Going Beyond What's Expected: Cognitively-Diverse Boards of Directors and Their Impact on Firm Sustainability Initiatives

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While institutional pressure and shareholder action have increased board of director accountability for overseeing the operational needs of the firm to maintain legitimacy, there has been a push to increase diversity. The increased focus on operational performance coupled with changes to the board can have a serious impact on the ability to reach consensus on discretionary activities. I propose to study whether diversity reduces the number and type of sustainability initiatives. The hypotheses are tested through an analysis of disclosures and director profiles. This paper demonstrates that higher levels of cognitive diversity impact the ability to engage in discretionary initiatives.

INTRODUCTION

US firms have been nudged by legislation such as the 2002 Sarbanes-Oxley Act to increase their board of directors' cognitive diversity, defined as variability in experiences and background, while concurrently embracing the trend in demographic diversity, which encompasses variability in age, gender, nationality and race (Jackson, May and Whitney, 1995). Diversity is the infusion of multifarious individual attributes within the firm (Ruigrok, et al., 2006). It is seen as a panacea for many organizational shortcomings by both academics and practitioners alike (Bell, 2007; Boris, 2010; Coffey and Wang, 1998; Erhardt, et al., 2003; Goodstein, et al., 1994; Grosvold, et al., 2007; Hambrick, et al., 1996; Kosnick, 1990; Miller, et al., 2009; Nielsen and Huse, 2010). One such shortcoming that has generated particular interest within the realm of corporate social responsibility (CSR) are sustainability initiatives. These are defined as efforts to reduce the negative environmental externalities caused by the economic activities of firms (Klassen and McLaughlin, 1996) or perhaps more positively "the ability of current generations to meet their needs without compromising the ability of future generations to meet theirs" (World Commission on Economic Development: 16) (Marshall and Brown, 2003; Fisher-Varden and Thorburn, 2010; Klassen and McLaughlin, 1996). Surprisingly, cognitive board diversity and its impact on sustainability initiatives have not been linked in the literature. This is an important omission since boards have ultimate responsibility for their firms' allocation of resources to initiatives that address sustainability. If the number and types of sustainability initiatives undertaken by a firm are differentially impacted by the cognitive diversity of its board, it could help explain why certain firms are more likely to adopt a shared values approach to corporate strategy (Porter & Kramer, 2011). The purpose of this paper is to address this issue by examining the following the research question; "What is the impact of cognitive diversity among the members of a firm's board on the type and number of their sustainability initiatives?" There is still confusion as to what comprises cognitive diversity. The concept of cognitive diversity

defines the board by its variability with regard to experiences, background, and values, as compared with demographic diversity in which boards would be defined by the variability with regard to age, gender and race (Jackson, May and Whitney, 1995). Institutional and stakeholder pressures have led firms to redefine what constitutes a diverse group of directors (Peterson, et al., 2007; Ramirez, 2003; Nguyen and Faff, 2007; Grosvold, et al., 2007; Miller and Triana, 2009; Tsui and Gutek, 1999; Boris, 2010; Zanoni, 2010). Board diversity is no longer a binary insider/outsider paradigm or a comparison of demographic characteristics amongst the board to constituent groups; the board is now fractured across demographic and more importantly cognitive dimensions (Lau and McLaughlin, 2005). Yet there is little dispute in Upper Echelon Theory (Argote and Greve, 2007; Hambrick, 2007) that cognitively diverse boards' attention and the guidance they provide to top management teams (TMT) are influenced by their own backgrounds (Hambrick, 2007; Tuggle, Schnatterly and Johnson, 2010; Marquis and Lounsberry, 2007). In general, cognitive diversity amongst the board is perceived as beneficial as it is associated with organizational innovation (Bantel and Jackson, 1989) and creativity (Wiersma and Bantel, 1992). We would expect that the communication between board directors with very different backgrounds would be much richer in terms of the transfer of information although much more open to misinterpretation, than in boards with little cognitive diversity (Granovetter, 1973). Cognitive diversity among board members can lead to higher coordination costs, director conflict, mistrust, and low-quality communication (Ruigrok, et al., 2006 and Knight, et al., 1999). In the context of TMTs, homogeneity has been shown to outperform heterogeneity as the group can be left fractured across the multiple dimensions of cognitive diversity (Hambrick, et al., 1996), a concept captured in research on fault lines (Lau and Murnighan, 2005). Cognitively-diverse boards, faced with a need to make a decision where there are differing views regarding goals or means, have decision processes characterized by "quasi-resolution" of conflict (Cyert and March, 1963; 164) and fleeting board attention (Ocasio, 1997) among a board fractured along fault lines (Lau and Murnighan, 2005); end up struggling through time-constrained board agendas (Tuggle, et al., 2010).

Within the broader CSR research stream, sustainability initiatives are a set of decisions boards need to address. These decisions have generated a great deal of research interest (Hart and Ahuja, 1996; Heintzman, 2010; Karpoff, Lott and Wherly, 2005; Fisher-Vanden and Thorburn, 2010; King and Lenox, 2000 & 2001; Walls, Berrone and Phan, 2012) but limited theoretical insights. The literature has categorized sustainable initiatives as either operational (Gilley, et al., 2000) or environmental stewardship, programs that have been described as opportunities for the firm to improve the image of the firm or its industry (Klassen and McLaughlin, 1996 and King and Lenox, 2000). OSI are those generating revenue through identification of new markets; those reducing expenses; those offering a direct and observable connection to measurable benefits and those having returns that are more predictable. Discretionary sustainability initiatives, not mandated by government policies or shareholder expectations, often fall within the realm of corporate social responsibility (CSR); where outcomes, rewards and punitive measures are open to interpretation and manipulation (Delmas and Montes-Sancho, 2010). These initiatives may still have a financial impact and can include aspirational, explanatory, laudatory, or going beyond what is expected, such as by organizing recycling efforts.

OSI have a close connection to the "bottom line", whether it is a transition to a more fuel-efficient truck fleet or the inclusion of hydropower to the infrastructure of a new computer facility. Discretionary sustainability initiatives, unlike OSI, do not have a clear causally defined relationship between the initiative and financial performance. As a result, they are one-step removed from the socially understood and legitimized fiduciary duties of boards. When cognitively diverse boards do not have a compelling need to launch discretionary sustainable initiatives, and given how often these initiatives can represent a change in position for the firm, particularly when new; boards may be divided by their worldviews and personal biases (Dahlin, Weingart and Hinds, 2005; Wiersma and Bantel, 1992). The challenges in arriving at a consensus on discretionary initiatives may cause busy boards to focus only on those initiatives most closely aligned with their fiduciary duties and institutional norms and yet it may be that the engagement of these discretionary initiatives is what separates industry leaders from their lagging rivals. While their backgrounds can fracture boards, board directors may have long concurrent service,

here called tenure. Joint service on the board allows directors to have common experiences and socialize (Michel and Hambrick, 1992) reducing coordination costs and altering director perceptions (Kosnick, 1990).

Drawing on a sample of 356 non-financial sector US firms from the Fortune 500, I constructed a database of 3,833 board directors and almost 150,000 corporate initiatives. For each director, I collected demographic and cognitive diversity characteristics, and for each initiative, I determined whether it was related to sustainability, and either operational or discretionary. I test hypotheses that cognitively diverse boards of directors will place a priority on their fiduciary duties with regard to operational initiatives.

This paper contributes to the literature in several ways. This paper creates a broader definition of cognitive diversity. The board of directors is envisioned, first theoretically and then operationally, as a group of individuals with a complex set of interacting belief systems derived from their backgrounds. Unlike previous research, this research focuses on the power of cognitive diversity to constrict the ability for meaningful discussion. A lack of certainty as to outcomes, institutional norms or institutional controls allows firms to create and justify a wide range of potential activities. In this way, the paper links the findings of Upper Echelon Theory (Hambrick, 1996) with those from institutional researchers (DiMaggio and Powell, 1983; Oliver, 1991; Montes and Sancho, 2010; and George, Chattopadhyay, Sitkin, and Barden, 2006). Further, this paper heeds the call from Tsui and Gutek (1999) for more sophisticated constructs which develop a richer definition of diversity along with the determination by Walls, Berrone, and Phan (2012) that little has been done to theoretically link corporate governance and sustainability; this paper introduces and empirically tests the relationship between a composite measure of cognitive diversity and sustainability. Few empirical articles have attempted explicitly to include the fully developed constructs at consideration here. Either firms are monolithic with no role for individuals (Klassen and McLaughlin, 1996; Fisher-Varden and Thorburn, 2010; and Lenox and King, 2000) or boards are diverse individuals and the particulars of the decision at hand are not explored (Coffey and Wang, 1998; Forker, 1992; Erhardt, et al., 2003; and Dahlin et al., 2005). Delmas and Burbano (2011); Carter, Simpkins, and Simpson (2002); Ricart, Rodriguez, and Sanchez (2005); Berrone, Cruz, Gomez-Mejia and Larraza-Kintana (2010) and Walls, et al., (2012) have also tied corporate governance and sustainability but to my knowledge there has been no research, in either academic journals or amongst the many working papers available, which connects cognitively-diverse directors with their strategic decisions in the closely-watched and strategically important field of sustainability.

Theory and Hypotheses

Two theories frame the understanding of how the cognitive diversity of boards of directors impact the number and type of initiatives they undertake. I link Upper Echelon Theory, which informs our understanding of cognitive diversity and the ways in which it impacts action (Hambrick, et al., 1986) and Institutional Theory, which guides our understanding of directors seeking to maintain individual and organizational legitimacy (George, et al., 2006).

Upper Echelon Theory, Cognitive Diversity, and Strategic Initiatives

Upper echelon theory (Hambrick, 2007; Hambrick and Mason, 1984) focuses on the way values, experiences and perceptions influence how directors perceive the world and how those perceptions influence action. Hambrick (2007: 335) advanced the conviction that "researchers can reliably use information on executives' functional backgrounds, industry and firm tenures, educational credentials, and affiliations to develop predictions of strategic actions." Extending this logic to the board, Tuggle, et al. (2010) found support for the view that directors' characteristics impact discussions in the boardroom. Hambrick and Mason (1984) reasoned that the more complicated a decision such as those involving innovation, complexity and finance the more likely directors will bring their personal biases and perceptions to the discussion. Bantel and Jackson (1989) went further stating that as the complexity of the decisions faced by the board increases groups are more effective when they are composed of individuals having a variety of backgrounds. This variety is associated with being able to access a broader set of information, alternatives, and perspectives. However, variability has its downside as well. When boards

are diverse, complex or controversial decisions can lead to fractures, board members and constrain discussions (Thatcher and Patel, 2011, Hambrick, 1996, and Tuggle, et al., 2010).

While a precise definition of cognitive diversity has proven elusive and mutable (Putnam, 2011) it has become increasingly inclusive. Just a generation ago, diversity referred to a director's affiliations outside their positional roles. As the boardroom and the workplace became more diverse, theory has struggled to keep pace. Scholars initially focused on demographic traits or surface-level attributes including age, race, gender, nationality, physical appearance, language and dialect (Jackson, et al., 2005; Peterson, et al., 2007; Ramirez, 2003; Nguyen and Faff, 2007; Grosvold, et al., 2007; Miller and Triana, 2009; Tsui and Gutek, 1999). The inclusion of surface-level attributes resulted in limited contributions due to the lack of a strong theoretical foundation and explanatory power (Ramirez, 2003). In response to ongoing academic inquiry and institutional pressures, researchers have expanded the diversity perspective to include cognitive, or deep-level, attributes such as education, tenure, occupation, religion, functional background, socioeconomic status, values, veteran status, social memberships and affiliations, sexual orientation and differently-abled status (Jackson, et al., 2005; Finkelstein, et al., 2009; Tsui and Gutek, 1999, Goodstein, et al., 1994, Boris, 2010; Zanoni, 2010). As a result of variability in deep-level attributes cognitively-diverse boards of directors have a broad range of viewpoints and biases (Jackson, et al., 2005). This is because each board member will select and use information sources in ways consistent with their own perspective (Dahlin, Weingart, and Hinds, 2005; Tuggle, et al., 2010). For scholars studying the links between creativity, the variety of innovative idea and their impact on the number and type of strategic initiatives cognitive diversity is viewed favorably (Wiersma and Bantel, 1992). Diversity among board members allows the opportunity to use their diverse experiences to identify a greater number and variety of initiatives when addressing a strategic issue.

However, cognitive diversity is not without costs (Milliken and Martins, 1996). Goodstein, et al. (1994) found that occupationally-diverse boards were less likely to agree on strategic actions. Erhardt, et al., (2003) found that experience diversity had a negative impact on communication among the executives. Functional diversity in TMTs increases coordination costs and as a result, the time and effort required to reach consensus (Knight et al., 1999). Hambrick, et al., (1996) found that diverse TMTs, where diversity was defined among functional, educational and tenure attributes were outperformed by homogeneous teams. The more diverse teams were slower to act and less likely to respond to competitor moves. Their finding suggests that cognitive diversity may impair group decision making and in some cases overwhelm its innovation benefits. While diversity does not halt the resolution of an issue, it may impact the number and types of initiatives undertaken for an issue, especially when they require boards to reconcile initiatives that are inconsistent with some of their members' individual perspectives.

Institutional Theory, Cognitive Diversity, and Strategic Initiatives

For institutional theorists, organizations and individuals seek legitimacy, which involves undertaking initiatives that are viewed as "appropriate" (Dimaggio and Powell, 1983; Rumelt, et al., 1994). Institutional theory suggests there are restraints on directors' action, the mechanisms by which directors resolve conflict and the behaviors which maintain legitimacy and avoid sanctions (DiMaggio and Powell, 1983). Political and normative pressures are applied to directors and their firms (DiMaggio and Powell, 1983) from governmental entities, stakeholders, shareholders, customers, partners, and rivals.

Early institutional researchers saw the firm as limited by the constraints of seeking and maintaining legitimacy (Dimaggio and Powell, 1983), but a more recent stream of research has posited a more active role for key individuals and the firm. George, et al., (2006) focused on an active role for the director in "the perpetuation of institutions, or in their creation or change" (George, 2006: 348) which determines the initiatives the firm undertakes. The process of sharing and adoption reinforces the legitimacy and stability of those initiatives (Rumelt, et al., 1994).

Directors, especially those with long service, and those with board interlocks become institutionalized (Kosnik, 1990). With increased tenure and legitimacy, they establish tradition, standards and values (Katz, 1982; Kosnik, 1990). However, legitimacy can be mutable and manipulated (Delmas and Montes-Sancho, 2010). Directors can engage in behaviors that are symbolic rather than substantive, garner the

reputational benefits of substantive action, and possibly avoid sanction for themselves and the firm (Delmas and Montes-Sancho, 2010).

This review of the application of institutional and upper echelon theories to boards of directors reveals a tension. Upper echelon research provides evidence that when boards have high levels of cognitive diversity; it leads to varying perspectives regarding the type, importance, credibility, goals and means for achieving strategic initiative (Hambrick, 2007; Hambrick and Mason, 1984; Tuggle, et al., 2010; Bantel and Jackson, 1989; Marquis and Lounsberry, 2007). However, in the quest to achieve legitimacy, the variety of perspectives resulting from cognitively diverse boards can lead to long payback times, contested decisions and impact the reputation of the firm (Wiersema and Bantel, 1992). In other words, the level of cognitive diversity amongst the board directors will impact the level of conflict, and therefore the number of initiatives under consideration, amongst board of directors' perceptions and viewpoints, as they decide on strategic initiatives that have legitimacy-related consequences (Tuggle, et al., 2010). Boards with high cognitive diversity have by definition more fault lines than homogenous boards, with lower cognitive diversity and therefore more conflict (Lau and McLaughlin, 2005).

Operational and Discretionary Sustainability Initiatives

There is evidence that firms, and therefore shareholders, benefit from any kind of sustainable initiatives (Klassen and McLaughlin, 1996; King and Lenox, 2001; Karpoff, et al., 2005; Hart and Ahuja, 1996; Hamilton, 1995; Gilley, et al., 2000; Fisher-Vanden and Thorburn, 2010; Delmas and Burbano, 2011; Luo, et al., 2012); here defined as activities which include consideration of environmental performance (Marshall and Brown, 2003; Schendler, 2009; Roy, Boiral and Paille, 2013), even when firms and their shareholders do not directly benefit there may be societal benefits (King and Lenox, 2000).

Both operational and discretionary sustainability initiatives (OSI and DSI), specific efforts to reduce the negative externalities related to economic activity, are complicated strategic activities (Schendler, 2009) that could result in conflict amongst directors based on their personal biases and past experience. OSI are those that have a clear payback and a close tie to a firm's operations. Directors in the wake of Sarbanes-Oxley understand very clearly their fiduciary duties to the firm and their shareholders. There are real sanctions for directors who do not operate in a manner consistent with maximizing shareholder returns (Rezaee, 2007). OSI, as revenue enhancing or cost cutting, present very real ways for directors to impact the financial performance of the firm. I would expect both cognitively homogeneous and diverse boards of directors to focus on coming to consensus on OSI and place their fiduciary duties in primacy above their personal biases.

In contrast to operational initiatives, Boiral and Paille (2012) have suggested that discretionary initiatives are unrewarded by the firm, and by extension, the market. Discretionary initiatives, which are activities that are voluntary but often important and hard to measure (Smith, 2010), often result from an understanding of good corporate citizenship, and as such, this type of sustainability initiative have less clear connections to both the performance and legitimacy of the firm and the legitimacy of the individual directors. DSI are generally more aspirational in nature, asking the firm to go beyond what is expected. Due to their aspirational nature and causal ambiguity, DSI face questions about their efficacy; underlying cause-effect relationships; and create uncertainty for directors. Thus, decisions related to DSI may result in value-based conflict for directors facing time-constrained agendas and limited attention (Ocasio, 1997; Tuggle, et al., 2010). As a result, cognitively diverse boards may face a clash of values exacerbated by communication failures and disagreements about the validity of the "facts". With short, crowded agendas, busy directors may seek compromise, adopt a wait and see attitude, or table DSI.

An important distinction between operational and discretionary initiatives is the directors' perceptions with regard to their need to maintain legitimacy. For directors who are not convinced of the cause-effect relationships underlying a DSI, they can be viewed as less strategic or legitimate and therefore not worthy of directors' time. Sonenshein, DeCelles, and Dutton (2014) have found that even among executives who support environmental issues, there are doubts about the efficacy of environmental initiatives and their role in making a positive change. Directors might also opine that operationally sustainable initiatives

should suffice to demonstrate a commitment to sustainability. It may be easier for a cognitively diverse board to not launch new discretionary initiatives and stay the course since conservative thinking requires less effort (Eidelman, Crandall, Goodman and Blanchar, 2012). Therefore:

> H1: *Boards with high levels of cognitive diversity will engage in fewer sustainability initiatives than boards with low levels of cognitive diversity.*

Moderating Role of Initiative Type

Porter suggests, "The essence of strategy is choosing to perform activities differently than rivals do" (Porter, 1996: 64). Three implications can be drawn from this. That there are groups of activities, or initiatives, that are common across firms, which designated here as operational initiatives. There is a separate class of initiatives that are chosen by the TMT (TMT) in consultation with the board of directors, which can form the basis for differentiation between the firm and its rivals. Firms must weigh the "when" and "how" of disclosing these activities. As George, et al. (2006) found, high-performing firms may be identified by their ability to launch initiatives that respond to multiple perceptions of the environment. Said another way, firms that have boards that are able to better digest and synthesize divergent worldviews, composed of the cognitive biases of the individual board directors, and determine an appropriate set of responses to environmental threats and opportunities, should have better firm performance. While Jackson and Parsa (2009) detail the potential for financial disadvantage due to the costs of DSI, links have been formed to DSI focused around CSR and sustainability. Those links have been shown to have a positive impact stock prices (Fisher-Varden and Thorburn, 2010 and King and Lenox, 2001). Discretionary CSR initiatives have also been shown to correlate with improved stakeholder impression of the focal firm (Jackson and Parsa, 2009).

Based on the work of George, et al. (2006), high performing boards launch initiatives; however, firms may find the need to protect their "news" if it is viewed as proprietary in nature, or the source of advantage (Barney, 1991). Even though researchers have found a relationship between positive disclosures with regard to environmental performance (Fisher-Varden and Thorson, 2010; Lenox and King, 2001), the potential stock gains must be weighed against the value of market signals to rivals. Clarkson, et al. (2011) conducted a review of sustainable performance in Australia and found little connection between performance and disclosures about performance, suggesting some firms are just more likely to disclose information. Therefore;

> H2: *The use of a higher percentage of discretionary vs operational initiatives will positively moderate the relationship between cognitive diversity and sustainable initiatives.*

Moderating Role of Tenure

Tenure, or the length of continual service in the firm or on the board, has been associated with positive firm performance (Pfeffer and Salancik,1980), leads to functional specialization by incumbents and the institutionalization of power within the organization (Pfeffer and Salancik (1978, 1980). Pfeffer and Salancik (1980) found that when profitability and market performance are positive, executives are retained. As executives and board members become entrenched in their positions, they develop a greater understanding of their role through experience, socialization and cohesion (Michel and Hambrick, 1992). Once entrenched, executives and board members remain even when there is a negative relationship between tenure and performance (Pfeffer and Salancik, (1980). Tenure is critical to board behavior (Hambrick, 2007; Wiersma and Bantel, 1992; Kosnick, 1990).

There are tremendous benefits to boards serving for a period together. Boards with longer-tenured members understand the firm's traditions and values will adhere to them (Katz, 1992); develop better communication among both the team and external to the team (Kosnik, 1990; Zenger and Lawrence, 1989); and develop common perspectives and social integration through shared experiences. Thus, tenure reduces the impact of cognitive diversity among members.

Changes in the tenure of the board occur when boards add new members or when incumbent members leave the board. Pfeffer (1983) reasoned that new board members form cohorts that become cohesive, conforming, and mutually reinforcing. As a result, cohort members are more likely to interact with each other. New board members have the highest levels of creativity and are most likely to suggest new ideas (Kosnick, 1990). These new members or cohorts reduce the potential of groupthink within the board (Kosnick, 1990). As a result, they increase communication difficulties across cohorts (Bantel and Jackson, 1989). Drawing on upper echelon theory, Tuggle, et al., (2010) demonstrated that tenure diversity was crucial to the monitoring and advising activities of the board.

Boards, which spend time together, develop methods of overcoming coordination difficulties (Martins and Milliken, 1996). As board tenure increases, performance improves (Katz, 1982) as they develop richer information patterns within the group, and find common perspectives (Kosnik, 1990). As a director becomes more aware of and more engrained in the values and practices of the firm, s/he gains a better appreciation of the reputational effects of the firm's activities, becomes protective of the firm's legitimacy and shows greater conformity (Kosnik, 1990).

As a common perspective emerges within the board of directors as to the firm's place in their environment and the steps necessary to maintain that standing, the effect of individual directors' diversity is lessened and replaced with a more homogenized view of the firm, attenuating the effect of cognitive diversity on DSI.

The result of this homogenization is faster decision-making as directors understand each other's perspectives, communication styles and routines for conflict resolution. As a result, time constraints in tightly packed agendas are reduced and there is still time to discuss and decide on discretionary sustainability initiatives. A negative result of this homogenization may be groupthink. Boards with tenure greater than its peer group (high tenure) (Katz, 1982), produce less creative and lower-quality decisions (Kosnick, 1990). Therefore:

> H3: *Board tenure positively moderates the cognitive diversity – DSI relationship. That is, high cognitively diverse boards will engage in more DSI when they have high levels of tenure.*

Methodology

Sample

The 356 nonfinancial firms listed in the Fortune 500 during 2004, which were still active in 2010, were selected as the sample. Consistent with Gompers, et al., (2003), 58 firms were removed from the original sample because they were holding companies or financial/insurance firms. The period 2004-2010 was chosen because it allows sufficient time for firms to respond to negative environmental events, including toxic releases and chemical spills, as well as initiated sustainability initiatives coming to fruition. Finally, 2004 was selected because this was a Presidential election year in the United States important, as political activity is cyclical in the United States.

Variables and Data Sources

Sustainable Initiatives. *Consistent* with previous research (Gilley, et al., 2000; Karpoff, et al., 2005; King and Lenox, 2001; Klassen & McLaughlin, 1996) sustainable initiatives were operationalized to include all voluntarily disclosures, which are public statements, by the firm of their own activities. Information on voluntary disclosure of corporate initiatives was gathered for most firms from their corporate websites in a method consistent with prior research (Forker, 1992, Stevens, et al., 2005). Voluntary disclosures, including press releases, SEC documents, Annual Reports and Special Reports, are archived online. In some cases, the disclosures were readily available dating from the founding of the company; in others, the disclosures were available only for the past few years. Lexis-Nexis was used for those companies, which did not archive their disclosures during the study period.

I used two rounds to identify the number of sustainability initiatives as well as the total number of initiatives (a control variable for the propensity to disclose) for each firm.149, 958 voluntary disclosures

were identified and evaluated, of which 4,775 (or slightly more than 3%) were related to sustainability. Of these, 1,384 were OSI and 3,391 were DSI. In the first round, based on a review of recent literature on sustainability in EBSCO Business Source Complete, articles in the Economist and recently published books on sustainability, a number of keywords were developed. Any disclosures using a variant of keywords such as "sustainability," "environment," "green" was counted, as were those that referenced mitigation of EPA issues, those that proposed energy-savings programs, and those that involved alternative energy. The sustainable initiatives identified for each firm were tallied. Two researchers independently reviewed the firm voluntary disclosures and used a common coding sheet with sustainability keywords. There was one discrepancy based on the definitions. The purpose of the second round was to identify the propensity of a firm to disclose (a control variable) and to identify sustainability initiatives that did not use the key words in round one. Thirty-nine such sustainability initiatives were identified.

Operational Initiatives. We build on the work of Goodstein, et al., (1994), Delmas, and Montes-Sancho (2010), who delineated between superficial and meaningful activities. The coding method used to score operational initiatives were of two types: (1) revenue enhancing - those that indicated an attempt to grow the firm, introduce a new business, expand successful pilot programs, or secure new customers and (2) cost reduction - those which indicated an attempt to reduce operating costs or trim expenses, such as decisions to reduce energy usage to reduce greenhouse gas emissions or the adoption of tools which are more environmentally friendly. *Pct. Operational* reflects the total number of sustainability initiatives included as operational and divided by the total.

Discretionary Initiatives. Scalet and Kelly (2010) suggested that individuals desire to feel good about the company they are working for and that the company is doing the right things for the environment. In addition, institutional and stakeholder pressures encourage firms to engage in sustainability initiatives (King and Lenox, 2001; Fisher-Varden and Thorburn, 2010). Discretionary initiatives capture voluntary disclosures that are aspirational, informational or laudatory in nature. The coding of these initiatives captures firm activities that are related to sustainability but do not have an immediate, direct payoff. *Pct. Discretionary* reflects the total number of sustainability initiatives included as discretionary and divided by the total.

Cognitive Diversity. Cognitive diversity is a composite measure created by summing Blau's indexes for each individual characteristic (Tsui and Gutek, 1999; Chae and Lee, 2010). This is consistent with past literature (Tuggle, et al., 2010; Bantel and Jackson, 1989) and demonstrates when the diversity of the group increases. Twenty-five individual characteristics, political activity, political affiliation, veteran status, religion, educational attainment, source of education and functional background, were converted to binary measures for each director and then a measure of dispersion was calculated for each characteristic. The measures of dispersion were then summed and adjusted for small group bias (Lambert, 1992).

TABLE 1
DIVERSITY MEASURES

Cognitive						**Demographic**
Political	Veteran	Religious	Education	Educational Level	Background	
Active		Active	Elite	Doctorate	Executive	Gender
Conservative		Christian	Private	JD	Board Director	Age
Liberal		Jewish	Public	Masters	Retired	Caucasian
			No Degree	MBA	Law	African-American
				BA/BS	Finance	Other Race
				No Degree	Consulting	US Citizen
					Academic	European
					Other	Other Nationality

The RiskMetrics database combines firm and individual director-level data drawn from corporate filings. Director name, age, gender, nationality, tenure, job characteristics and functional background experience were extracted from the database. This data was then supplemented by several sources including corporate annual reports. These provided validation of demographic information, in-depth biographies and affiliations about their corporate directors. The nndb.com database also provided information about careers, education, background and value characteristics such as veteran status and political affiliation. The Federal Election Commission provided databases on political contributors.

Functional Background has been used in management research as a proxy for cognitive diversity by Goodstein, et al. (1994) for board members and by Hambrick (1996) and by Bentel (1993) in relation to the TMT. Consistent with Goodstein, et al. (1994) we use occupational groupings to assess functional *background* (Executive, Board Director, Retired, Lawyer, Finance, Consulting, CPA, Academic, Political, and Other). This work was based on Pfeffer (1972) and (1973) and Kosnik (1990). The variable has been discussed Hambrick (1996), in his TMT theories, Westphal and Milton (2000); Goodstein, et al. (1994); Peterson, Philpot, and O'Shaughnessy (2007); Milliken and Martins (1996) and like Ramirez (2003) have recognized that importance of background in the way executives frame issues and solve problems.

The variable*, school,* represents the type of school the director attended, while *Education* represents the type of degree the director attained. Education also goes beyond just the discipline or degree. Based on the work of Hambrick, et al. (1996), Westphal and Milton (2000) and Westphal and Stern (2006); two measures of education were used. A measure based on the source of the education included a coding of each director as having attended either a university (elite, private or public) or not having received any formal education. A second measure captured their highest level of education.

Political Involvement is a dichotomous variable coded for board members who self-report political membership in a party or donate to political groups. *Political viewpoint is* a dichotomous measure of political affiliation for individuals identifying with conservative causes. *Veteran status* is a dichotomous variable for individuals who self-report military service and *religious affiliation* is a dichotomous variable for individuals who self-report membership in a religious group (Brooks, 2006).

Tenure. Tenure is a moderating variable hypothesized to influence the relationship between cognitive board diversity and the type and frequency of initiatives. As board directors enter and exit the board, the group dynamics necessarily change. Individual directors learn to reduce interpersonal barriers, which lowers coordination costs and maintains the benefits of diverse viewpoints. As Kosnick (1990) pointed

out, there is a compositional effect to boards and use of average measures account for the changes to the board and resulting changes to the interpersonal activities. *Tenure* is measured as the average number of years the directors have continuous service on the board. This view of tenure reflects positive changes to the individual performance of directors (Katz, 1982) and positive changes to the group dynamic (Martins and Milliken, 1996 and Kosnik, 1990). A new board director would be coded as "0" for no continuous service on the board and each year the board director remained would yield a higher positive number. As boards stayed together the average of their tenure would increase.

Controls. I included controls that are theoretically related to the research question. The Compustat database was used to gather information on the firm and industry controls. Although the sample includes the largest US firms, the distribution in terms of size is skewed. I control for the relative size of firms in two ways. *Natural Log of Revenue*, consistent with Ruigrok, et al. (2006) and *Natural Log of Employees*. *Organizational slack*, the non-deployed resources available to the firm for new initiatives (Daniel, Lohrke, Fornaciari and Turner, 2004), was suggested by Hambrick, et al. (1996) as a potential rival explanation to differences in organizational outcomes. Firms, which have greater levels of organizational slack, have additional freedom of action with regard to competitive moves (Hambrick, et al.; 1996). In addition, firms with greater slack have the resources necessary to make greater voluntary environmental investments (Fisher-Vanden and Thorburn, 2010). A one-year lagged measure of firm performance, *Profits*, or income from continuing operations attributable to the firm (consistent with the Fortune 500 methodology), was also included to be consistent with their methodology.

To test the financial performance measure, I have chosen three discrete periods to test whether firm's see any improvement in their financial position as a result of implementing sustainability initiatives. Schendler (2009) makes the case that the positive impact of sustainability must be felt immediately but also over the long-term. Consistent with Russo and Fouts (1997) who felt that two years represented "an adequate period in which to test the influence of environmental performance" (544) I tested the return on assets one year into my sample and at each year in the sample, 2008 is shown in the table. The primary *SIC* (from Mergent Online) was included to capture those firms within manufacturing and extractive (mining and energy) sectors as opposed to firms in the service industries. Firms where the primary SIC was manufacturing or extractive were coded as a "1" consistent with Delmas and Burbano (2011), who posited that industry, particularly brown industries (those more likely to have negative externalities – manufacturing and extractive firms), is an important component in whether firms signal the marketplace about sustainable activity.

Past events (Finklestein, et al., 2009) may suggest whether a firm has a focus on sustainability and environmental issues; therefore, environmental events (*EPA Incidents*) were measured consistent with Meyer (1995) by the Toxic Release Inventory (TRI). The United States Environmental Protection Agency (EPA) maintains the TRI database, which was used to find negative environmental events as a control for whether the company in question had a negative impact on the environment. *Climate Leaders* is meant as a proxy for leadership in the field of sustainable business practices, and is represented here by the program, since discontinued, which was a voluntary commitment by firms to be a leader in environmental stewardship. In addition, the program provides information about when a firm joined the program. All voluntary disclosures for the sample firms were included as a control variable *Total Initiatives,* as a measure of propensity to disclose (Acquisti, John, and Loewenstein, 2012). A larger board indicates that each individual has a smaller impact (Judge and Zeithaml, 1992) and therefore *board size*, or the number of board members, was controlled. *Duality* is a measure of the cases where the CEO of the firm is also the chairperson of the board of directors. There is extensive and conflicting literature as to the impact of CEO duality on the firm stemming from the agency theory of the firm (Elsayed, 2007).

Demographic diversity is a composite measure created by summing Blau's indexes for individual characteristics (Chae and Lee, 2010) and additional information is included in Appendix 4. Tsui and Gutek (1999) asked for more rigorous diversity methodologies and the use of the Blau's index is consistent with current literature (Tuggle, et al., 2010). Race, gender, ethnicity, and age have been used as proxies for demographic diversity. The variable, *race*, has been widely used in management research. Miller & Triana (2009) all consider the corporate governance implications of race. It is a dichotomous

variable coded on the 2000 US Census racial categories as reported for individual directors in RiskMetrics. The Census used six categories, which do not match well with those in the sample, White, Black, American Indian or Alaskan Native, Asian, Hawaiian or Pacific Islander and "some other race". As mentioned above, some US Census categories, such as nationality or race, were so under-represented their category could be collapsed with no impact on results. *Gender* is a dichotomous variable. Peterson, et al. (2007); Grosvold, et al. (2007); Westphal & Stern (2006) and Nguyen & Faff (2006) have considered this variable. *Ethnicity* is a dichotomous variable based on the Hofstede scale coded as US, Canadian, Mexican, European, Japanese, Australian, Mainland Asian, from Central or South America, or from the Middle East, including Africa. Westphal & Stern (2006) included ethnicity in their sample to assist in looking for non-obvious links amongst a board. A review of the directors in the RiskMetrics database yields a median age for a US corporate director as 60, with a range of 29 to 95. *Age* becomes a continuous variable and is the difference in age of a director and the median age for all directors.

Data Analysis

A Poisson regression technique is appropriate for event studies such as this one for measuring the number of rare events that occur during a period, in this case from 2004 through 2010. As tables 6, 7 and 8 assert, for most of this sample, there are no or very few initiatives. Table 6 shows that of the 356 firms in the sample, 202 have no operational initiatives, while Table 7 shows that 155 firms in the same sample have no discretionary initiatives. As Table 8 indicates, a sizable part of the sample, 141 firms, has conducted neither operational nor discretionary initiatives. Therefore, a zero-inflated Poisson regression model (Lambert, 1992) was used due to the very large number of cells, which contained a zero. A significant Vuong test indicates that the zero-inflated Poisson (ZIP) regression is an appropriate choice. The test was significant for each hypothesis. Table 2 presents the descriptive statistics including means and standard deviations for the variables and the correlations.

TABLE 2
DESCRIPTIVE STATISTICS AND CORRELATIONS

	Variables	N	Min.	Max.	Mean	s. d.	1	2	3	4	5	6	7	8	9	10	11
1	Cognitive	356	1.72	4.79	3.64	0.51	1.00										
2	Demographic	356	0.20	1.87	1.11	0.29	0.09	1.00									
3	Size	356	6.00	18.00	10.77	2.15	0.22	0.20	1.00								
4	Tenure	356	1.00	21.60	7.99	3.20	-0.02	-0.06	-0.08	1.00							
5	Revenue LN	356	8.66	11.41	10.01	0.38	0.11	0.03	0.31	-0.10	1.00						
6	Profit	356	-1.56	14.60	0.00	1.00	0.09	0.05	0.09	-0.04	0.24	1.00					
7	Employees LN	356	2.84	6.32	4.47	0.50	0.09	0.12	0.24	-0.03	0.63	0.15	1.00				
8	Pct. Operational	356	0.00	1.00	0.17	0.27	0.05	0.01	0.15	-0.07	0.21	0.05	0.14	1.00			
9	Pct. Discretion	356	0.00	1.00	0.42	0.41	0.02	0.03	0.17	-0.04	0.25	0.00	0.18	-0.00	1.00		
10	Operational	356	0.00	88.00	3.89	10.78	0.01	0.08	0.13	-0.04	0.33	0.10	0.25	0.36	0.12	1.00	
11	Discretionary	356	.0.00	324.00	9.53	25.92	-0.01	0.13	0.16	-0.03	0.36	0.16	0.28	0.08	0.31	0.67	1.00
12	Sustainability	356	0.00	394.00	13.41	34.06	-0.01	0.12	0.16	-0.03	0.37	0.16	0.29	0.17	0.27	0.82	0.97
13	Total Initiatives	356	0.00	4901.00	421.23	672.61	0.06	0.07	0.15	-0.12	0.44	0.15	0.33	0.17	0.23	0.44	0.48
14	Pct. Sustain	356	0.00	0.42	0.03	0.07	0.01	0.04	0.08	0.01	0.15	0.03	0.08	0.21	0.35	0.42	0.42
15	EPA Incidents	356	0.00	795.00	53.71	124.20	-0.00	0.00	0.20	-0.06	0.36	0.13	0.11	0.18	0.13	0.32	0.25
16	Climate Leaders	356	0.00	1.00	0.19	0.40	0.05	0.08	0.19	-0.02	0.20	0.02	0.20	0.20	0.24	0.34	0.24
17	Duality	356	0.00	1.00	0.73	0.44	0.01	0.10	0.01	-0.14	0.14	0.08	0.07	0.04	0.05	-0.03	0.01
18	SIC	356	0.00	1.00	0.51	0.50	-0.08	0.07	0.08	-0.01	0.00	-0.01	-0.09	0.15	0.05	0.13	0.07

	Variables	N	Min.	Max.	Mean	s. d.	12	13	14	15	16	17
1	Cognitive	356	1.72	4.79	3.64	0.51						
2	Demographic	356	0.20	1.87	1.11	0.29						
3	Size	356	6.00	18.00	10.77	2.15						
4	Tenure	356	1.00	21.60	7.99	3.20						
5	Revenue LN	356	8.66	11.41	10.01	0.38						
6	Profit	356	-1.56	14.60	0.00	1.00						
7	Employees LN	356	2.84	6.32	4.47	0.50						
8	Pct. Operational	356	0.00	1.00	0.17	0.27						
9	Pct. Discretion	356	0.00	1.00	0.42	0.41						
10	Operational	356	0.00	88.00	3.89	10.78						
11	Discretionary	356	.0.00	324.00	9.53	25.92						
12	Sustainability	356	0.00	394.00	13.41	34.06	1.00					
13	Total Initiatives	356	0.00	4901.00	421.23	672.61	0.51	1.00				
14	Pct. Sustain	356	0.00	0.42	0.03	0.07	0.45	-0.01	1.00			
15	EPA Incidents	356	0.00	795.00	53.71	124.20	0.29	0.11	0.27	1.00		
16	Climate Leaders	356	0.00	1.00	0.19	0.40	0.29	0.23	0.14	0.15	1.00	
17	Duality	356	0.00	1.00	0.73	0.44	0.02	0.02	0.06	0.14	0.03	1.00
18	SIC	356	0.00	1.00	0.51	0.50	0.09	0.04	0.03	0.29	0.24	0.15

RESULTS

Supporting H1 model 2 in Table 3 shows that cognitive diversity was significantly associated with sustainable initiatives. Firms with cognitively diverse boards launch fewer Sustainable Initiatives than firms with less cognitively diverse boards. Within the parameters, that this is a McFadden's pseudo R^2 in a Poisson regression and not a true R^2, more of the variance in discretionary initiatives was explained by cognitive diversity and the control variables than was explained by the variance in operational initiatives. That said, the inclusion of Cognitive Diversity raised the pseudo R^2 from 0.364 to 0.371. Several of the firm-level control variables remained significant. Revenue, Profits and Employees and SIC, as well as the past performance measures, EPA Incidents and participation in Climate Leaders, were also significant. Duality was significant and negatively related to the number of sustainability initiatives. Size and Profits were not significantly related to Sustainable Initiatives.

TABLE 3
FIRM-LEVEL MODELS FOR OPERATIONAL AND DISCRETIONARY INITIATIVES AND COGNITIVE DIVERSITY

	Sustainable Initiatives			
	Model 1 Controls		Model 2	
Demographic Diversity	7.64	***	7.95	***
Size	0.78		2.26	*
Tenure	5.26	***	5.67	***
Revenue LN	3.40	**	4.07	***
Profits	1.75		1.90	
Employees LN	6.96	***	6.22	***
Total Initiatives	23.23	***	23.32	***
EPA Incidents	13.73	***	12.77	***
Climate Leaders	10.80	***	10.89	**
Duality	-4.60	***	-4.08	***
SIC	1.93	*	1.98	*
Cognitive Diversity			-7.23	***
Intercept (Constant)	-3.67	***	-2.97	**
X^2	3463.29		3515.20	
dF	11		12	
Pseudo R^2	0.364		0.371	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 4 shows support for H2, the percentage of Discretionary Initiatives is significant and positively related to Sustainable Initiatives. The firms that engage in a greater percentage of discretionary initiatives; that is, are able to resolve the conflicts around the issue of sustainability and move beyond those related directly to financial performance; will engage in more sustainability initiatives. The control variables continue to be significant with the exception of Size and Profits. The inclusion of percentage of Discretionary Initiatives raises the pseudo R^2 from 0.364 to 0.373.

TABLE 4
FIRM-LEVEL MODELS FOR SUSTAINABLE INITIATIVES AND THE PERCENT OF OPERATIONAL INITIATIVES AND DISCRETIONARY INITIATIVES

	Sustainable Initiatives						Sustainable Initiatives					
	Model 3 Controls		Model 4		Model 5		Model 6 Controls		Model 7		Model 8	
Demo. Diversity	7.64	***	7.73	***	8.17	***	7.64	***	7.73	***	8.17	***
Size	0.78		1.93		1.65		0.78		1.93		1.65	
Tenure	5.26	***	5.35	***	5.24	***	5.26	***	5.35	***	5.24	***
Revenue LN	3.40	**	4.32	***	4.26	***	3.40	**	4.32	***	4.26	***
Profits	1.75		1.21		1.50		1.75		1.21		1.50	
Employees LN	6.96	***	6.52	***	6.23	***	6.96	***	6.52	***	6.23	***
Total Initiatives	23.23	***	23.44	***	23.59	***	23.23	***	23.44	***	23.59	***
EPA Incidents	13.73	***	12.81	***	12.78	***	13.73	***	12.81	***	12.78	***
Climate Leaders	10.80	***	11.15	***	11.48	***	10.80	***	11.15	***	11.48	***
Duality	-4.60	***	-3.88	***	-4.20	***	-4.60	***	-3.88	***	-4.20	***
SIC	1.93	*	2.68	**	2.49	*	1.93	*	2.68	**	2.49	*
Cog. Diversity			-7.04	***	0.12				-7.04	***	-7.19	***
Pct. Operational			-4.67	***	-3.72	***						
Pct. Discretionary									4.64	***	3.72	***
CD X Pct. Operational					-3.09	***						
CD X Pct. Discretionary											3.09	**
Intercept (Constant)	-3.67	***	-3.20	***	-2.25	*	-3.67	***	-3.66	***	-4.59	***
X^2	3463.29		3537.22		3546.71		3463.29		3537.22		3546.71	
dF	11		13		14		11		13		14	
Pseudo R^2	0.364		0.373		0.374		0.364		0.373		0.374	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

TABLE 5
FIRM-LEVEL MODELS FOR OPERATIONAL AND DISCRETIONARY INITIATIVES AND COGNITIVE DIVERSITY

	Operational Initiatives				Discretionary Initiatives			
	Model 9 Controls		Model 10		Model 11 Controls		Model 12	
Demographic Diversity	-0.98		-0.97		9.13	***	9.47	***
Size	-1.63		-1.42		0.95		2.62	**
Tenure	2.49	**	2.55	**	4.31	***	4.83	***
Revenue LN	-1.12		-1.03		4.01	***	4.55	**
Profits	-3.77	**	-3.77	**	4.53	***	4.73	***
Employees LN	4.53	***	4.44	***	5.80	***	4.86	***
Total Initiatives	12.46	***	12.48	***	19.08	***	19.31	***
EPA Incidents	9.73	***	9.46	***	7.13	***	6.45	***
Climate Leaders	8.77	***	8.76	***	3.58	***	3.73	***
Duality	-2.81	*	-2.71	*	-3.04	**	-2.54	
SIC	2.25	*	2.25	*	2.86	**	2.78	*
Cognitive Diversity			-0.66				-7.75	***
Intercept (Constant)	1.03		1.05		-5.18	***	-4.11	***
X^2	842.40		842.84		2393.14		2452.42	
dF	11		12		11		12	
Pseudo R^2	0.306		0.307		0.309		0.376	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 6 does not show support for H3, however, if the standard for significance were to be relaxed, the relationship would be significant at the 0.10 level (Model 18). Tenure was positively related to Discretionary Initiatives (Model 17) as a main effect. The interaction of these two continuous variables, tenure, and cognitive diversity, was not significant in Model 18, although the explanatory power of the variance in sustainable initiatives 0.353. Once again, there were significant relationships between firm-level controls (Revenue and Employees) and past performance controls (EPA Incidents and participation in Climate Leaders). Duality was again significant and negatively related to the variance in these types of initiatives. Unlike the other firm-level variables, the relationship between Profits and Sustainability Initiatives was not significant although Size is now significant.

TABLE 6
FIRM-LEVEL MODELS FOR SUSTAINABLE INITIATIVES AND TENURE AND DISCRETIONARY INITIATIVES AND TENURE

	Sustainable Initiatives						Discretionary Initiatives					
	Model 13 Controls		Model 14		Model 15		Model 16 Controls		Model 17		Model 18	
Demo. Diversity	7.57	***	7.95	***	8.02	***	9.08	***	9.47	***	9.53	***
Size	0.12		2.26	*	2.12	*	0.45		2.64	**	2.49	*
Revenue LN	3.30	**	4.07	***	4.20	***	4.07	***	4.55	***	4.69	***
Profits	2.68	**	1.90		1.60		5.33	***	4.73	***	4.36	***
Employee LN	7.38	***	6.22	***	6.30	***	6.16	***	4.86	***	4.95	***
Total	22.63	***	23.32	***	23.05	***	18.59	***	19.31	***	19.01	***
Incidents	13.60	***	12.77	***	12.77	***	6.91	***	6.45	***	6.39	***
Climate Lead	10.88	***	10.89	***	10.99	***	3.61	***	3.76	***	3.86	***
Duality	-5.81	***	-4.08	**	-4.14	**	-4.01	***	-2.54		-2.58	*
SIC	1.83		1.98	*	1.85		2.92	**	2.78	**	2.71	**
Tenure			5.67	***	2.42	*			4.83		2.36	*
Cognitive Diversity			-7.23	***	-0.86				-7.75		-1.03	
Tenure X Cognitive Diversity					-1.59						-1.64	
Intercept (Constant)	-3.03	**	-2.97	**	-3.30	**	-4.84	***	-4.11	***	-4.22	
X^2	3436.37		3515.20		3517.70		2374.66		2452.42		2455.07	
dF	10		12		13		10		12		13	
Pseudo R^2	0.362		0.371		0.371		0.341		0.353		0.353	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

DISCUSSION

With this article, I explore the relationship between board cognitive diversity and the launch of OSI and DSI. By linking corporate governance and sustainability, we address several key issues that have heretofore been under-represented in the management literature. I find that while the ability for cognitively diverse boards to enact OSI is not impacted, discretionary ones are curtailed. This suggests that busy boards, fractured by fault lines (Lau and McLaughlin, 2005) along their backgrounds, struggle to find consensus when the task is not related to the institutionally-mandates. While the board has responsibility to guide the firm through its management, when the board has neither a requirement to act nor a mandate to act then the board is less likely to act.

I also find that long-serving boards are may be more likely to engage in DSI than boards with less time together. While this is consistent with the literature on tenure (Hambrick, 2007; Katz, 1992), the connection between the role of tenure and sustainability initiatives had not previously been explored.

These two findings may extend the UN concept of sustainability, which posits that sustainability is the tradeoff between "the ability of current generations to meet their needs without compromising the ability of future generations to meet theirs" (World Commission on Economic Development, 2013: 16). Given the institutional pressures for greater board diversity, including cognitive diversity (Krus, Morgan and Ginsburg, 2012) and the institutional pressure for action on sustainability initiatives (Marshall and

Brown, 2003; Fisher-Varden and Thorburn, 2010; Klassen and McLaughlin, 1996), firms may seek to balance these potentially conflicting social goals. Boards may engage in actions such as expanding the size of the board to encompass directors with new experiences, values, and backgrounds rather than replacing board directors. Boards may add demographically diverse directors who have low cognitive diversity from the existing board, for example selecting directors with common educational backgrounds. Boards may also temper the impact of new cognitively diverse board directors by simultaneously adding directors with low cognitive diversity. Given that new board directors joining the board together may form a cohort (Pfeffer, 1983) adding members with high and low cognitive diversity might ease the coordination difficulties between the new and seasoned directors.

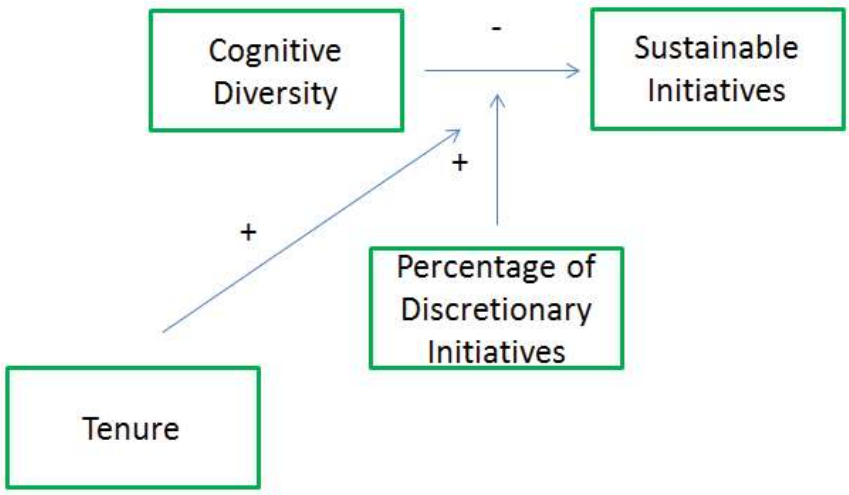
There are a number of additional explanations for these results. Firms may be less likely to disclose voluntarily all of their initiatives in real time, which would require an even more retrospective methodology to collect. The methodology with which the data was gathered for this paper allows firms to engage in important sustainability initiatives, and if they were not announced, or even announced as other than sustainability deny, they would not be included in this study. While the assumption is that firms would announce all of their sustainability initiatives so that they can gain the positive firm and reputational benefits (Fisher-Varden and Thorburn, 2010), I must consider the alternative that firms may want to disguise their true intention with regard to initiatives that could differentiate them from rivals. Although other researchers have found a connection between a sustainability mindset and firm performance (King and Lenox, 2001), this sample had no significant finding. This paper attempted to find a relationship after one year, after four years and over the full course of the study. Given the economic downturn in the United States that was still underway in 2010, it was unlikely the performance measure was "clean" of other micro and macroeconomic effects. The signal on cognitive diversity is weaker than the signal on demographic diversity. There are demographic variables upon which almost all directors can be categorized, including gender, age and race, and these variables are discrete (as of this report there is no director who claims to be transgender) and clearly expressed. These variables are regularly available from multiple sources. Cognitive diversity variables are, in contrast, often not clearly expressed or discrete. Military service may indicate a strong degree of patriotism in younger directors or the bad luck of a low draft number for older directors. In either case, unless the directors have discussed their military service at some point in the media or maintain it as part of their official biography; it would be hard to know it was part of their background. Likewise, religious and political beliefs are knowable only when revealed by the director. Additionally, cognitive diversity is still evolving, as evidenced by the latest Pew Research Report, which explores how values are changing in the American electorate over the past 35 years. While there is a strong affiliation between conservatism and the GOP brand and liberalism and the Democrat party, these are not universally held. Both parties are broad umbrellas and members are free to reject specific aspects of the party beliefs or re-write them within party sub-groups. Views on the environment are not universally held amongst party members and may even be situational; varying based on the company the director keeps. The study is also limited in that it equates all military, religious and educational experiences as similar. The viewpoints of an 80-year old director who volunteered for service in World War II would be very different from a 60-year old director drafted for a year in Vietnam, and young executives who fought in the Gulf Wars. Viewpoints would also vary in the church; the Roman Catholic Church welcomes both those who attend daily service and those who attend only on Christmas Day. Christian denominations vary widely in their interpretation on the role of institutions and even the importance of part of the Bible. Education experience would not be uniform with changes for those who attended in the 1950s and 1990s.

Table 2 includes some interesting results regarding the variable for duality, which was beyond the focus of the study. The mean for duality is 0.73 – 73% of firms within the sample have a CEO who also serves as the Chairman of the Board. This is lower than the Fortune 100 in which 84% of firms had CEO duality. The data from Chen, Lin, and Yi (2008) suggests that firms with dual role CEOs are larger, older and with more businesses. Those results are consistent with ours. Chen et al. (2008) further suggest that duality had been decreasing since the 1990s in response to improved governance even though neither they nor Dalton and Dalton (2005) could find a link between duality and firm performance. Given that 73% of

firms in this sample, and 84% of the Fortune 100 have CEO duality, the suggestion could be made that while the academic literature continues to consider this issue, it has been resolved amongst practitioners.

The question for firms is how to reap the benefits of diversity, such as wider searches for solutions and greater exposure to successful initiatives from other firms, while at the same time launching discretionary sustainability initiatives and accepting the rewards that result. A recent paper by Eidelman, et al. (2012) may offer a possible explanation for why cognitive diversity dampens all meaningful activity. They offer the suggestion that people default toward conservative thought, based on their experiences and values, and that when time is short, for example, a minor item on a crowded agenda, directors do not engage in higher-order thinking, but rather accept thinking that is conservative in nature.

FIGURE 1
MODEL



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