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**CORPORATE BOARD ATTRIBUTES,
TEAM EFFECTIVENESS
AND FINANCIAL PERFORMANCE**

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ABSTRACT

Researchers have recently begun to integrate the literature on corporate boards with that of team effectiveness in an effort to understand how boards function and impact company performance. This study identifies five attributes of high-performing teams - knowledge, information, power, incentives and opportunity/time - and argues that these attributes will promote board effectiveness, which in turn influence corporate financial performance. These relationships are investigated using combined survey and archival sources of data for 210 *Fortune 1000* companies. Findings indicate that most team effectiveness attributes are associated with higher levels of board effectiveness as rated by the board directors, and that board effectiveness is significantly related to corporate financial performance.

Key Words: Corporate Boards, Governance, Organizational Performance, Team Effectiveness.

INTRODUCTION

Boards have long been the subject of management research and the attention paid to corporate boards has increased substantially in recent years (Daily et al., 2003), with a particular focus on the board's relationship to company performance (e.g., Pettigrew, 1992; Zahra and Pearce, 1989). Multiple theories have been used to explain and predict how boards affect company performance, including agency (Jensen and Meckling, 1976), social network (Granovetter, 1985), stewardship (Davis et al., 1997), institutional (DiMaggio and Powell, 1983) and resource dependence (Pfeffer and Salancik, 1978). However, there is relatively little research that examines the relationship between boards of directors and company financial performance from a team or group perspective (Forbes and Milliken, 1999).¹ A few studies have explored what makes boards function well as groups and the role that directors play in influencing and running the organization in general (Daily et al., 2003; Hermalin and Weisbach, 2003; Stiles, 2001), and we seek to contribute to this line of research. Here, we draw on the group's literature to examine how five key attributes of effective teams - sufficient knowledge, information, power, incentives, and opportunity (Conger et al., 2001; Mohrman et al., 1995; Vandenberg et al., 1999) - relate to board effectiveness and how effectiveness then is related to corporate performance.

To a great extent, the limited knowledge of board functioning as groups is due to the fact that what takes place within boardrooms is quite difficult for researchers to access (Daily et al., 2003). Corporate directors are hesitant to share information about the inner dynamics of boards for many reasons. Primarily, directors fear that revealing boardroom activities, or even just rating the effectiveness of the board, could have adverse effects on relationships with investors and other board members (Kesner and Johnson, 1990). Further, there are concerns that exposure to internal practices could increase the risk of shareholder lawsuits should troubles emerge (Langevoort, 2001). Thus, the extreme sensitivity of the financial and strategic information

discussed in the boardroom has precluded observational studies of boards, while the threat of lawsuits and respect for the privacy of fellow directors has tended to limit detailed information on boardroom operations and practices. This has left researchers to treat the corporate boardroom as a theoretical 'black box' (Daily et al., 2003; Leblanc, 2004).

So far, management researchers have learned a great deal regarding the relationship between board composition, reward structures, board practices, and firm performance using the data available from corporate proxy statements and other archival sources (Finegold et al., 2007; Finkelstein, 1992). While a few researchers have used a combination of interviews and surveys to enrich traditional data sources to examine boardroom processes and dynamics (e.g. Pearce and Zahra, 1991; Westphal, 1999; Lawler et al., 2002), most studies of board practices are hampered in that they are limited to using firm financial and market performance as proxies for board effectiveness. The result is that many specific practices advocated on the basis of theory and linked to financial performance, such as board ownership and the process of conducting CEO or board evaluations, have gone largely untested for their ability to help boards actually function more effectively. The purpose of this study is to re-examine several of these board practices using an integrative theoretical framework from research on group effectiveness for direct relationships to board effectiveness and indirect relationships to corporate financial performance.

In their influential piece on boards of directors as strategic decision-making groups, Forbes and Milliken (1999, p. 492) define board task performance as "the board's ability to perform its control and service tasks effectively." This definition of board task performance draws directly on several past models of group effectiveness and represents an integrative view of board roles posited by the various theoretical perspectives on boards. We take this same broad view of board effectiveness rather than limiting our definition of board roles as suggested by either resource-based or agency theories. Specific activities related to control tasks include such things as planning for top management succession, monitoring strategy implementation,

and managing during crises. Specific activities related to service tasks include such things as bolstering the company's image in the community, building networks with strategic partners, and enhancing government relations. Unfortunately the existing research on corporate boards has been severely hampered by the fact that it is "extremely difficult for researchers to measure the task performance of boards in ways that are both reliable and comprehensive" (Forbes and Milliken, 1999, p. 492).

This study takes advantage of a unique dataset to assess specific board attributes for their impact on the effectiveness of boards, as rated by acting directors, and the financial performance of the companies they govern. Using data collected from directors of *Fortune 1000* companies and several archival sources, we examine whether corporate boards of directors are subject to many of the same organizational dynamics that drive the effectiveness of other teams charged with complex tasks. Specifically, we apply a model advocated by Mohrman et al. (1995) and Conger et al. (2001) to develop hypotheses asserting that the five key attributes of highly effective groups will influence overall board effectiveness. Additionally, we hypothesize that board effectiveness will positively impact overall company financial performance and serve as a mediator between the team attributes and company performance. Results largely support the hypotheses indicating that many of the same factors that contribute to effective teams in the larger workplace are also important for corporate board effectiveness. We find that boards with sufficient knowledge, power, external information, and opportunity are more effective in accomplishing board objectives. More importantly, we find that more effective boards contribute to the positive financial performance of their respective organizations.

THEORY AND HYPOTHESES

Within the management literature, the two dominant perspectives on corporate governance have been resource dependence theory and agency theory (Dalton et al., 1998; Daily

et al., 2003; Hillman and Dalziel, 2003). Resource dependence theory suggests that a board's effectiveness is determined by the external resources that the individual members are able to draw on for the benefit of the corporation (e.g., Pfeffer and Salancik, 1978). Agency theory, on the other hand, views the primary role of boards as acting as an effective monitor of corporate management to insure that management is serving the best interests of the owners of the company (e.g., Fama and Jensen, 1983). These two theoretical viewpoints, along with others such as contingency, stewardship, and institutional theories, often suggest competitive or seemingly paradoxical roles for boards (Sundaramurthy and Lewis, 2003). Subsequently, numerous debates have emerged regarding the appropriateness of CEO duality (e.g., Rechner and Dalton, 1991), board size (e.g., Dalton et al., 1999), board ownership (e.g., Barnhart and Rosenstein, 1998; Morck et al., 1988; Sundaramurthy et al., 2005), board independence (e.g., Dalton et al., 1998; Pearce and Zahra, 1991; Wagner et al., 1998), and other related board structures. Generally, guidelines or codes for corporate governance stipulate board composition, ownership configurations, number of directors, compensation schemes and other structures; complying with these codes is expected to lend legitimacy to the corporation (Roberts et al., 2005).

As research on boards continues to progress, there is increasing evidence that governance structures are interdependent, both affecting and substituting for each other in such a way that multiple governance mechanisms and structures might be effective (Barnhart and Rosenstein, 1998; Beatty and Zajac, 1994; Coles and Hesterly, 2000). Indeed, Daily et al. (2003) have argued that taking a multi-theoretic approach to corporate governance is necessary to recognize and understand the interrelated mechanisms and structures that potentially enhance corporate performance. Hillman and Dalziel (2003) expanded upon these ideas arguing that greater levels of board capital enable the board to secure more resources *and* more effectively monitor the company. Similarly, Roberts et al. (2005, p. 6) found, in an extensive series of interviews, that

effective boards demonstrate accountability in terms of “engaged but non-executive”, “challenging but supportive” and “independent but involved” behaviors.

As this broader perspective of boards of directors gains recognition (e.g., Daily et al. 2003), researchers have expanded the notion of how boards add value to the organization. Now, boards of directors are expected to consider a broad range of additional stakeholders, not just corporate shareholders, but also customers, employees, and suppliers. This increase in scope, combined with increased globalization, technological advances, and higher levels of competition in most industries has forced board directors to become much more involved in the overall leadership of the company (Davies, 1999; Hawkins, 1997). Indeed, boards are now expected to be more involved in the strategy formulation and implementation activities of the organizations (Finkelstein and Hambrick, 1996; McNulty and Pettigrew, 1999; Golden and Zajac, 2001; Stiles, 2001; Felton and Watson, 2002; Useem, 2003).

The focus on how boards add value has increased the relative importance of practices that facilitate boards working together well as a group. These practices go beyond simplistic board structures and include such issues as board power (Westphal and Zajac, 1995), board dynamics (Forbes and Milliken, 1999), and teamwork (Conger et al., 2001). When initially considered, corporate boards are an atypical work group in that they meet infrequently, and yet have a great deal of power and status within the organization. Upon closer examination, however, boards share many characteristics in common with decision-making teams that have been widely studied throughout organizations (Conger et al., 2001; Forbes and Milliken, 1999; Sonnenfeld, 2002). Corporate boards are defined groups of individuals who each bring unique skills and backgrounds along with their own personal interests and agendas, but must work together interdependently to achieve common goals. In other words, corporate boards are social structures, subject to similar political, cognitive, power, and personal dynamics that are relevant to any workgroup (Cascio, 2004; Davis and Thompson, 1994). This leads us to more explicitly

consider a corporate board as a team. Here, we define a team as “a social system of three or more people, which is embedded in an organization (context), whose members perceive themselves as such and are perceived as members by others (identity), and who collaborate on a common task (teamwork)” (Hoegl and Gemuenden, 2001, p. 436).

A Team-Based Model of Corporate Board Effectiveness

The existing literature examining teams and knowledge-based work groups demonstrates a causal link between team practices or attributes, effectiveness, and outcomes (Cohen and Bailey, 1997; Kirkman and Rosen, 1999; Marks et al., 2001). Extending on the literature regarding team effectiveness, some governance scholars have started to focus on managerial competence and empowerment arguments to help explain organizational performance differences (Davis et al., 1997; Hendry, 2002; Shen, 2003). In their seminal theoretical work, Forbes and Milliken (1999) integrated literature on corporate boards and team effectiveness arguing that board effectiveness is identified by the same criteria as many previous models of team effectiveness. Further, they suggest that the various board demographics typically used in board research, such as insider-outsider ratio, board size, and tenure, are expected to influence overall team effectiveness independently. Similarly, Sonnenfeld (2002) describes effective boards as being distinguished by “robust, effective social systems” and contends that board demographics between *Forbes*' (2001) most-admired and least-admired companies are actually similar. This suggests that structural characteristics in and of themselves do not differentiate between high-performing and low-performing boards. Sonnenfeld (2002, p. 106) goes on to state, “We need to consider not only how we structure the work of a board but also how we manage the social system a board actually is.” This is consistent with Papadakis et al.'s (1998) conclusion that decision-specific and relationship attributes, rather than board demographics, represent the greatest influence on the strategic decision-making process.

Drawing from both the corporate board and groups/teams research, we argue that the same conditions enabling workgroups to achieve their goals should be related to corporate board effectiveness. Others have acknowledged this relationship, but in a less explicit way (e.g., Finkelstein and Hambrick, 1996; Daily et al., 2003; Finkelstein and Mooney, 2003; Sonnenfeld, 2004a; Huse, 2005). So rather than develop an original model of boards as teams, we apply previous research on the attributes of high-performing teams to boards of directors (Mohrman et al., 1995). Hence, we recognize that the relationships between group inputs, processes and outcomes depend on factors that are specific to the type of group under study and the specific criteria of effectiveness that is being considered (Forbes and Milliken, 1999; Mathieu et al., 2008).

We apply a model of group effectiveness that fits within a larger framework that has dominated groups and teams research for decades (Cohen and Bailey, 1997; Mathieu et al., 2008). Although it has been modified and extended over the years, the basic input-process-output model (IPO) holds that contextual factors and other individual and team level antecedents “enable and constrain” (p. 412) team member interactions and define team processes which in turn drive task effectiveness (Mathieu et al., 2008). In this study, we focus on team inputs using an established model derived from years of research on employee participation and involvement (Galbraith, 1973; Lawler, 1986; Cotton, 1988; Vandenberg et al., 1999). Specifically, we draw upon Mohrman et al.’s (1995) model of team effectiveness, which is based on five key attributes of high-performing groups, and has been previously applied to corporate boards (Conger et al., 2001). The key attributes highlighted in this model include: 1) *knowledge* that is closely aligned with the organization’s needs and requirements, 2) current and comprehensive *information* drawn from multiple sources and perspectives, 3) sufficient *power* to reach independent decisions, as well as to evaluate and challenge the CEO, 4) sufficient *incentives*, typically

achieved through rewards systems to align directors' and owners' interests, and 5) sufficient *opportunity and time* for the board and committees to prepare for and complete tasks.

By applying this established model of group effectiveness we hope to contribute to our understanding of corporate boards in several ways. First is to empirically demonstrate that board effectiveness is related to the same team inputs that have been shown to impact group performance in other contexts. Second is to provide an integrative framework for the existing research on board characteristics and test their relationship to actual board task performance. While many of these attributes have been examined independently for their relationships to firm financial performance, we test them together for their relationships to board performance as rated by directors themselves. In the following paragraphs, we draw on multiple theoretical perspectives to discuss each of these five team attributes and present hypotheses about their relationship to overall board effectiveness.

Knowledge and Board Effectiveness. Board research has long recognized the importance of directors' abilities, judgment, experience, and knowledge to effective governance (e.g., Copeland and Towl, 1947). Coming from a resource dependence view of corporate boards, knowledge has most often been conceptualized as the stock of information or background expertise that directors possess in aggregate. These areas of expertise contribute to overall cognitive resources and enhance the scope and quality of the board's decisions and its effectiveness (Hillman and Dalziel, 2003; O'Neal and Thomas, 1996). Given that direct measurement of board knowledge is extremely difficult to obtain, various studies have used a number of different proxies as measures of board strategic and operational knowledge over the years. These include board interlocks (Haunschild and Beckman, 1998), board member functional background (Carpenter and Westphal, 2001), and board tenure (Golden and Zajac, 2001; Westphal and Zajac, 1998).

While these various measures of board knowledge are important, research also indicates that the ability to translate board knowledge into good strategic decisions depends on several moderating factors. There should be sufficient diversity among board members to promote discussion of a wide range of options (Hillman, et al., 2002), the group norms and process contribute to the open airing of opinions (Sonnenfeld, 2002), and most importantly, that the benefits of specific types of knowledge are context specific. For example, Carpenter and Westphal (2001) found that board experience and expertise with specific challenges facing a company (such as an unstable competitive environment or a take-over bid) improved monitoring as well as advice and counsel. This, in turn, improves firm performance in specific contexts.

While board members' human capital in terms of background and experience certainly influences the outcomes of board decision-making, we are more interested in the knowledge, or the perception of knowledge or expertise held by the team, that enables teams to function effectively as groups. In the case of boards, of course, this knowledge involves technical expertise concerning areas needed to govern effectively, such as business strategy, succession, finance, law, government, technology, society and how organizations operate (Baysinger and Butler, 1985; Conger et al., 2001; Sonnenfeld, 2002). Viewing boards from this perspective implies that knowledge should not be considered a stock of facts but rather the knowledge structures that board members used to process the vast amounts of information used to make strategic decisions. Given the complexity of the information processing demands placed on directors, boards need sufficient technical ability to evaluate options and make decisions effectively.

This leads to the first hypothesis, which states,

Hypothesis 1: Corporate boards with the technical expertise to evaluate company performance are more effective.

Information and Board Effectiveness. Research on team effectiveness suggests information feedback from the environment is pivotal to the success of work groups (Katz, 1982). Information refers to data about occurrences, events, and activities that affect the business (Conger et al., 2001). In the case of boards, it specifically means information about the operations and management of the organization as well as information about the business environment and the performance and activities of competitors (Lawler et al., 2002). Valuable and timely information can reduce transaction costs and uncertainty (Hillman et al., 1999), provide access to opportunities (Pfeffer, 1991), and increase competitive intelligence (Burt, 1983). While access to timely and pertinent information is widely advocated for good governance, the empirical research is limited to linking proxies for information firm financial performance rather than board effectiveness. For example, firms with higher performance tend to have a greater following from Wall Street analysts (Das, Guo and Zhang, 2006). However, this accumulated work strongly suggests that increased amounts of information available to executives and directors pertinent to company activities should be related to board effectiveness (O'Neal and Thomas, 1996; Pound, 1995). Hence, the second hypothesis states,

Hypothesis 2: Corporate boards with more available information regarding occurrences, events, and activities that affect the business are more effective.

Power and Board Effectiveness. Power is the ability to make and influence decisions, to overcome resistance, and achieve a desired objective (Lauterbach et al., 1999; Pfeffer, 1981). Power gives teams the latitude to operate towards their goals (Mohrman et al., 1995). In the case of boards, power typically refers to the relative power of the CEO or top management team to the outside members of the board such that board decisions regarding the company are accepted and implemented by members of the corporation (Zajac and Westphal, 1996). The relative power of boards has consistently shown a relationship to 'proactive' boards and company performance (Pearce and Robinson, 1987; Pearce and Zahra, 1991). Closest to this study, Golden and Zajac

(2001) concentrated on the relationship between a board's ability (i.e., power) and inclination to affect strategic change and how board characteristics (e.g., size, demographics, and evaluation practices) affect strategic change decisions of hospital boards. They found that a board having more power, relative to the CEO, is positively associated with more innovative strategic changes. Just as Pearce and Zahra (1991) who showed that boards with weakened power are associated with low levels of firm performance, we predict that the relative power of the board to the CEO will also have a direct effect on board effectiveness. Formally, the third hypothesis states,

Hypothesis 3: Corporate boards with more power relative to the CEO are more effective.

Incentives and Board Effectiveness. Motivation refers to the willingness of individuals to commit their energy to perform a particular task (Mohrman et al., 1995). For board directors, motivation refers to the desire to attend meetings, read materials, spend time on corporate activities, and to make decisions that contribute to organizational success (Conger et al., 2001). In previous research on boards, motivation has often been conceptualized as financial incentives and operationalized in terms of a director's financial stake or equity in the company (Hillman and Dalziel, 2003). From an agency theory perspective, one would expect that directors, as with executives, would be increasingly incentivized with higher levels ownership because they seek to maximize personal wealth (Jensen and Meckling, 1976). Indeed, there is evidence that director ownership increases the board's incentive to exercise control (Bergh, 1995) and is related to company financial performance (McConnell and Servaes, 1990; Morck et al., 1988; Short and Keasey, 1999).

Additionally, the team literature suggests that ownership that connects individual effort with team outcomes generates conscientiousness and extra-role activity that facilitates team effectiveness (Campion et al., 1993). Group incentives, such as an

ownership stake, have been shown to encourage information sharing and interaction among team members (Lawler, 1996; Neal and Tromley, 1995; Pfeffer, 1995). Team-based incentives are known to increase cooperation among team members and help to minimize disruptive behavior in groups (Gomez-Mejia and Balkin, 1992). Taken together, research on teams and research on board ownership and firm financial performance from an agency perspective suggests that financial incentives should also be related to board task effectiveness.

However, research on the relationship between ownership and performance is mixed (Sundaramurthy et al., 2005), and suggests that the relationship may not be strictly linear. Morck et al. (1988) and McConnell and Servaes (1990) find a non-linear relationship between ownership and performance, measured by Tobin's q . Similarly, Barnhart et al. (1994) found the shape of the relationship between ownership and overall firm performance, using market-to-book ratio of common equity, to be an inverted U-shape. Extending these results, we predict that incentives for directors, operationalized by board member ownership, will be similarly related to board effectiveness as it has often been shown to be related to firm performance. Like executives, directors with little or no financial stake in the company will not be strongly incentivized to work towards board goals. On the other hand, directors with disproportionately large ownership stakes may attempt to dominate boards to the detriment of overall group effectiveness.

Therefore, the fourth hypothesis states,

Hypothesis 4: There is a curvilinear relationship between director ownership (i.e., incentives) and board effectiveness such that extremely low and extremely high levels of director ownership are associated with less effective boards (i.e., there is an inverted U-shaped relationship).

Opportunity/Time and Board Effectiveness. Opportunity literally refers to groups having the chance to make decisions and perform effectively; this is arguably mostly a time-related issue (Conger et al., 2001). Time is assumed to be a necessary precondition to the effective utilization of the knowledge, information, power and motivation in a team or work group. In the case of boards, relevant issues include the availability of time for meetings, meetings of sufficient duration for dealing with key issues, and time to prepare for meetings (O’Neal and Thomas, 1996). While time is a simple aspect of positive board functioning, it has received a scant attention in the literature.

Pearce and Zahra (1991) argued that effective boards meet often to ensure that they have current information. Also, Vafeas (1999) demonstrated that boards meet more often during periods of turmoil, and that these boards often show improved financial performance. In a more recent study, Xie, et al. (2003) found support for the importance of time spent on board issues by showing that boards that meet more frequently have lower levels of discretionary current accruals. Previous related studies have also suggested that multiple board memberships may reduce board effectiveness by reducing the time that a director can devote to the activities of a single board (e.g., Booth and Deli, 1996). However, the frequency of multiple board directorships is not exceedingly widespread, with only about 4% holding more than two board seats (Ferris and Jagannathan, 2001). Taken together, these many studies suggest,

Hypothesis 5: Corporate boards that spend a larger amount of time on board-related activities are more effective.

A simultaneous test of these five hypotheses should indicate whether or not boards of directors have similar dynamics as other types of work groups. This set of hypotheses is an effort to integrate and complement previous work using a new theoretical perspective. For example, our predictions regarding board power relative to the CEO rely directly on agency theory while the arguments supporting board knowledge and opportunity have been primarily

drawn from resource-dependent views of the board. We suggest that the individual practices, measured in prior research, several of which are found in the hypotheses, are best viewed as contributing *together* to boards functioning as effective groups. In the next section, we expand upon this argument and suggest that board effectiveness is a heretofore unmeasured mediator between these practices and corporate financial performance.

Board Effectiveness and Firm Performance

Prior research on corporate governance has suggested multiple ways in which boards may contribute to organizational effectiveness (e.g., Conger et al., 2001; Forbes and Milliken, 1999). From a resource dependence perspective, effective boards strengthen ties with the external environment by generating business ties and maintaining a positive corporate image (Bazerman and Schoorman, 1983). Effective boards are also thought to contribute to the development of better organizational strategies. Johnson, et al. (1996) argue that effective boards allow top managers to tap the breadth of knowledge possessed by outside directors to complement the depth of firm-specific knowledge of executives. Using a collaborative approach, boards are given the ability to advise, deliver feedback, and enhance strategy formulation (Sundaramurthy and Lewis, 2003; Westphal, 1999).

From an agency/control perspective, effective boards provide a necessary check on top management (Dalton and Kesner, 1985), providing oversight and tying executive rewards to performance (Sundaramurthy and Lewis, 2003). Generally speaking, boards are expected to evaluate company and CEO performance and take action when needed to protect shareholder interests (Golden and Zajac, 2001). Thus, board effectiveness across a broad range of roles including collaboration and control mechanisms should be related to company performance (Cohen and Bailey, 1997; Sundaramurthy and Lewis, 2003).

There is an extensive literature on corporate boards that has examined a number of board actions to determine whether boards are behaving effectively from a shareholder perspective,

including studies of CEO compensation, the adoption of poison pills, adoption of greenmail and other anti-takeover provisions (e.g., Conyon and Peck, 1998; Frankforter et al., 2000).

However, we know of no previous studies which have been able to directly measure board effectiveness from inside the boardroom in a way that might be used to directly examine the theoretical “black box” between board practices or attributes and performance. Given the number of previous studies that have tied many of the aforementioned board attributes to company performance, we expect that board effectiveness will actually act as a mediator of the board attributes-performance relationships that have been extensively studied by governance scholars.

Moreover, we suggest that examining these attributes together, based on theory derived from research on effective teams, has the advantage of potentially integrating this vast set of studies into a more coherent story of how the practices work together to support better corporate governance. For example, Roberts et al. (2005) argue that a prerequisite for effective boards is for directors to become engaged in carrying out their various responsibilities to the company. This requires a significant time commitment to learn and keep up with the various intricacies of the company’s operations and time is a serious constraint for most directors (Lorsch and MacIver, 1989; Carter and Lorsch, 2004). Shen (2005) supports this argument but suggests that without appropriate incentives in place the likelihood of directors willingly putting in the time to adhere to their duties is low. Further, directors with more technical knowledge of the corporation and environmental factors surrounding its operation will make more effective use of time, all else equal. Thus, extant research suggests that effective boards are likely to share some common characteristics and implement a number of these practices together (Conger et al., 2001). Therefore, examining a single practice in isolation may explain additional variance in financial performance due to correlation with the other unmeasured practices that are present and also contributing to board effectiveness.

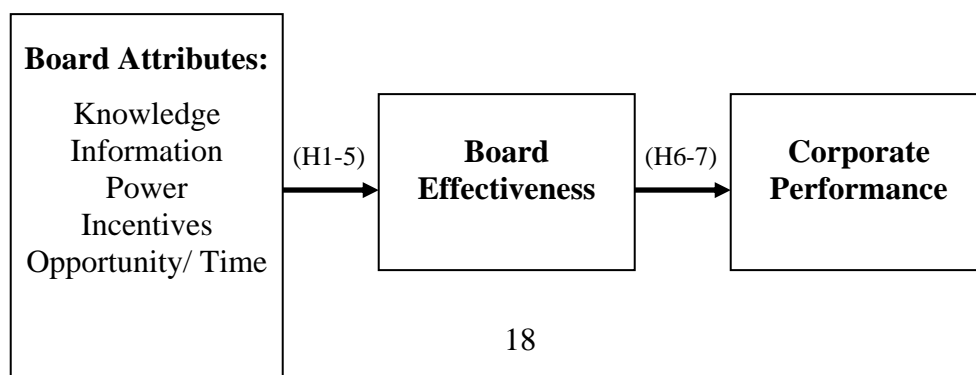
This mediating role of board effectiveness is implied in previous boards research although not empirically tested. For instance, Golden and Zajac (2001) show that board demography and processes significantly affect strategic change. This essentially implies that board attributes impact board effectiveness, leading to higher-quality strategic decisions and higher levels of organizational performance. Similarly, Forbes and Milliken's (1999) comprehensive theoretical model shows how board task performance (i.e., board effectiveness) acts as a mediator, or intervening construct, between board processes and firm performance. Further, they argue that board characteristics are antecedents to task performance. Following these arguments and the many previous studies on corporate governance demonstrating the importance of boards of directors to the successful operation of the corporation (Baysinger and Butler, 1985), hypotheses six and seven state:

Hypothesis 6: Corporations with more effective boards will demonstrate higher levels of financial performance.

Hypothesis 7(a-e): Board effectiveness mediates the relationship between board attributes: a) knowledge, b) information, c) power, d) incentives, e) opportunity/time, and the financial performance of the company.

Taken together, the seven hypotheses discussed above test the comprehensive model that boards with sufficient knowledge, information, power, incentives, and opportunity/time are more likely to be effective, and more effective boards will be associated with superior corporate performance. Figure 1 visually demonstrates the overall model.

Figure 1: Board Attributes, Effectiveness, and Firm Performance



METHOD

This study uses the five key attributes identified by Conger, et al. (2001) to test the aforementioned hypotheses using hierarchical multiple regression techniques. Regression equations are estimated with and without control variables in an effort to partition the variance explained in board effectiveness that might be attributed to the board attributes. Then following Baron and Kenny (1986), hierarchical multiple regression is again used to estimate the ability of board attributes and board effectiveness to explain variance in financial performance. Coefficients from these regressions are used to estimate a path model examining the direct and indirect effects of the board attributes on performance.

Sample and Data Collection

To minimize the effects of method variance, each stage of the hypothesized model was operationalized using various types of survey and/or archival data. The data for some of the board attributes and the effectiveness measure were drawn from an annual written survey of the directors of all *Fortune 1,000* companies conducted by Korn/Ferry International, an international executive search firm, in conjunction with the Center for Effective Organizations at the University of Southern California. Data were taken from the survey of 1996 boards in which 1,151 chief executives, inside directors, and outside directors responded.

Survey data were then matched with archival data on boards taken from proxy statements filed with the Securities and Exchange Commission (SEC), the Institutional Brokers Estimate System (IBES), and from the Investor Responsibility Research Center (IRRC), which publishes detailed listings of corporate governance provisions for individual firms. The IRRC data are derived from several sources including corporate bylaws and charters, proxy statements, annual

reports, 10-K and 10-Q documents filed with the SEC. Finally, company performance data were taken from the COMPUSTAT database for years 1995 through 1998.

In order to match the survey data with archival information, company names were recorded for as many respondents as possible using two different methods. Directors were asked to give the name of the company for the board that they described in the survey, but this question was strictly optional. Second, company names were taken from the return address on the envelopes in which the director returned the survey. Due to specific instructions on the survey, this method was only used when the respondent self-identified as an inside director of a firm.² This process originally identified 420 board members from 335 different publicly-traded companies.

In cases where there were multiple respondents from the same company, one was chosen at random to represent that particular board. There were 71 companies for which there were two or more respondents. Fifty-seven of these had only two respondents with a maximum of 5 directors responding from a single board. An evaluation of the inter-rater reliability between respondents from the same company was made with the 71 boards that could be identified as having multiple respondents. Paired sample t-tests indicated that one group of 71 responses could not be distinguished from a second group. Overall, directors from the same company agreed from 64% to 84% of the time, depending on the particular question. There were 39 companies for which complete data were available for all 11 items used to measure board effectiveness. Even with a small sample of repeat responses we were able to find significant association between the respondents. Using Cohen's Kappa as a measure of inter-rater agreement 6 of the 11 effectiveness items were significant at $p < .05$. Average agreement between raters was 45% and an average of 89% of responses between raters were within one in the response scale.

Selecting one response per company and only maintaining cases when complete data was available for all of the independent and dependent variables used in the model, the number of usable responses dropped to 217. Analyses were then conducted to assess the representativeness of the 217 responses selected to test the model in comparison to the remaining 620 corporations not included from the Korn/Ferry survey. Using t-tests and Levene's tests for similarity of variance, no significant differences were found for any of the variables in the model, except for financial performance. Closer inspection revealed that the performance differences might be due, in part, to a few cases with abnormally high returns. It seems that the group of companies sampled for testing the hypothesized model included a slightly larger number of extremely high performers than are found in the remainder of the *Fortune 1000*. To account for these high performing firms, 7 outliers were identified beyond three standard deviations and removed.

We also found differences in the presence of governance committees, formal board evaluations, and type of respondent represented in the sample. Companies in the analyzed sample were more likely to have corporate governance committees (58% to 49%) and formal board evaluations (30% to 24%) than companies not selected for analysis. Also, inside directors comprised 57% of the cases analyzed (120 insiders vs. 90 outsiders), while they represent only 35% of the total surveys returned. This appears to be due to the identification process of using a return address for inside directors only that was necessary for the matching of archival data. We included the type of respondent as a control variable to ensure that this issue did not bias the multivariate estimates.

Board Attributes

Each of the board attributes used to predict board effectiveness and financial performance in the hypothesized models were operationalized using either data from the survey or information from IBES, IRRC, or company financial statements. For the *knowledge* attribute, we directly address the extent of board expertise through the survey item, 'Our board has the

needed technical expertise to assess company performance.’ This broad question delivers an overall estimation of board expertise regarding the traditional ways company performance can be assessed, such as marketing, finance, and accounting (Forbes and Milliken, 1999). This measure was utilized instead of the some more common proxy measures such as board tenure or director age for two primary reasons. First, this item seems to more closely follow Carpenter and Westphal’s (2001) arguments regarding assessing the perception of sufficient knowledge about relevant issues needed to contribute to board discussions and aid in strategic decision making. Second, there has been uncertainty surrounding the use of board tenure or age to account for expertise or knowledge regarding a company’s business environment. For instance, board members too advanced in age or tenure have been argued to be disconnected with the current realities of the company and the technical issues increasingly pertinent to operations; this has led to the use of term or age limits in some corporations (Sonnenfeld, 2004a).

To represent the *information* available to board members, two variables were utilized; one to account for the internal information made available to the board and one to account for external information.³ For the internal information, we utilized *insider-outsider ratio* (e.g., Rosenstein and Wyatt, 1990; Dunn, 2004) as a measure of the available information available about the inner workings of the corporation, including financial issues and day-to-day operations. For external information, director responses were matched with concurrent data on the number of stock analysts covering the firm from the IBES. IBES is a private company that collects information from more than 7,000 analysts in over 1,000 institutions and makes data available for academic research. A larger number of analysts following the company indicates that there is a relatively greater amount of interest and information available on some companies over others. Higher analyst following also indicates greater competition among analysts to provide accurate and unbiased earnings forecasts, which includes providing an objective, outside perspective

based on information not filtered inside the corporation (Lang and Lundholm, 1996; Lys and Soo, 1995).

To represent the *power* components of the model, an index was created that combined practices indicating a powerful board relative to the CEO. This index was created based on the notion that a board which exhibited more of the relevant practices would be more powerful than a board which exhibited less. This measure was utilized instead of the more common CEO-chair duality measure due to its failure to provide consistent results in prior studies (Sonnenfeld, 2004a). Specifically, *power* was operationalized using four practices drawn from the predictions of agency theory and the popular “best practice” literature (e.g., Conger et al., 2001). The practices used for the index include ‘whether or not the board appoints new CEO’s in succession’ and ‘whether the board has influence over appointments of new members and board committees’. Also included in the index is ‘whether or not the board conducts a formal evaluation of the CEO’ and ‘whether or not this evaluation includes written feedback’. Past research has stressed that effective corporate directors serve shareholders by actively evaluating managerial performance (Rechner and Dalton, 1991; Westphal and Zajac, 1995).

Incentives was operationalized as the percentage of common stock owned by board members. This percentage also includes stocks that directors have the option to acquire within 60 days. Taken from proxy statements filed with the SEC, board and executive officer ownership ranged from less than .01% to more than 65%. Because ownership is hypothesized to have a non-linear relationship with board effectiveness, squared and cubed terms were initially included in the model. Previous studies have utilized similar ownership measures including McConnell and Servaes (1990) and Morck et al. (1988).

Finally, *opportunity/time* was operationalized by using the number of hours per year estimated by the respondent, as reported on the survey, that they spend on board activities including meetings and preparation. Because of the extreme range of hours spent by different

board members, from 10 to 750 hours, the natural log of this variable was used in the model. This measure appears to coincide with similar samples. For instance, a survey by Egon Zehnder International in 2000 found that the ‘average’ non-executive director in North America and Europe dedicates around 100 hours a year to board activities (Carter and Lorsch, 2004, pg. 22).

Effectiveness and Performance

Board effectiveness was operationalized using questions that asked directors to rate the effectiveness of their board in specific areas on a 1 to 5 scale. The survey included 11 different items on board effectiveness which were averaged into a general ‘effectiveness’ scale with Chronbach’s $\alpha = .88$. The items combined for this measure of board effectiveness are listed in the Appendix.

The *financial performance* measure used in the model was a scale of three separate measures of returns: return on assets (ROA), earnings per share (EPS), and return on sales (ROS). To minimize any potential ‘halo’ effect of directors rating board effectiveness according to current year financial performance, survey responses representing 1996 board practices and effectiveness were used to predict mean financial returns for years 1996, 1997, and 1998. Since the three measures of performance were all similar and highly correlated, we standardized the variables and added them together to form an overall performance variable (Chronbach’s $\alpha = .88$).

Control Variables

In an attempt to control the systematic variance in financial performance and board effectiveness not attributed to the specific board attributes discussed above, several control variables were included in the model. First, there are several arguments to include organization size in a study of this kind (Finkelstein and Boyd, 1998; Zajac and Westphal, 1994); we utilized the total *number of employees* as a measure of size in this case. To adjust for the wide range of companies and skewness in the sample, a logarithm was used in the analyses. Although we do

not provide formal hypotheses, we expect organization size to be positively related to board effectiveness and financial performance. Effectiveness is expected to show a positive relationship because top management will increasingly exhibit reliance on the board as the complexity of the company operations increases with size. Additionally, we expect size to be positively related to financial performance because size typically affects labor productivity due to a larger scale of operations, all else held equal (Koch and McGrath, 1996).

Second, *industry structure* was controlled through a set of binomial dummy variables based on single digit SIC codes. The seven categories used were (1) extraction / construction, (2) non-durable manufacturing, (3) durable manufacturing, (4) transportation / utilities, (5) wholesale and retail trade, (6) finance, insurance, and real estate, and (7) services. In the regression models, the durable manufacturing group was used as the referent group and omitted. Differences in both board functioning and financial performance among industries are expected for a number of reasons. The financial performance of a company is inherently tied to the market conditions of its dominant line of business (McGahan and Porter, 1997). In terms of board effects, industry structures are theorized to be important constraints on the strategic choices available to firms (Finkelstein and Boyd, 1998). Industry differences in primary technologies, regulatory environments, and pace of change all play roles in determining the types of decisions faced by boards and, therefore, board effectiveness and outcomes (Hambrick and Abrahamson, 1995).

Next, there is substantial evidence that board size is positively related to financial performance (Dalton et al., 1999). In theory, larger boards would possess the ability to fill multiple functional roles, which includes improving the board's overall understanding of the organization through the inclusion of more insiders. However, to maintain sufficient separation and independence, more external board members may also be beneficial (Dalton et al., 1999).

Related to board size are several other structural characteristics of the boards that may influence the team dynamics, the effectiveness of the board, and the organization's performance (Daily et al., 2003). Thus, following previous studies of boards of directors, we also controlled for *CEO duality* (e.g., Rechner and Dalton, 1991), *board tenure* defined as average director tenure (e.g., Kesner, 1988; Westphal and Stern, 2006), and *board age* defined as average director age (e.g., Wagner et al., 1984). Also, in an effort to ensure that survey respondents holding an insider or outside role did not systematically report differently, we included a binomial control variable for *outsider respondent*. Outsider survey respondents were coded as one, while CEOs and insider directors reporting for the corporation were coded with a zero.

Finally, we controlled for *prior performance*, which was intended to decrease the likelihood and impact of attribution error. This measure was calculated in the same manner as the financial performance measure, but for the year prior to the survey (i.e., 1995).

RESULTS

Descriptive statistics and correlations for all variables are given in Table 1, while the results from the regression analyses used to predict board effectiveness and financial performance are summarized in Table 2. Variance inflation factor (VIF) scores were conducted to test for the possibility of multicollinearity among the data; no scores were above 1.8 indicating that multicollinearity should not be problematic.

Table I. Descriptives and Pearson Correlation Coefficients

	Mean	StdDv	1	2	3	4	5	6	7	8	9	10	11
1. Performance	.2103	2.080	--										
2. Mining/Const.	.029	.167	-.03	--									
3. NonDurable	.243	.430	.16 *	-.10	--								
4. Dur. Manufacture	.295	.457	-.01	-.11	-.37 **	--							
5. Comm/Utilities	.162	.369	.04	-.08	-.25 **	-.28 **	--						
6. Wholesale/Retail	.171	.378	-.20 **	-.08	-.26 **	-.29 **	-.20 **	--					
7. Fin/Real Estate	.067	.250	.04	-.05	-.15 *	-.17 *	-.12	-.12	--				
8. Services	.033	.180	-.05	-.03	-.11	-.12	-.08	-.08	-.05	--			
9. Board Size	11.3	2.60	.27 **	.03	.14 *	-.21 **	.12	-.03	-.01	-.02	--		
10. Outsider Chair	.048	.212	-.06	-.04	.03	-.05	.08	.02	-.06	-.04	-.07	--	
11. Employees	29,904	48,066	.15 *	-.14 *	.01	.09	-.12	.14 *	-.14 *	.03	.29 **	-.03	--
12. Board Tenure	11.6	4.88	.07	-.05	.03	.01	-.04	.02	.04	-.06	.03	-.05	.04
13. Board Age	59.4	3.23	-.06	.04	.10	.10	-.05	-.16 *	-.07	-.03	.10	-.14	.04
14. Outsider Response	.431	.496	.09	-.09	-.04	.13	-.04	-.01	.04	-.11	.00	-.11	.02
15. Prior Performance	-.015	2.40	.59 **	-.07	.19 **	.10	-.04	.27 **	.00	.01	.18 *	.01	.08
16. Insider/Outsider	.436	.567	-.07	-.07	.04	-.12	-.07	.17 *	-.05	.14	-.01	-.05	-.08
17. Ext. Information	15.9	9.17	.31 **	-.04	.07	-.02	.05	-.07	-.03	.04	.24 **	.01	-.41 **
18. Power Index	1.12	.800	.09	.05	-.06	.07	-.00	-.09	-.05	.17 *	.07	-.01	.01
19. Percent Owned	7.50	12.4	-.12	-.07	-.04	-.03	-.16 *	.19 **	.09	.02	-.11	-.08	-.13
20. Board Hours	148.1	104.4	.07	.07	.01	.07	.08	-.13	-.08	-.06	.19 **	.06	.10
21. Knowledge	3.89	.761	-.00	.06	-.08	.11	-.00	-.03	.01	-.08	.03	.03	.01
22. Effectiveness	3.69	.603	.28 **	.05	.07	.08	.12	-.12	-.04	-.02	.22 **	.02	.17 *

* p < .05, ** p < .01

Table I, Continued

	Mean	StdDv	12	13	14	15	16	17	18	19	20	21
12. Board Tenure	11.6	4.88	--									
13. Board Age	59.4	3.23	.24 **	--								
14. Outsider Response	.431	.496	-.10	-.10	--							
15. Prior Performance	-.015	2.40	-.00	.04	.12	--						
16. Insider/Outsider	.436	.567	.06	-.09	-.01	.05	--					
17. Ext. Information	15.9	9.17	-.03	-.04	.01	.39 **	-.20 **	--				
18. Power Index	1.12	.800	-.11	-.07	.02	.03	-.17 *	.16 *	--			
19. Percent Owned	7.50	12.4	.06	-.22 **	-.06	-.10	.18 **	-.28 **	-.10	--		
20. Board Hours	148.1	104.4	-.08	.07	.06	-.01 *	-.16 *	-.16 *	.15 *	-.19 **	--	
21. Knowledge	3.89	.761	-.00	-.05	.20 **	.01	-.03	-.08	.08	-.14 *	.02	--
22. Effectiveness	3.69	.603	-.15 *	.04	.18 **	.20 **	-.17 *	.32 **	.35 **	-.28 **	.28 **	.36 **

* p < .05, ** p < .01

Table II. Results of OLS Regression Models^a

	Board Effectiveness Model 1	Board Effectiveness Model 2	Financial Performance Model 1	Financial Performance Model 2	Financial Performance Model 3	Financial Performance Model 4
(Constant)						
Mining/Construction	.059	.017	.035	.023	.025	.020
NonDurable Manufacturing	-.124	-.045	.059	.071	.079	.076
Communications and Utilities	.007	.079	.069	.051	.058	.036
Wholesale and Retail Trade	-.106	-.003	-.048	-.001	-.030	-.005
Finance and Real Estate	-.036	-.002	.049	.058	.055	.059
Services	.025	-.031	-.036	-.035	-.032	-.029
Board Size	.158 *	.087	.125 *	.114	.099	.100
Outsider Chair	.040	.012	-.059	-.073	-.065	-.069
Number of Employees ^b	.142 *	.057	.088	.081	.065	.073
Board Tenure	-.139 *	-.089	.089	.111	.112 *	.130 *
Board Age	.053	.083	-.120 *	-.134 *	-.129 *	-.150 *
Outsider Respondent	.161 *	.087	.012	.010	-.014	-.004
Prior Performance (1995)	.138	.065	.545 ***	.557 ***	.523 ***	.545 ***
Knowledge (Expertise)		.342 ***		-.030		-.093
Power Index		.242 ***		.061		.018
Insider/Outsider Ratio ^b		-.003		-.056		-.053
Information (# of Analysts)		.175 *		-.041		-.076
Incentive (% Owned)		-.515		-.501		-.410
% Owned ²		1.621		1.039		.759
% Owned ³		-1.255 *		-.631		-.414
Opportunity/Time (Board Hours) ^b		.155 **		.028		.003
Board Effectiveness					.163 **	.181 *
R ²	.172	.434	.408	.428	.430	.446
ΔR ²		.262 ***		.019	.022 **	.019 *
F	3.124 ***	6.854 ***	10.409 ***	6.686 ***	10.522 ***	6.848 ***

^aAll coefficients listed are standardized betas.

^bLogarithm. * p < .05, ** p < .01, *** p < .001

In general, the model of board group effectiveness was upheld as five of our seven original hypotheses were supported. Four of the five attributes (knowledge, information, power, and opportunity/time) were significantly related to board effectiveness; the measures for incentives and internal information did not show statistically significant relationships to board effectiveness. Thus, no support was found for Hypothesis 4 and only partial support for Hypothesis 2. Strongly supporting Hypothesis 6, board effectiveness was found to be a significant predictor of company financial performance. However, we did not find support for Hypothesis 7, which predicted a mediating effect of board effectiveness for the various board attributes on financial performance. These findings are more specifically discussed in the following paragraphs.

The second model of board effectiveness (Table 2: Board Effectiveness Model 2), which included both the board attributes and control variables, was highly significant ($F = 6.854$ $p < .001$) with four of the five predicted relationships confirmed. With the exception of the incentive measure and the internal measure of information availability (insider/outsider ratio), the board attributes were all positively related to effectiveness, significant at $p < .05$ or greater. Together with the control variables, the group attribute variables were able to explain approximately 43% of the variance in board effectiveness. Moreover, the hypothesized team attributes together accounted for the majority (26%) of the variance explained for board effectiveness.

The findings for financial performance also showed strong statistical significance. Board attributes and group effectiveness were estimated both together and separately as predictors of financial performance. In the combined model (Table 2: Financial Performance Model 4), board effectiveness was found to have significant and direct effect on financial performance ($p < .05$). Including the control variables, the model with board effectiveness and the board attribute variables was able to explain 45% of the variance in financial performance ($F = 6.848$, $p < .001$). Moreover, the effectiveness variable itself contributed 2% ($p < .01$) of explained variance in

financial performance beyond that of just the control variables (Table 2: Financial Performance Model 1). However, the change in R-squared was not significant at $p < .05$ for the step that only added the attribute variables (Table 2: Financial Performance Model 2). Thus, Hypothesis 6 is supported with the significant relationship between board effectiveness and financial performance, while Hypothesis 7 is not supported since the attributes did not initially demonstrate a direct relationship to financial performance in the second model. Thus, we could not demonstrate a true mediation effect.

DISCUSSION

Most of the predicted relationships in the model between board attributes and board effectiveness were found to be significant. Our analysis of *Fortune 1000* companies suggests that many of the same attributes that contribute to high-performing teams also contribute to the effectiveness of corporate boards. Hence, boards likely tend to function as teams of individuals charged with complex knowledge work. More specifically, this study demonstrates that group attributes, including higher levels of knowledge, more available company information from external sources, more time spent on relevant activities, and sufficient power, contribute to effective board functioning, which then contributes to positive corporate financial performance. This lends support for existing theoretical models of board effectiveness developed by Forbes and Milliken (1999) and Conger et al. (2001).

The attribute of knowledge showed a strong positive impact on board effectiveness; this supports previous work that suggests that teams need to have sufficient expertise for processing information and making decisions in order to be considered effective (Forbes and Milliken, 1999). However, because we did not find a direct relationship between our measure of knowledge and firm performance, additional studies may be needed that examine various organizational contexts more specifically. In particular, future research could examine how

closely the technical expertise of the board matches with the needs of the corporation, and if this degree of matching influences not only effectiveness but also financial performance. For instance, following Carpenter and Westphal (2001), one could determine if having board members with more experience in uncertain environments improved financial performance for organizations operating in similar contexts.

The attribute of information availability also exhibited interesting findings. Following our expectations, the availability of external information was directly related to effectiveness. However, the internal measure of information was not found to be significantly related to either effectiveness or financial performance. We see a few possible explanations for these findings. First, the increased availability of external information may provide board members with more informational diversity, which has shown to positively influence team performance (Jehn et al., 1999). In fact, studies comparing teams with the same versus unique information have shown that those teams holding unique information often make better and more creative decisions (Ellis et al., 2003; Hinsz et al., 1997).

Alternatively, the lack of a significant relationship between insider-outsider ratio and the dependent variables may be because the measure does not completely depict the information attribute for which it is assigned or has multiple, contradictory relationships with board effectiveness. So, while having more relatively more insiders may enhance board information, it could also diminish board independence, reducing the board's power relative to the CEO. Previous research on board composition (i.e., independence), as measured by the ratio of insiders to outsiders, has shown a similar lack of consensus in relationship to firm financial performance (Hermalin and Weisbach, 2003) and demonstrated that board composition and power are linked with regards to their impact on corporate performance (Combs et al., 2007). Likewise, the *incentives* construct was operationalized by the level of director ownership, which has

demonstrated some inconsistencies in previous studies and may account for our lack of findings regarding this attribute (Sundaramurthy et al., 2005).

Our study also found strong support for the relationship between power and board effectiveness; this is consistent with previous studies that show that, relative to the CEO, boards with higher degrees of power are more proactive and have a greater affect on strategic change decisions (Golden and Zajac, 2001; Pearce and Robinson, 1987). Additionally, this finding supports research in the team's literature, which generally supports a positive relationship between team empowerment and team performance (e.g., Chen et al., 2007). However, conceptions of team empowerment have included two distinct types: structural empowerment, which considers the actual authority and responsibility of the team, and psychological empowerment, which is the team's belief in its own authority (Mathieu et al., 2006). While our measure of power considers only aspects of structural empowerment (i.e., actual board practices), future studies of boards might benefit from the inclusion of both of these conceptualizations so that we can determine the extent to which formalized practices actually impact outcomes as compared to psychological evaluations of power.

Finally, the attribute of time showed a significant positive relationship to board effectiveness lending support to previous studies (e.g., Pearce and Zahra, 1991; Valeas, 1999). Essentially, time spent on board activities can "significantly determine the degree to which boards are able to represent shareholders' interests successfully and to make contributions to strategy" (Forbes and Milliken, 1999, p. 493). However, like the other attributes in this study, time did not demonstrate a direct relationship to firm performance. This may suggest that time spent on board activities does support perceptions of effectiveness, but does not directly translate into quality decisions and their effective implementation. Future research could expand on these results to not only gather the amount of time spent on duties, but specifically on how that time was spent. For instance, a study could examine the amount of time a board spends on

monitoring team behaviors relative to other duties. Such a study could build on previous team's research conducted by Brewer and Wilson (1994), which showed that supervisors of higher-performing police teams spent more time monitoring team performance than those of lower-performing teams.

In addition to some of the concerns expressed previously, other limitations of this study should be acknowledged. First, common method bias is an inherent concern when data are collected in a single survey as necessitated by this particular sample. However, only three of the six independent variables are measured from the same survey and two of these variables use different response formats from the criterion measure. Specifically, our measure of board power aggregated yes/no responses to whether certain practices exist (such as formal CEO evaluations) and our measure of time/opportunity asks directors for the number of hours spent on board activities. Using a different response scale creates "methodological separation" that reduces the potential for shared variance due to common method measurement (Podsakoff et al., 2003, p. 887). While this does not mitigate the possibility that other same source biases exist in the data, such a limitation should be weighed against the benefits of having measures of board effectiveness and key predictors from inside the boardroom rather than fully depending on archival proxy measures as has been the norm in the previous literature.

A related problem is that we are measuring a group-level construct, board effectiveness, with individual level data. So while contemporary research on team effectiveness generally aggregates assessments from multiple team members, this was not possible in this case. However, we do maintain a high degree of confidence in the results because of the high degree of inter-rater reliability across multiple variables in the sub-sample of firms with more than one respondent. Of course, future research in this field should attempt to more effectively measure board effectiveness, as well as the other independent variables, at the group level through the use of multiple respondents.

Third, the representativeness of the sample may be cause for concern. As previously mentioned, companies in the analyzed sample represented only the largest public firms, those listed in the *Fortune* 1000 companies. While the multivariate analyses controls for many differences among the analyzed firms, it is possible that significant differences might exist for companies in different contexts or even a different sample of *Fortune* 1000 companies. Indeed, previous governance studies have demonstrated empirical differences with alternative company samples suggesting that some care should be taken when generalizing the results (e.g., Morck et al., 1988 vs. McConnell and Servaes, 1990; Ng, 2005). In other words, this sample is composed of large, mature *Fortune* 1000 firms where board roles may differ from samples of nonprofit, high-technology, smaller, or early-stage organizations (Forbes and Milliken, 1999). Further, it should be noted that the firms included in this analysis, while representative of the *Fortune* 1000 as a whole, contained firms that were more likely to have formal governance committees and formal board reviews. While these items are not part of the formal analyses, it is possible that the presence of these practices indicate a type of a culture of review and analysis of board operations that make these boards more likely to be effective.

This study is also limited in the ability to replicate these measures across multiple years. Unfortunately, it was not feasible to collect longitudinal data and utilize multiple years due to limitations in the consistency of respondents and survey questions. Although we utilized performance data across multiple years following the time of the survey, there is no full assurance of causality. The endogenous relationship between company performance and board structure may make causality difficult to determine. For example, ownership may be a reward for effectiveness rather than serve as an incentive mechanism (Kole, 1996). To protect against the potential that boards may judge themselves as “effective” if the company itself is currently performing well we controlled for performance in the year prior to the survey and used a three year measure of performance after the survey was collected. While none of these efforts can

correct the fact that this is a correlational study, this research contributes to the existing corporate boards literature with direct measures of board effectiveness from directors themselves. If direct access to boardrooms increases in the future, research in this area will hopefully be able to build on the present results using more rigorous qualitative and quantitative methodologies and data (e.g., longitudinal).

Finally, it should be mentioned that boards, although sharing many characteristics with more traditionally researched teams like top management teams, may be considered unusual for many reasons. As mentioned earlier, corporate boards tend to meet infrequently, usually every three months. Also, boards are generally not involved with the implementation of strategic decisions or day-to-day operations of the corporation, but serve in only a monitoring and/or advisory role. Hence, the level of direct impact that boards, even very effective ones, have on organizational performance may be questionable.

While these limitations should certainly be taken into account in assessing the representativeness of the findings, this study does appear to provide some significant implications for both the corporate governance and team literatures. First and foremost, the results indicate that many of the same factors that contribute to success in knowledge-based work groups are also relevant to corporate boards of directors. This suggests that corporate boards seeking to coalesce around group goals should take an inventory of specific practices used by the board to ensure that all of the key attributes are present and optimized (Conger et al., 2001). The significant effect found for board effectiveness on corporate financial performance also demonstrates that the ability of the individual directors and CEO to function as a group should not be ignored in theories of how boards of directors financially impact the companies they govern.

In general, this suggests that more corporate governance research needs to embrace new or more encompassing perspectives. As demonstrated here, the team's perspective may be

capable of adding to our understanding of boards and their relationship to performance. However, as Pye and colleagues argue (Pye and Camm, 2003; Pye and Pettigrew, 2005), one type or style of board does not necessarily equate to effectiveness in all contexts. Therefore, more effort needs to utilize the team's perspective to examine boards within different environmental and organizational contexts. For example, do boards functioning in environments with different levels of regulation, technology requirements, or dynamism require different configurations of team attributes in order to be effective? Are effective teams in the boardroom more vital in times of crisis? Are there thresholds of knowledge, information availability, incentives, et cetera that a team must meet in order to effectively impact corporate performance? Additionally, how do extreme differences in size or organizational life-cycle change the needs of the board?

In addition to the above research agendas, an even more important line of future research should involve a closer examination of board processes, including the longitudinal dynamics associated with board functioning. Indeed, more elaboration is needed regarding the relationships between board structures and group processes in general. For instance, one might question how various structural changes, perhaps mandated by various monitoring entities, have impacted the functioning, decisions, and outcomes of the board as a whole? However, we realize that such calls for future research must be tempered with an understanding of the difficulty researchers have with obtaining relevant data on a large scale, although recent research suggests that it may be possible for scholars to gain increased access to the boardroom (LeBlanc and Schwartz, 2007).

CONCLUSION

Jeffrey Sonnenfeld (2004b), an academic who has worked extensively with boards and CEOs, argues that when considering board reform one of the needed voices in director selection are those that know about group dynamics. Sonnenfeld goes on to suggest that the most appropriate directors are those that are 1) intelligent and knowledgeable about the business, 2) of high moral character and with no commercial or social agendas, and 3) passionately interested in the business and willing to put forth the enormous time and effort required. Overall, this study contributes to the corporate governance literature by providing evidence that many team-based attributes and practices, such as those outlined by Sonnenfeld (2004b), contribute to the general effectiveness of the board and indirectly improve the financial performance of the firm. These results confirm that boards may be considered as groups of individuals that are subject to the same social and situational forces that determine the success of all knowledge work groups. More generally, these findings suggest the value of continued empirical examination of the behavioral processes that affect corporate governance and corporate performance.

NOTES

[1] The words “team” and “group” are largely used interchangeably in this paper.

[2] Instructions on the survey asked inside directors of a company to respond for that company. Outside directors, on the other hand, were asked to respond for the board of the largest company they served. The potential for outside directors to work for one company and respond with reference to another company’s board made identifying a respondent by their return address impossible. Only in the cases of inside directors were the return addresses felt to be reliable company identifications.

[3] We are grateful to an anonymous review for the recommendation to analyze information from both an internal and external perspective.

APPENDIX. EFFECTIVENESS SURVEY ITEMS

All questions rated on 1 to 5 scales.

1. How would you rate the overall effectiveness of the board?
2. Would you agree or disagree that your board provides leadership?
3. How effective is your board in shaping long-term strategy?
4. How effective is your board in monitoring strategy implementation?
5. How effective is your board in anticipating threats to company survival?
6. How effective is your board in managing during a crisis?
7. How effective is your board in planning for top management succession?
8. How effective is your board in balancing interests of different stakeholders?
9. How effective is your board in bolstering company's image in the community?
10. How effective is your board in building networks with strategic partners?
11. How effective is your board in enhancing government relations?

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