



Getting by with the Advice of Their Friends: CEOs' Advice Networks and Firms' Strategic Responses to Poor Performance

Author(s): Michael L. McDonald and James D. Westphal

Source: *Administrative Science Quarterly*, Vol. 48, No. 1 (Mar., 2003), pp. 1-32

Published by: [Sage Publications, Inc.](#) on behalf of the [Johnson Graduate School of Management, Cornell University](#)

Stable URL: <http://www.jstor.org/stable/3556617>

Accessed: 26-02-2015 20:03 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Sage Publications, Inc. and Johnson Graduate School of Management, Cornell University are collaborating with JSTOR to digitize, preserve and extend access to *Administrative Science Quarterly*.

<http://www.jstor.org>

Getting by with the
Advice of Their Friends:
CEOs' Advice Networks
and Firms' Strategic
Responses to Poor
Performance

Michael L. McDonald
James D. Westphal
University of Texas at Austin

This paper theorizes that relatively poor firm performance can prompt chief executive officers (CEOs) to seek more advice from executives of other firms who are their friends or similar to them and less advice from acquaintances or dissimilar others and suggests how and why this pattern of advice seeking could reduce firms' propensity to change corporate strategy in response to poor performance. We test our hypotheses with large-sample survey data on the identities of CEOs' advice contacts and archival data on firm performance and corporate strategy. The results confirm our hypotheses and show that executives' social network ties can influence firms' responses to economic adversity, in particular by inhibiting strategic change in response to relatively poor firm performance. Additional findings indicate that CEOs' advice seeking in response to low performance may ultimately have negative consequences for subsequent performance, suggesting how CEOs' social network ties could play an indirect role in organizational decline and downward spirals in firm performance. ●

A number of interconnected literatures have sought to explain the robust finding from research in organization studies and strategic management that top executives often do not initiate significant changes in corporate strategy in response to poor firm performance and, paradoxically, may adhere even more firmly to current strategies in response to performance problems. A central theme in much of this literature is that systematic biases or "perceptual distortions" among top managers are at least partly responsible for strategic inertia in the face of poor performance (Starbuck, Greve, and Hedberg, 1978: 113; Whetten, 1980, 1987; Hambrick and D'Aveni, 1988; for a review, see Barker and Duhaime, 1997). Top managers are thought to overattribute poor performance to external factors, such as a competitive industry environment, and underattribute performance problems to weaknesses in their current strategy, even when competitors have performed better under the same industry conditions.

Threat-rigidity theory suggests that stress brought on by poor performance prompts executives to reduce information processing activity, which decreases their consideration of strategic alternatives (Staw, Sandelands, and Dutton, 1981; Sutton, 1990). This restriction in information processing is attributed in part to the centralization of decision making in response to poor performance and an associated decrease in communication between lower-level managers and top executives. The organizational decline literature also associates strategic inertia with centralized decision-making processes (Whetten, 1987). But empirical research has provided mixed support for these propositions. Large-sample studies of letters to shareholders and other corporate communications, as well as qualitative studies of organizations in decline, have provided evidence for managers' attribution biases and restricted consideration of strategic alternatives during periods of poor performance (Starbuck, Greve, and Hedberg, 1978; Salancik and Meindl, 1984; D'Aveni and MacMillan, 1990; Barker and Barr, 2002). There is less evidence that centralized decision making contributes to strategic inertia in response to poor performance (Cameron, Whetten, and Kim,

© 2003 by Johnson Graduate School,
Cornell University.
0001-8392/03/4801-0001/\$3.00.

●
The order of authorship was determined alphabetically. We are grateful to Andrew Henderson, Monica Higgins, Timothy Pollock, Gerard Sanders, and seminar participants at the University of Texas at Austin for providing valuable comments on earlier drafts of this paper. We also thank Linda Johanson, Joseph Porac, and the anonymous ASQ reviewers for their constructive feedback and suggestions.

1987; D'Aveni, 1989; Barker and Mone, 1998). While this literature has significantly advanced our understanding of strategic inertia by demonstrating how managers' cognitions can help explain firms' responses (or lack thereof) to economic adversity, important gaps in our understanding of this phenomenon remain. Especially noteworthy is that there has been little consideration of how micro-social factors may contribute to strategic inertia. In particular, despite the recent explosion of interest in how social networks can influence corporate policy (e.g., Haunschild and Miner, 1997; Davis and Greve, 1997; Ingram and Roberts, 2000), there has been little research on the role that executives' social networks might play in shaping firms' strategic responses to poor performance (cf. Kraatz, 1998) as they seek advice through their social interactions with other top managers that will give them qualitative assessments of current firm strategy.

Research on strategic decision making and executive scanning has shown that executives assign greater weight to information and advice from personal sources, such as informal conversations with colleagues, than to impersonal sources, such as written reports and recommendations or the output of management information systems, in making strategic decisions (Aguilar, 1967; Mintzberg, 1973; Daft, Sormunen, and Parks, 1988; Brown and Eisenhardt, 1997; Elenkov, 1997). This literature would suggest that advice-seeking interactions with colleagues may have a significant influence on chief executive officers' decisions about whether to modify strategy in response to performance problems.

Moreover, social psychological research on belief perseverance suggests how CEOs' advice seeking in response to poor firm performance may contribute to the previously noted biases in managers' perceptions that have been implicated in strategic inertia and organizational decline. A large body of research has shown that people often persevere in their beliefs even when the evidential basis for those beliefs has been largely disconfirmed, consistent with research on organizational decline and threat rigidity, suggesting that executives' confidence in their strategies often persists despite negative performance outcomes (Nisbett and Ross, 1980; Anderson and Kellam, 1992). Such belief perseverance has been shown to result not only from biased assimilation of available evidence but also from biased search for information and opinion (Nisbett and Ross, 1980; Carretta and Moreland, 1982; Hastie, Penrod, and Pennington, 1983; Schulz-Hardt et al., 2000). Research in this literature has shown that when people's beliefs are challenged, they tend to seek information from sources that are likely to affirm those beliefs, particularly personal sources of information, and avoid sources that are more likely to disconfirm those beliefs (Swann, 1996). Recent theoretical interpretations of these findings have invoked self-categorization theory (Hogg and Terry, 2000), suggesting that uncertainty created by evidence that calls one's preexisting beliefs into question may result in increased information seeking from in-group members who are likely to provide points of view that affirm those beliefs.

2/ASQ, March 2003

CEOs' Advice Networks

The uncertainty that results from relatively poor firm performance may prompt CEOs to seek more advice from executives at other firms whom they would categorize as in-group members because they share a common professional background, friendship ties, or employment in the same industry. Evidence from related social psychological and social network research indicates that these in-group managers are especially likely to offer information and points of view that affirm CEOs' preexisting strategic beliefs, defined as their beliefs about what firm strategies are likely to succeed given prevailing environmental demands. CEOs' strategic beliefs are likely to be instantiated to a significant degree in their firms' current strategies (Finkelstein and Hambrick, 1996), and when executives' advice seeking restores their confidence in the correctness of their strategic beliefs, they will be less likely to change firm strategy. In the study presented here, we use survey data on top executives' advice-seeking interactions to help explain strategic inertia in response to relatively poor firm performance, thus providing insight into the role that executives' social networks could play in firms' strategic responses to economic adversity.

CEOS' ADVICE NETWORKS AND FIRMS' STRATEGIC RESPONSES TO POOR PERFORMANCE

Recent social psychological theorizing about human motivation points to the desire to render the environment understandable and predictable as among the most basic drivers of individual cognition and behavior (Stevens and Fiske, 1995; Fiske, 2000), primarily because understanding serves the even more basic need to exercise control over personally important outcomes (Pittman, 1998). We use the term "subjective uncertainty" to refer to the psychological state that exists when an individual is "confronted with an experience that calls his or her conceptualizations into question, that implies that his or her understanding of the world is inadequate . . ." (Pittman and D'Agostino, 1985: 120; cf. Hogg and Abrams, 1993; Hogg and Mullin, 1999). Because subjective uncertainty suggests a reduced capacity to control important outcomes, it evokes psychological distress and negative affect (e.g., anxiety), and this activates a deep-seated motive to restore a homeostatic level of certainty and perceived control (Pittman and Heller, 1987). Evidence suggests that people pursue a wide range of cognitive and behavioral strategies in an effort to reestablish a sense of certainty and control (Greenberger and Strasser, 1991). To the extent that CEOs' judgments and beliefs about strategy are reflected to some degree in their firm's current corporate strategy (see Finkelstein and Hambrick, 1996), poor performance will reduce a CEO's confidence in the veracity of his or her beliefs about strategic cause-and-effect relationships and prompt efforts to reduce uncertainty. In suggesting that poor performance raises CEOs' subjective uncertainty about their strategic beliefs, however, we are assuming neither that poor performance discredits CEOs' beliefs and assumptions about strategy with absolute certainty, given inherent ambiguity in determining the effect of corporate strategy on firm performance (Pfeffer, 1981), nor that the determinants of poor performance are so ambiguous that CEOs can completely dis-

count the negative feedback. Under such circumstances, CEOs would become more uncertain about their strategic beliefs following poor performance and yet could be reassured about those beliefs through interacting with other managers.

Confirming Beliefs through the Advice Network

Self-categorization theory—which focuses on the determinants and consequences of an individual's mental representation of self in terms of memberships in relevant social categories or groups—suggests that the significant uncertainty that CEOs experience when their firms are performing poorly will promote in-group identification and related in-group biases. These, in turn, function to increase CEOs' reliance on advice from executives with whom they share a common functional background (i.e., finance, marketing, etc.), friendship ties, or employment in the same industry. People can base their identification with categorically similar others on a wide range of social attributes (Sherman, Hamilton, and Lewis, 1999), and recent research suggests that people are especially likely to identify with others in terms of a salient social category when they are experiencing substantial subjective uncertainty (Hogg and Abrams, 1993; Grieve and Hogg, 1999). In-group identification is thought to provide broad uncertainty reduction benefits because the cognitive processes associated with identification involve self-stereotyping one's own beliefs in terms of a set of beliefs that are presumed to be consensually validated by other in-group members. A number of empirical studies have demonstrated that people identify more strongly with contextually relevant in-groups when they experience uncertainty about personally relevant issues (Mullin and Hogg, 1998, 1999; see Hogg and Mullin, 1999, for a review).

This general line of argument suggests that when CEOs are experiencing substantial uncertainty about strategy-related beliefs as a result of poor firm performance, they will be more aware of social category differences and identify more intensely with other executives with whom they share a salient category. In this study, we examine three attributes likely to provide a basis for in-group identification among corporate executives: shared functional backgrounds, friendship ties, and employment in the same industry. First, a number of studies have provided evidence that functional background can provide a salient basis for in-group categorization (i.e., categorization as a finance person, marketing person, etc.). There is evidence that in-group biases from common functional backgrounds influence the selection of top managers and outside directors, and similarity in the functional backgrounds of CEOs and board members has also been shown to bias the evaluation of executive performance and to promote inclusiveness in strategic decision-making processes (Useem and Karabel, 1986; Fligstein, 1987; Westphal and Zajac, 1995; for a review, see Westphal and Milton, 2000). Qualitative work on corporate governance also suggests that top executives and directors routinely invoke functional background in describing one another in response to open-ended questions about their peers (Mace, 1971; Vance, 1983). Friendship ties, especially those perceived as such, also pro-

CEOs' Advice Networks

vide a primary basis for social categorization among executives. When asked to assess their relationship with other managers, executives routinely categorize their peers as either friends or acquaintances (Mace, 1971; Demb and Neubauer, 1992). Moreover, a central tenet of the friendship literature is that people are more likely to identify psychologically with friends than with acquaintances or strangers, not only because friendship indicates a range of similarities in beliefs and attitudes (Lazarsfeld and Merton, 1954; Suitor and Keeton, 1997) but also because friends are normatively expected to identify with each other (Allan, 1979). Research has also shown that executives categorize each other according to their primary industry of employment (Lorsch, 1989; Demb and Neubauer, 1992; Porac, Wade, and Pollock, 1999). Porac et al. (1989) demonstrated that employment in the same industry provides an important basis for social identification among managers, and Westphal and Milton (2000) provided evidence that individuals' primary industry of employment is a salient basis for in-group identification among corporate directors.

Biases in Advice Seeking

Research on the cognitive consequences of in-group identification indicates that the elevation in identification strength that results from performance-induced uncertainty will increase the extent to which CEOs manifest a number of positive biases in their perceptions of these in-group member executives (Brewer and Brown, 1998). We expect that these biases will have substantive implications for whom CEOs choose to seek out and rely on for advice and information, increasing their reliance on the advice and counsel of in-group member executives.

At the broadest level, an increase in identification strength will heighten a focal actor's social attraction to, and general preference for social interaction with, in-group members (Hogg and Mullin, 1999). While people in general prefer to interact with similar others, individuals who manifest an especially high level of identification with in-group members will display a stronger preference for interacting with them. Thus, to the extent that CEOs of poorly performing firms identify more strongly with in-group executives at other firms than do CEOs not experiencing poor performance, they will manifest more positive attitudes toward those executives and will interact with and seek advice from them with greater frequency.

Increases in identification strength associated with uncertainty will also increase the perceived diagnosticity and validity of the expressed positions of in-group members. Social psychological research on in-group biases in evaluation processes suggests that in-group members are seen as having greater expertise than out-group members (Brewer and Brown, 1998), and studies of social influence indicate that in-group members' views are more persuasive than out-group members' views because they are considered to be more valid (van Knippenberg, 1999). Thus, CEOs who are strongly identified with in-group executives because they are experiencing high subjective uncertainty will manifest a greater tendency

than CEOs experiencing less uncertainty to exaggerate the diagnosticity of in-group executives' views and therefore should display a greater propensity to seek advice from those executives.

Finally, increases in identification associated with subjective uncertainty will elevate people's tendency to exaggerate the degree to which in-group members offer perspectives that affirm their views (Hogg and Mullin, 1999). People generally prefer to interact with others whose views support their own (e.g., Swann, 1996). But because an uncertain individual will be especially likely to overstate the extent to which in-group members support his or her views, he or she should display a greater propensity to seek out the views of in-group members than will individuals who are *not* experiencing elevated levels of uncertainty. Thus, CEOs of poorly performing firms should be especially likely to exaggerate the extent to which in-group member executives affirm their beliefs about strategy and, consequently, will seek out the views of in-group members with greater frequency.

Taken together with prior discussion indicating that subjective uncertainty from poor performance should increase a CEO's tendency to identify with executives of other firms who share functional backgrounds, friendship ties, and employment in the same industry, our theoretical argument suggests the following formal hypotheses:

Hypothesis 1a (H1a): CEOs of firms with relatively poor performance will seek more advice from executives of other firms who have similar functional backgrounds and less advice from executives of other firms who do *not* have similar functional backgrounds than do CEOs of firms with relatively high performance.

Hypothesis 1b (H1b): CEOs of firms with relatively poor performance will seek more advice from executives of other firms with whom they share personal friendship ties and less advice from executives of other firms with whom they do *not* share personal friendship ties than do CEOs of firms with relatively high performance.

Hypothesis 1c (H1c): CEOs of firms with relatively poor performance will seek more advice from executives of other firms in the same industry and less advice from executives of other firms in *different* industries than do CEOs of firms with relatively high performance.

CEO Advice Networks and Firm Strategic Change

Consistent with past theory and research in the top management literature, we assume that corporate strategies come to reflect the strategic assumptions and beliefs of top executives in two ways: a CEO's beliefs obviously influence corporate strategy when he or she is directly involved in formulating or revising the strategy, but the CEO can also become socialized into belief systems that endorse the corporate strategy through direct social influence from other top managers and board members who were involved in formulating the strategy (Tushman and Romanelli, 1985; Finkelstein and Hambrick, 1990, 1996). When a firm is performing poorly, however, a CEO is likely to seek advice on the firm's strategy from those in his or her advice network, which is likely to be

reflected in the firm's strategic change or lack of change. Thus, who the CEO consults is important, particularly if the CEO is seeking affirmation of current strategy. Evidence from micro-sociological, social psychological, and management research indicates that executives of other firms with whom a focal CEO shares a similar functional background, friendship ties, and industry of employment are especially likely to provide affirming views on corporate strategy.

Functional background similarity. There is substantial evidence suggesting that firm executives who share a focal CEO's functional background will be particularly likely to support his or her strategic judgments. According to upper echelon theorists, managers who share a functional background develop common schemata or beliefs pertinent to strategic decision making (Dearborn and Simon, 1958; Beyer et al., 1997), causing them to diagnose strategic issues in a similar way and to favor related solutions (Hambrick and Mason, 1984; Waller, Huber, and Glick, 1995). Several studies have shown a relationship between the functional background of top managers and corporate strategy, including diversification (Chaganti and Sambharya, 1987; Smith and White, 1987; Hitt and Tyler, 1991; Fligstein and Brantley, 1992). There is evidence that managers with a finance background are more likely than managers with another functional background to favor strategies that reduce product market risk or geographic market risk (Smith and White, 1987; Fligstein and Brantley, 1992). Theory and research on social networks also suggests that network ties to individuals who are similar on salient demographic characteristics, including functional background, are more likely to facilitate the exchange of social support, whereas ties to dissimilar others tend to facilitate the exchange of novel information and perspectives (Ibarra, 1992). A large literature in social psychology suggests that similarity on salient characteristics enhances mutual affect (Graves and Powell, 1995), increasing the desire to provide social support, and people can more easily empathize with contacts who have similar backgrounds (Westphal and Milton, 2000), increasing their ability to provide such support. Thus, to the extent that affirmation of each other's judgment on strategic issues is one element of social support between top managers, managers who are similar with respect to functional background may be more likely to affirm each other's strategic beliefs.

Friendship ties. Potential advisors who share friendship ties with a focal CEO should be especially likely to confirm the CEO's strategy-related beliefs. An extensive literature on social homophily suggests that people who are personal friends tend to be similar across a range of characteristics (Lazarsfeld and Merton, 1954; Marsden, 1988; McPherson and Smith-Lovin, 1987), including their professional beliefs, opinions, and values (Ibarra, 1992; Monge and Contractor, 1997; Suitor and Keeton, 1997). Thus, compared with acquaintances, top managers who are friends should tend to have relatively similar opinions about key aspects of corporate strategy, such as appropriate levels of product/market diversification or geographic diversification.

Moreover, friends are normatively expected to provide social support, which includes affirming each other's capabilities, bolstering each other's confidence, and expressing sympathy, especially in difficult times (Allan, 1979; Silver, 1990; Wellman and Wortley, 1990; Dugan and Kivett, 1998). Ibarra (1995) suggested that in professional contexts, strong social ties (e.g., friends) are normatively expected to fulfill psychosocial functions that involve enhancing a colleague's sense of competence in his or her professional role. In the context of top management, this would involve affirming the manager's judgment on strategic issues. To violate this norm of friendship relations is to "put strains on the relationship" (Lazarsfeld and Merton, 1954: 33). Accordingly, friends should tend to affirm each other's self-serving attributions for performance problems.

Also, friends tend to be more familiar with each other's beliefs about important issues than acquaintances are (Allan, 1979; Dugan and Kivett, 1998). Ingram and Roberts (2000: 389) suggested that friendship ties between managers of different firms facilitate awareness of each party's "strategic disposition." Such mutual knowledge facilitates efforts to affirm each other's strategic beliefs, and over time, mutual affirmation of each other's opinions can reinforce actual similarity in attitudes (Lazarsfeld and Merton, 1954). Cross-cultural research on friendship also suggests that norms of mutual affirmation in friendship relations are especially strong in communities with generally high levels of social solidarity, such as the community of corporate elites (Cohen, 1961: 373). Folk wisdom suggests that friends feel compelled to give each other honest feedback about their ideas and decisions. Because friends tend to have similar beliefs and attitudes, however, this would also lead to mutual affirmation of each other's beliefs. Thus, for a variety of reasons, managers who are friends of the CEO should be more likely than acquaintances to affirm the CEO's beliefs on strategic issues.

Employment in the same industry. Managers should be more likely to affirm each other's views about corporate strategy if they share the same primary industry of employment. There is abundant evidence from multiple literatures, including the literatures on strategic decision making, corporate elites, and the social construction of markets, suggesting that executives in the same industry share a variety of beliefs and assumptions that may influence strategic choices (Huff, 1982; Spender, 1989; Geletkanycz and Hambrick, 1997). Research by Porac and colleagues demonstrated that executives in the Scottish knitwear industry share certain core assumptions about environmental conditions and hold similar normative beliefs about how to cope with threats and opportunities in the environment (Porac, Thomas, and Baden-Fuller, 1989; Porac et al., 1995). In a study of top executives in three British industries, Spender (1989: 17) identified "an altogether surprising degree of homogeneity amongst the constructs being applied by managers . . . in each industry." Sutcliffe and Huber (1998) showed that executives from the same industry tend to have relatively similar perceptions of such environmental characteristics as munificence, complexity, and controllability, perceptions that have been shown to

CEOs' Advice Networks

influence strategic choice (Keats and Hitt, 1988). Moreover, Hitt and Tyler (1991) found that managers in the same industry use similar criteria to evaluate acquisition candidates. Spender (1989) characterized widespread beliefs in an industry about appropriate strategic action as "industry recipes" and suggested that they reflect shared experiences and prior social interaction among industry executives. An industry is a "social setting in which events, trends, and concepts are interpreted and shared," resulting in socially constructed beliefs and assumptions about strategy (Huff, 1982; Hambrick, Geletkanycz, and Fredrickson, 1993: 405). Thus, given the commonality of strategic beliefs within an industry, we expect that managers will be more likely to affirm each other's views about corporate strategy if they operate in the same primary industry.

The above discussion indicates that advice from managers with whom a CEO shares friendship ties, employment in the same industry, or similar functional backgrounds will be more likely to confirm a CEO's strategic judgments than will advice from executives with whom a CEO lacks such connections. To the extent that CEOs' strategic judgment and beliefs are reflected in the firm's corporate strategy (Finkelstein and Hambrick, 1996), high levels of advice from these in-group member executives should tend to reduce CEOs' doubts about the appropriateness of their firms' corporate strategies, reducing their propensity to initiate strategic change. Conversely, advice seeking from managers with whom CEOs lack social connections may increase the likelihood of initiating change. Strategic advice from acquaintances or dissimilar others is more likely to provide CEOs with new information and different points of view that challenge their assumptions about corporate strategy (Granovetter, 1973; Campbell, Marsden, and Hurlbert, 1986; McPherson, Popielarz, and Drobnic, 1992), and such contacts are less subject to the norms of mutual affirmation discussed above. This line of argument can be summarized in the following formal hypotheses:

Hypothesis 2a (H2a): The higher the levels of CEO advice seeking from executives of other firms who have a similar functional background and the lower the levels of CEO advice seeking from executives of other firms who do *not* have a similar functional background, (1) the less subsequent change in corporate strategy and (2) the more negative (less positive) the relationship between relatively poor firm performance and subsequent change in corporate strategy.

Hypothesis 2b (H2b): The higher the levels of CEO advice seeking from executives of other firms with whom the CEO shares personal friendship ties and the lower the levels of CEO advice seeking from executives of other firms with whom the CEO does *not* share personal friendship ties, (1) the less subsequent change in corporate strategy and (2) the more negative (less positive) the relationship between relatively poor firm performance and subsequent change in corporate strategy.

Hypothesis 2c (H2c): The higher the levels of CEO advice seeking from executives of other firms in the same industry and the lower the levels of CEO advice seeking from executives of other firms in different industries, (1) the less subsequent change in corporate strategy and (2) the more negative (less positive) the relationship

between relatively poor firm performance and subsequent change in corporate strategy.

METHOD

Sample and Data Collection

The sample frame for this study included 600 companies randomly selected from the Forbes index of the largest industrial and service firms. We measured CEO advice seeking with data from an original survey questionnaire and the other independent and dependent variables, including firm performance and strategic change, with archival data. The survey questionnaire was sent in January 1999 to all 600 CEOs in the sample frame. We took several steps to ensure the highest possible response rate to the survey (Linsky, 1975; Groves, Cialdini, and Cooper, 1992; Fowler, 1993; Westphal, 1999): (1) feedback from a pretest was used to revise the format of the questionnaire and the instructions, making it easier to complete; (2) we highlighted in the cover letter that the survey was part of a continuing research project conducted by faculty in several major business schools, noting that hundreds of their peers had participated in prior surveys; (3) two additional waves of questionnaires were sent to nonrespondents, with the third wave preceded by an endorsement and appeal for participation by directors at a management consulting firm. Two hundred and fifty-three CEOs responded, a response rate of 42 percent. Data on board interlocks or corporate strategy were unavailable for 12 companies, leaving a final sample of 241 companies, or 40 percent of the sample frame.

We used the Kolmogorov-Smirnov two-sample test to check for nonresponse bias in the survey data. This procedure assesses whether the distribution of respondents is different from that of nonrespondents for each of the variables measured with archival data. The results indicated no significant differences between respondents and nonrespondents on these variables. The survey sample was representative of the sample frame with respect to market-to-book value, product market diversification, internationalization, and sources of board independence—the portion of the board appointed after the CEO, outside director ownership, and institutional ownership (these measures are discussed below)— p -values ranged from .156 to .828. A difference in proportions test also showed that our sample was representative with regard to the proportion of boards that have separate CEO and board chair positions. Accordingly, there is consistent evidence that sample selection bias does not threaten the validity of our measures.

We obtained data on ownership, CEO and board characteristics and the characteristics of CEO contacts from *Standard and Poor's Register of Corporations, Directors, and Executives*; *The Dun and Bradstreet Reference Book of Corporate Management*; *Who's Who in Finance and Industry*; and corporate proxy statements. Other archival data on firms in the sample, including data on firm diversification, international operations, and industry membership, came from the PC-COMPUSTAT Database and Compact Disclosure.

10/ASQ, March 2003

Measures

Advice-seeking interactions. CEOs' advice-seeking interactions were measured with a multi-item scale in the survey questionnaire. Pretest interviews and descriptive findings from our survey indicated that when CEOs of the firms in our sample sought advice on strategic issues from executives at other firms, they typically sought opinions on issues related to the suitability of the focal firm's corporate strategy (i.e., whether or to what extent the strategy was appropriate or required modification). While CEOs also sometimes seek advice about implementation of the current strategy, our data indicate that advice seeking from managers at other firms on such issues is relatively rare and is not the focus of our study. We focus on advice ties to top executives at other firms (i.e., versus advice seeking from directors or managers at the focal firm) because available evidence indicates that CEOs are often reluctant to seek advice from their directors in response to performance problems, possibly due to impression management concerns, for example, concerns about disclosing or highlighting possible problems to individuals who are expected to monitor the CEO's performance or concerns about appearing uncertain, indecisive, or dependent (see Westphal, 1999). Such concerns are less likely to inhibit advice seeking from executives at other firms.

In wording the survey questions, we drew from qualitative studies of corporate governance and strategic decision making that suggest how managers themselves describe their professional interactions. We refined the survey questions based on feedback from a qualitative pretest that involved pilot interviews with 23 top managers. The main purpose of the interviews was to determine whether respondents interpreted each question as we had expected. We also used feedback from the pretest to revise the wording of the questions and to modify the instructions and format of the survey.

The survey scale included three questions to assess the respondent's general advice-seeking propensity. Respondents were asked to assess (1) how many times they had sought advice on strategic issues from a top manager at another company during the past twelve months; (2) to what extent they had sought the opinion of a top manager at another company about the firm's current strategy during that period; and (3) to what extent they had solicited advice from a top manager at another company about the firm's strategic options. Top managers were defined as executives above the vice-president level (i.e., senior vice-president level and higher), consistent with past studies in the top management team literature (e.g., Chaganti and Sambharya, 1987; Hambrick, Cho, and Chen, 1996). For the latter two items, we used a conventional 5-point Likert-type format. The reliability of this scale was acceptably high (Cronbach's $\alpha = .90$). After each of these questions, respondents were also asked to provide the name(s) of managers at other firms from whom they had sought advice or opinions on strategic issues during the past twelve months and to indicate the number of times they had done so. There was a high level of consistency in the number of interactions with specific individuals reported for each question in the scale (i.e., over 95 percent of all

interactions reported by respondents were reported for each of the three questions), which reflects the high alpha coefficient for the questions about general advice-seeking propensity.

Given the importance of this measure to our study, we sent two sets of follow-up questionnaires to assess interrater reliability. We sent questionnaires to (1) other inside directors at the companies of responding CEOs and (2) top managers listed as advice contacts by the responding CEOs. Inside directors were asked to assess the CEO's advice-seeking tendency (e.g., "To what extent has the CEO sought the opinion of top managers at other companies about the firm's current strategy during the past 12 months?"); top managers whom respondents listed as advice contacts were asked to provide the name(s) of managers at other firms who had approached them for advice on strategic issues during the past twelve months and to indicate the number of times they had done so. Pretest interviews suggested that CEOs often relay information from conversations with managers at other firms to other top managers at the focal firm, particularly inside directors. Thus, we expected that inside directors would be informed about the CEO's advice-seeking activity. Results of the interrater reliability assessment are provided in table 1. We compared CEOs' and inside directors' responses by calculating kappa coefficients for the advice-seeking items. Kappa is a correlation coefficient that corrects for the expected level of agreement (i.e., chance correlation). According to Fleiss (1981), values above .75 indicate excellent agreement beyond chance; as shown in the table, kappas exceed .75 for all the survey items. The sample for this analysis included all companies with a responding CEO and at least one responding inside director (N = 168). Similarly, we calculated kappa coefficients to assess agreement between CEOs and the top

Table 1

Interrater Reliability Assessment				
Survey item	Observed	Expected	Kappa	Z*
Agreement between focal CEO and inside directors[†]				
In the past twelve months, how many times have you sought advice on strategic issues from a top manager at another company? [*]	88.19%	26.79%	.84	22.31
In the past twelve months, to what extent have you sought the opinion of a top manager at another company about the firm's current strategy?	83.54%	25.54%	.78	21.16
In the past twelve months, to what extent have you solicited advice from a top manager at another company about the firm's strategic options?	85.23%	24.76%	.80	22.32
Agreement between focal CEO and top managers listed as advice contacts[‡]				
Number of times the CEO sought advice from particular top managers at other companies during the past twelve months.	92.54%	60.03%	.81	28.52

* Z statistics for all kappas are statistically significant.

† N = 168. The phrasing of this question is taken from the CEO survey. The phrasing was altered appropriately for the survey of inside directors.

‡ To calculate a kappa for this item, we divided the number of interactions into quintiles.

§ N = 605. For this item, CEOs listed particular top managers from whom they had sought advice, and individuals from this list indicated particular top managers who had approached them for advice.

CEOs' Advice Networks

managers whom they listed as advice contacts about the number of times the CEO approached them for advice in the previous year. As shown in table 1, the kappa coefficient was acceptably high (.81). The sample for this analysis included all managers listed as advice contacts by the CEO who responded to the survey (N = 605). Respondents were not significantly different from nonrespondents with respect to their functional background, friendship status with the CEO (as reported by the CEO), or being in the same industry as the CEO.

Following Hambrick and Mason (1984), we divided functional background into three categories: throughput functions (i.e., operations, engineering, or research and development), output functions (i.e., marketing or sales), and peripheral functions such as finance and law. We coded employment in the same industry as 1 if the CEO and the CEO's advice contact worked as full-time executives in an industry with the same primary, two-digit Standard Industrial Classification Code (SIC) code. Porac, Wade, and Pollock (1999) provided evidence that corporate leaders routinely categorize firms on the basis of primary, two-digit SIC codes (see also Antle and Smith, 1986).

To assess friendship ties between CEOs and their advice contacts, respondents were asked to consider their personal relationship with each manager listed as an advice contact and to indicate whether they considered each person to be an acquaintance or a friend. Prompting respondents to distinguish between acquaintances and friends permits a more precise measure of perceived friendship (cf. Allan, 1979; Segal, 1979). This approach to measuring friendship is common in the social network literature (e.g., Brass, 1984; Krackhardt, 1992). Moreover, this measure of friendship was highly correlated with two other questions that assessed the strength or closeness of the CEOs' relationships with their advice contacts (cf. Burt, 1992). To assess interrater reliability, the CEOs' advice contacts were asked to consider their personal relationship with each person who had approached them for advice on strategic issues during the past twelve months. A separate analysis showed a high level of agreement (94 percent) between CEOs and responding advice contacts about the status of their relationship as friends vs. acquaintances. We then created six count variables to indicate the number of times (in the past year) that the focal CEO had sought strategic advice from managers at other companies who (1) had a similar functional background to the CEO, (2) had a different functional background to the CEO, (3) were friends of the CEO, (4) were not friends of the CEO, (5) were in the same industry as the CEO, or (6) were not in the same industry as the CEO.

Firm performance. We operationalized firm performance as *market-to-book value* of equity, measured at the end of the year prior to the survey date. In separate analyses, we measured performance as return on assets, and the general pattern of results reported below was unchanged. Theories of organizational change generally presume that managers react to deviations in performance from some expected level (Cyert and March, 1963; Greve, 1998), and performance

expectations are routinely influenced by the performance of industry firms. Thus, we adjusted performance for the average market-to-book value among all firms in the industry over the prior three-year period. Separate analyses confirmed that the results were nearly identical when prior industry performance was measured over shorter or longer time periods (e.g., two or five years) or using an unadjusted measure of performance. The results were also robust to dichotomous indicators of poor performance (e.g., adjusted market-to-book value less than the median value or less than one standard deviation below the mean). The continuous variable effectively indicates the extent to which performance is poor. Following prior studies on top management and strategic change, we operationalized poor performance using a continuous measure (e.g., Dalton and Kesner, 1985; Boeker, 1992; Boeker and Goodstein, 1993; Ocasio, 1994; Zajac and Westphal, 1996). We tested interactions between firm performance and advice-seeking interactions using the product-term approach, with component variables centered to avoid multicollinearity.

Change in corporate strategy. We assessed two dimensions of corporate strategy: product market diversification and geographic diversification. These dimensions, while not exhaustive, capture important aspects of a firm's corporate strategy and have been widely studied in the strategy literature. To increase the generalizability of our findings, we examined change in both dimensions of diversification.

We operationalized product market diversification using the entropy measure (Palepu, 1985). Hoskisson et al. (1993) provided evidence for the convergent, discriminant, and criterion-related validity of this measure. We operationalized geographic diversification using a composite measure that includes three components: foreign sales, calculated as a percentage of total sales; foreign production, measured as foreign assets divided by total assets; and geographic dispersion, which indicates the number of country subsidiaries, calculated as a percentage of the highest value in the sample. We summed the three variables to form a composite measure. Prior research has shown acceptable reliability for the component variables (Carpenter and Fredrickson, 2001), and we found similarly high reliability in our sample ($\alpha = .89$). We measured (absolute) change in product market diversification and geographic diversification over the two-year period following the survey date (*change in product market/geographic diversification*). A two-year time period captures change in firms with relatively protracted decision-making processes (Wiersema and Bantel, 1992) while still reflecting the influence of managers' advice ties at the time of the survey. In separate analyses, we measured strategic change over a three-year period, and the results presented below were substantively unchanged.

Change scores, when used as dependent variables, can yield biased coefficients if the independent variables are correlated with the initial state of the dependent variable (i.e., x_1 correlated with y_1 in the change score $y_2 - y_1$) (Allison, 1990; Edwards, 1995). In this case, however, correlations between the independent variables (i.e., advice-seeking interactions with managers at other companies) and the initial state of the

change variables (i.e., diversification in the prior period) are consistently nonsignificant at $\alpha = .10$. Moreover, the distribution of product market diversification and geographic diversification is stable from year t to year $t+2$. Under these circumstances, results using change scores can be less biased than results from the regressor-variable method for assessing change (i.e., regressing y_2 on y_1 and the independent variables) (Kenny and Cohen, 1979; Allison, 1990). In any event, separate analyses showed that our hypothesized results are essentially the same using either approach.

Control variables. Given that there are likely to be individual differences in CEOs' propensity to seek advice from other managers, we controlled for *prior advice seeking* in models of current advice seeking. The CEO survey included a separate set of questions about advice seeking in an earlier year (i.e., year $t-2$). CEOs were asked to assess the extent to which they sought advice on strategic issues from managers at other firms in that earlier year and to specify from whom they sought advice. Using responses to these questions, we developed measures of prior advice seeking that parallel the advice-seeking measures discussed above. In effect, these control variables help us to rule out potential sources of unobserved heterogeneity. The survey also included a measure of CEO advice seeking from outside directors on the focal board. We did not include this measure as a control variable in the final models because prior research has shown that poor firm performance is not related to CEO advice seeking from outside directors (cf. Westphal, 1999); moreover, given that outside directors' beliefs and perspectives may already be reflected in the focal firm's current strategy, CEO advice seeking from outside directors that results from poor performance would not necessarily affect the likelihood of subsequent change. Separate analyses confirmed that advice seeking from outside directors was not significantly related to change in corporate strategy, and our hypothesized results were unchanged with this variable included in the models.

We also controlled for the board's independence from management in models of CEO advice seeking and strategic change. Monitoring and control by independent boards might prompt CEOs to search more expansively for information in the strategic decision-making process, and there is some prior evidence linking board independence to more frequent strategic change (e.g., Gibbs, 1993; Bergh, 1995). We examined four sources of board independence that have been widely studied in the corporate governance literature (for reviews, see Finkelstein and Hambrick, 1996; Johnson, Daily, and Ellstrand, 1996): *separation of the CEO and board chair positions*, coded as 1 if different individuals occupied the CEO and board chair positions; *the portion of the board appointed after the CEO*, measured as the number of outside directors appointed during the CEO's tenure divided by the total number of outsiders; *director ownership*, measured as the percentage of total common equity owned by outside directors; and *institutional investor ownership*, measured as the percentage owned by pension funds, banks and trust

companies, savings and loans, mutual fund managers, and labor union funds.

We controlled for *CEO tenure* in models of advice seeking, given that CEOs might have a greater need for strategic advice early in their tenure (Hambrick and Fukotomi, 1991). The composition of the CEO's advice network may also be affected by the total number of board appointments the CEO holds, or perhaps by the total number of friends the CEO has at other firms. In effect, CEOs' existing social networks may affect their opportunities to seek advice from managers with certain characteristics. We did not expect these network attributes to affect advice seeking independent of the control variables for prior advice seeking described above, however, and separate analyses confirmed that neither the number of board appointments held by the CEO nor a survey measure of total friendship ties independently predicted advice seeking in any of the models (i.e., when the control variable for prior advice seeking was included).

Given evidence that large firms are more vulnerable to inertial tendencies (Rajagopalan and Spreitzer, 1997), we controlled for firm size in models of strategic change, with size measured as *log of sales*. We also controlled for market-to-book value in models of strategic change, given that poor performance could influence strategic change independent of CEO advice seeking (Zajac and Shortell, 1989). Similarly, independent boards might help overcome inertial tendencies that would otherwise hinder strategic change, although there is mixed evidence about whether independent boards are more involved in strategic decision making (Finkelstein and Hambrick, 1996). As a precaution, we controlled for sources of board independence in models of strategic change. Finally, we included industry dummy variables at the two-digit SIC code level in all models (to conserve space, coefficients for these variables are not reported). In separate analyses, we controlled for the average performance of competitors, and the findings were substantively unchanged. Control variables were measured in year $t-1$.

Analysis

We used negative binomial regression to estimate CEO advice seeking. Negative binomial models are suitable for estimating a count variable with overdispersion (Maddala, 1983). In this case, the distribution of each of the advice-seeking measures is characterized by overdispersion (i.e., the variance exceeds the mean). As noted above, we controlled for advice seeking in the prior period, which can create serial correlation. To adjust for this, we specified prior advice seeking as an instrumental variable in the models (Greene, 1993). We used OLS regression to estimate change in corporate strategy. We expected that error terms from the models of different kinds of advice ties (friends, functionally similar others, and executives in the same industry) could be correlated. Thus, in separate models we estimated the advice-seeking models simultaneously using Zellner's seemingly unrelated regression (SUREG) (Greene, 1993). The results were nearly identical to results of the negative binomial models presented below because, with the exception of one control variable

CEOs' Advice Networks

(prior advice seeking), the independent variables are the same across models (i.e., when all models include the same independent variables, SUREG yields the same results as OLS).

RESULTS

Table 2 reports descriptive statistics and bivariate correlations. As shown in the table, on average, the CEOs in our sample sought strategic advice from executives at other firms approximately nine times during the prior year. The majority of these interactions were with executives who were tied to the CEO by friendship (74 percent) and who were similar to the CEO with respect to functional background (59 percent) and industry of employment (75 percent).

Table 3 reports results from the negative binomial regression analyses of the relationship between firm performance, as indicated by market-to-book value, and the intensity of advice seeking from other firm executives with the characteristics of interest. The findings provide some support for hypothesis 1a. As shown in the first column of table 3, CEOs of poorly performing firms, as indicated by relatively low market-to-

Table 2

Descriptive Statistics and Pearson Correlation Coefficients (N = 241)									
Independent variable*	Mean	S.D.	1	2	3	4	5	6	
1. Market-to-book value	.02	.58							
2. Portion of board appointed after CEO	.30	.25	-.01						
3. Separate CEO and board chair positions	.18	.39	.04	-.20					
4. Director ownership	.05	.08	.10	-.26	.22				
5. Institutional investor ownership	.34	.20	.08	-.04	.07	-.11			
6. CEO tenure	6.35	6.38	.05	.33	-.21	-.15	-.09		
7. Log of sales	8.41	1.14	.03	.03	-.04	-.04	.16	.11	
8. Advice seeking from:									
a. Managers with dissimilar backgrounds	3.64	5.25	.13	.10	-.14	-.05	.02	-.16	
b. Managers who are not friends	2.33	5.17	.19	.11	-.09	-.18	-.03	-.18	
c. Managers in a different industry	2.23	4.79	.21	.05	-.16	-.14	-.15	-.07	
9. Advice seeking from:									
a. Managers with similar backgrounds	5.34	7.39	-.23	-.16	.20	.04	.03	-.12	
b. Managers who are friends	6.67	8.12	-.17	-.13	.25	.07	.07	-.26	
c. Managers in the same industry	6.76	8.92	-.18	-.08	.20	.06	.11	-.19	
10. Change in product market diversification	.04	.30	-.17	-.03	.14	-.04	.09	-.06	
11. Change in geographic diversification	.03	.17	.01	.18	.06	.07	.01	-.04	
Independent variable*	7	8a	8b	8c	9a	9b	9c	10	11
8. Advice seeking from:									
a. Managers with dissimilar backgrounds	-.02								
b. Managers who are not friends	.01	.26							
c. Managers in a different industry	-.02	.29	.33						
9. Advice seeking from:									
a. Managers with similar backgrounds	-.04	-.06	.01	-.04					
b. Managers who are friends	-.02	-.03	-.04	.02	.25				
c. Managers in the same industry	-.02	-.04	.02	-.07	.29	.32			
10. Change in product market diversification	-.23	.08	.18	.20	-.21	-.27	-.18		
11. Change in geographic diversification	-.20	.06	.22	.19	-.20	-.20	-.05	.13	

* To conserve space, statistics for prior advice-seeking variables are not included; means and standard deviations for these variables (and the correlations between them) were very similar to descriptive statistics for the current advice-seeking variables (data available from the authors).

Table 3

Negative Binomial Regression Analyses of CEO Advice Seeking from Top Managers at Other Companies*

Independent variable	Advice Tie Characteristic					
	Similar background	Dissimilar background	Friend	Not friend	Same industry	Different industry
(Low) Market-to-book value	.110** (.047)	-.081 (.070)	.181* (.078)	-.172** (.066)	.463** (.186)	-.358* (.160)
(Low) Portion of board appointed after CEO	.218* (.107)	-.293 (.160)	.440* (.182)	-.321* (.147)	.722 (.410)	-.537 (.344)
Separate CEO and board chair positions	.167** (.053)	-.195* (.079)	.328*** (.091)	-.120 (.073)	.426* (.208)	-.355* (.176)
Director ownership	.532 (.355)	-.549 (.522)	.640 (.596)	-1.018* (.483)	1.558 (1.227)	-2.031* (.890)
Institutional investor ownership	.120 (.146)	.094 (.219)	.332 (.245)	-.109 (.201)	.897 (.503)	-.967 (.499)
CEO tenure	-.007 (.004)	-.014* (.006)	-.022*** (.007)	-.014** (.005)	-.037** (.014)	-.025 (.013)
Prior advice seeking	.009** (.003)	.016* (.007)	.023*** (.005)	.040*** (.007)	.049*** (.012)	.045*** (.011)
Constant	.627*** (.147)	.516* (.234)	.630** (.248)	.816*** (.219)	1.218* (.580)	.816 (.517)
Likelihood ratio χ^2	34.30***	33.21***	38.82***	71.96***	38.60***	42.74***

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; t-tests are one-tailed for hypothesized effects, two-tailed for control variables.

* Standard errors are in parentheses.

book value, manifest a greater propensity to rely on the advice of other firm executives with similar functional backgrounds than do CEOs of firms with relatively high performance. The results in the second column of the table, however, indicate that poor performance does not significantly increase or decrease advice seeking from managers with dissimilar backgrounds. Results in columns three and four support hypothesis 1b: CEOs of poorly performing firms evidence an elevated tendency to seek advice from managers who are friends and a reduced tendency to rely on the advice of executives who they indicated were *not* friends, compared with CEOs of firms with relatively high performance. Moreover, the results are consistent with hypothesis 1c, which predicted that CEOs of poorly performing firms would report both a greater reliance on the advice of other executives in the same industry and a lesser reliance on those in different industries than would CEOs of firms with relatively high performance. Not surprisingly, separate analyses showed that the main effects of low firm performance on the overall level of CEO advice seeking were generally not significant. Firm performance was only consistently significant in predicting the attributes of the CEOs' advice contacts, in terms of greater or less advice seeking from executives who have (or do not have) friendship ties to the CEO, and advice seeking from executives who are similar vs. dissimilar to the CEO.

Table 4 reports results of analyses relevant to the predictions in hypotheses 2a–2c. H2a predicted that higher levels of CEO advice seeking from executives of other firms who have a functional background similar to the CEO would be negatively associated with subsequent change in corporate strategy, while advice seeking from executives who have a different functional background would be positively associated with such change. Results in table 4 generally support this hypoth-

CEOs' Advice Networks

Table 4

OLS Regression Analyses of Change in Corporate Strategy*

Independent variable	Change in product market diversification	Change in geographic diversification
Advice seeking from:		
Mgrs. with similar backgrounds	-.008** (.003)	-.003* (.002)
Mgrs. who are friends	-.100*** (.032)	-.060*** (.018)
Mgrs. in the same industry	-.011** (.004)	-.006** (.002)
Mgrs. with dissimilar backgrounds	.008* (.004)	.003 (.002)
Mgrs. who are not friends	.044** (.018)	.033*** (.010)
Mgrs. in a different industry	.010* (.005)	.004 (.003)
Log of sales	-.045** (.017)	-.031*** (.010)
(Low) Market-to-book value	.074* (.036)	-.007 (.020)
(Low) Portion of board appointed after CEO	.019 (.078)	.090* (.045)
Separate CEO and board chair positions	.072 (.041)	.036 (.023)
Director ownership	-.143 (.275)	.205 (.155)
Institutional investor ownership	.170 (.111)	.036 (.062)
(Low) Market-to-book x Advice seeking from :		
Mgrs. with similar backgrounds	-.015** (.006)	-.009* (.004)
Mgrs. who are friends	-.051** (.018)	-.031*** (.010)
Mgrs. in the same industry	-.015 (.009)	-.002 (.002)
Mgrs. with dissimilar backgrounds	.008* (.004)	.013** (.005)
Mgrs. who are not friends	.044** (.018)	.033*** (.013)
Mgrs. in a different industry	.011* (.005)	.012* (.006)
Constant	-.621 (.477)	.034 (.269)
F	2.92**	2.75**
R ²	.67	.64

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; t-tests are one-tailed for hypothesized effects, two-tailed for control variables.

* Standard errors are in parentheses.

esis. Advice seeking from executives with a similar functional background is negatively associated with subsequent change in either product market diversification or geographic diversification, while advice seeking from executives with a different functional background is positively associated with subsequent change in product market diversification (but not associated with change in geographic diversification). Moreover, these independent variables moderate the effect of prior firm performance on change: the effect of relatively low performance on change becomes significantly more negative (less positive) as advice seeking from executives with a similar background increases and advice seeking from executives with a different background decreases, for both kinds of diversification.

Further, results provide strong support for H2b. Higher levels of CEO advice seeking from executives of other firms with whom the CEO shares personal friendship ties are negatively associated with subsequent change in product market diversification or geographic diversification. In addition, advice seeking from executives with whom the CEO does not have friendship ties is positively associated with subsequent change in both dimensions of corporate strategy. Moreover, these advice-seeking variables moderate the effect of prior firm performance on strategic change. The effect of relatively low performance on change becomes significantly more negative (less positive) as advice seeking from executives who are friends of the CEO increases and advice seeking from executives who are not friends of the CEO decreases. Again, these results hold for both kinds of diversification.

The results provide some support for H2c. CEOs' advice seeking from managers at other firms in the same industry is negatively associated with subsequent change in both kinds of diversification. Advice seeking from managers in a different industry is positively related to change in product market diversification and unrelated to change in geographic diversification. Moreover, there is some evidence that advice seeking from managers in the same vs. different industries moderates the effect of prior firm performance on strategic change: the effect of relatively low performance on change in product market diversification or geographic diversification becomes significantly more negative (less positive) as advice seeking from executives who are in a different industry decreases. The moderating effect of advice seeking from executives in the same industry is significant for product market diversification at $\alpha = .10$ and insignificant for geographic diversification. Overall, the findings support our contention that greater advice seeking from managers at other firms has a more negative effect on strategic change to the extent that it involves the CEOs' friends or similar others. Moreover, the findings generally suggest that CEOs' advice ties moderate the effects of firm performance on strategic change. Relatively low firm performance is less likely to prompt strategic change to the extent that CEOs seek advice from managers at other firms with whom they have the specified social connections and do not seek advice from managers with whom they lack such connections.¹

1 We checked for multicollinearity in the models. The highest variance inflation factor (VIF) was less than ten in all models, and the mean VIF was not considerably greater than one in any of the models, suggesting that multicollinearity is not a problem (Chatterjee, Hadi, and Price, 2000). Moreover, bivariate correlations between the three kinds of affinity ties ranged from .25 to .31, which supports our implicit assumption that friendship ties, functional background similarity, and employment in the same industry are related but distinct constructs. This assumption is further supported both by results of the SUREG models noted above, which showed that the effects of prior performance on particular advice-tie variables hold up after controlling for the effects of performance on the other dependent variables, and by evidence that the advice-seeking variables have independent effects on strategic change.

We also tested whether the advice-tie variables mediated the effects of low firm performance on strategic change. We adapted the procedure recommended by Baron and Kenny (1986) and Sobel (1982) to estimate the joint indirect effects of the exogenous variable on strategic change through the advice-tie variables. The test determines, for instance, whether the six possible indirect effects of low market-to-book value on change in diversification (i.e., effects through each of the advice-tie variables) are simultaneously zero. This test showed that the CEO advice-tie variables, taken as a whole, significantly mediated the effect of low market-to-book value on change in product market diversification ($z = 2.33$) and change in geographic diversification ($z = 2.15$). That is, low firm performance had a negative effect on both kinds of strategic change through CEOs' advice seeking. Overall,

the results indicate that CEOs' advice seeking from executives at other firms both mediates and moderates the effects of relatively poor firm performance on strategic change. That is, lower firm performance indirectly leads to less strategic change through greater CEO advice seeking from friends and similar others and less advice seeking from executives with whom the CEO lacks such connections. At the same time, the effect of relatively low performance on strategic change becomes significantly less positive (more negative) as advice seeking from executives who are friends, who manage companies in the same industry, or who have a similar background increases, and advice seeking from executives with whom the CEO lacks such connections decreases. As noted above, this general pattern of results also emerged when performance was measured as return on assets.

Reverse causality. We addressed the potential for reverse causality in the relationship between prior performance and CEO advice seeking in three ways. First, as noted above, we controlled for CEOs' advice seeking in the prior period in estimating these relationships.² Second, supplementary analyses of firm performance discussed below and displayed in the Appendix show that advice seeking in time t (e.g., 1998) does not influence firm performance in time $t+1$ or time $t+2$ (1999 or 2000), providing further evidence that reverse causality does not explain the observed relationships between prior performance and CEO advice seeking lagged by one year.³

Given these analyses, reverse causality could only occur if the relationship between prior performance and advice seeking were confounded by advice seeking prior to time $t-1$, since we control for advice seeking in the prior period. This seems highly unlikely, as it would require earlier advice seeking (e.g., at time $t-3$) to predict performance at the end of time $t-1$, independent of advice seeking in time $t-1$, and advice seeking in time $t-3$ to predict advice seeking in time t , again independent of advice seeking in time $t-1$. In any event, we used data from a more recent survey of advice seeking to conduct an analysis that replicates the effect of prior performance on advice seeking after controlling for advice seeking in multiple prior time periods (i.e., prior to time $t-1$). The more recent survey sample overlaps partially with the earlier survey sample and includes the same advice-seeking questions. Using the more recent data, we estimated the effect of performance at the end of 2000 on advice seeking in 2001, after controlling for advice seeking in 1998 ($t-3$) and advice seeking in 1997 ($t-4$) ($N = 123$). The relationships between (low) prior performance and CEO advice seeking were significant, as expected, for five of the six dependent variables. This analysis not only provides further evidence that reverse causality does not explain our results, but it also replicates evidence for hypothesis 1 in a later time period.

Performance consequences. We also examined the possible implications of our theoretical perspective for firm performance. To the extent that CEOs' advice seeking in response to poor performance reflects affirmation-seeking tendencies rather than an unbiased search for objective input, as our theory would suggest, the advice seeking that results from poor

2 Separate analyses also confirmed that the hypothesized results held up after controlling for all advice-seeking variables in the prior period, for example, in estimating advice seeking from managers who are friends, controlling for prior advice seeking from managers with similar backgrounds and managers in the same industry, as well as prior advice seeking from friends.

3 Separate analyses also showed that advice seeking in time $t-1$ (1997) does not influence firm performance in time t or time $t+1$.

prior performance could have negative implications for subsequent firm performance. To test this supposition, we regressed market-to-book value on the advice-seeking variables with lags of one to four years. We corrected for serial correlation by specifying prior market-to-book value as an instrumental variable in the models (Greene, 1993). Results are displayed in the Appendix. They show that advice seeking from friends and similar others generally has negative effects on subsequent firm performance lagged by three or four years (both as main effects and interacted with prior performance), while advice seeking from acquaintances and dissimilar others generally has positive effects on these variables. Based on examination of simple effects and visual inspection of graphical representations of the interactions, these effects can be interpreted as showing that when prior firm performance is relatively low, advice seeking from friends and similar others is negatively related to subsequent performance (lagged three or four years) (i.e., poorly performing firms are less likely to improve and more likely to get worse); when prior firm performance is relatively high, advice seeking has weaker effects on subsequent performance.

Moreover, the results suggest that change in diversification mediates these effects, as the effects of advice seeking generally became nonsignificant when the strategic change variables were included in the models (columns four and six of table A.1). We also conducted the Sobel (1982) test of mediation (see prior discussion), which confirmed that the advice-tie variables had indirect effects on firm performance through strategic change. Thus, the results suggest that advice seeking from friends and similar others has negative effects on firm performance by increasing strategic inertia, particularly when prior performance is relatively low. As we would expect, the advice-tie variables do not influence firm performance lagged by one or two years, since it presumably takes more than two years for advice seeking to influence strategic decisions and then for those decisions to have an impact on firm performance (Wiersema and Bantel, 1992). We discuss the implications of these supplementary results below.

DISCUSSION

Overall, results from our analyses provide substantial support for the specific predictions derived from our theoretical framework. The first set of findings indicated that relatively poor performance increases the tendency for CEOs of poorly performing firms to rely on the advice of executives from other firms with whom they share functional backgrounds, friendship ties, and industry of employment, while decreasing the tendency for CEOs to rely on the advice of executives with whom they lack these connections. These findings support our theoretical perspective, which suggested that relatively poor performance would reduce CEOs' sense of certainty about the validity of their strategy-related beliefs and that this uncertainty would increase CEOs' tendencies to identify with executives with whom they shared social ties or a common professional background. Our theory further indicated that these increased tendencies toward social identification would heighten CEOs' susceptibilities to a number of positive biases in their perceptions of these in-group member

CEOs' Advice Networks

executives and that these biases would ultimately be manifested in high levels of strategic advice seeking from managers who are socially similar to or share social ties with the CEO and lower levels of advice seeking from managers with whom the CEO lacks such connections.

The second set of findings showed that greater CEO advice seeking from executives with whom the CEO shares functional backgrounds, friendship ties, or industry of employment and less advice seeking from executives with whom the CEO lacks these connections have the effect of reducing subsequent change in the focal firm's corporate strategy in response to poor firm performance. These results also support our theory, which drew on social psychological and social network research suggesting that executives from other firms with whom a CEO shared the specified social ties or common background characteristics would be more likely than executives with whom a CEO lacked such social connections to affirm his or her strategy-related beliefs. Our theory further suggested that high levels of affirming advice and low levels of non-affirming advice would serve to restore CEOs' sense of certainty about their strategic beliefs and that this increased sense of certainty would ultimately lead them to pursue relatively low levels of strategic change in response to firm performance problems.

A central contribution of these findings is that they demonstrate how micro-social factors can influence firms' responses to economic adversity and, more specifically, how executives' social network ties can contribute to strategic inertia in response to relatively poor firm performance. While research in a variety of management literatures has addressed the role of cognitive factors, including managerial attribution biases and restricted information processing activity, in firms' failures to change strategies in response to performance problems, less research has examined how the social network ties of top executives can help explain strategic inertia (Staw, Sandelands, and Dutton, 1981; Whetten, 1987; Sutton, 1990; Barker and Duhaime, 1997). Our theory and supportive findings suggest that shifts in the pattern of CEOs' advice seeking in response to relatively low firm performance (i.e., seeking higher levels of advice from friends and similar others and lower levels of advice from acquaintances and dissimilar others) may exacerbate the executive biases or "perceptual distortions" that have been implicated in cases of strategic inertia (Starbuck, Greve, and Hedberg, 1978: 113). Thus, our study may offer a new perspective on why organizational turnarounds are often difficult to achieve.

Additional findings on the ultimate performance consequences of this pattern of CEO advice seeking showed that when prior firm performance is relatively low, advice seeking from friends and similar others is negatively related to subsequent performance, and these effects are mediated by lack of change in diversification strategy. These results are again consistent with our theoretical perspective, which suggests that CEO advice seeking in response to poor performance reflects a search for affirmation of the CEO's strategic beliefs rather than an unbiased search for objective input on the firm's current strategy. As a result, CEO advice seeking in

response to relatively low performance should decrease the likelihood of needed changes in corporate strategy, resulting in lower subsequent performance. The results support this implication of our theory. It appears that poorly performing firms are ultimately less likely to improve and more likely to get worse as a result of CEOs' seeking advice from executives at other firms. These supplementary findings further suggest the potential role of executive social networks in organizational decline and downward performance spirals. While prior theorizing has emphasized the role of managerial biases and misperceptions in such downward spirals (e.g., Starbuck, Greve, and Hedberg, 1978; Hambrick and D'Aveni, 1988; D'Aveni and MacMillan, 1990; Lindsley, Brass, and Thomas, 1995), our theory and findings suggest how CEOs' social network ties could ultimately contribute to patterns of organizational decline.

Moreover, our findings contribute to research on interorganizational networks. While substantial research attention has been given to the impact of interorganizational relationships on theoretically important strategic outcomes (Mizruchi, 1996; Gulati, 1998), relatively little attention has been paid to the general role of interorganizational ties in processes of strategic adaptation and inertia (Kraatz, 1998). Further, this paper potentially contributes to our understanding of the determinants and consequences of informal network ties between firms. The bulk of prior research on interorganizational relationships and their strategic consequences has focused on the implications of formal links between firms (e.g., board interlocks or strategic alliances), while inferring or simply not specifying the role of informal links such as advice or friendship ties (cf. Ingram and Roberts, 2000). The findings reported here provide direct evidence of profound, systematic effects of informal interfirm network ties on important strategic outcomes.

While recent research in the growing literature on social embeddedness has focused on the benefits of informal social ties between managers of different firms, our findings suggest that certain kinds of informal ties, such as the advice ties CEOs tap in response to relatively poor performance, can have negative consequences for strategic decision making and ultimate firm performance. At the same time, our results are not inconsistent with studies suggesting that informal social ties, such as friendship ties between executives of different firms, can have beneficial performance consequences for firms (cf. Uzzi, 1996, 1999; Ingram and Roberts, 2000). CEOs' friendship ties to executives of other firms can increase access to resources and facilitate problem solving in exchange relationships; moreover, trust and understanding between friends can facilitate the exchange of tacit or complex information, with potential benefits for product innovation (Hansen, 1999), mitigation of competitive behavior (e.g., Perry, 1998; Ingram and Roberts, 2000), and ultimately firm survival (Uzzi, 1996). These benefits of informal social ties can coexist with the effects of seeking advice from friends that we observed in our study. Thus, for instance, a CEO may have social ties that provide advice that affirms the CEO's current strategy despite performance problems, thus pre-

venting needed strategic changes, while at the same time having friendship ties to suppliers and buyers that improve the quality of the firm's exchange relationships. Moreover, the advice interactions examined in this study, which concern the focal firm's corporate strategy, generally do not require an exchange of tacit or complex information. As noted above, our survey indicated that a large portion of CEOs' advice interactions with executives of other firms called for opinions related to the suitability of the focal firm's corporate strategy, for example, affirming or not affirming the appropriateness of a diversification strategy. Managers may still have other informal communications with colleagues at other firms that provide more tacit and/or complex information that facilitates innovation or other aspects of strategy implementation (Kraatz, 1998).

Our social psychological perspective on how executives react to poor firm performance should help advance theoretical perspectives on the psychological mechanisms that shape managers' behavioral responses to economic adversity. Threat-rigidity theory highlights the cognitive implications of the individual-level stress effects of poor performance as grounding for its basic thesis that performance-induced anxiety provokes rigidity in organizational behavior (Staw, Sandelands, and Dutton, 1981). Consistent with recent insights from self-categorization theory (Hogg and Terry, 2000), our theory and supportive findings suggest the complementary view that executives' efforts to reduce their feelings of subjective uncertainty play a notable role in their behavioral adaptations to economic adversity. Our theory further specifies how these efforts to reduce uncertainty are manifested in changes in patterns of social interaction. In particular, the findings are consistent with our theoretical argument that relatively low performance leads to the observed pattern of CEO advice seeking, in large part, because such advice seeking helps to alleviate subjective uncertainty provoked by poor firm performance. Thus, our study suggests how threat rigidity effects can be explained from contemporary social psychological theory, which emphasizes the socio-cognitive processes of subjective uncertainty reduction—rather than stress or anxiety reduction or self-esteem enhancement—as a primary driver of social interaction. This perspective dovetails with contemporary social network theory, which highlights uncertainty reduction as a primary consequence of network embeddedness (Galaskiewicz, 1985; Haunschild and Miner, 1997).

As noted previously, research on group processes has shown that in-group identification, or the degree to which an individual identifies with members of a salient in-group, can be influenced by both group-level factors, such as a common threat (Sherif, 1966; Pettigrew, 1998), and individual-level factors like subjective uncertainty (Hogg and Mullin, 1999). In this study, we examined an individual-level determinant of in-group identification, while using control variables and supplementary analyses to rule out the possibility that the results reflect such "group-level" (i.e., industry-level) factors. For instance, one might interpret an empirical relationship between poor firm performance and CEOs' seeking advice

from executives in the same industry as suggesting that when executives are experiencing a common, industry-level threat (manifested as low performance), they become more cohesive and cooperative in dealing with that threat, manifested as increased advice seeking among executives in the same industry, who are also more likely to be friends and to have similar functional backgrounds. This interaction might then facilitate strategic cooperation, ultimately benefiting the CEOs' firms. Our analyses rule out this interpretation in two ways: (1) the models include industry dummy variables to capture the effects of threats and opportunities peculiar to particular industries, and separate analyses showed that the results were unchanged when we controlled for the average performance of competitors, which would capture the extent to which a focal firm's performance problems indicated a collective threat; and (2) evidence that advice seeking from executives in the same industry has negative effects on firm performance by increasing strategic inertia is not consistent with the interpretation that CEO advice seeking from friends and similar others in response to poor performance reflects beneficial in-group cohesion and strategic cooperation in the face of a collective threat.

From a methodological perspective, our analysis is based on a unique dataset that includes survey data on the advice contacts of top managers from a large sample of firms. While few prior studies have collected data on the advice-seeking propensities or other social behaviors of top managers, very little if any large-sample research has collected systematic data on the identities of top managers' network contacts. We were able to collect these data with an adequate response rate, and we were able to survey individuals who were listed as advice contacts by primary respondents to assess interrater reliability. We hope that the success of this empirical effort will encourage further research on the social network ties of top executives.

While this study has provided initial evidence for our perspective on how performance outcomes affect advice-seeking behavior, and the ultimate consequences for organizational change in the context of corporate strategy, future research could further test and develop our theoretical perspective in several ways. Although we examined the effects of CEO advice seeking on change in product market diversification and geographic diversification, our analysis does not address all possible changes in strategy that could be influenced by informal executive networks. Further research could examine the effects of CEOs' network ties on change in firms' cooperative strategies, such as the propensity to form strategic alliances and joint ventures, in response to poor performance. Research might also investigate how executives' social networks influence the effects of poor performance on change in firms' competitive strategy with respect to the speed and form of firms' competitive moves. Moreover, while our theoretical perspective has focused on an individual-level determinant of CEO advice seeking, subjective uncertainty, and the consequences for strategic inertia, future studies could examine group-level determinants of executives' social network ties and strategic decision making.

26/ASQ, March 2003

CEOs' Advice Networks

There is some theory and evidence to suggest that in-group identification in response to a collective threat may result in more adaptive behavior by group members (e.g., Sherif, 1966). Compared with poor individual-level performance, a collective threat may be less ego-threatening to executives and thus more likely to prompt an objective search for solutions rather than affirmation-seeking behavior by executives.

Future research might also examine whether and how economic adversity influences CEOs' advice seeking from inside directors on the focal board. Inside directors may tend to affirm the CEO's judgment on strategic issues, either as an act of deference to the CEO or because they worked together with the CEO in formulating the current strategy and thus share the CEO's psychological and reputational commitment to the strategy. Accordingly, seeking advice from inside directors could reinforce the effects of seeking advice from executives outside the firm in promoting strategic inertia in response to economic adversity.

Our theoretical framework could perhaps also be extended to explain the consequences of negative performance feedback at lower levels of the organization. Our theory would suggest, for instance, that managers of divisions, project teams, or other groups in an organization that experience failures or otherwise receive negative performance feedback might change their pattern of seeking advice from managers in other units of the organization in ways that may impede learning and adaptation, seeking more advice from strong vs. weak ties or similar vs. dissimilar others. Thus, social psychological perspectives on self-categorization and belief affirmation could point to new directions for research on social networks and change in organizations.

REFERENCES

- Aguilar, F. J.**
1967 *Scanning the Business Environment*. New York: MacMillan.
- Allan, G. A.**
1979 *A Sociology of Friendship and Kinship*. London: Allen and Unwin.
- Allison, P. D.**
1990 "Change scores as dependent variables in regression analysis." In C. C. Clogg (ed.), *Sociological Methodology*: 93–114. San Francisco: Jossey-Bass.
- Anderson, C. A., and K. L. Kellam**
1992 "Belief perseverance, biased assimilation, and covariation detection: The effects of hypothetical social theories and new data." *Personality and Social Psychology Bulletin*, 18: 555–565.
- Antle, R., and A. Smith**
1986 "An empirical investigation of the relative performance evaluation of corporate executives." *Journal of Accounting Research*, 24: 1–39.
- Barker, V. L., and P. S. Barr**
2002 "Linking top manager attributions to strategic reorientation in declining firms attempting turnarounds." *Journal of Business Research*, 55: 963–979.
- Barker, V. L., and I. M. Duhaime**
1997 "Strategic change in the turnaround process." *Strategic Management Journal*, 18: 13–38.
- Barker, V. L., and M. A. Mone**
1998 "The mechanistic structure shift and strategic reorientation in declining firms attempting turnarounds." *Human Relations*, 51: 1227–1258.
- Baron, R. M., and D. A. Kenny**
1986 "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations." *Journal of Personality and Social Psychology*, 51: 1173–1182.
- Bergh, D. D.**
1995 "Size and relatedness of units sold: An agency theory and resource based perspective." *Strategic Management Journal*, 16: 221–239.
- Beyer, J. M., P. Chattopadhyay, E. George, W. H. Glick, d. t. ogilvie, and D. Pugliese**
1997 "The selective perception of managers revisited." *Academy of Management Journal*, 40: 716–737.
- Boeker, W.**
1992 "Power and managerial dismissal: Scapegoating at the top." *Administrative Science Quarterly*, 37: 400–421.

- Boeker, W., and J. Goodstein**
1993 "Performance and successor choice: The moderating effects of governance and ownership." *Academy of Management Journal*, 36: 172-186.
- Brass, D. J.**
1984 "Being in the right place: A structural analysis of individual influence in an organization." *Administrative Science Quarterly*, 29: 518-539.
- Brewer, M. B., and R. J. Brown**
1998 "Intergroup relations." In D. T. Gilbert and S. T. Fiske (eds.), *The Handbook of Social Psychology*, 4th ed., 2: 554-594. Boston: McGraw-Hill.
- Brown, S. L., and K. Eisenhardt**
1997 "The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations." *Administrative Science Quarterly*, 42: 1-34.
- Burt, R. S.**
1992 *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Cameron, K. S., D. A. Whetten, and M. U. Kim**
1987 "Organizational dysfunctions of decline." *Academy of Management Journal*, 30: 126-138.
- Campbell, K. E., P. V. Marsden, and J. S. Hurlbert**
1986 "Social resources and socioeconomic status." *Social Networks*, 8: 97-117.
- Carpenter, M. A., and J. W. Fredrickson**
2001 "Top management teams, global strategic posture, and the moderating role of uncertainty." *Academy of Management Journal*, 44: 533-546.
- Carretta, T. R., and R. L. Moreland**
1982 "Nixon and Watergate: A field demonstration of belief perseverance." *Personality and Social Psychology Bulletin*, 8: 446-453.
- Chaganti, R., and R. Sambharya**
1987 "Strategic orientation and characteristics of upper management." *Strategic Management Journal*, 8: 393-401.
- Chatterjee, S., A. S. Hadi, and B. Price**
2000 *Regression Analysis by Example*, 3rd ed. New York: Wiley.
- Cohen, Y. A.**
1961 *Social Structure and Personality*. New York: Holt, Rinehart and Winston.
- Cyert, R. M., and J. G. March**
1963 *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Daft, R. L., J. Sormunen, and D. Parks**
1988 "Chief executive scanning, environmental characteristics, and company performance: An empirical study." *Strategic Management Journal*, 9: 123-139.
- Dalton, D. R., and I. F. Kesner**
1985 "Organizational performance as an antecedent of inside/outside chief executive succession: An empirical assessment." *Academy of Management Journal*, 28: 749-762.
- D'Aveni, R. A.**
1989 "The aftermath of organizational decline: A longitudinal study of the strategic and managerial characteristics of declining firms." *Academy of Management Journal*, 32: 577-605.
- D'Aveni, R. A., and I. C. MacMillan**
1990 "Crisis and the content of managerial communications: A study of the focus of attention of top managers in surviving and failing firms." *Administrative Science Quarterly*, 35: 634-657.
- Davis, G. F., and H. R. Greve**
1997 "Corporate elite networks and governance changes in the 1980s." *American Journal of Sociology*, 103: 1-37.
- Dearborn, D. C., and H. A. Simon**
1958 "Selective perceptions: A note on the departmental identification of executives." *Sociometry*, 21: 140-144.
- Demb, A., and F. Neubauer**
1992 *The Corporate Board: Confronting the Paradoxes*. Oxford: Oxford University Press.
- Dugan, E., and V. R. Kivett**
1998 "Implementing the Adams and Blieszner conceptual model: Predicting interactive friendship processes of older adults." *Journal of Social and Personal Relationships*, 15: 607-622.
- Edwards, J. R.**
1995 "Alternatives to differences scores as dependent variables in the study of congruence in organizational research." *Organizational Behavior and Human Decision Processes*, 64: 307-324.
- Elenkov, D. S.**
1997 "Strategic uncertainty and environmental scanning: The case for institutional influences on scanning behavior." *Strategic Management Journal*, 18: 287-303.
- Finkelstein, S., and D. C. Hambrick**
1990 "Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion." *Administrative Science Quarterly*, 35: 484-503.
- 1996 *Strategic Leadership: Top Executives and Their Effects on Organizations*. St. Paul, MN: West.
- Fiske, S. T.**
2000 "Stereotyping, prejudice, and discrimination in the seam between the centuries: Evolution, culture, mind, and brain." *European Journal of Social Psychology*, 30: 299-322.
- Fleiss, J. L.**
1981 *Statistical Methods for Rates and Proportions*. New York: Wiley.
- Fligstein, N.**
1987 "The intraorganizational power struggle: Rise of finance personnel to top leadership in large corporations, 1919-1979." *American Sociological Review*, 52: 44-58.
- Fligstein, N., and P. Brantley**
1992 "Bank control, owner control, or organizational dynamics: Who controls the large modern corporation?" *American Journal of Sociology*, 98: 280-307.
- Fowler, F. J.**
1993 *Survey Research Methods*. Newbury Park, CA: Sage.
- Galaskiewicz, J.**
1985 "Interorganizational relations." *Annual Review of Sociology*, 11: 281-304.
- Geletkanycz, M. A., and D. C. Hambrick**
1997 "The external ties of top executives: Implications for strategic choice and performance." *Administrative Science Quarterly*, 42: 654-681.

CEOs' Advice Networks

- Gibbs, P. A.
1993 "Determinants of corporate restructuring: The relative importance of corporate governance, takeover threat, and free cash flow." *Strategic Management Journal*, 14: 51–68.
- Granovetter, M. S.
1973 "The strength of weak ties." *American Journal of Sociology*, 78: 1360–1380.
- Graves, L. M., and G. N. Powell
1995 "The effect of sex similarity on recruiters' evaluations of actual applicants: A test of the similarity-attraction paradigm." *Personnel Psychology*, 48: 85–98.
- Greenberger, D. B., and S. Strasser
1991 "The role of situational and dispositional factors in the enhancement of personal control." In L. L. Cummings and B. M. Staw (eds.), *Research in Organizational Behavior*, 13: 111–145. Greenwich, CT: JAI Press.
- Greene, W. H.
1993 *Econometric Analysis*, 2d ed. New York: Macmillan.
- Greve, H. R.
1998 "Performance, aspirations, and risky organizational change." *Administrative Science Quarterly*, 43: 58–86.
- Grieve, P. G., and M. A. Hogg
1999 "Subjective uncertainty and intergroup discrimination in the minimal group situation." *Personality and Social Psychology Bulletin*, 25: 926–940.
- Groves, R. M., R. B. Cialdini, and M. P. Couper
1992 "Understanding the decision to participate in a survey." *Public Opinion Quarterly*, 56: 475–495.
- Gulati, R.
1998 "Alliances and networks." *Strategic Management Journal*, 19: 293–319.
- Hambrick, D. C., T. S. Cho, and M.-J. Chen
1996 "The influence of top management team heterogeneity on firms' competitive moves." *Administrative Science Quarterly*, 41: 659–684.
- Hambrick, D. C., and R. A. D'Aveni
1988 "Large corporate failures as downward spirals." *Administrative Science Quarterly*, 33: 1–23.
- Hambrick, D. C., and G. D. Fukotomi
1991 "The seasons of a CEO's tenure." *Academy of Management Review*, 16: 719–742.
- Hambrick, D. C., M. A. Geletkanycz, and J. W. Fredrickson
1993 "Top executive commitment to the status quo: Some tests of its determinants." *Strategic Management Journal*, 14: 401–418.
- Hambrick, D. C., and P. Mason
1984 "Upper echelons: The organization as a reflection of its top managers." *Academy of Management Review*, 2: 193–206.
- Hansen, M. T.
1999 "The search-transfer problem: The role of weak ties in sharing knowledge across organizational subunits." *Administrative Science Quarterly*, 44: 82–111.
- Hastie, R., S. D. Penrod, and N. Pennington
1983 *Inside the Jury*. Cambridge, MA: Harvard University Press.
- Haunschild, P. R., and A. S. Miner
1997 "Modes of interorganizational imitation: The effects of outcome salience and uncertainty." *Administrative Science Quarterly*, 42: 472–500.
- Hitt, M. A., and B. B. Tyler
1991 "Strategic decision models: Integrating different perspectives." *Strategic Management Journal*, 12: 327–351.
- Hogg, M. A., and D. Abrams
1993 "Towards a single-process uncertainty-reduction model of social motivation in groups." In M. A. Hogg and D. Abrams (eds.), *Group Motivation: Social Psychological Perspectives*: 173–190. New York: Harvester-Wheatsheaf.
- Hogg, M. A., and B.-A. Mullin
1999 "Joining groups to reduce uncertainty: Subjective uncertainty reduction and group identification." In D. Abrams and M. A. Hogg (eds.), *Social Identity and Social Cognition*: 249–279. Oxford: Blackwell.
- Hogg, M. A., and D. J. Terry
2000 "Social identity and self-categorization processes in organizational contexts." *Academy of Management Review*, 25: 121–140.
- Hoskisson, R. E., M. A. Hitt, R. A. Johnson, and D. D. Moesel
1993 "Construct validity of an objective (entropy) categorical measure of diversification strategy." *Strategic Management Journal*, 14: 215–235.
- Huff, A. S.
1982 "Industry influences on strategy reformulation." *Strategic Management Journal*, 3: 119–131.
- Ibarra, H.
1992 "Homophily and differential returns: Sex differences in network structure and access in an advertising firm." *Administrative Science Quarterly*, 37: 422–447.
1995 "Race, opportunity, and diversity of social circles in managerial networks." *Academy of Management Journal*, 38: 673–703.
- Ingram, P., and P. W. Roberts
2000 "Friendships among competitors in the Sydney hotel industry." *American Journal of Sociology*, 106: 387–423.
- Johnson, J. L., C. M. Daily, and A. E. Ellstrand
1996 "Boards of directors: A review and research agenda." *Journal of Management*, 22: 409–438.
- Keats, B. W., and M. A. Hitt
1988 "A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance." *Academy of Management Journal*, 31: 570–598.
- Kenny, D. A., and S. H. Cohen
1979 "A reexamination of selection and growth processes in the nonequivalent control group design." In K. Schuessler (ed.), *Sociological Methodology*: 290–313. San Francisco: Jossey-Bass.
- Kraatz, M. S.
1998 "Learning by association? Interorganizational networks and adaptation to environmental change." *Academy of Management Journal*, 41: 621–643.

- Krackhardt, D.**
1992 "The strength of strong ties: The importance of philos in organizations." In N. Nohria and R. G. Eccles (eds.), *Networks and Organizations: Structure, Form, and Action*: 216–239. Cambridge, MA: Harvard Business School Press.
- Lazarsfeld, P. F., and R. K. Merton**
1954 "Friendship as a social process: A substantive and methodological analysis." In M. Berger, T. Abel, and C. H. Page (eds.), *Freedom and Control in Modern Society*: 18–66. New York: Van Nostrand.
- Lindsley, D. H., D. J. Brass, and J. B. Thomas**
1995 "Efficacy-performance spirals: A multilevel perspective." *Academy of Management Review*, 20: 645–678.
- Linsky, A.**
1975 "Stimulating response to mailed questionnaires: A review." *Public Opinion Quarterly*, 39: 82–101.
- Lorsch, J. W.**
1989 *Pawns or Potentates: The Reality of America's Corporate Boards*. Boston: Harvard Business School Press.
- Mace, M.**
1971 *Directors: Myth and Reality*. Boston: Harvard Business School.
- Maddala, G. S.**
1983 *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge: Cambridge University Press.
- Marsden, P. V.**
1988 "Homogeneity in confiding relations." *Social Networks*, 10: 57–76.
- McPherson, J. M., P. A. Popielarz, and S. Drobnic**
1992 "Social networks and organizational dynamics." *American Sociological Review*, 57: 153–170.
- McPherson, J. M., and L. Smith-Lovin**
1987 "Homophily in voluntary organizations: Status distance and the composition of face-to-face groups." *American Sociological Review*, 52: 370–379.
- Mintzberg, H.**
1973 *The Nature of Managerial Work*. New York: Harper and Row.
- Mizruchi, M. S.**
1996 "What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates." *Annual Review of Sociology*, 22: 271–298.
- Monge, P., and N. S. Contractor**
1997 "Emergence of communication networks." In F. M. Jablin and L. L. Putnam (eds.), *Handbook of Organizational Communication*, 2d ed.: 1–72. Thousand Oaks, CA: Sage.
- Mullin, B.-A. and M. A. Hogg**
1998 "Dimensions of subjective uncertainty in social identification and minimal intergroup discrimination." *British Journal of Social Psychology*, 37: 345–365.
1999 "Motivations for group membership: The role of subjective importance and uncertainty reduction." *Basic and Applied Social Psychology*, 21: 91–102.
- Nisbett, R., and L. Ross**
1980 *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Ocasio, W.**
1994 "Political dynamics and the circulation of power: CEO succession in U.S. industrial corporations, 1960–1990." *Administrative Science Quarterly*, 39: 285–312.
- Palepu, K.**
1985 "Diversification strategy, profit performance, and the entropy measure." *Strategic Management Journal*, 6: 239–255.
- Perry, S. E.**
1998 *Collecting Garbage*. New Brunswick, NJ: Transaction Books.
- Pettigrew, T. F.**
1998 "Intergroup contact theory." *Annual Review of Psychology*, 49: 65–85.
- Pfeffer, J.**
1981 "Management as symbolic action: The creation and maintenance of organizational paradigms." In L. L. Cummings and B. M. Staw (eds.), *Research in Organizational Behavior*, 3: 1–52. Greenwich, CT: JAI Press.
- Pittman, T. S.**
1998 "Motivation." In D. T. Gilbert and S. T. Fiske (eds.), *The Handbook of Social Psychology*, 4th ed., 1: 549–590. Boston: McGraw-Hill.
- Pittman, T. S., and P. R. D'Agostino**
1985 "Motivation and attribution: The effects of control deprivation on subsequent information processing." In J. H. Harvey and G. Weary (eds.), *Attribution: Basic Issues and Applications*: 117–141. Orlando, FL: Academic Press.
- Pittman, T. S., and J. F. Heller**
1987 "Social motivation." *Annual Review of Psychology*, 38: 461–489.
- Porac, J. F., H. Thomas, and C. Baden-Fuller**
1989 "Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers." *Journal of Management Studies*, 26: 397–416.
- Porac, J. F., H. Thomas, F. Wilson, D. Paton, and A. Kanfer**
1995 "Rivalry and the industry model of Scottish knitwear producers." *Administrative Science Quarterly*, 40: 203–227.
- Porac, J. F., J. B. Wade, and T. G. Pollock**
1999 "Industry categories and the politics of the comparable firm in CEO compensation." *Administrative Science Quarterly*, 44: 112–144.
- Rajagopalan, N., and G. M. Spreitzer**
1997 "Toward a theory of strategic change: A multi-lens perspective and integrative framework." *Academy of Management Review*, 22: 48–79.
- Salancik, G. R., and J. R. Meindl**
1984 "Corporate attributions as strategic illusions of management control." *Administrative Science Quarterly*, 29: 238–255.
- Schulz-Hardt, S., P. Fischer, E. Jonas, and S. Moscovici**
2000 "Biased information search in group decision making." *Journal of Personality and Social Psychology*, 78: 655–669.
- Segal, M. W.**
1979 "Varieties of interpersonal attraction and their interrelationships in natural groups." *Social Psychology Quarterly*, 42: 253–261.

CEOs' Advice Networks

- Sherif, M.**
1966 *In Common Predicament: Social Psychology of Inter-group Conflict and Cooperation*. Boston: Houghton Mifflin.
- Sherman, S. J., D. L. Hamilton, and A. C. Lewis**
1999 "Perceived entitativity and the social identity value of group memberships." In D. Abrams and M. A. Hogg (eds.), *Social Identity and Social Cognition*: 80–109. Oxford: Blackwell.
- Silver, A.**
1990 "Friendship in commercial society: Eighteenth-century social theory and modern sociology." *American Journal of Sociology*, 95: 1474–1504.
- Smith, M., and M. C. White**
1987 "Strategy, CEO specialization, and succession." *Administrative Science Quarterly*, 32: 263–280.
- Sobel, M. E.**
1982 "Asymptotic confidence intervals for indirect effects in structural equation models." In S. Leinhardt (ed.), *Sociological Methodology*: 290–312. Washington, DC: American Sociological Association.
- Spender, J. C.**
1989 *Industry Recipes: The Nature and Sources of Managerial Judgment*. Oxford: Blackwell.
- Starbuck, W., A. Greve, and B. L. T. Hedberg**
1978 "Responding to crisis." *Journal of Business Administration*, 9: 111–137.
- Staw, B. M., L. E. Sandelands, and J. E. Dutton**
1981 "Threat-rigidity effects in organizational behavior: A multi-level analysis." *Administrative Science Quarterly*, 26: 501–524.
- Stevens, L. E., and S. T. Fiske**
1995 "Motivation and cognition in social life: A social survival perspective." *Social Cognition*, 13: 189–214.
- Suitor, J., and S. Keeton**
1997 "Once a friend, always a friend? Effects of homophily on women's support networks across a decade." *Social Networks*, 19: 51–62.
- Sutcliffe, K. M., and G. P. Huber**
1998 "Firm and industry as determinants of executive perceptions of the environment." *Strategic Management Journal*, 19: 793–807.
- Sutton, R. I.**
1990 "Organizational decline processes: A social psychological perspective." In L. L. Cummings and B. M. Staw (eds.), *Research in Organizational Behavior*, 12: 205–253. Greenwich, CT: JAI Press.
- Swann, W. B., Jr.**
1996 *Self-traps: The Elusive Quest for Higher Self-esteem*. New York: Freeman.
- Tushman, M., and E. Romanelli**
1985 "Organizational evolution: A metamorphosis model of convergence and reorientation." In L. L. Cummings and B. M. Staw (eds.), *Research in Organizational Behavior*, 7: 171–222. Greenwich, CT: JAI Press.
- Useem, M., and J. Karabel**
1986 "Pathways to top corporate management." *American Sociological Review*, 51: 184–200.
- Uzzi, B.**
1996 "The sources and consequences of embeddedness for the economic performance of organizations: The network effect." *American Sociological Review*, 61: 674–698.
1999 "Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing." *American Sociological Review*, 64: 481–505.
- van Knippenberg, D.**
1999 "Social identity and persuasion: Reconsidering the role of group membership." In D. Abrams and M. A. Hogg (eds.), *Social Identity and Social Cognition*: 249–279. Oxford: Blackwell.
- Vance, S. C.**
1983 *Corporate Leadership: Boards, Directors, and Strategy*. New York: McGraw-Hill.
- Waller, M. J., G. P. Huber, and W. H. Glick**
1995 "Functional background as a determinant of executives' selective perception." *Academy of Management Journal*, 38: 943–974.
- Wellman, B., and S. Wortley**
1990 "Different strokes from different folks: Community ties and social support." *American Journal of Sociology*, 96: 558–588.
- Westphal, J. D.**
1999 "Collaboration in the boardroom: The consequences of social ties in the CEO/board relationship." *Academy of Management Journal*, 42: 7–24.
- Westphal, J. D., and L. P. Milton**
2000 "How experience and network ties affect the influence of demographic minorities on corporate boards." *Administrative Science Quarterly*, 45: 366–398.
- Westphal, J. D., and E. J. Zajac**
1995 "Who shall govern? CEO/board power, demographic similarity, and new director selection." *Administrative Science Quarterly*, 40: 60–83.
- Whetten, D. A.**
1980 "Organizational decline: A neglected topic in organizational science." *Academy of Management Review*, 5: 577–588.
1987 "Organizational growth and decline processes." *Annual Review of Sociology*, 13: 335–358.
- Wiersema, M., and K. Bantel**
1992 "Top management team demography and corporate strategic change." *Academy of Management Journal*, 35: 91–121.
- Zajac, E. J., and S. M. Shortell**
1989 "Changing generic strategies: Likelihood, direction, and performance implications." *Strategic Management Journal*, 10: 413–430.
- Zajac, E. J., and J. D. Westphal**
1996 "Who shall succeed? How CEO/board preferences and power affect the choice of new CEOs." *Academy of Management Journal*, 39: 64–90.

APPENDIX

Table A.1

OLS Regression Analyses of Firm Performance*

Independent variable	One-year lag	Two-year lag	Three-year lag		Four-year lag	
			Model 1	Model 2	Model 1	Model 2
Advice seeking from:						
Mgrs. with similar backgrounds	-.005 (.005)	-.007 (.005)	-.016** (.006)	-.004 (.006)	-.010* (.006)	-.004 (.006)
Mgrs. who are friends	-.025 (.016)	-.025 (.016)	-.059*** (.019)	-.025 (.019)	-.053** (.019)	-.035 (.019)
Mgrs. in same industry	.003 (.008)	-.005 (.008)	-.020* (.009)	-.011 (.009)	-.018* (.009)	-.008 (.009)
Mgrs. with dissimilar backgrounds	.005 (.007)	.011 (.007)	.021* (.009)	.010 (.009)	.022** (.008)	.013 (.009)
Mgrs. who are not friends	.026 (.020)	.033 (.020)	.060** (.023)	.026 (.024)	.055** (.023)	.029 (.023)
Mgrs. in different industry	.014 (.009)	.010 (.009)	.017 (.011)	.012 (.011)	.019* (.010)	.002 (.011)
(Low) market-to-book	-.752*** (.078)	-.600*** (.077)	-.588*** (.092)	-.405*** (.093)	-.422*** (.090)	-.307*** (.090)
(Low) Market-to-book x Advice seeking from:						
Mgrs. with similar backgrounds	-.015 (.012)	-.010 (.012)	-.033* (.014)	-.019 (.014)	-.033** (.014)	-.018 (.014)
Mgrs. who are friends	-.017 (.034)	-.049 (.034)	-.132*** (.040)	-.073* (.041)	-.112** (.039)	-.031 (.039)
Mgrs. in same industry	-.024 (.018)	-.031 (.017)	-.027 (.021)	-.004 (.021)	-.023 (.020)	-.021 (.020)
Mgrs. with dissimilar backgrounds	.010 (.015)	.020 (.015)	.042* (.018)	.016 (.018)	.049** (.018)	.013 (.018)
Mgrs. who are not friends	.056 (.042)	.046 (.041)	.085* (.049)	.074 (.049)	.093* (.048)	.026 (.048)
Mgrs. in different industry	.018 (.019)	.030 (.019)	.061** (.022)	.023 (.023)	.053** (.022)	.046* (.022)
Change in product market diversification				.733*** (.152)		.623*** (.149)
Change in geographic diversification				.889*** (.265)		.895*** (.259)
Log of sales	-.043 (.033)	-.036 (.032)	-.057 (.039)	-.024 (.039)	-.046 (.038)	-.030 (.038)
Institutional ownership	.267 (.186)	.318 (.186)	.407 (.221)	.403 (.223)	.290 (.216)	.332 (.217)
Constant	-.250 (.320)	.051 (.317)	.561 (.379)	.355 (.362)	.434 (.371)	.328 (.349)
F	14.29***	10.16***	14.34***	14.59***	13.59***	13.96***
R ²	.47	.38	.51	.54	.48	.50

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; t-tests are one-tailed for hypothesized effects, two-tailed for control variables.

* Standard errors are in parentheses.