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Exceptional boards: Environmental experience and positive deviance from institutional norms

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Summary This paper explores the phenomenon of positive organizational deviance from institutional norms by establishing practices that protect or enhance the natural environment. Seeking to explain why some organizations practice positive environmental deviance while others do not, we locate our inquiry on the board of directors—the organizational body that interprets external issues and guides organizational response. We find a strong correlation between positive deviance and the past environmental experience of board directors and the centrality of the organization within field-level networks. Organizations located on the periphery of the network or whose boards possess a high level of environmental experience are more likely to deviate in positive ways. Our conclusions contribute to multiple literatures in behavioral and environmental governance, the role of filtering and enaction in the process of institutional conformity and change, and the mechanisms behind proactive environmental protection strategies within business. Copyright © 2012 John Wiley & Sons, Ltd.

Keywords: institutional theory; positive organizational deviance; board of directors; environmental management; environmental experience

Introduction

Since the 1960s, organizations have found themselves under increasing institutional pressure to attend to environmental sustainability as part of their corporate agenda (Hoffman, 2001a). Many organizations respond to these pressures by adhering to accepted and legitimated environmental standards. But some proactively adopt environmental practices that go beyond those regulative and normative expectations to offer broad social benefits (Hart, 1995; Hoffman & Woody, 2008). This type of positive organizational deviance—the intentional departure from institutional norms (Baron, 2006; Spreitzer & Sonenshein, 2004)—is particularly compelling as an area of study. Because environmental issues are complex and have unclear solutions, external contextual factors tend to lead to conformity of organizational action (Bansal & Clelland, 2004; March & Olson, 1976) rather than positive organizational deviance. Something internal to the firm, rather than institutional context, must therefore determine differences in organizational response. This paper seeks to explain this phenomenon.

Institutional expectations for engagement on issues such as environmental sustainability come from sources of coercive, normative, and cognitive influences that originate within organizational fields, whose constituencies include the government, shareholders, value chain members, trade associations, public opinion, and others (Hoffman, 2001b; McDonough, Ventresca, & Outcalt, 2000; Scott, 1995). Although this pressure impacts organizations in multiple ways, and through multiple channels (Aldrich & Herker, 1977; Tushman & Scanlon, 1981), our paper locates its inquiry into the sources of positive deviance at the level of corporate environmental governance.

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We take a behavioral governance approach (Hambrick, v. Werder, & Zajac, 2008) to examine how the board of directors' experience and networks help shape an organization's response to institutional pressures. Increasingly, boards are mandated to attend to their fiduciary responsibilities and engage with stakeholders to mediate conflicting interests (Blesener, Cruz-Osorio, Gardiner, & Germanova, 2009; Lan & Heracleous, 2010; White, 2006). This includes addressing issues of corporate social responsibility and sustainability, by adhering to programmatic standards such as the UN Global Compact (Escudero et al., 2010; Mackenzie & Hodgsons, 2005; Tonello, 2010). Roughly 60 percent of public companies have set up dedicated board committees to oversee issues related to sustainability (Hall & Cruse, 2011). And yet, despite the normative development of such boards, we still observe a variance in the extent to which these companies adopt baseline environmental practices or deviate positively.

We propose that the variance in organizational actions toward environmental sustainability depends, in large part, on the direction given by the board of directors. The ways in which this organizational body recognizes, frames, and interprets environmental issues influence how the organization acts on them (Dutton & Dukerich, 1991; Hoffman & Ocasio, 2001; Hoffman & Ventresca, 2002; Scott, 1995). The board interprets the institutional pressures on the basis of the skills and experience of its members and shapes an organizational response by providing strategic direction based on that interpretation (Dacin, Goodstein, & Scott, 2002; Hillman & Dalziel, 2003). Yet, such actions do not take place in a vacuum. Organizational environmental response also depends on the strength of pressures to conform to institutional norms and the corresponding need to gain legitimacy (Bansal & Clelland, 2004). We propose that these two forces and their interaction explain why some organizations practice positive deviance in the context of environmental practices and others do not.

In examining this phenomenon, our work contributes to several streams of literature. First, we contribute to an emerging stream of work on behavioral governance by considering the roles of board experience and networks as mechanisms of governance that go beyond traditional agency theory considerations (Hambrick et al., 2008). In doing so, we capture the complexity of governance in real-world organizations (Lubatkin, 2007) by applying a behavioral lens of governance for sustainability-oriented outcomes. A second contribution of our work is to the developing area of environmental governance that has uncovered a need to understand the complex role boards play for environmental and social outcomes of firms that may conflict with corporate financial goals and agency theory predictions (Walls, Berrone, & Phan, 2012). Third, we provide insight into the underlying mechanisms of institutional change by recognizing the role of cognitive and contextual influences in the interpretation of institutional pressures and their subsequent implications for organizational agency (or deviance)—mechanisms that have not been extensively studied (DiMaggio & Powell, 1991; Milstein, Hart, & York, 2002). Fourth, we offer new perspectives on how organizations become "more sustainable" and engage in proactive environmental practices, areas open to research in both the positive organizational scholarship (Hoffman, Badiane, & Haigh, 2012) and environmental management literatures (Ehrenfeld, 2008; Hart, 1995).

Positive Environmental Deviance within Institutional Contexts

Positive organizational deviance is notably relevant in the context of environmental sustainability. When organizations mitigate the impact of their activities on the natural environment through their products, processes, and policies (Bansal & Roth, 2000) in ways that go beyond what is required by regulation, they are practicing positive organizational deviance that has benefits that accrue to society and not just to the organization (Aragón-Correa, 1998; Russo & Fouts, 1997; Walls, Phan, & Berrone, 2011). Within the sustainability literature, this kind of deviance is critical for the establishment of innovative practices that lead to the broad scale institutional change necessary to achieve corporate sustainability.

The institutional literature has sought to explain these institutional change processes more fully by devoting increased attention to active agency within organizational fields (Covaleski & Dirsmith, 1988; DiMaggio,

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1988; Hoffman & Ventresca, 2002). Rather than a more traditional focus on isomorphism, more recent institutional analysis has paid greater attention to the ability of individual organizations to respond in a variety of ways to institutional demands (Oliver, 1991) or even influence change at the level of the institutional field (Lawrence, 1999).

At the most fundamental level, the institutional context limits the extent to which decision makers within organizations rationalize their actions by creating cognitive constraints and boundaries on their interaction with the larger environment (Jennings & Greenwood, 2003; Lounsbury & Glynn, 2001; Weber & Glynn, 2006; Weick, 1995). For instance, the organization's network or ties to other organizations determine how particular practices and related information are diffused (Brass, Galaskiewicz, Greve, & Tsai, 2004). Such inter-organizational network ties are particularly effective at pressuring firms toward social cohesiveness and conformity of action (Burt, 1987; Fligstein, 1985; Galaskiewicz & Wasserman, 1989; Westphal, Gulati, & Shortell, 1997).

But the fact remains that not all organizations accede to institutional demands. To account for such deviance, neo-institutionalism acknowledges organizational actions that depart from social norms in specific and directed ways (Lawrence, 1999; Oliver, 1991). However, identifying specific factors that lead to this outcome has not been extensively studied (DiMaggio & Powell, 1991; see Bansal & Penner, 2002; Johnson, Smith, & Codling, 2000 for exceptions). In this paper, we explore the ways in which agency and enactment (Weick, Sutcliffe, & Obstfeld, 2005) play a role in organizational deviance within institutional contexts (Powell & Colyvas, 2008) through internal, behavioral aspects of the organization.

Agency and enactment take place when organizational decision makers interpret, construct, and enact the organization's external institutional context (George, Chattopadhyay, Sitkin, & Barden, 2006; Karnoe, 1997; Zilber, 2002) by paying selective attention to particular issues (Dutton & Dukerich, 1991; Hoffman & Ocasio, 2001), interpreting them, and then constructing a legitimate repertoire of possible responses (Daft & Weick, 1984; Kauer, 2008; Maitlis, 2005). All of these actions are influenced by the filters of the decision makers' prior experience, context and social interactions (Snook, 2000). This interpretation for enactment takes place within many boundary-spanning functions within the organization (e.g., the senior management team, stakeholder engagement functions, or operational management), which are in contact with and receptive to specific constituencies and norms within the organizational field (Aldrich & Herker, 1977; Tushman & Scanlon, 1981). Each function occupies a specific location within the organization and is tasked with different roles and power. However, one function that is particularly significant for understanding the connection of the organizational field to the firm's internal governance is the board of directors.

Board of Directors and Positive Environmental Deviance

The board of directors is a key governance function that links the organization to its institutional context. Boards transcend and span organizational boundaries by providing access to external resources, information, and demands (Hillman & Dalziel, 2003; Johnson, Daily, & Ellstrand, 1996; Zahra & Pearce, 1989). Boards also maintain the ultimate level of control over organizational actions by setting the limits within which managers may act (Mizruchi, 1983) and often influence corporate strategic directions (Judge & Zeithaml, 1992; Westphal & Zajac, 1997). When the boards allocate time and attention to issues, they are prioritizing those issues in the organizational agenda (Dutton & Jackson, 1987; Ocasio, 1997).

In the past, many have argued that the board's role has been passive, merely functioning as a "rubber stamp" (e.g., Fama & Jensen, 1983). But recent corporate governance scandals and initiatives such as the Sarbanes–Oxley Act have focused attention on boards and forced their increasingly active roles. This is especially noticeable in the case of corporate social and sustainability goals, where board directors can be held personally liable for failing to adhere to environmental regulation (Schultz, 2001) or subject to shareholder lawsuits for failing to recognize material

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implications of organizational environmental actions. Moreover, many voluntary initiatives have encouraged companies to adopt environmental, social, and governance structures and performance measures as an integral part of their strategy, with corresponding oversight by the board of directors (Blesener et al., 2009; Escudero, Power, Waddock, Beamish, & Cruse, 2010; Mackenzie & Hodgson, 2005; Tonello, 2010; White, 2006).

The board's involvement in decisions on sustainability is fitting because monitoring and attention of boards is particularly salient when practices require significant capital investments and have uncertain outcomes (e.g., Daily & Dalton, 1994; Ledgerwood, 1997). These characteristics can be emblematic of environmental issues, which are often institutionally complex (Hoffman, 2001b), have long-term implications (Roome, 1992), require substantial investment (UNPRI, 2010), and can be inherently risky (Kassinis & Vafeas, 2002; McKendall, Sánchez, & Sicilian, 1999). In fashioning a strategic response, firms need to extend beyond organizational boundaries to acquire necessary resources and gain social legitimacy (Walls et al., 2011). Because organizations tend to model or even imitate their environmental response after those of other organizations (Bansal & Clelland, 2004), however, exceptional deviant responses must rest on particular aspects of the organization's board.

From a behavioral perspective (Hambrick et al., 2008), two aspects of the board of directors are relevant in determining how organizations react to institutional pressure: structural elements and intra-organizational factors (Greenwood, Oliver, & Sahlin, 2008). *Structural elements* acknowledge the extent to which organizations exist within a larger context via interlocking directorship or network ties. *Intra-organizational factors* recognize the influence of experience and skills of board members in filtering information retrieval and interpretation. Together, the presence and interaction of these two factors determine the extent to which an organization will conform or deviate positively in its action from peers in the institutional field. In the following section, we develop hypotheses to elaborate and specify these influences.

Structural elements: Board networks

Networks are essential components of organizational fields (DiMaggio & Powell, 1983; Owen-Smith & Powell, 2004), creating connectedness and common sets of linkages (structural equivalence) between organizations (Laumann, Galaskiewicz, & Marsden, 1978; White, Boorman, & Breiger, 1976). Interlocking directorships create networks that tie organizations together, functioning as a key channel to collect information (Pfeffer & Salancik, 1978; Salman & Saives, 2005) and disperse organizational practices (Haunschild & Beckman, 1998). Hence, these board networks act as prisms through which members of a firm interpret the institutional logics of the field they occupy (Owen-Smith & Powell, 2008).

For example, board networks allow organizations to gain access to strategic advice, counsel, and expertise (Baysinger & Hoskisson, 1990; Carpenter & Westphal, 2001; Westphal, 1999); create linkages to important stakeholders (Burt, 1980); and safeguard their reputation and legitimacy (Bazerman & Schoorman, 1983; Pfeffer & Salancik, 1978). In this manner, networks create a shared social environment (Weick & Roberts, 1993) where organizations convey the value of certain practices to others in the network (Hillman, Shropshire, & Cannella, 2007) regardless of whether or not the practices enhance or diminish social or environmental welfare (Kang, 2008; Pfarrer, Smith, Bartol, Khanin, & Zhang, 2008).

Networks, essentially, function as lubricants of normative organizational behavior that encourage those within the institutional field to imitate each other's processes and practices (Westphal, Seidel, & Stewart, 2001; Westphal et al., 1997). Organizations are inclined to adopt practices conveyed through board networks because the information is trusted (Davis, 1991) and more up-to-date and timely than information received from secondary sources (Kahneman, Slovic, & Tversky, 1982).

But the extent to which an organization adopts the normative practices of its institutional field depends on its position in the network (Owen-Smith & Powell, 2008). The more centrally the organization is located, the more access it has to information and resources in the network, and the stronger the pressure to conform to the social norms (Granovetter, 1985; Ibarra & Andrews, 1993; Salman & Saives, 2005). Organizations that operate at the

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center of the network therefore find it difficult to deviate from normative practices (Freeman, 1978/79). In contrast, those that are located at the periphery of the network can challenge existing institutional norms (Clemens & Cook, 1999) because these organizations are largely excluded from the network (Phillips & Zuckerman, 2001) and face weaker institutional pressures. Because they are less embedded in the network, peripheral organizations are therefore more often exposed to alternative practices (Weimann, 1982).

In the context of environmental issues, organizations on the periphery of the network can deviate positively because they exist in more distant and less restrictive institutional setting (Clemens & Cook, 1999) and are enabled by outside groups within that space to oppose the dominant institutional logics (Greenwood & Hinings, 1996). For example, many special interest groups such as non-government organizations, activist shareholders, consumers, and others encourage organizations to adopt above-and-beyond environmental practices, and the adoption of these practices are voluntary rather than legally mandated. Targets of these actions are typically identified as organizations that develop practices and positions on environmental issues that are peripheral to mainstream behaviors. In short, positive organizational deviance for environmental practices is more likely to occur in firms that are on the periphery of the network than those that are central. Therefore, the more centrally located an organization is in the network, the less likely that it will deviate positively in its environmental actions.

H1: An organization's network centrality is negatively associated with positive environmental deviance.

Intra-organizational factors: Board experience

The human capital that board directors provide in the form of knowledge, skills, and experiences is beneficial for organizations (Kor & Sundaramurthy, 2009). Increasingly, boards play an active role in formulating organizational strategy and disseminating information and advice to managers (Carpenter & Westphal, 2001; Daily, Dalton, & Cannella, 2003; Judge & Zeithaml, 1992; Westphal & Zajac, 1997). Because information that enters the firm via this network is screened and filtered by board members (Salman & Saives, 2005) and subject to processes that lead to bounded rationality, it is important to consider how characteristics of these directors could impact the organizational interpretation and response to institutional pressures.

Past experience is a key cognitive filter through which information is processed and understood (Hambrick, 2007; Starbuck & Milliken, 1988; Walsh, 1988). Past experience can come in the form of occupational backgrounds (Golden & Zajac, 2001; Kroll, Walters, & Wright, 2008; Stearn & Mizruchi, 1993; Westphal & Fredrickson, 2001), for instance, or appointments on other boards (Carpenter & Westphal, 2001). In contrast, when information or knowledge is outside the board's expertise, it can hinder problem solving and the ability to consider alternative approaches (Dutton & Duncan, 1987; Ocasio, 1997). Thus, past experience is an important characteristic that helps directors to determine what specific issues to attend to in the boardroom (Tuggle, Schnatterly, & Johnson, 2010).

From an institutional perspective, specialized and innovative knowledge and background experience among key members allow organizations to break away from established field norms (Battilana, 2006; Sewell, 1992). The skills and experiences of organizational actors such as board directors allow organizations to deviate in their response, even when institutional settings are commonly shared among multiple organizations (Colomy, 1998). When the past experience of numerous board members is similar and abundant, information can be processed more efficiently because knowledge structures are more developed (Carpenter & Westphal, 2001; Day & Lord, 1992; Shropshire, 2010). Therefore, the greater the collective experience of board members in dealing with environmental sustainability issues, the more robust their decision-making process regarding such practices will be. An organization that has a high level of environmental experience on its board is able to deviate positively from the dominant institutional norms.

H2: The amount of environmental experience of an organization's board of directors is positively associated with positive environmental deviance.

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Interaction effect of board networks and experience

Although agency and enactment occur when key members of the organization interpret external information in a specific manner, the organization remains subject to the constraints of its institutional environment, especially the normative influences of inter-organizational networks. This points to a tension between structural elements and intra-organizational factors. On the one hand, networks create pressure on organizations to conform to institutional norms. On the other hand, board directors with extensive environmental experience place pressure on the organization to deviate positively from such norms. An interaction effect between board networks and board experience therefore exists.

Although organizations may be better able to deviate positively in their response when they are far from the center of the network, this type of organizational action still requires human agency. Therefore, the combination of network position with background experience of board directors is a powerful predictor of positive organizational deviance (Battilana, 2006; Sewell, 1992). We propose that this interaction is important. On the one hand, organizations are more likely to deviate when they are less centrally placed in the network. However, an organization that has extensive environmental experience is also able to challenge institutional norms, even when a firm is very central in the network.

H3: Environmental experience positively moderates the relationship between network centrality and positive environmental deviance.

Methodology

Our sample consisted of an unbalanced panel data set of 294 U.S. listed firms from 2000 to 2008, resulting in a total of 1881 firm-year observations. The average firm panel was 6.4 years. The sample was restricted to organizations in the S&P 500 Index from primary and manufacturing industries as they are most affected by environmental issues (Hart & Ahuja, 1996). The data covered 31 different industries by 2-digit Standard Industrial Classification (SIC) code; the largest representatives were food (8.2 percent of firms), chemicals (14.0 percent), industrial machinery (7.8 percent), electronics (10.4 percent), instruments (9.5 percent), and utility (12.7 percent) industries.

Dependent variable

We measured "positive environmental deviance" in terms of corporate environmental practices that go above-and-beyond the minimal normative expectations that offer broad social benefits and deviate from others within the institutional field (Baron, 2006; Hoffman & Woody, 2008; Spreitzer & Sonenshein, 2004). We used data from Kinder, Lydenberg, and Domini (KLD) to capture such activities that mitigate the organization's impact on the natural environment through products, processes, and policies (Bansal & Roth, 2000). KLD's data are used extensively in academic research and are considered the standard for environmental and social performance (Chen & Delmas, 2011; Waddock, 2003). In particular, the KLD "environmental strengths" data consist of six categories that capture environmental practices of a positive nature in the sense that they go beyond minimal compliance requirements and offer broad social benefits. The categories include products and services that promote efficient use of energy or have environmental benefits; pollution prevention programs that reduce emissions and toxic use, using recycled materials in the manufacturing process, use of alternative fuels such as natural gas, wind, and solar energy; or a commitment to energy efficiency programs, adopting environmental reporting, or similar environmental communication practices and other strong environmental attributes not

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capture in prior categories. These categories were summed to provide each organization with a total "positive environmental practice" score from 2001 to 2008 (given the one-year lead of the dependent variable). In our sample, the highest environmental practice score was four (out of a possible six) by firms in lumber and wood, chemicals, industrial machinery, and instruments industries.

Next, we assessed whether organizations deviated in this score from others in the broader institutional field to measure *positive environmental deviance*. Institutional theorists often study inter-organizational fields in the context of industries; examples are institutional field studies in the radio (Leblebici, Salancik, Copay, & King, 1991), biotechnology (Zucker & Darby, 1996), thrift (Haveman & Rao, 1997), chemicals (Hoffman, 1999), finance (Lounsbury, 2002), recycling (Lounsbury, Ventresca, & Hirsch, 2003), sports (Washington, 2004), photography (Munir, 2005), and wine (Marshall, Cordano, & Silverman, 2005). We therefore operationalized an organization's institutional field on the basis of its industry by 2-digit SIC code. We calculated positive environmental deviance by subtracting the mean score of the industry from the organization's positive environmental practice score. For example, if a firm's positive environmental practice score was 3.00 and the industry's mean score was 1.71, then the organization would have a positive environmental deviance score of 1.29. On the other hand, if the firm's score was 1.00 and the industry's mean score was 1.32, the organizational positive environmental deviance score would be below average at −0.32.

Independent variables

We lagged independent variables by one year, to allow for changes in environmental practices to take place based on the organizational characteristics in the previous year. We aggregated data on board members to the level of the firm, making an implicit assumption that the "environmental experience" construct is a collective phenomenon of individual-level board data (Klein & Kozlowski, 2000). We assumed that our data are configurational and also pooled, but unconstrained (Klein & Kozlowski, 2000). That is, we had no *a priori* expectation that experiences of directors automatically converge. Although there are significant differences among board members in regard to their environmental experiences, the contribution of one individual can have a substantial impact on organizational practices (Shropshire, 2010). Therefore, we aggregated the individual board data linearly at firm level by taking a sum (Klein & Kozlowski, 2000).

Data on board directors came from BoardEx (Management Diagnostics Limited). The database tracks historical information dating back to the year 2000 on board directors of public and private corporations worldwide. The data contain biographical information on individuals who sit on boards, such as their age, gender, nationality, employment history, current and past board positions, educational background, professional achievements, and so on. We used these data to operationalize two key independent variables for each firm from 2000 to 2007 (given the one-year lag of independent variables): network centrality and environmental experience.

Our purpose for using network effects was to capture influencing social factors of attitudes about environmental strategies. These social influences can be transferred to many recipients in the network at the same time (Borgatti, 2005). Specifically, we captured this process via firms' ties to other firms through interlocking directorships of its board members. This way, we were able to calculate the *degree centrality* and *eigenvector centrality* of a firm. Degree centrality is the number of ties or paths that emanate from one node (Borgatti, 2005), and it defines how much the firm serves as a channel of information (Freeman, 1978/79), capturing short-term influencing effects (Borgatti, 2005). Eigenvector centrality is the score of a node by the score of adjacent notes (Borgatti, 2005). Eigenvector centrality is a measure of friends-of-friends influences (Scott & Davis, 2007) by looking at ties that are one step removed from the focal firm and captures longer term influences in the social network (Borgatti, 2005). Using UCINET (Borgatti, Everett, & Freeman, 2002), we calculated normalized degree and eigenvector centrality, by year, for each firm. We then centered the scores for the purpose of calculating interaction effects (Aiken & West, 1991).

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We calculated *environmental experience* using BoardEx data on directors' employment history, board and other positions held, awards and honors received, and other activities. We coded any information that was relevant to environmental experience, following a system of keywords similar to that used in other studies assessing environmental information of boards (Berrone & Gomez-Mejia, 2009). First, we searched for key environmental words in the role description of prior positions directors held. Keywords include "environment," "ecology," "nature," "sustainable," "remediation," "renewable," "pollution," and "energy." We also searched for variations of these words, for example, "ecological" was a variation of "ecology." We then checked the context of role descriptions that were tagged for misrepresentation. For instance, we eliminated all "energy" positions that were not indicative of jobs related to environmental sustainability such as roles in "energy transmission," "energy delivery," "energy systems engineer," or "energy production," and so on. Similarly, we eliminated positions to do with "natural gas" that were tagged by searching for "natural." By director and year, we calculated the number of years of work experience in environmental-related roles.[1] Second, we coded awards and honors directors received using the same keyword searches to calculate the total number of environmental awards a director had received. Third, we coded directors' membership, advisory, or management role of environmental activities in local community events, foundations, and institutions such as non-government organizations. We calculated the total number of environmental activities in which a director was involved. Fourth, we used the information on director's historical board positions to identify if directors had been members of a board's sub-committee with environmental goals. Dedicated environmental committees not only encourage directors to be extra vigilant (Kassinis & Vafeas, 2002) but sub-committees are also a source of building domain-specific knowledge (Kriger, 1988; Leksell & Lindgren, 1982). Moreover, the influence of individual directors to transfer knowledge may be stronger when directors sit on relevant sub-committees (Shropshire, 2010). We calculated the number of years of experience directors had on environmental sub-committees. We then aggregated the final environmental experience measure to firm level, for each year of data, by summing all four types of environmental experience.

We added various organizational control variables to account for firm-specific factors that could affect environmental practices (King & Lenox, 2002): firm performance (Tobin's *Q*), firm size (number of employees), sales growth (change of sales over the previous year), capital expenditure (logged), leverage (debt/assets), and research and development intensity (research and development expenses/sales). We also included advertising intensity (advertising expenses/sales) because prior work has shown its influence on corporate social responsibility outcomes (McWilliams & Siegel, 2000).[2] We further added board controls, at firm level, that could affect board group dynamics and subsequent decisions made over environmental practices. We controlled for board size because larger boards tend to have more network ties (Goodstein, Gautam, & Boeker, 1994) and be less effective at decision making and monitoring (Dalton, Daily, Johnson, & Ellstrand, 1999; Judge & Zeithaml, 1992). We also accounted for CEO duality because such powerful CEOs potentially influence board decisions, although this was not found to be relevant to environmental practices in prior studies (Berrone & Gomez-Mejia, 2009; McKendall et al., 1999; Post, Rahman, & Rubow, 2011). We added board independence, measured as the proportion of outside directors, because more independent boards tend to be more concerned with proactive environmental practices (Post, Rahman, & Rubow, 2011). We further controlled for mean board tenure because boards with longer tenures tend to be more dedicated to standard company practices, rely more heavily on traditions, and tend to conform toward values of the leaders (cf. Kosnik, 1990). Finally, we added year dummies to control for annual differences in environmental practices such as regulations coming into place or economic downturns.

[1]About 30% of roles tagged for "environmental experience" were missing, either a start date or an end date, or both. We assigned 1 year of experience to these roles to ensure that environmental experience was minimally represented for that director. Thus, our final calculations are likely a conservative account of the actual amount of environmental experience.

[2]Research and development and advertising expenses were missing for many firms. Because such figures are typically disclosed when material, we assumed these expenses were zero if data were missing, and checked the robustness of these results using dummies for missing observations. Results were consistent across all models.

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Estimation techniques

The purpose of our study was to assess main and interaction effects of board characteristics and network effects on positive environmental deviance. Because our dependent variable was a continuous and normally distributed measure, we used least square techniques for estimation for panel data. A Hausman test indicated that fixed effects models were more appropriate (Hausman, Hall, & Griliches, 1984). This technique accounts for firm-fixed effects, and we therefore did not control for industry differences as the model captured these. We conducted several robustness tests to account for the possibility of heteroskedasticity and serial correlation by using robust standard errors and dynamic models that included lags of the dependent variable in the equation. Models that corrected for these issues showed similar results, indicating that our analyses were robust. To interpret and plot the interaction effects, we centered the relevant variables (degree centrality, eigenvector centrality, and environmental experience) prior to including them in the regression (Aiken & West, 1991).

Results

Table 1 provides an overview of our descriptive statistics. Firm size correlates moderately with capital expenditure and both measures of centrality. In addition, capital expenditure correlates moderately with board size and the centrality measures, and board size correlates moderately with centrality. Larger boards also correlate with more environmental experience. These correlations were anticipated because larger firms tend to have more capital, larger boards, and larger networks.

Positive environmental deviance ranged from −1.50 to 3.17, with a mean score of 0.01. Roughly one third of firms had a score above zero, and about 8 percent of firms scored higher than 1. Thus, we were confident that higher positive environmental deviance was indeed a stronger above-and-beyond practice than the field's (industry) norm. In general, firms in all industries followed this overall pattern.[3]

Environmental experience of boards ranged from 0 to 85 and represented a sum of the number of environmental activities (0–21), number of awards (0–5), years of job experience (0–29), and years of serving on dedicated board committees (0–67).

We ran our regressions in stages (Table 2). Model 1 represents the base model with only control variables and shows that capital expenditure and board size are significantly negatively associated with positive environmental deviance. Year dummies were not statistically significant in most models, except for the year 2000.

Subsequent models include the direct and interaction effects of the variables of interest. Model 2 shows that degree centrality is negatively associated with positive environmental deviance. This indicates support for Hypothesis 1 that more central firms in the network are less likely to deviate positively from norm environmental practices in the institutional field. In contrast, environmental experience was positively and significantly associated with positive environmental deviance, in support of Hypothesis 2. This suggests that boards with environmental experience are more likely to engage in beyond-compliance environmental practices. These centrality and experience effects are replicated in Model 4 when eigenvector centrality is used. In both cases, the models increase in variance explained over the base model from 2.2 to 7.3 percent in Model 2 and 6.4 percent in Model 4.

Models 3 and 5 show that the interaction effect between centrality and environmental experience is positive and statistically significant, in support of Hypothesis 3. The interaction effect explains additional variance, increasing the R^2 to 7.5 percent in Model 3 and 7.0 percent in Model 5. We plotted the interaction effects of both degree and eigenvector centrality with environmental experience (Figures 1 and 2) by using one standard deviation from the mean for "low" and "high" values of centrality and experience. The plots show that firms that are more highly

[3]Exceptions were the publishing/printing and railroad industries. In these industries, one firm deviated highly positively compared with the rest of the firms.

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Table 1. Correlations.

		Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1	Positive environmental deviance	0.01	0.74												
2	Tobin's *Q*	1.49	1.52	−0.07											
3	Firm size	36.79	46.65	0.21	−0.03										
4	Sales growth	10.84	28.65	−0.05	0.19	−0.05									
5	Capital expenditure	5.94	1.38	0.27	−0.15	0.45	0.01								
6	Leverage	0.27	0.14	−0.04	−0.31	−0.10	−0.03	0.06							
7	Board size	11.03	2.31	0.18	−0.10	0.34	−0.04	0.42	0.09						
8	CEO duality	0.74	0.44	0.04	−0.04	0.11	−0.01	0.11	0.04	0.02					
9	Board independence	0.85	0.08	0.05	−0.18	−0.02	−0.06	0.12	0.13	0.15	0.10				
10	Board tenure	7.80	3.34	0.08	0.13	−0.01	−0.07	−0.09	−0.10	−0.01	−0.01	−0.20			
11	Degree cent	0.00	0.93	0.26	−0.01	0.47	−0.10	0.39	0.01	0.46	0.17	0.15	−0.04		
12	Eigenvector cent	0.00	4.94	0.28	0.03	0.49	−0.07	0.41	−0.02	0.40	0.14	0.12	−0.04	0.92	
13	Environmental experience	0.00	13.09	0.25	−0.14	0.16	0.00	0.37	0.07	0.37	0.09	0.23	−0.06	0.37	0.40

Note: $n = 1881$. Correlations of 0.04 and above are significant at $p < 0.05$.

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Table 2. Fixed effects regression models for positive environmental deviance.

	Model 1	Model 2	Model 3	Model 4	Model 5
Tobin's Q(SE)	−0.015	−0.018	−0.016	−0.019	−0.016
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Firm size	0.002	0.002†	0.002	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Sales growth	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Capital expenditure	−0.115**	−0.117**	−0.111**	−0.118**	−0.109**
	(0.032)	(0.031)	(0.031)	(0.031)	(0.031)
Leverage	−0.286†	−0.196	−0.206	−0.185	−0.190
	(0.167)	(0.163)	(0.163)	(0.164)	(0.164)
Year dummies	Incl.	Incl.	Incl.	Incl.	Incl.
Board size	−0.022*	−0.018†	−0.017†	−0.026**	−0.023*
	(0.009)	(0.010)	(0.010)	(0.009)	(0.009)
CEO duality	0.032	0.014	0.015	0.018	0.018
	(0.034)	(0.033)	(0.033)	(0.034)	(0.034)
Board independence	0.207	0.235	0.246	0.210	0.235
	(0.258)	(0.252)	(0.252)	(0.253)	(0.252)
Board tenure	0.003	−0.007	−0.007	−0.006	−0.007
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Degree centrality		−0.143**	−0.145**		
		(0.031)	(0.031)		
Environmental experience		0.016**	0.015**		
		(0.002)	(0.002)		
Degree*experience			0.003*		
			(0.002)		
Eigenvector centrality				−0.015*	−0.020**
				(0.006)	(0.006)
Environmental experience				0.017**	0.014**
				(0.002)	(0.002)
Eigenvector*experience					0.001**
					(0.000)
Constant	0.815*	0.725*	0.674*	0.852**	0.753*
	(0.317)	(0.313)	(0.313)	(0.313)	(0.313)
R^2	0.022	0.073	0.075	0.064	0.070

Note: $n = 1881$.
Two-tailed t-tests: $^{\dagger}p < 0.10$, $*p < 0.05$, $**p < 0.01$.

centralized, whether captured as an immediate or long-term social network effect, deviate less positively than firms on the periphery of the network. However, when boards have increased environmental experience, the firm has a higher level of positive deviation than when environmental experience is low, even when network centrality is high. In contrast, firms with low environmental experience on their boards have much lower positive environmental deviance in the context of high degree and eigenvector centrality. A test of the simple slopes (Aiken & West, 1991) confirms these results. Thus, our results find support for all three hypotheses.

Discussion

This work explored the extent to which the board of directors, as a boundary-spanning and central governance function of the organization, acts as an agentic body to resist institutional pressures that lead to organizational

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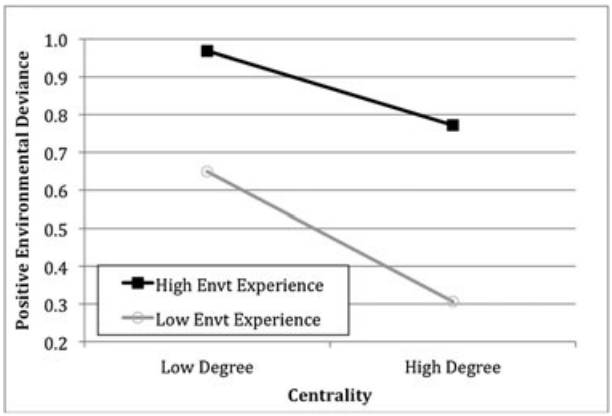

Figure 1. Interaction plot—degree centrality and environmental experience

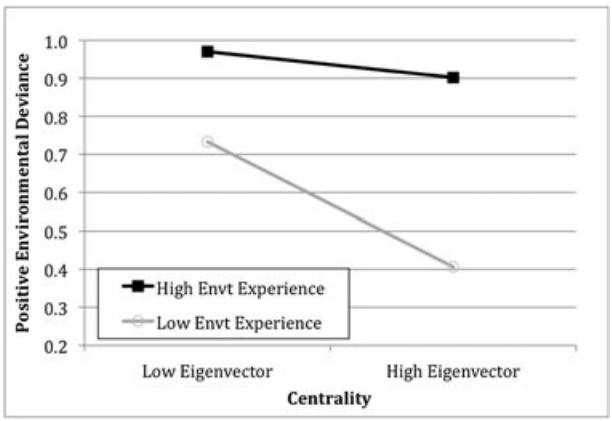

Figure 2. Interaction plot—eigenvector centrality and environmental experience

conformity. We found that the past environmental experience of the board plays a critical role in allowing organizations to deviate positively in their environmental practices, whereas the centrality of an organization's location in the institutional network, through the interlocking directorships of its board members, increases conformity. Yet, even when network pressures to conform were strong, a board with high experience could incite a company to deviate positively from its peers. This behavioral role of the board appears to be critical in understanding corporate environmental behavior, while many structural elements of boards, such as CEO duality, board independence, and board tenure were not found to be significant in our work. Thus, although organizational behavior is certainly affected by the institutional environment (Bansal & Penner, 2002), the framing, interpretation, attention, and sensemaking of issues within organizational bodies (Dutton & Dukerich, 1991; Hoffman & Ocasio, 2001; Hoffman & Ventresca, 2002; Scott, 1995) matter significantly.

Our findings support previous theoretical work that discusses the importance of the board's mediating role for corporate governance and environmental performance that goes beyond a strictly principal–agency relationship (Lan & Heracleous, 2010; Walls et al., 2012). By adopting a behavioral governance lens, we were able to determine that past experience and networks of boards are important socio-psychological considerations in capturing the real-world corporate governance complexities (Hambrick et al., 2008; Lubatkin, 2007). In recognizing that cognitive influences affect organizational interpretations of field pressures, this work provides deeper insights into heterogeneous organizational responses in similar institutional contexts (DiMaggio & Powell, 1991; Milstein et al., 2002).

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Understanding how organizations become "more sustainable" has important theoretical and practical implications. Theoretically, we add to research in environmental management (Ehrenfeld, 2008; Hart, 1995) and positive organizational scholarship (Hoffman et al., 2012). Practically, our work provides insight into why some organizations adopt above-and-beyond environmental practices and others do not, even when most organizations now have designed board committees to oversee strategic and advanced sustainability initiatives. We offer some clues as to when such actions are substantive rather than symbolic: appointing directors who have environmental experience is necessary if firms truly wish to deviate positively from normative environmental standards and critical if the organization is deeply embedded in the network field. Within a more general context of recent social movements such as Occupy Wall Street that have elevated social responsibility and "good" governance in the corporate agenda, our work submits that the composite experience of the elite group of people who sit on boards can decide the organization's accountability and posture on social and environmental issues.

We acknowledge that our work has several limitations. First, our study analyzes large U.S. firms in "dirty" industries. Extrapolation of the results to small and medium-sized enterprises, service industries, and firms in other institutional settings may not be meaningful. Second, we did not measure group dynamics of boards. We made an explicit assumption that the individual experiences of board members would have a cumulative effect at the organizational level (Klein & Kozlowski, 2000; Shropshire, 2010) and that boards would collectively interpret information from the external environment and make decisions jointly. Interpersonal dynamics must certainly be accounted in future studies. Third, our data did not lend itself to analyzing underlying micro-processes of interpretation or sensemaking of individuals and/or organizational groups (Daft & Weick, 1984; Maitlis, 2005; Powell & Colyvas, 2008; Weick, 1979, 1995). Although we can say something about how the collective environmental experience of the board of directors is associated with organizational environmental deviance, we stop short of investigating more refined interactions between micro-level and macro-level processes.

Future research could further explore the role of board experience in terms of sensemaking (the cognitive understanding among the board of the organization's internal and external environments) and sensegiving (the dissemination of that re-interpreted institutional environment to stakeholders and the influencing of organizational action; Gioia & Chittipeddi, 1991). Prior research has established that the role of directors is important in sensegiving activities such as raising issues, questioning assumptions, testing ideas, advising caution, and offering encouragement (McNulty & Pettigrew, 1999). In the context of environmental sustainability, the level of ecological expertise crucially determines noticing, bracketing, understanding, and acting on complex ecological processes that cross space and time (Whiteman & Cooper, 2011) such as climate change or ecosystem destruction. Our work focused on the experience of board directors, but the ecological embedded knowledge of other organizational bodies such as senior management, functions responsible for supply chain relations, or operational management might also aid organizations to deviate positively in their actions.

This paper is but a first step toward furthering the field of behavioral governance. Hambrick et al. (2008) suggest many avenues of research in this direction, which are well beyond the scope of our work. For instance, it would be interesting to consider the interactions of a director's experience and his or her influence or power over the board and top management team. In other words, can one individual with enough experience and power sway the entire organization into a particular direction? The role of moderating and mediating effects should also be explored. For instance, even the context in which board meetings are held could play an important role in how much attention is paid to particular issues (Tuggle et al., 2010).

Other board characteristics, such as members' attitudes toward the environment, are a relevant future research topic. Attitudes toward the environment can be measured via survey techniques using environmental attitude scales such as the "New Ecological Paradigm" (e.g., Dunlap, Van Liere, Mertig, & Jones, 2000) or by capturing underlying values orientations (e.g., Stern, Dietz, & Kalof, 1993). We suspect that firms whose boards have stronger pro-environmental attitudes would be more likely to deviate positively in terms of environmental practices and that the centrality and interaction effects would behave similarly as our findings for environmental experience.

Finally, this paper focuses on positive organizational deviance because we were interested in understanding the intra-organizational and contextual factors that enable companies to "do well by doing good." But it would be

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equally interesting to assess what spurs companies to behave environmentally "worse" than others. Deviance can be both negative and positive, and there is no reason to assume that the mechanisms in one domain will also be present in the converse domain. We believe that a behavioral governance perspective could help explain negative organizational deviance, in that board directors with certain types of experience might interpret information differently and rationalize such organizational behavior, beyond what institutional pressures can explain.

Conclusion

The institutional literature has often been criticized for being under-socialized, paying insufficient attention to the role of agency (or deviance) and the role of filtering processes among organizational decision makers. This study seeks to bring people back in (Hirsch & Lounsbury, 1997), offering an explanation for positive deviance from institutional norms that are driven by powerful members of the organization, those that reside within leadership roles in the board of directors. These members, and the networks of which they are part, determine which institutional norms are attended to, interpreted, and acted upon. In this way, institutional norms, at times seen as creating isomorphism, can in fact be interpreted in different ways by different constituents across the field. By ignoring the role that organizational bodies play in this interpretation process and the distinct aspects by which they play them, we fail to recognize the determinants of positive deviants in any community. These deviants are often the source of innovation, energy, and change within institutional fields.

This insight is particularly important for those who study institutional change around environmental sustainability. Corporations are the most powerful entities in today's market, political and social environments. Solutions to contemporary environmental issues (e.g., climate change, water scarcity, species extinction, ecosystem destruction) can only be found and implemented through the actions of those within the corporate sector. Seeking strictly policy approaches for stimulating pro-environmental behavior within this population of organizations focuses attention on the lowest common denominator for establishing standards for motivating positive deviance. This paper draws attention to the behavior of more innovative organizations—those that seek to go beyond such institutionalized policy pressures to engage in new practices that meet today's pressing environmental problems. Indeed, the actions of these kinds of positive deviants is arguably the only way we will make advances in environmental sustainability, moving away from incremental approaches for being "less unsustainable" and toward more radical approaches to being "more sustainable" (Ehrenfeld, 2008).

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