alternative approaches to valuing stock options, prior research has shown a very high correlation among measures that are based on different pricing techniques (Carpenter & Sanders, 2004; Sanders & Carpenter, 2003). In the present study, we found that the hypothesized results were nearly identical using the Securities and Exchange Commission (SEC) present value method (see Sanders, 2001). We measured CEO ownership and performance-contingent compensation for fiscal year 1997—that is, the year prior to the year for which advice seeking was measured.

Outside directors' executive experience. We operationalized the executive experience of outside directors by calculating the average number of years all focal-firm outside directors had served as executives at other firms. As noted above, executives were defined as managers at the senior vice president level or higher (e.g., Chaganti & Sambharya, 1987; Hambrick, Cho, & Chen, 1996). This variable was also measured for the prior year (i.e., fiscal year 1997).

Firm performance. We used two measures of focal firm performance: return on assets (an accounting-based measure) and market-to-book value of equity (a market-based measure). We adjusted both measures for industry differences by subtracting the average value for a firm's primary industry, defined at the two-digit SIC code level. However, the hypothesized results were unchanged using the unadjusted measures. The hypothesized results were also unchanged when we adjusted for industry differences using the ratio of a focal firm's performance to the average for the firm's primary industry. Moreover, in the primary analyses we measured performance two years after the survey date, but in separate analyses we used different lags (one year and three years) and found that the hypothesized results were substantively unchanged. In addition, supplementary analyses showed that the results were robust to alternative measures of firm performance, including return on equity and return on sales (accounting-based measures) and total stock market returns and Tobin's *Q* (market-based measures).

Control variables. It is plausible that CEOs might manifest dispositional differences in their advice-seeking behaviors. Though we were unable to include specific personality variables in our models, we were able to control for CEOs' prior advice-seeking activities. Our survey included separate questions about advice-seeking behavior in a prior year (year $t - 2$). Using these data, we constructed measures of prior advice seeking that parallel the measures discussed above. Any effects of dispositional factors would be manifest in CEOs' past advice seeking and, thus, these factors should not confound our hypothesized results. More generally, controlling for past CEO advice seeking ultimately helped us to rule out various sources of unobserved heterogeneity that might otherwise represent possible explanations for our findings. The level of CEO advice seeking may also depend on the number of friendship ties that CEOs have to top executives of other firms. Thus, we controlled for the number of such ties, using a survey question that asked CEOs to estimate the number of executives at other firms they would consider to be personal friends. We also controlled for the number of common board ties to top executives at other firms listed in *Forbes* index of U.S. industrial and service firms (i.e., shared board appointments).

Given that board members may provide an alternative source of strategic advice for CEOs, we also controlled for the level of CEO seeking of advice from board members in all models, using the survey measure developed by Westphal (1999). We also controlled for the portion of a board that consisted of retired executives in all models. Because such directors may be viewed as especially qualified to evaluate CEO decision making, their presence on the board may place additional pressure on a CEO to pursue strategies that promote share-

[6] The Bartlett method minimizes the sum of squares of the unique factors over the range of items, whereas the regression method minimizes the discrepancies between the true and estimated factors. The Bartlett method produces less biased estimates than the regression method for moderate to large samples (Harman, 1976). In this case, however, the results were identical when factors were estimated using the regression method.

holder interests. Moreover, we controlled for separation of the CEO and board chair positions, as McDonald and Westphal (2003) found a significant association between this dimension of board structure and CEO advice seeking directed toward executives at other firms. In addition, given that the performance contingency of CEO compensation could depend on the level of CEO salary, we controlled for the log of CEO salary in all models.

We also controlled for recent firm performance in models of CEO advice seeking, measured as market-to-book value and return on assets in the prior year, given that prior firm performance may influence the composition of CEOs' advice networks (McDonald & Westphal, 2003). Moreover, we controlled for the prior level of the dependent variable, using instruments, in models of firm performance. CEOs may rely more heavily on outside advice early in their tenures (Hambrick & Fukutomi, 1991). Thus, we also included a control variable for CEO tenure, measured in years.

It seems plausible that monitoring by large institutional investors could prompt CEOs to engage in more expansive advice seeking on strategic issues. However, there is little empirical evidence that institutional investors affect executive behavior or corporate policy independently of board monitoring (that is, institutions may exert indirect influence by pressuring boards to monitor CEOs) (Black, 1998; Daily et al., 2003; Kang & Sorenson, 1999). Nevertheless, as a precaution we controlled for the level of institutional ownership, measured as the percentage of total common stock owned by banks and trust companies, savings and loans, pension funds, mutual funds, endowments, and foundations. Given that the CEOs of diversified firms might engage in more expansive advice seeking in order to cope with the complexity of operating in multiple industry environments, we also controlled for the degree of focal firm product-market diversification using an entropy-based measure (Palepu, 1985). Although it might be expected that industry-level threats and opportunities could influence the composition of CEOs' advice networks, McDonald and Westphal (2003) found no evidence of industry differences in CEO advice seeking. However, as a precaution we controlled for industry by including dummy variables for the $n - 1$ two-digit SIC codes in the sample. Coefficients for these models are not displayed in the tables but are available from the authors. Finally, we controlled for firm size in models of performance, measured as log of sales.

Analysis

To estimate CEO advice seeking, we used negative binomial regression models, which are suitable for estimating count variables with overdispersion (Maddala, 1983). The advice-seeking measures are count variables, and the variance exceeded the mean for all four measures, suggesting that negative binomial regression was preferable to Poisson regression. To correct for serial correlation, we specified prior advice seeking as an instrumental variable in these models (Greene, 2003). Given that the error terms from models that estimate different kinds of advice ties (i.e., friends and similar others) could be correlated, we ran separate models using Zellner's seemingly unrelated regression (Greene, 2003). These models yielded results that were nearly identical to those reported below. This procedure allowed us to rule out the possibility that the observed effects of the governance factors of interest on CEO seeking of advice from either nonfriends or self-dissimilar others was simply a statistical artifact of the likely overlap between a CEO's advice ties to nonfriends and to dissimilar others—that is, an artifact of the elevated likelihood that a CEO's nonfriend advisors also had functional backgrounds that were different from the CEO's background. We also ran separate models in which advice-seeking interactions that could be assigned to multiple categories (e.g., seeking advice from nonfriends and seeking advice from dissimilar others) were randomly assigned to one category. Again, the hypothesized results were unchanged.

We used two-stage least squares regression analysis to estimate firm performance, with the advice-seeking variables and prior performance specified as instruments. The inclusion of interaction terms in our models predicting advice seeking and firm performance could conceivably contribute to multicollinearity that might artificially inflate the size of the regression coefficients for our theoretical variables. We therefore used a mean-centering approach (Jaccard, Turrisi, & Wan, 1990) in constructing the interaction terms in all statistical models. Application of appropriate diagnostics revealed no evidence of multicollinearity. Specifically, in each relevant model, the highest computed variance inflation factor (VIF) was less than ten, and the mean VIF was less than one.

RESULTS

Table 1 provides descriptive statistics and bivariate correlation coefficients. Table 2 provides the results of negative binomial regression analyses of CEO advice seeking directed toward executives at

TABLE 1
Descriptive Statistics and Pearson Correlation Coefficients[a]

Independent Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15a	15b	15c	15d	16a	16b	16c	16d	17
1. Board monitoring of CEO	0.00	0.97																							
2. Executive experience of outside directors	12.44	7.18	.07																						
3. CEO stock ownership	0.01	0.03	−.15	−.06																					
4. Performance-contingent CEO compensation	0.38	0.18	−.17	−.05	.10																				
5. Institutional ownership	0.34	0.20	.15	.04	−.08	−.12																			
6. CEO tenure	6.32	6.36	−.07	.02	−.18	−.13	−.09																		
7. Corporate diversification	0.57	0.44	−.16	−.03	−.07	−.05	−.08	.04																	
8. Sales[b]	8.40	1.14	−.03	.08	−.04	.07	.15	.11	.25																
9. CEO salary[b]	7.10	0.71	−.07	.01	.09	.13	.02	.13	.09	.33															
10. CEO/board chair separation	0.80	0.40	−.25	−.02	−.13	−.12	−.07	−.20	.12	−.10	.15														
11. CEO seeking of advice from board members	0.00	0.89	−.13	.05	.18	.08	.10	−.11	.05	−.04	.02	.06													
12. Board ties to top managers at other firms	11.13	9.42	−.04	.02	.04	.02	.01	.15	.04	.07	.07	.02	−.02												
13. CEO friendship ties to top managers at other firms	10.75	6.16	−.02	−.01	.06	.00	−.02	.09	.07	.05	.11	.03	−.04	.27											
14. Portion of retired executives on board	0.08	0.16	−.03	.08	−.01	.03	−.03	.04	.00	.05	.03	−.01	.04	.03	.02										
15. Advice from:																									
a. Executives who are friends	6.63	8.05	−.15	−.13	−.16	−.20	.07	−.28	−.13	−.02	.02	−.21	.02	.05	.04	−.01									
b. Executives who are not friends	2.36	5.10	.22	.20	.23	.27	−.03	−.18	.17	.01	−.04	.07	.04	.04	.08	.01	−.05								
c. Executives with same background	5.94	8.84	−.19	−.16	−.18	−.21	.13	−.21	−.23	−.02	.02	−.17	.03	.06	.04	.02	.24	.01							
d. Executives with different background	3.06	5.38	.21	.21	.25	.31	−.13	−.10	.20	−.02	−.06	.12	.04	.05	.05	.02	.01	.29	−.07						
16. Prior advice from:																									
a. Executives who are friends	6.39	7.86	−.08	−.10	−.12	−.17	.03	−.11	−.09	.00	.02	−.15	.01	.02	.03	.00	.34	−.04	.16	−.02					
b. Executives who are not friends	2.27	5.01	.13	.12	.18	.19	−.02	−.07	.12	.01	−.02	.04	.01	.00	.03	.01	−.05	.38	.00	.20	−.07				
c. Executives with same background	5.81	8.69	−.13	−.07	−.08	−.12	.02	−.10	−.17	−.01	.01	−.11	.03	.04	.01	.00	.19	.01	.33	−.06	.28	.01			
d. Executives with different background	2.84	5.32	.11	.14	.13	.17	−.05	−.03	.12	.00	−.03	.06	.03	.02	.02	.01	.01	.18	−.04	.40	.02	.31	−.11		
17. Market-to-book value (year $t + 2$)	0.02	0.57	.16	.15	.11	.06	.07	−.01	.03	−.03	−.03	−.05	.07	.04	.04	.01	−.18	.24	.23	.21	−.10	.17	.18	.14	
18. Return on assets (year $t + 2$)	0.01	0.07	.13	.15	.13	.07	.02	.01	.07	−.06	−.04	−.07	.06	.02	.03	.02	−.16	.21	.15	.17	−.09	.12	.08	.08	.20

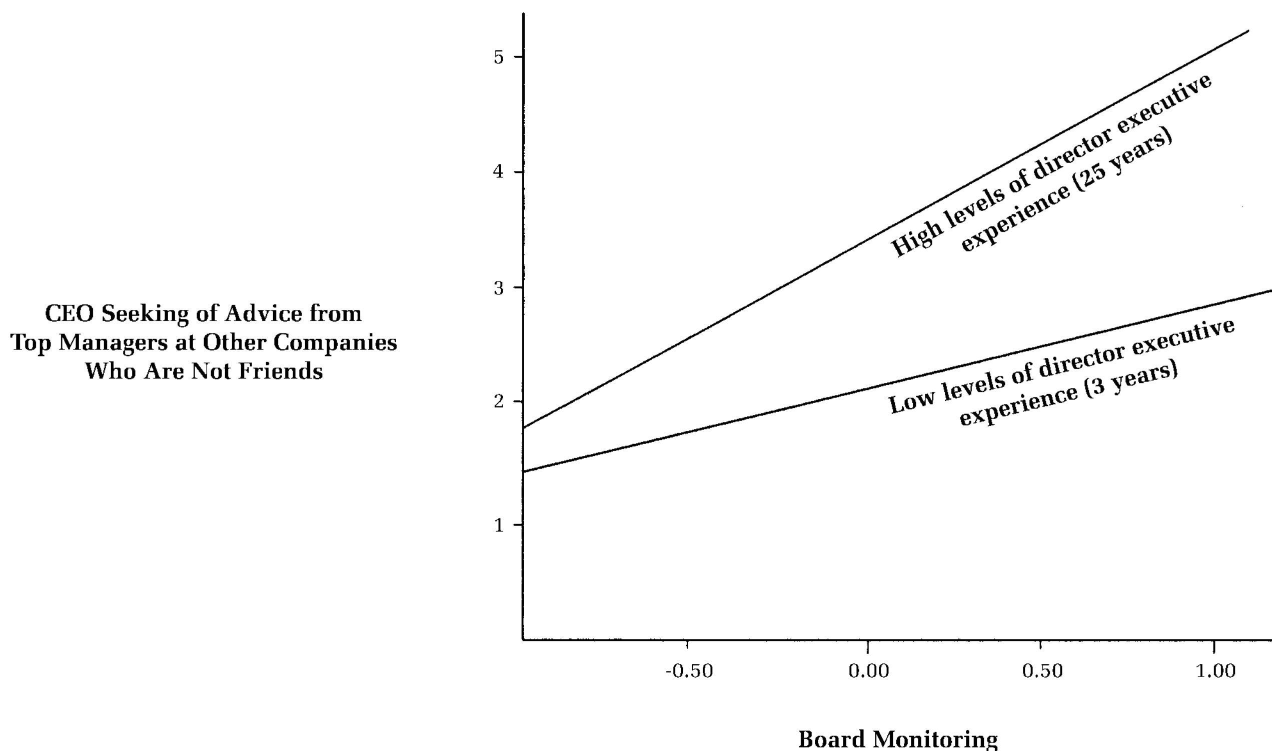
[a] Correlations greater than .12 are significant at $p < .05$; $n = 225$.
[b] Logarithm.

TABLE 2
Results of Negative Binomial Regression Analyses of CEO Seeking of Advice from Executives at Other Companies[a]

Independent Variables	Advice Tie Characteristic: Friend		Not Friend		Same Functional Background		Different Functional Background	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
CEO stock ownership	−0.05 (0.03)	−0.05 (0.03)	0.06** (0.02)	0.06** (0.02)	−0.14* (0.07)	−0.12 (0.07)	0.14** (0.06)	0.14** (0.06)
Performance-contingent CEO compensation	−0.44 (0.31)	−0.38 (0.32)	0.68** (0.25)	0.68** (0.25)	−0.81 (0.70)	−0.98 (0.70)	1.71*** (0.56)	1.70*** (0.56)
Board monitoring of CEO	−0.08 (0.04)	−0.07 (0.05)	0.09** (0.04)	0.09* (0.04)	−0.18 (0.10)	−0.17 (0.10)	0.18* (0.08)	0.17* (0.08)
Executive experience of outside directors	−0.01 (0.01)	−0.01 (0.01)	0.01 (0.004)	0.01 (0.004)	−0.02 (0.01)	−0.02 (0.01)	0.02* (0.01)	0.02* (0.01)
Board monitoring × director executive experience		−0.01* (0.01)		0.02*** (0.004)		−0.03** (0.01)		0.03** (0.01)
Prior market-to-book value (year $t-1$)	−0.22* (0.10)	−0.23* (0.10)	0.24** (0.08)	0.24** (0.08)	−0.53* (0.23)	−0.51* (0.23)	0.43* (0.18)	0.43* (0.18)
Prior return on assets (year $t-1$)	−1.55* (0.77)	−1.56* (0.77)	1.46* (0.61)	1.44* (0.61)	−3.41* (1.70)	−3.46* (1.70)	3.45** (1.36)	3.41** (1.36)
Institutional ownership	0.28 (0.23)	0.28 (0.23)	−0.10 (0.18)	−0.09 (0.18)	0.71 (0.51)	0.71 (0.51)	−0.41 (0.41)	−0.42 (0.41)
CEO tenure	−0.02** (0.01)	−0.02*** (0.01)	−0.01* (0.01)	−0.01* (0.01)	−0.04** (0.02)	−0.04** (0.02)	−0.02 (0.01)	−0.02 (0.01)
Corporate diversification	−0.15 (0.09)	−0.14 (0.09)	0.15 (0.08)	0.16* (0.08)	−0.52* (0.21)	−0.50* (0.21)	0.39* (0.17)	0.39* (0.17)
Prior advice seeking	0.02*** (0.01)	0.02*** (0.01)	0.03*** (0.004)	0.03*** (0.004)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)
CEO salary[b]	0.09 (0.07)	0.07 (0.07)	−0.06 (0.06)	−0.07 (0.06)	0.14 (0.14)	0.14 (0.14)	−0.17 (0.14)	−0.17 (0.14)
CEO/board chair separation	0.17 (0.12)	0.17 (0.12)	−0.12 (0.09)	−0.12 (0.09)	0.28 (0.21)	0.28 (0.21)	−0.25 (0.21)	−0.24 (0.21)
CEO seeking of advice from board members	−0.08 (0.05)	−0.08 (0.05)	−0.07 (0.04)	−0.07 (0.04)	−0.12 (0.09)	−0.11 (0.09)	−0.16 (0.09)	−0.16 (0.09)
Portion of retired executives on board	−0.04 (0.28)	−0.03 (0.28)	0.05 (0.23)	0.03 (0.23)	0.05 (0.50)	0.03 (0.51)	0.29 (0.50)	0.26 (0.51)
Board ties to top managers at other firms	0.01 (0.01)	0.01 (0.01)	0.01 (0.004)	0.01 (0.004)	0.01 (0.01)	0.01 (0.01)	0.02 (0.01)	0.02 (0.01)
CEO friendship ties to top managers at other firms	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Constant	0.31 (0.25)	0.33 (0.26)	0.30 (0.26)	0.30 (0.26)	0.87 (0.49)	0.89 (0.49)	0.67 (0.49)	0.69 (0.49)
Likelihood-ratio chi-square	46.18***	54.44***	71.09***	87.29***	52.65***	61.73***	67.24***	80.10***

[a] Standard errors are in parentheses; t-tests are one-tailed for hypothesized effects, two-tailed for control variables.
[b] Logarithm.
* $p < .05$
** $p < .01$
*** $p < .001$

FIGURE 1a
Effect of Interaction between Board Monitoring and Director Executive Experience on CEO Seeking of Advice from Executives at Other Firms Who Are Not Friends

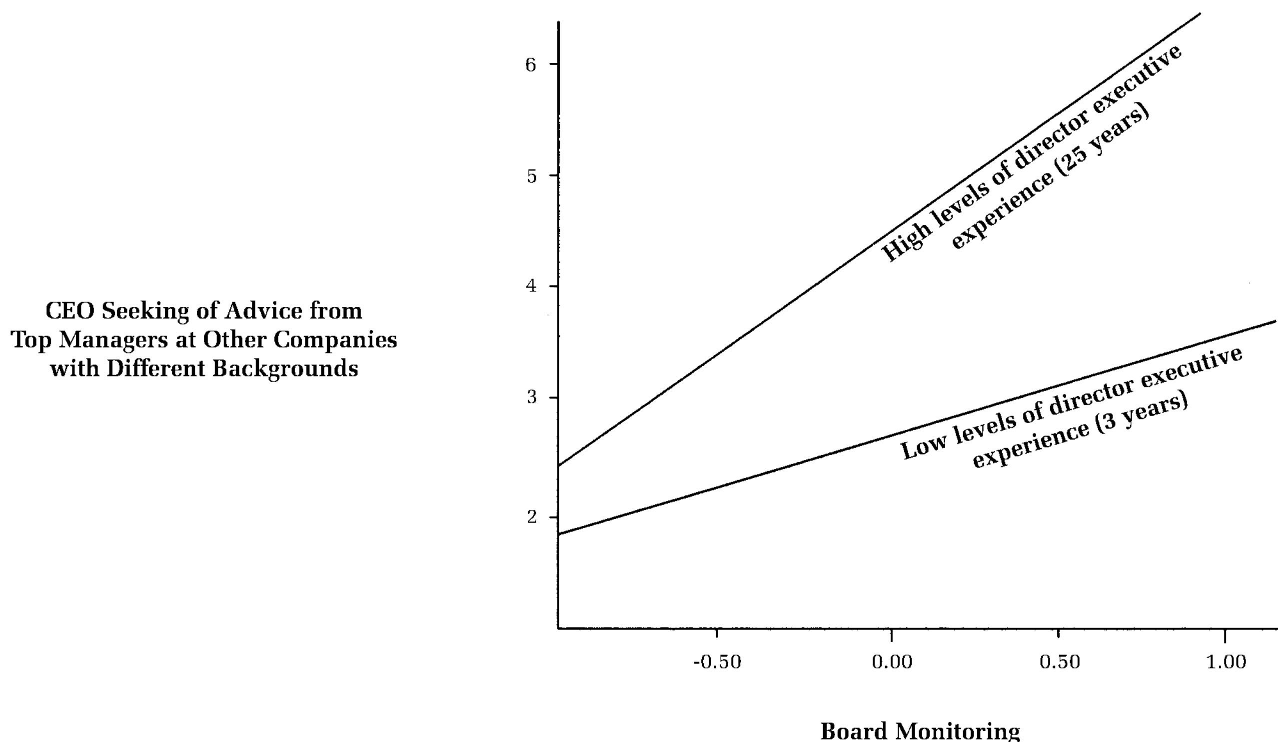


other companies. The results in models 3 and 7 of the table confirm Hypothesis 1. In particular, as model 3 shows, the level of CEO stock ownership is positively related to the level of a CEO's advice seeking directed toward executives of other firms who are not friends of the CEO. Moreover, as shown in model 7, CEO stock ownership is also positively related to the level of a CEO's advice seeking directed toward the executives of other firms who have functional backgrounds that are different from the functional background of the CEO. A similar pattern of results emerged in support of Hypothesis 2. Specifically, the level of CEO performance-contingent compensation is positively related to a CEO's advice seeking directed toward executives of other firms who are not friends of the CEO, as shown in model 3, as well as to CEO advice seeking directed toward the executives of other firms who have backgrounds that are different from the CEO's background, as shown in model 7.[7]

[7] In light of prior findings from a study by Tosi & Gomez-Mejia (1994), we also tested for a curvilinear effect for CEO stock ownership and performance-contingent compensation. We found no evidence of such a nonlinear effect.

The results also support Hypothesis 3, which addresses the relationship between board monitoring and CEO advice seeking. As shown in models 3 and 7, respectively, board monitoring of a CEO is positively related to the level of the CEO's advice seeking directed toward executives of other firms who are not friends of the CEO, as well as to the level of his or her seeking of advice from the executives of other firms who have functional backgrounds that are different from the functional background of the CEO. Additional results support the hypothesized interactions between board monitoring and the level of outside directors' prior executive experience. As shown in model 4, the relationship between a board's monitoring of a CEO and the level of the CEO's advice seeking directed toward executives of other firms who are not friends of the CEO is significantly more positive to the extent that the outside directors on the board have high levels of prior executive experience. Further, model 8 shows that the relationship between board monitoring and the level of a CEO's advice seeking directed toward executives of other firms who have backgrounds that are different from the CEO's background is also significantly more positive to the extent that outside directors have prior executive experience. Together, these results support Hy-

FIGURE 1b
Effect of Interaction between Board Monitoring and Director Executive Experience on CEO Seeking of Advice from Executives at Other Firms Who Have Different Functional Backgrounds



pothesis 4. Figures 1a and 1b show these interactions graphically. Overall, these results provide uniform support for our hypotheses regarding the effects of corporate governance mechanisms on CEO advice seeking directed toward executives at other firms.

It might reasonably be suggested that the governance factors we examined tend to increase CEOs' general propensity to seek advice. That is, from this perspective, the relationship between governance factors and the extent to which CEOs seek advice from dissimilar others and nonfriends might be an artifact of CEOs' tendencies to seek more advice from sources of all kinds. Our reported results are, however, inconsistent with this line of argument. In particular, none of the models in Table 2 show positive effects of the governance factors of interest on the level of CEO advice seeking directed toward friends and similar others. In fact, all relevant coefficients have a negative sign, and three of those are statistically significant. Thus, the independent variables increased the tendency for CEOs to seek advice from nonfriends and dissimilar others without increasing (and in some cases decreasing) the tendency to seek advice from friends or similar others. We also ran separate analyses in which models predicting CEO seeking of advice from nonfriends controlled for the level of CEO seeking of advice from friends and models predicting the seeking of advice from dissimilar others controlled for the seeking of advice from similar others. Our results were substantively unchanged. Thus, our results suggest that incentive alignment and director monitoring increased the proportion of CEOs' total external advice interactions (as well as the absolute number of interactions) that were with nonfriends and self-dissimilar others.

To test Hypotheses 5a through 5d, which predict that CEOs' advice-networking activities will mediate the effects of incentive alignment and board monitoring on firm performance, we used the standard approaches advocated by Baron and Kenny (1986) and Sobel (1982). These procedures allowed us to evaluate the extent to which the effects of the governance factors of interest on firm performance are mediated by a CEO's seeking of advice from executives at other firms who are not friends and who have functional backgrounds that are different from the functional background of the CEO. As a first step in testing the mediation effects, we ran two-stage regression analyses of firm performance. Table 3 provides the results of these analyses. Although we did not present formal hypotheses regarding the main effects of incentive alignment and

TABLE 3
Results of Regression Analyses of Firm Performance[a]

Independent Variables	Market-to-Book Value				Return on Assets			
	Model 1		Model 2		Model 3		Model 4	
Seeking of advice from executives who are friends			−0.01**	(0.004)			−0.001*	(0.001)
Seeking of advice from executives who are not friends			0.02**	(0.01)			0.002**	(0.001)
Seeking of advice from executives with same functional background			−0.01*	(0.003)			−0.001	(0.001)
Seeking of advice from executives with different functional background			0.01*	(0.01)			0.002*	(0.001)
Board monitoring of CEO	0.08**	(0.03)	0.04	(0.03)	0.01**	(0.01)	0.004	(0.005)
Executive experience of outside directors	0.01*	(0.003)	0.01*	(0.003)	0.001	(0.001)	0.001	(0.001)
Board monitoring × director executive experience	0.01**	(0.004)	0.003	(0.004)	0.002**	(0.001)	0.001	(0.001)
CEO stock ownership	0.06**	(0.02)	0.04	(0.02)	0.01**	(0.003)	0.004	(0.003)
Performance-contingent CEO compensation	0.64**	(0.21)	0.31	(0.21)	0.10**	(0.03)	0.05	(0.03)
Prior market-to-book value	0.56***	(0.07)	0.55***	(0.07)				
Prior return on assets					0.73***	(0.07)	0.73***	(0.08)
Institutional ownership	0.23	(0.15)	0.24	(0.15)	0.02	(0.02)	0.02	(0.02)
Corporate diversification	−0.13*	(0.06)	−0.13*	(0.06)	−0.02	(0.01)	−0.02	(0.01)
Sales[b]	−0.02	(0.03)	−0.02	(0.03)	−0.004	(0.004)	−0.004	(0.004)
CEO salary[b]	−0.04	(0.05)	−0.04	(0.05)	−0.01	(0.01)	−0.01	(0.01)
CEO/board chair separation	−0.14	(0.08)	−0.15	(0.08)	−0.02	(0.01)	−0.02	(0.01)
CEO seeking of advice from board members	0.08*	(0.03)	0.08*	(0.03)	0.01*	(0.001)	0.01*	(0.01)
Board ties to top managers at other firms	0.01	(0.003)	0.01	(0.003)	0.001	(0.01)	0.001	(0.001)
CEO friendship ties to top managers at other firms	0.01	(0.01)	0.01	(0.01)	0.001	(0.001)	0.001	(0.001)
Portion of retired executives on board	0.02	(0.19)	0.02	(0.19)	0.001	(0.03)	0.0004	(0.03)
Constant	0.47	(0.45)	0.53	(0.46)	0.07	(0.06)	0.09	(0.07)
F	6.11***		6.30***		5.83***		5.96***	
R^2	.35		.37		.34		.35	

[a] Standard errors are in parentheses; *t*-tests are one-tailed for hypothesized effects, two-tailed for control variables.
[b] Logarithm.
* $p < .05$
** $p < .01$
*** $p < .001$

board monitoring on firm performance, Baron and Kenny's (1986) approach requires that empirically, a significant and positive relationship be established between these constructs. The results reported in models 1 and 3 in Table 3 indicate that CEO stock ownership, performance-contingent CEO compensation, and board monitoring, as well as the interaction of board monitoring and director executive experience, have positive effects on both firm performance measures.

Results from the models presented in Table 2 have already established the second requirement of Baron and Kenny's (1986) approach, namely, that each of these same governance factors be significantly and positively related with the extent to which CEOs seek advice from executives at other firms who are not friends and have functional backgrounds that are different from their own. Initial evidence of mediation therefore required us to further demonstrate that the hypothesized effects of the governance factors diminished in significance when CEO advice-seeking variables were entered into the model and that the advice-seeking variables had a positive and significant effect on firm performance. These effects are demonstrated in models 2 and 4 of Table 3, where CEO stock ownership, performance-contingent CEO compensation, board monitoring, and the interaction of board monitoring with director executive experience—all of which were positive and significant in models 1 and 3—became insignificant in models 2 and 4, where CEO advice-seeking variables were added.

Further, a CEO's advice seeking directed toward other-firm executives who are nonfriends and who have functional backgrounds that are different from the functional background of the CEO was posi-

tively and significantly related to firm performance in these models. Specifically, a CEO's advice seeking directed toward executives who are nonfriends and who have functional backgrounds that are different from the CEO's background was significant in models 2 and 4 of the table, and CEO stock ownership became insignificant in these models. This finding provides suggestive evidence consistent with Hypothesis 5a, namely, that the advice-seeking variables mediate the relationship between CEO stock ownership and firm performance. Hypothesis 5b predicts that the level of these same CEO advice-seeking variables mediates the relationship between the level of CEO performance-contingent compensation and firm performance. This hypothesis also received initial support, as shown in models 2 and 4: a CEO's seeking of advice from executives who are not friends and who have functional backgrounds that are different from the CEO's background was significant in these models, and CEO stock ownership became insignificant.

Models 2 and 4 also provide suggestive support for Hypothesis 5c, which predicts that the level of CEO advice seeking mediates the relationship between the level of board monitoring and subsequent firm performance: a CEO's seeking of advice from executives who are not friends and who have functional backgrounds that are different from the CEO's background has a positive and significant relationship with firm performance in these models, and board monitoring becomes insignificant. Finally, Hypothesis 5d predicts that the level of the CEO advice-seeking variables mediates the relationship between the interaction of the level of board monitoring and the level of outside director prior experience and subsequent firm performance. The results in models 2 and 4 of the table provide suggestive support for this hypothesis as well: a CEO's seeking of advice from executives who are not friends and who have functional backgrounds that are different from the CEO's background has a positive and significant relationship with firm performance, and the interaction of board monitoring and outside director prior executive experience becomes insignificant.

To obtain more conclusive evidence for the mediation effects we hypothesized, we then conducted the test recommended by Sobel (1982), which enables an assessment of the indirect effects of the independent variable on the dependent variable via the mediating variable. This test involves computing the standard error and then using this parameter to compute *z*-scores for each mediated effect. In keeping with the results of the Baron and Kenny (1986) approach, the Sobel (1982) test indicated that a CEO's seeking of advice from executives who are not friends and who have functional backgrounds different from the CEO's mediated the relationship between each of the governance factors of interest and firm performance ($p < .05$ for both; Table 4 reports *z*-scores. Specifically, the results of the Sobel (1982) test provide evidence that CEO stock ownership, CEO performance-contingent compensation, board monitoring, and the interaction of board monitoring and outside director executive experience have positive effects on firm performance *through* CEOs' seeking advice from executives who are not friends and who have functional backgrounds different from their own. On the basis of the results of both the Baron and Kenny (1986) approach and the Sobel (1982) test, we concluded that Hypotheses 5a, 5b, 5c, and 5d were supported.

DISCUSSION

This paper contributes to the literature on the social networks of top executives by being likely the first to address how corporate governance influences CEOs' external social networks in ways that have important implications for firm performance. We incorporate insights from social network research into an agency theory–based perspective in our concep-

TABLE 4
Mediating Effects of Seeking of Advice from Top Managers at Other Companies[a]

	Market-to-Book Value Models		Return on Assets Models	
Independent Variables	Not Friend	Different Functional Background	Not Friend	Different Functional Background
CEO stock ownership	2.47*	2.27*	2.45*	2.41*
Performance-contingent CEO compensation	2.54*	2.26*	2.51*	2.36*
Board monitoring of the CEO	2.48*	2.24*	2.35*	2.03*
Board monitoring × director executive experience	2.38*	2.11*	2.42*	2.11*

[a] *z*-statistics for one-tailed tests are reported.
* $p < .05$

tual framework to argue that oft-prescribed governance arrangements, including high levels of CEO stock ownership and CEO performance-contingent compensation, and vigilant monitoring of firm CEOs by their boards, will increase CEOs' willingness to seek out advice contacts at other firms with whom they do not have friendship ties or a common functional background. This study makes a broader contribution to the networks literature in that it is, to the best of our knowledge, the first to examine how organizational governance or control factors of any kind (e.g., financial incentives) impact the tendencies of managers at any organizational level to engage in networking behaviors that tend to enhance their overall effectiveness. Although research has provided considerable evidence to suggest that individual mangers perform better to the extent that they interact regularly with dissimilarly minded others, there has been substantially less systematic consideration of factors that might determine variation among individuals in their propensities to utilize such advice sources (see Mehra et al. [2001] for a notable exception; and see Borgatti and Foster [2003] for a discussion of this issue). Future research might extend the basic principles of the conceptual model we presented to examine how both financial incentives and monitoring and control efforts influence the networking behaviors of managers at lower levels in organizations.

This study also advances theory and research on important corporate governance issues. In particular, our work represents likely the first attempt to examine how the social networks of firm executives mediate the performance effects of governance provisions, including the provisions discussed in this article and recommended by both academic theorists (e.g., agency theorists) and corporate governance reform advocates. By considering how CEOs' advice-seeking behaviors mediate the performance implications of corporate governance factors, this article makes a perhaps broader contribution to the literature on corporate governance. Strategic management researchers have drawn a fundamental distinction between the content of strategic decisions (i.e., the attributes of selected strategic initiatives) and the processes through which those decisions are made (i.e., the behaviors that executives engage in as they work to identify possible strategic actions to pursue) (e.g., Pettigrew, 1992). It seems fair to argue that so far, governance scholars have been especially focused on how governance factors such as the ones examined in this study affect the likelihood of certain policy outcomes, the *content* of which is fairly clearly inconsistent with shareholder interests but is often consistent with the individual interests of firm managers. Strategic decision-making research has indicated that the decision process that top managers employ can have important effects on their abilities to identify effective firm strategies (Eisenhardt & Zbaracki, 1992). This study provides rare evidence regarding how at least one important kind of executive decision-making behavior, namely, CEOs' efforts to obtain information and advice on strategic issues from colleagues at other firms, mediates the performance effects of corporate governance arrangements. Future research might address how other executive decision-making behaviors (e.g., strategic decision-making comprehensiveness) might mediate the performance implications of corporate governance factors.

Although they clearly do not fully resolve them, our theory and empirical findings also speak to the inconclusive findings that have emerged from the large number of studies regarding the overall performance effects of various corporate governance factors. One strategy for trying to better understand these inconclusive results is to study how corporate governance influences the various intervening factors through which governance arrangements may ultimately impact firm performance. Prior research by Tosi and Gomez-Mejia (1994) showed that board compensation monitoring has an effect on firm performance. Our study suggests how CEOs' external advice networks may mediate this effect. Our findings indicate that incentive alignment and intense monitoring are, in fact, beneficial in the sense that they prompt CEOs to seek advice from social contacts who are likely to provide them with new perspectives on strategic issues. In this regard, future research might directly examine how corporate governance mechanisms impact other mediating factors that can be expected to ultimately influence firm-level performance.

The determinants and consequences of CEOs' efforts to obtain information and advice from their colleagues at other firms have been the subject of a very small number of studies. Particularly in this light, the previously cited article by McDonald and Westphal (2003) represents an important point of departure for the present research. At the same time, however, the research questions posed in the McDonald and Westphal (2003) study were substantively different from those examined in the current study. In particular, those authors were primarily interested in how CEOs' external social ties influence the likelihood of strategic change in response to poor performance, rather than in how those networks impact subsequent firm performance. Moreover, their study was concerned with a different determinant of CEOs' external networking behaviors—that is, prior firm performance. In contrast, the current research focuses on the effects of corporate governance mechanisms.

With these differences duly noted, one issue raised

by a comparison of the findings of these two studies is the question of why CEOs appear to react in diametrically opposite ways to the firm performance problems examined by McDonald and Westphal (2003) and the governance factors we considered here. It might reasonably be supposed that both poor firm performance and corporate governance provisions such as intense board monitoring would evoke some similar psychological reactions from CEOs, in that they might both be viewed as "threatening" to the CEOs, and that they would therefore contribute to similar patterns of advice seeking. However, we suggest that incentive alignment and decision monitoring provoke psychological reactions that depart in fundamental ways from those engendered by poor firm performance and that, as a result, these governance factors will have different implications for CEOs' networking behaviors.

Specifically, as McDonald and Westphal (2003) argued, poor firm performance threatens CEOs' sense of certainty regarding their core beliefs and assumptions about what firm strategies are likely to succeed, and thus it ultimately challenges their confidence in their ability to determine the performance of their firms. The authors further argued that CEOs of poorly performing firms will therefore seek relatively low levels of advice from nonfriends and dissimilar others in an effort to reestablish their sense of certainty about their bedrock beliefs. In contrast, although increases in both performance-contingent financial rewards and board monitoring might provoke at least mild levels of stress and anxiety for some CEOs, these governance factors are unlikely to undermine CEOs' feelings of certainty about their fundamental beliefs and assumptions on strategic matters or to represent challenges to their identities as effective decision makers and firm leaders. At the same time, we suggest that these governance factors will increase the personal importance to affected CEOs of achieving firm success, which will, in turn, increase their tendencies to seek out advice contacts, such as nonfriends, who have a greater tendency to provide them with fresh points of view on strategic issues. CEO efforts to tap into a wider range of opinion through interaction with contacts who are dissimilar to them will have positive effects on the quality of their strategic decisions, and ultimately firm performance. Our empirical results would seem to support this proposition. We should note here that we did not directly assess CEO decision-making quality per se, but rather inferred superior decision quality from higher levels of objective firm performance. Future research might fruitfully examine the effects of managers' networking behaviors on more proximate indicators of strategic decision-making quality. Conducting research in this vein might require the development and/or application of alternative approaches to assessing the quality of discrete strategic decisions, such as decisions relating to discrete acquisitions.

The theory and results presented in this article suggest specific policies and behaviors that boards of directors can pursue that will substantively increase CEOs' tendencies to seek out advice contacts who are likely to provide them with nonredundant perspectives on strategic issues. Our theoretical model specifically explains how high levels of CEO stock ownership and CEO performance-contingent compensation, as well as intense board monitoring of CEOs, will have these kinds of desirable effects on CEOs' networking behaviors, with positive implications for firm-level performance. Future research might examine other policies or actions that board members or other stakeholders might pursue with the objective of increasing the CEOs' willingness to include nonfriends and self-dissimilar others in their external advice networks.

We note here one final practical implication of our theory and findings. The present study suggests that financial incentives and board monitoring prompt CEOs to engage in networking behaviors that promote firm success. At the same time, prior research has suggested that firm success will, in turn, promote still higher levels of CEO advice seeking directed toward executives at other firms with whom they lack friendship ties or a common functional background (McDonald & Westphal, 2003). Thus, taken together with previous research, the current study suggests how corporate governance might set in motion "upward spirals" in firm performance whereby CEO incentives and board monitoring prompt CEOs to engage in networking activities that promote firm success, which, in turn, leads to further increases in CEOs' propensities to seek out the views of dissimilarly minded colleagues, which contributes to even better subsequent firm performance, and so on.

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APPENDIX

Board Monitoring Scale with Kappa Coefficients[a]

	Board Monitoring Scale Items	Kappa Coefficients
1.	To what extent does the board monitor the CEO's strategic decision making?[b]	.86
2.	To what extent does the board formally evaluate the CEO's performance?[b]	.79
3.	To what extent does the board defer to the CEO's judgment on final strategic decisions?[b]	.84
4.	Over the past year, how many times did one or more members of the board constructively criticize a strategic proposal put forth by the CEO for approval?	.81
5.	How many times during the past year have one or more members of the board requested information from the CEO or another inside director for the purpose of evaluating the CEO's strategic decision making?	.86

[a] $n = 446$; z-scores for all kappa coefficients are statistically significant.

[b] Response options for items 1 and 2 were 1: "minimally"; 2; 3: "moderately"; 4; and 5: "very much so." Item 3 uses this scale as well but is reverse-scored.

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