Corporate Directors' Social Capital: How Centrality and Density Impact Board Monitoring

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A large body of management research has focused on agency theory's presumed conflict between the interests of corporate management and corporate shareholders and the need for an effective board of directors as an organizational governance structure. Given the board's oversight role over management, a power struggle develops between a company's board and its management team, specifically the CEO. We introduce a novel measure of board power based on social network theory, applying measures of centrality, the number of interlocks held by outside directors, and density, the degree of intra-board connectedness resulting from director membership in multiple board committees.

INTRODUCTION

Among the concepts of interest to corporate governance researchers is that of the power of the board of directors. Finkelstein and Hambrick (1996) point out that the need for board monitoring of firm management and the capacity to do so require a clear understanding of board power. They proposed that agency conditions depend on the capacity of a board to monitor top management, and this capacity is a result of the distribution of power between a board and its CEO. More recently, Hillman and Dalziel (2003) propose that agency theory implies the ability of a board to monitor management, and this suggests the importance of power. That is to say, a board's ability, or capacity, to monitor top management is dependent on its power to effect and enforce its will. Hence, examination of the nature of board power and its antecedents and outcomes is essential to our understanding of the governance function of boards, particularly with respect to firm strategic outcomes.

To date, board power has been viewed primarily from its status as independent from management. Outside directors are viewed as being in a better position to monitor management because of their assumed independence from the company's managers and their expertise developed from prior experience (Mace, 1986). When compared to managerial directors, outsiders are preferable because "insider-dominated boards imply problematic self-monitoring and particularly weak monitoring of the CEO, since the CEO is likely to be in a position to influence the insider directors' career advancement within the firm" (Zajac & Westphal, 1994, p. 125). Outside directors are also presumed to bring a level of impartiality in evaluating management's decisions (Baysinger & Hoskisson, 1990). Unlike insiders, outside directors are less likely to be affected by the outcomes of their decisions and thus can arrive at more objective solutions (Rechner, Sundaramurthy & Dalton, 1993).

Boards derive their structural power not strictly from their relative position in the organizational hierarchy but in their legal authority to oversee the activities of the CEO. In addition to structural power, boards possess a certain amount of ownership power. Finkelstein (1992) defines managerial ownership power as stemming from 1) the capacity of managers to act as agents on behalf of the firm's principals, 2) the level of share ownership held by managers, and 3) managers' interpersonal links to the firm's founders. Ownership power of the board likely stems from similar sources. First, the board is legally empowered to act on behalf of the owners. Second, directors often have some ownership interest in the focal firm. Indeed, corporate governance reform efforts have focused specifically on the importance of directors holding an equity position in the firm, and the issue of director ownership has been the focus of considerable empirical scrutiny. In addition to equity ownership, board ownership power may also stem from directors' personal links to institutional investors and blockholders. Third, directors' personal links to the firm's founders provide some base of ownership power.

In addition to the traditional bases of board power, this paper uses social networks to determine the power of a board. Network analysis represents a distinct approach to studying social phenomena. Instead of viewing individuals on the basis on their attributes, characteristics, values or other features, network analysis examines the relationships among individuals. Ties among individuals, often referred to as actors, establish the presence of a network. Broad structuralism views the entire network similar to the way astronomers view the universe and argues that it is a more effective method of explaining social phenomena than individual attributes (Wellman, 1988). Thus, while human capital refers to the knowledge, abilities, and experience possessed by individual actors, social capital refers to the interpersonal linkages between individuals (Kim & Cannella, 2008).

A well-studied network characteristic is whether the relationships among the actors are strong or weak. Dense networks exist where the ties among the network are strong, creating cohesion among the actors. Cohesion within dense networks fosters trust and unity in action. (Coleman, 1988). An alternative view suggests that weak ties within a sparse network are more desirable because they allow firms to enjoy efficiencies in developing and utilizing their network connections (Burt, 1992). Weak ties are more likely to form bridges between networks, resulting in more opportunities for contact with individuals in other networks and more effective dissemination of information (Granovetter, 1983). Rowley, Behrens and Krackhardt (2000) found that dense networks and strong ties between network members are incompatible with industries operating in uncertain environments; firms should not invest all of their resources forming network ties with a small number of partners. Rather, firms embedded in sparsely connected networks enjoy efficiencies and brokerage advantages based on the ability to control nonredundant information exchanges. However, strong ties may be more useful in the transfer of knowledge when the knowledge is highly complex (Hansen, 1999).

In addition to the structural network characteristic of density, networks are also analyzed by measuring centrality. Unlike density, which looks at the entire network, centrality refers to the individual actors' positions within a network (Rowley, 1997). Centrality generally measures the number of ties an actor has to other members of the network (Brass & Burkhardt, 1993). Centrality also reflects the relative power obtained by an actor through the network structure, suggesting that the more ties and access the actor has with others in the network (Rowley, 1997), the greater that individual's power.

Network analysis is a popular tool used in researching corporate boards of directors. In most studies, the focus is on board "interlocks," which refer to the interorganizational relationships created by board ties. The distinction between strong or weak ties among directors reflects the larger debate among social network researchers, with those claiming that strong ties promote support and influence and those claiming the benefits of weak ties to provide better access to information (Seidel & Westphal, 2004).

Social network theory also suggests the existence of a class hegemony or a corporate elite created through interlocking directorates which facilitate not the interests of the organization, but rather the interests of the individual board members in maintaining friendship ties, and perhaps more important, social status. Interlocks are embedded in a network of an upper class elite who share social and personal connections through exclusive clubs as well as board memberships. Interlocking directorates represent a "special segment of the capitalist class" with multiple connections to large corporations (Useem, 1979, p.

556). These connections permit an elite group of owners and managers to unify corporate policy and concentrate power. They also form the basis to further cohesion by providing a forum for social contact, similar to social clubs and exclusive schools (Useem, 1980).

Applying centrality to board studies, researchers have suggested that organizational centrality stems from being tied to other companies through shared directors. Davis and Robbins (2005) found that interlock network centrality was self-reaffirming, with central corporations better able to attract central directors and CEOs of other corporations. Consistent with resource dependence theory, which advocates the primary functions of interlocks as being information exchange and the formation of liaisons between interdependent corporations (Pfeffer, 1972), network analysis suggests that the number of interlocks strengthens a corporation's status, and therefore, power within the network.

This study extends the research on the power of corporate boards of directors by examining this construct through social network analysis. We argue that both board density and board centrality will be predictors of board power. We test these assumptions against the likelihood that an incoming CEO will be simultaneously named board chair. A discussion and implications for future research follow.

SOCIAL CAPITAL AND BOARD OF DIRECTORS' POWER

Board social capital encompasses two types of relationships: (1) external social capital, those ties with various outside contacts, and (2) internal social capital, those ties with persons within the firm, mainly other directors (Kim & Cannella, 2008). Both types of social capital can be of tremendous value both to the firm as well as individual directors. For the organization, the board's external social capital provides it with linkages to other firms, thus creating channels of information-sharing and resource acquisition. Internal social capital enhances the trust and collaboration among board members, thus facilitating their role as strategic advisors to management. For individual directors, both external and internal social capital provides the director with personal contacts that can be critical to the member's personal advancement (Useem & Karabel, 1986).

External Social Capital and Centrality

In order to measure board power based on its external social capital, we rely on the network concept of centrality. For a board, centrality is derived from being tied to other boards through shared directors, and is determined by a simple count of the total number of other boards on which its directors serve (Davis & Robbins, 2005). Numerous directorships are a source of both expertise and prestige. Through their experience as directors on other boards, members increase their opportunities to deal with multiple elements in the task environment. Directorships also create personal contacts with representatives of relevant organizations which create valuable sources of information and resources, such as door-opening and legitimizing (Borch & Huse, 1993). In addition to general management or governance experience, expertise power may also be based on the relevance of a director's expertise with respect to a particular strategic choice (Finkelstein, 1992). Strategic relevance means that the impact of a director's expertise may lie in the director's capacity to reduce uncertainty stemming from the firm's dependence on task environments most problematic to the organization (Pfeffer, 1972; Pfeffer & Salancik, 1978). Hillman & Dalziel (2003) noted that boards with prior experience in a particular situation facing the firm showed more effective monitoring. Formal connections with organizations in the focal firm's institutional environment may be sources of external information that, when included as inputs to the focal firm's information processing system, lead to a reduction of uncertainty for the focal firm.

Ties to other organizations through interlocking directorates also enhance a board's prestige power. (Mizruchi, 1988; Mizruchi & Stearns, 1988; 1994). A central tenet in the resource dependence perspective (Pfeffer, 1972; Pfeffer & Salancik, 1978) is that prestigious individuals are recruited as directors to enhance the legitimacy of the focal firm. Hence, the prestige power of the board and its individual directors is a singularly apt application of Finkelstein's (1992) concept of power to the domain of boards due to the importance of external interconnections directors often bring. Thus, the overall measure of the board's centrality within the business environment is a valid construct for power.

Internal Social Capital and Density

To measure the power created from a board's internal social capital, we use the network measure of density. When members of a network, in this case, the board itself, have close personal ties to many other members, the network is characterized as dense. Closure in a group results from full connectedness; everyone in the network is connected with each other member (Oh, Chung & Labianca, 2004). As density increases, communication becomes more efficient (Rowley, 1997), members tend to share similar attitudes and values (Krackhardt, 1988), and mutual trust develops (Coleman, 1988).

Dense networks are also characterized by strong norms and a deep-seated expectation that shared behaviors will be established (Rowley, 1997). Through their interactions with other network members, institutionalized norms develop, and players imitate each others' behaviors through a mimetic process (Galaskiewicz & Wasserman, 1989). Further, norms are well enforced through sanctions against any self-serving behaviors (Coleman, 1988). Network members are also more willing to accommodate other network members because they know their favors will be reciprocated (Oh et al., 2004). A consequence of density is the likelihood of cohesiveness within the network; when network actors subsume their own interests in favor of the general consensus of the group, agreement among the actors will occur more often and more quickly. Moreover, the network will act in unison to fend off any threats to it or its members and is more likely to oppose any challenge to its values and shared expectations (Balkundi & Kilduff, 2006). Thus, highly dense boards will be more powerful to object to or question management decisions which do not conform to their notions of good governance or a sound strategy.

BOARD OF DIRECTORS' POWER AND CEO DUALITY

Finkelstein and Hambrick observed that CEO duality – which occurs when the CEO is also the chairman of the board – is an indicator of CEO power over a board (1996: 251). Less powerful boards are defined, in part, as boards of companies where the CEO and chair positions are combined (Zajac & Westphal, 1996). Conversely, more powerful boards will be characterized by separation of the CEO and chair positions.

While nearly 80% of large U.S. firms are characterized by CEO duality (Faleye, 2007) Vancil (1987) suggested in many cases a new CEO does not receive the chair position immediately upon appointment. The probability of dual appointment as CEO and board chair position may be impacted by power of the board of directors. Certain aspects of board structure may make the power of its organizational position relatively dynamic, and CEO duality may be a manifestation of board power. In the case of stronger boards, directors are more likely to prefer separate CEO and chair positions because duality represents less board control over management (Fama & Jensen, 1983) and can lead to CEO entrenchment (Mallette & Fowler, 1992). In cases where the power of the board is high, we suggest that there is a lower probability that a newly appointed CEO will simultaneously be named board chair. Using the network measures of board power, we offer the following hypotheses:

> *Hypothesis 1: The greater the board centrality, the less likely a newly appointed CEO will also be named board chair.*
> *Hypothesis 2: The greater the board density, the less likely a newly appointed CEO will also be named board chair.*

METHODS

Sample and Data Collection

The population in this study includes firms from the Fortune 1000 index of 2007 which reported a CEO succession event between 2002 and 2007. Succession events were identified using the Mergent database, which reported a total of 238 events during the sample period. Each event was confirmed by examining company proxy statements, and after eliminating observations which were either incorrect or for which available data were incomplete, the sample consisted of 186 CEO succession occurrences, for which density measures were available for 171 cases.

Variables

The dependent variable is CEO duality and takes a value of one if the newly appointed CEO was also appointed board chair at the time of appointment. Board power, defined as external social capital, was measured as the total number of corporate directorships and non-profit directorships held by directors of the focal firm. To determine board density as the measure of internal social capital, we examined the committee membership of each board.

The work of the board increasingly relies on committees (Lorsch & MacIver, 1989) as a means to facilitate board decision-making processes (Conyon & Peck, 1998; Singh & Harianto, 1989). The past three decades have seen an increasing incidence of committees and committee meetings, especially after the passage of the Sarbanes-Oxley Act of 2002 (Valenti, 2008). The division of the work of the board into committees represents a certain amount of horizontal differentiation within the board, although this has received relatively little scholarly investigation. If organizational design is considered to facilitate efficiency and effectiveness in organizations, examination of board organization may yield fruitful insights about board functions and outcomes. Although researchers have increasingly acknowledged the importance of board committees, in comparison to the volume of research on the board at large, board structure in the form of board committees has received relatively little empirical scrutiny.

Recognizing that much of the work done by board members is through their committee assignments, we used ties through committee membership as the basis for measuring density. If a member sat on at least one committee with another member, a tie was formed. Thus, the more commonly held committee assignments among board members, the higher the density ratio, reaching 1 if all members had a committee tie to each other member. Density was calculated using UCINET6 network software.

Control variables included board size, the percent of total equity in the focal firm owned by directors, the number of board committees, the number of board meetings, and firm performance, using ROA. Age of the CEO at the time of appointment as reported in the proxy statement and whether the CEO had served as board chair during the immediate prior appointment also served as control variables. We surmised that older CEOs would be less likely to be appointed as chair due to their impending retirement. Those who served as board chair in their prior appointment were considered to be less likely to accept another appointment as CEO, as they would already be relatively secure in their current position. Board level variables were collected from company proxies filed with the Securities and Exchange Commission as form DEF 14A. ROA data were collected from Compustat for the year of the proxy statement and the year immediately prior and were averaged for the two years.

Analysis and Results

The data were analyzed using binary logistic regression, or logit, due to the binary nature of the dependent variable. The relationship between the independent variables and the dependent variable is non-linear due to the binomial distribution of the outcomes of the dependent variable (Liao, 1994). In order to adjust for this non-linear relationship between independent and dependent variables, the link function in multiple logistic regression (MLR) relates the distribution of the independent variables to the odds of the occurrence of the dependent, binary variable versus its non-occurrence (Harrison, 2001). This makes the relationship between independent and dependent variables approximately linear.

Table 1 displays the variables' descriptive statistics and correlations. Table 2 displays results of the stepwise binary logistic regression of the variables on the odds of a new CEO being also appointed chair versus the odds of not being appointed chair.

The first model includes only the control variables. The likelihood ratio (LR) test, a test of overall model significance, assesses the change in the maximized value of the log-likelihood function (Bowen & Wiersema, 2004) and, in this case, the LR value of 171.6 ($p \leq .01$) indicates that at least one of the control variables is statistically different from zero. Age of the incoming CEO and his/her prior service as chair are positively and significantly related to the log odds of CEO duality. The regression coefficient for the number of board meetings is positive but only marginally significant. In addition, the results provide information for testing the magnitude of the statistically significant variables (Hoetker, 2007). The value of the coefficient for CEO age means that for every one unit increase in incoming CEO age, the odds of

being also appointed chair increase by a factor of 1.1 ($e^{(0.092)}$). The value of the coefficient for prior service as chair means that an increase in the value of prior service as chair increases the odds of being appointed chair upon a new CEO appointment by a factor of 6.5 ($e^{(1.87)}$).

TABLE 1
DESCRIPTIVE STATISTICS AND CORRELATIONS

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. CEO=chair	.25	.43									
2. Board size	10.36	2.31	-.01								
3. Board equity	.50	.13	-.05	-.01							
4. Number of board committees	4.18	1.19	.01	.36**	-.09						
5. Number of board meetings	9.88	4.96	.19**	-.05	-.12	.04					
6. Firm performance	3.15	10.61	-.06	-.06	-.01	-.08	-.11				
7. CEO age	53.12	5.89	.27**	.01	.01	.01	-.06	.06			
8. Prior chair	.15	.36	.39**	.03	.09	-.10	.14	-.05	.27**		
9. Board density	31.25	4.00	.14	.06	.15	.05	.08	-.06	-.15	-.03	
10. Board directorships	16.93	10.30	.13	.44**	.08	.20**	-.05	-.01	.09	.11	.10

TABLE 2
BINARY LOGISTIC REGRESSION RESULTS FOR PREDICTING CEO DUALITY

Variables	Model 1		Model 2	
Board size	-0.034		-0.131	
Board equity	-1.095		-2.563	
No. committees	0.086		-0.023	
No. board meetings	0.079	†	0.087	†
Firm performance	-0.01		-0.022	
CEO age	0.092	**	0.127	***
Prior Chair	1.87	***	2.255	***
Committee network density			0.002	
Board directorships			0.029	
Board directorships x Committee network density			-0.066	
Committee network density x No. committee meetings			0.035	
N	186		171	
-2LL	171.6		136.074	
Df	7		2	
chi-square (change in -2LL)	36.483	***	35.526	***
pseudo R-squared (1- LLU/LLR)	0.18		0.21	
% correctly classified	80.6		83	

† $p \leq 0.10$ * $p \leq 0.05$
** $p \leq 0.01$ ***$p \leq 0.001$

Model 2 tests the impact of the internal and external social capital of the board on the likelihood of a duality-creating CEO appointment. While test statistics indicate overall model significance, neither of the hypothetical variables is significant. Thus, the hypotheses that board centrality and board density will be negatively related to the likelihood of CEO duality are not supported.

MANAGERIAL IMPLICATIONS

This study was an attempt at modeling the sources of board power that impact the likelihood of CEO duality. Specifically, our research suggested that board power is rooted in both the centrality and density of the board which then serve as antecedents to the decision to whether the title of board chair is bestowed upon newly appointed CEOs. Indeed, as suggested by Vancil (1987), boards may wait out the early years of CEO tenure before appointing the CEO also as chair.

Traditional governance research attempted to model the distribution of power between the board and the CEO by using outside representation as a proxy for board independence. Independence (or the absence of dependence) of the board is considered to be a key dimension of board power, based on the assumption that directors having the capacity to act independently are generally considered powerful. However, empirical studies do not consistently support this view. Board independence does not appear to increase the board's ability to engage or promote activities that enhance shareholder value (Westphal, 1998). Hence, considering alternative sources of power of boards of directors may shed further light on the impact that boards have on firm outcomes.

Our findings did not support the conjecture that board centrality, measured by the number of other board seats held by board members, predicts governance effectiveness. Recent research on the number of board seats held by directors may explain the lack of a relationship between board centrality and CEO duality. While multiple directorships should not, standing alone, reduce a member's ability to function effectively, an optimum number of board seats may exist which, once exceeded, does in fact diminish governance effectiveness. Fich and Shivdasani (2006) found that firms with busy boards, those in which a majority of outside directors hold three or more directorships, are associated with weak corporate governance. Thus, while a certain amount of expertise and prestige is derived from membership on several boards, the benefits associated with multiple board seats may be canceled out by the loss of time and commitment which may accompany numerous appointments. It may be more useful for directors to have prior rather than concurrent experience at other firms in order to enhance their contributions in evaluating potential CEOs (Carpenter & Westphal, 2001).

The analysis did not support the hypothesis that board density strengthens the board's oversight effectiveness. Since board density was measured by how many shared committee appointments existed, we surmised that the number of committee meetings would mediate the relationship and therefore included an interaction term in the model. However, the coefficient on that variable was not significant, either. Initially we speculated that including both board density and board centrality in the model might present colinearity problems as it has been suggested that members in highly dense networks are less likely to expand their contacts outside the group due to their strong commitment to the network (Kim & Cannella, 2008). Thus, there would be a significant negative correlation between the two variables. Examination of the correlations, however, indicated that the correlation coefficient was in fact positive and not significant.

The lack of support for our hypothetical relationship of board power and incoming CEO duality, together with the strong connection between prior chairmanship and duality at the focal firm, suggests that whether a newly appointed CEO is also named chair depends on circumstances beyond the board's control. For example, it may be that outside successors have considerable power relative to the hiring board if they come to the focal firm as the chair of their previous employer. First, the company seeking a new CEO may intend that the CEO and chair position be combined and thus may purposely recruit an individual with prior chair experience. Second, the incoming CEO may insist that the appointment include the chairmanship of the board and is in a better position to do so if he or she currently holds such position. Our results add to those of Davidson and his colleagues (Davidson, Ning, Rakowksi, & Elsaid, 2008) who found that outsiders are more likely to be named chairs at the time of their appointments as CEOs; our research shows that not only must new appointments be outsiders, but also occupy the chair position with their former employer.

While not included as a hypothesis, our research found a significant, positive relationship between CEO age and chair appointment. The positive and significant relationship between CEO age, as proxy for

experience, and the likelihood of CEO duality suggest that this likelihood increases with CEO age. These findings might be explained by the board's sense of comfort that older, more seasoned CEOs are less likely to make decisions that put corporate assets at risk (Maccrimmon & Wehrung, 1990; Wiersema & Bantel, 1992) and therefore can be trusted in the dual role of CEO and chair.

On the other hand, it is possible that older CEOs would be less likely to be appointed as chair due to their impending retirement. To test this unstated hypothesis, we included the squared term of age in the control model. The model was not significant, and although the main effect of age did show a change in sign, neither the coefficient for age nor for the squared term was significant. Therefore, our results suggest that the effect of age is indeed linear. Boards tend to value the expertise and experience represented by an incoming CEO's age and are more likely to entrust the role of board chair to an older candidate. Prior research has suggested that younger CEOs may be viewed by organizational stakeholders as more risk prone and that the younger a successor, the more likely that leadership of the board will remain under the control of the board (Quigley & Hambrick, 2008). In addition, Davidson and his colleagues, (Davidson, et al., 2008) found that older successors were more likely appointed to dual positions suggesting that boards value the experience that an older executive likely brings. Our results generally support this age hypothesis by demonstrating that successor age is associated with the odds of a dual appointment.

As with all research approaches, this study has limitations. First, the use of proxies for board processes continues to be a signal weakness of governance research. Although this study makes use of such proxies, the empirical model proposes to identify antecedents of board actions that reflect board power. Consideration of power is often about the outcomes of power rather than the processes of power.

A second limitation may be the need for additional contingencies. Contextual factors such as conditions of succession, the CEO's previous experience, and firm strategy may also influence the decision as well as the institutional forces that currently impact the high percentage in the U.S. of individuals serving as both CEO and chair. While our model included whether the newly appointed CEO was either the chair immediately before selection, other control variables are probably needed.

CONCLUSION

This study is an attempt to create a core theoretical model of board power as it relates to CEO succession. While organizational researchers and corporate governance experts have historically viewed corporate boards of directors as "rubber stamps" for management (Herman, 1981), our approach takes the view that boards can and do take their monitoring responsibilities seriously and carefully consider the appointments of new CEOs. Our study contributes to the research agenda on boards by offering alternative measures of board power in the CEO succession process. While previous studies typically focus on whether a new CEO will be appointed from within or outside the organization (e.g., Cannella & Lubatkin, 1993), our research extends the examination to the nature of the appointment itself and the factors contributing to the board's decision.

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