

# **Experience-Based Green Board Capital: Linking Board of Directors and Firm Environmental Performance**

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*Antecedents to environmental performance are an increasingly important area of study for strategic management scholars. Accordingly, we believe that boards of directors have an important impact on environmental performance. While other studies have found relationships between board demographics and environmental performance, we suggest that the relationship is also deeply embedded in the resources and abilities of board members. More specifically, we study board members with green corporate human capital, green regulatory human capital, and green relational capital and test that having certain board capital will have a positive impact on environmental performance. Empirical findings support our theoretical arguments.*

## **INTRODUCTION**

Corporate environmentalism is, “the organization-wide recognition of the legitimacy and importance of the biophysical environment in the formulation of organization strategy, and the integration of environmental issues into the strategic planning process” (Banerjee, 2002, p. 181) demonstrating the broad interconnectedness between business and the environment (Hoffman, 1991). While the existing literature has offered theoretical linkages between corporate environmentalism and the firm’s financial performance (Henriques and Sadorsky, 1999; Spence, Jeurissen et al., 2000), it remains unclear whose responsibility this is within the firm.

Scholars have begun to answer this question by looking at firms’ board of directors. Ricart, Rodriguez, and Sanchez (2005) find that 94% of the boards in the firms that represent the Dow Jones Sustainability Index (DJSI) believe that environmental sustainability is a key responsibility of the board. More recently, de Villiers, Naiker, and van Staden (2011) identified the relationship between board characteristics and the firm's environmental performance. While more easily observed, there are limitations of studies like these that focus on characteristics of the board (e.g., board size) as the impact of board characteristics continues to be inconclusive (Ryan, Buchholtz et al., 2010). For instance, characteristics of the aggregate board have limitations in explaining intended outcomes while also neglecting the resources and competencies of the individuals that make up the board (Johnson,

Schnatterly et al., 2013). Thus, the current study builds off research on the board's role in environmental performance by unpacking the context (Johns, 2006) of the members themselves to identify the resources they can provide the firm to be more green.

To better understand the influence of the individual board member, we explore the association between a board member's past history in being green and a firm's environmental performance. To do this, we borrow from the concept of board experience-based human and relational capital (Kor and Sundaramurthy, 2009) by looking at board of directors' backgrounds to determine if green human and/or relational capital of each board member has any relation to firm environmental performance. Green human capital is separated into either those board members that have direct experience and expertise in corporate environmentalism initiatives or those board members that have experience in the regulatory perspectives of corporate environmentalism. Green relational board capital is observed through a board member's indirect social ties to those that possess green knowledge. From these three dimensions of green board capital, we find their association with a firm's environmental performance, measured from the Kinder, Lydenberg, and Domini (KLD) database.

Due to the nature of green board capital, the theoretical backing of our hypotheses is resource dependency (Pfeffer and Salancik, 1978). The resource dependence perspective views board members as an outlet for firms to gain access to resources not internally possessed (Pfeffer, 1973; Zahra and Pearce, 1989). Through such mechanisms, board members reduce uncertainty (Hillman, Withers et al., 2009). One such strategic initiative is higher environmental performance. Thus, board members are utilized to manage external dependencies related to the natural environment. Given this, we ask: is there a link between board members and green corporate human capital, green regulatory human capital, and/or green relational capital and positive environmental performance?

This study offers empirical support towards explaining the role of the board of directors as a link between the firm and its environmental performance. The results show that individual capital by board members helps to explain a firm's positive environmental performance. More specifically, a board member's direct experience working in corporate environmentalism or having green relational capital has a positive association with a firm's environmental performance. This provides implications that add more contexts beyond the characteristics of the board to better understand which individuals might be more apt to serve on the board in aiding environmental performance.

In the next section, a literature review examines previous research on corporate environmental sustainability and boards of directors. Then a linkage is made between board capital and environmental sustainability. This paper then concludes by looking at the results of the study, along with implications and contributions.

## **LITERATURE REVIEW**

The enterprise-wide perspective of the board explains the importance of boards' role in firms' philosophies on the natural environment (Ricart, Rodriguez et al., 2005), as it must be applied "to their products, policies, and practices" (Bansal, 2005). The three major roles boards of directors play are service, strategy and control (Zahra and Pearce, 1989). The service role for boards of directors includes building companies' reputations, making external contacts, and aiding executive boards by providing counsel (Louden, 1982; Carpenter, 1988). Board members have typically been in previous leadership roles and can provide advice to top management to try to reduce uncertainty and lower the learning curve. Hence, background knowledge, such as being previously involved in green initiatives, allows board members to aid in the implementation of positive environmental performance.

The strategy role is to help the firm interact with general and competitive environments. Board members have access to external resources that firms can utilize for their competitive advantage. Although boards are not directly responsible for firms' strategies, they impact strategy through the capacity to ratify and monitor management's strategic plans (Fama and Jensen, 1983). Although board power does not directly manifest in the strategic direction of firms, it becomes apparent through critical

choices that boards are able to make in the strategic management process. Thus, issues of importance by board members, such as positive environmental performance, will translate into actions of firms.

The control role is based on agency theory logic (Jensen and Meckling, 1976), where boards ensure that management (i.e., the agent) acts in the best interest of the shareholders (i.e., the principle) instead of managements own interests. The boards control role is to make sure the firm and CEO are performing in a manner that will achieve growth and protect the shareholders' interest (Chapin, 1986). Boards should also ensure that management acts in the best interests of other stakeholders (Hillman and Keim, 2001), which the environment is increasingly seen as a primary stakeholder (Haigh and Griffiths, 2009).

From these three functions of boards, existing research shows a linkage between boards of directors and environmental and social outcomes of firms (e.g. Kolk, 2008). For instance, larger boards, larger representation of active CEOs, and more legal experts all are associated with higher environmental performance for the firm (de Villiers, Naiker et al., 2011). However, research has also shown that smaller boards might be more effective (Yermack, 1996), and that effective boards tend to pursue initiatives more proactively (Vafeas, 1999). Other research shows that higher environmental performance is associated with either having more outside directors, three or more female directors, an average board age of 56, and a significant percentage of board members from Western Europe (Post, Rahman et al., 2011). Numerous other studies have looked at various characteristics of firms' governance, environmental, and social performance, with varying results (see Walls, Berrone et al., 2012; Johnson, Schnatterly et al., 2013). Overall, "there is little consensus as to what a board should look like or even what kinds of people make the best board members" (Johnson, Schnatterly et al., 2013, p.232).

Because of this, there has been a call to better understand the specific experiences of board members to determine if they are equipped to guide the firm on specific initiatives (Kor and Sundaramurthy, 2009). Every board plays a similar role for firms, but, the individuals on boards determine the importance of various issues and philosophies firms will hold to address those issues based on their individual experiences (Walls and Hoffman, 2013). Hillman and Dalziel (2003) use the term board capital to refer to the resources in which board members offer to firms. Board capital can come in the form of human or relational capital. Board members' human capital rests on their expertise, experiences, and reputation, which are heavily drawn on in their governance function (van der Walt and Ingley, 2003). From an environmental perspective, human capital can come from corporate experience or regulatory experience, as that experience could come from following the rules or making the rules. Thus, this paper differentiates between green corporate human capital and green regulatory human capital. Relational capital is a board member's ability to access resources through network ties (Burt, 1992). Green relational capital is used to understand board members' social ties to green organizations outside of the firm. Each of these dimensions of green board capital is explored further below.

### **Green Corporate Human Capital**

Hart (1997, p. 73) claims that a sustainability vision is, "a roadmap to the future, showing the way products and services must evolve and what new competencies will be needed to get there." With such a vision that starts at the top, the firm becomes more aware of its influence on the environment, engages with new stakeholders, incorporates it in its strategic planning process, begins to report its progress on environmental issues, and starts a system-wide integration of the vision (Mirchandani and Ikerd, 2008). Having a positive eco-vision affects firms' identity and values, which leads to organizational changes (Dutton and Dukerich, 1991). This leads to changes in job designs, recruitment and selection, and training and development (Starik and Rands, 1995). The ultimate goal for an eco-vision is to get firms on the path of sustainable proactivity.

Environmental proactivity is defined as the intangible innovations and routines that require organizational commitments towards improving the natural environment, which are not required by law (Hart, 2005). The eco-vision can set the tone for the entire enterprise to make environmental issues a priority. There is a positive relationship between the degree of functional coverage of natural environmental issues and the level of integration into strategic plans, meaning the firm benefits by

removal of the functional silo views and having an aggregate eco-vision that aligns everyone in the firm (Douglas and Judge, 1995).

Board members with green corporate human capital will be able to guide and advise the overall environmental goals and vision to provide the best chance of success due to previous experiences. Board members can also help shape strategies and provide insights from previous ventures to reduce uncertainties for the firm. By making the learning curve less steep, this ultimately leads to reduced costs and time needed to implement a solution that enhances the firm's environmental performance. Additionally, having knowledge of green technologies can guide the company to establish itself as a first mover (Lieberman and Montgomery, 1988) for the most promising eco-innovations. The board can help shape R&D budgets, identify important technologies on the horizon, and guide green innovation development from a high level. These additional insights for the firm reduce the risks associated with major innovation investments that are irreversible. Accordingly, human capital theory would suggest:

*H1: Board members with green corporate human capital are positively associated with environmental performance in firms.*

### **Green Regulatory Human Capital**

The most pressing external stakeholder for firms comes from governmental and regulatory bodies (Christmann, 2004). There are many aspects to environmental regulation. For instance, regulation can dictate what technologies must be used, set environmental targets that must be met, or how and when waste must be dealt with. From an institutional perspective, failure to conform to the norms of institutions can threaten firms' reputation, resources, and even their existence (Dimaggio and Powell, 1983) and strategy scholars with environmental concerns are taking note of these varying institutional pressures (e.g. Berrone, Fosfuri et al., 2013). Many complexities still exist for firms in regards to environmental regulations (Kolk and Pinske, 2008). Complexities also exist and there are various country level regulations that firms must interpret and adapt to. All of these complexities lead to a clear reason why firms are interested in electing directors to the board that provide environmental political advocacy on many levels.

Collective action theory is mainly used to explain why firms form relationships to initiate or counteract regulations. Russo and Fouts (1997) describe how political acumen can neutralize the influence of external constituencies. Thus, directors could be used as a defense against environmental regulation. The theory of politics of distribution (Palamountain, 1955) states that, if organizations are significantly affected by the regulatory environment, organizations will look to gain more power through a larger social network to make the regulation more favorable. Buysse and Verbeke (2003) find that reactive firms put a higher priority on regulators as stakeholders. To these firms, environmental regulation is seen as an institutional constraint, and they only concern themselves with environmental issues when a new regulation is passed. Regardless a firm's motivation, firms with board members that have green regulatory human capital will tend to have higher environmental performance in order to meet or exceed environmental requirements. Thus,

*H2: Board members with green regulatory human capital are positively associated with firm environmental performance.*

### **Green Relational Capital**

Social capital is a resource created from networks of social ties that allow members of a group to trust one another and cooperate in the formation of new groups (Coleman, 1990). All external directors bring along his or her network. Social capital theory states that networks form a series of relationships that form valuable, rare, and inimitable resources in terms of social affairs. Thus, being a member of this group provides instant credit to the firm (Bourdieu, 1986). In the same vein, this reduces firms' liability of outsidership (Johanson and Vahlne, 2009), which provides access to other groups that might have more or new knowledge about environmental sustainability and green technology, including knowledge from

other ethics officers (Hoffman, 2010). This reach could also access human resources in terms of recruitment for the purpose of sustainable knowledge. Board members might not know how to set environmental goals, create green innovations, or lobby for or against environmental regulations, but they might know others that do. Therefore, social capital theory would suggest:

*H3: Board members with green relational capital are positively associated with firm environmental performance.*

### **Collective Green Board Capital**

While the above hypotheses are explored at an individual unit of analysis, a board is an aggregation of human and relational capital that shapes the collective ability to perform their function (Kor and Sundaramurthy, 2009). When brought together, unknown board dynamics can take over based on the individual backgrounds and cohesion with each other (Westphal and Zajac, 1997; van der Walt and Ingley, 2003). Via resource dependence, firms still look toward the board to aid in environmental performance. However, the knowledge of how to provide environmental guidance is at the individual level (Felin and Hesterly, 2007). With a greater number of individuals that are able to provide green board capital, the board dynamics allow firms to provide collective green resources to the firm. Thus,

*H4: A higher concentration of board members with green corporate, regulatory and relational board capital is positively associated with firm environmental performance.*

## **METHODOLOGY**

### **Sample and Design**

For this study firms were selected from the S&P 500 list in 2008. We sought out to analyze the environmentally friendly backgrounds of board members. Separating green capital into three different categories helps us to unpack whether varying types of board member green capital impacts environmental performance. We believe that it will as theorized in the hypotheses. By looking at each board member individually we first better understand the context of the person and do not lose differential effects often occurring in aggregate board measures (Finkelstein, Hambrick et al., 2009). To do this, we selected the board members from the 150 best performing firms in 2008 according to greatest profits. Selecting profitable firms aligns with other studies that have shown that financial slack leads to the ability of firms to implement environmental initiatives (Graves and Waddock, 1994). Due to some missing data, the final sample size is 1461 board members from 143 firms.

Due to the demand characteristics of surveying board members about the environmental board capital they are able to offer the firm; this study content analyzes the board members' backgrounds from information in their profile. Backgrounds of the board members are used because the differences between directors are most prominent through their experiences and occupational attributes (Baysinger and Butler, 1985). Similarly, other studies (e.g. Westphal and Zajac, 1997) have used personal experiences of executives to predict their priorities of an outside director of a board. Specifically, we follow suit with Hillman et al. (2000) and Baysinger and Zardkoohi (1986) by using profile analysis of the board members to categorize whether the board member provides any environmental board capital. Table 1 provides an overview of the proxies used to represent the environmental board capital.

**TABLE 1**  
**BOARD CAPITAL TYPES AND DESCRIPTIONS**

<b>Green Board Capital</b>	<b>Board Member's Backgrounds</b>
Green Corporate Human Capital	Current or past executive from green friendly firm  Green consultant  Research in corporate environmentalism
Green Regulatory Human Capital	Member of a governmental entity dealing with environmental affairs  Lobbyist  Research in environmental regulations
Green Relational Capital	Board member of green friendly firm or green solutions firm  Pro-environmental organization member

For each company, a list was compiled of all of the board members that were active in 2008. Board members' profiles were then reviewed using company websites, Forbes.com, and Bloomberg. To make sure all profile data were relevant, only positions held and activities done in a ten year timeframe, from 1998-2008, were used. Each board member's profile was analyzed to determine if that person possessed any green board capital. While each of the three is mutually exclusive, each individual could potentially provide one, two, or all three categories of green board capital. A binary coding scheme was used for each board member, with 1 representing that the board member has access to certain green board capital, and 0 representing that the member did not possess green board capital. For each of the firms in the sample, each dimension of green board capital was totaled and then transformed into a percentage of the total board size which we used for a summation test (i.e., hypothesis 4).

**Independent Variables**

*Green Corporate Human Capital* is measured based on the board member's past experiences as a current or past executive in the 10 year timeframe of an environmentally friendly firm based on KLD data. This board member could have also been an executive at a firm that provides environmental services or products, or a nonprofit that deals with environmental issues. University faculty were also considered to be able to provide this capital if they have had previous research in this field.

*Green Regulatory Human Capital* is measured based on the board members affiliation with politics. A director was coded as a 1 if he or she came from a legislative or regulatory body that dealt with environmental issues, or is associated with environmental lobbying efforts. Executives with backgrounds in environmental compliance positions were also coded as having green regulatory human capital.

*Green Relational Capital* is measured based on the board member having a weaker affiliation with a firm that has a positive environmental measure. The capital in this situation is the knowledge of others about environmental solutions. Board members were coded as having this resource if they were on a board of directors for an environmentally friendly company or organization, but had not worked directly for one.

We also summated the environmental board human capital measures into one measure to test the cumulative impact (i.e., *Cumulative Green Board Capital*). This provides an indication as to whether the environmental board human capital measures work together to enhance environmental performance. Because this is a cumulative measure for each firm, the cumulative green board represents the entire board rather than the individual. This is summated and transformed into a percentage to account for varying board sizes rather than using a raw summation that would give bias to larger boards that may have a greater amount of green board capital but a relatively low percentage of green board capital per director.

### **Dependent Variable**

Our dependent variable (i.e., *Environmental Performance*) of the firm in the sample is determined using KLD Research & Analytics Inc data for the year 2008. Several studies (e.g. Hillman & Keim, 2001; Strike et al., 2006) have used KLD data to provide appropriate measurements. KLD STATS is an annual snapshot of over 3000 firms' environmental, social, and governance performance and is a proprietary database. The database rates the firm on every category as either positive or negative with binary coding, with 1 being positive and 0 being neutral or negative. Environmental strengths of the company include beneficial products and services, pollution prevention, recycling, clean energy, the property, plant, and equipment, management systems, and other strengths. As in de Villiers et al. (2011), the measure for environmental performance of the firm is the total of the environmental strengths. While the dichotomous nature of KLD data has some drawbacks, we believe the benefits of the KLD dependent variable outweigh the costs.

### **Control Variables**

Our study also employs two variables that account for other explanations and other influences on the firm's environmental performance. These variables control for the overall differences between firms in terms of industry classification and financial slack. We use *Return on Assets* (ROA) as a measure of the firm's financial performance since firms that have high yield on their overall assets are more likely to allocate resources for new innovations that improve the firm's overall environmental performance. *Industry* type is also controlled for in our logistic regression analysis due to environmental regulations that vary from one industry to the other, thus influencing the firm's decisions regarding its environmental efforts. SIC codes were used as the measure for the industry.

## **RESULTS**

The hypotheses were tested using logistic regression analysis. Logistic regression serves as an appropriate method for this analysis because the environmental performance dependent variable is dichotomous (positive or non-positive environmental performance). Means, standard deviations and correlations of the variables are provided in Tables 2 and 4, the results of the logistic regression analysis are displayed in Table 3, and the cumulative green board capital measure in Table 5. In Table 3, the control variables are presented in Model 1 as well as included in each of the three hypotheses (i.e., models 2-4). Model 2 tests to see if having board members with green corporate board capital is significantly associated with either the positive or non-positive environmental performance. The results of this model find that green corporate human capital has a positive significant relationship (coefficient = 1.45), providing support for hypothesis 1 ( $p < 0.01$ ). Model 3 investigates the role of board members' regulatory capital regarding environmental issues. The results of this model suggest that the green regulatory human capital of board members is not a significant predictor of positive environmental performance, providing no support for hypothesis 2. Lastly, the green relational capital model (i.e., Model 4) positively (coefficient = 0.31) predicts environmental performance ( $p < 0.10$ ) hence we also find support for hypothesis 3. Collectively, the models in Table 3 explain 13 percent of the variance.

**TABLE 2**  
**BOARD MEMBER DESCRIPTIVE STATISTICS AND CORRELATIONS**

	Mean	S.D.	1	2	3	4	5	6
1. Environmental Performance	.37	.48	1.00					
2. Industry	4387	1795	-0.33***	1.00				
3. ROA+	10.59	6.75	0.13***	-0.21***	1.00			
4. Green Corporate Capital	.13	.34	0.23***	-0.03	0.04	1.00		
5. Green Regulatory Capital	.02	.14	0.002	-0.04	-0.02	-0.06**	1.00	
6. Green Relational Capital	.11	.32	0.02	-0.04	-0.003	-0.13***	-0.05	1.00

Based on 1461 board member observations

+ROA is listed as percentage net

\*\*\* p < 0.01, \*\* p < 0.05, \*p<0.10

**TABLE 3**  
**LOGISTIC REGRESSION RESULTS OF BOARD MEMBER GREEN CAPITAL AND FIRM ENVIRONMENTAL PERFORMANCE**

Equation Variables	Equation Estimator			
	(1)	(2) H1	(3) H2	(4) H3
Industry	-0.000*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
ROA	0.024*** (0.009)	0.022*** (0.009)	0.023*** (0.009)	0.023*** (0.009)
Green Corporate Human Capital		1.45*** (0.20)	1.45*** (0.17)	1.49*** (0.18)
Green Regulatory Human Capital			-0.06 (0.21)	-0.01 (0.43)
Green Relational Capital				0.31* (0.18)
Observations	1461	1461	1461	1461
LR chi2	181.76	257.39	257.41	260.27
Prob > chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.094	0.134	0.134	0.135
Log likelihood	-872.08	-834.27	-834.26	-832.83

Notes: Columns 1–3 report coefficients and standard errors (in parentheses) from logit regressions.

\*\*\* p < 0.01, \*\* p < 0.05, \*p<0.10

Cumulative green board capital is a summation of all green board capital for all members. Thus, this logistic regression included firm-level observations to check for the cumulative types of green board capital. With a significant ( $p < 0.01$ ) and positive coefficient (i.e., 6.88), we find support for hypothesis 4, indicating that having more board members with green board capital is positively associated with firm environmental performance. This explains 29 percent of the variance.



**TABLE 4**  
**CUMULATIVE BOARD DESCRIPTIVE STATISTICS AND CORRELATIONS**

	Mean	S.D.	1	2	3	4
1. Environmental Performance	.35	.48	1.00			
2. Industry	4414	1790	-0.32***	1.00		
3. ROA+	10.85	6.85	0.13	-0.21**	1.00	
4. Cumulative Green Board Capital	.27	.19	0.48***	-0.14**	0.06	1.00

Based on 143 firm level observations  
+ROA is listed as percentage net  
\*\*\* p < 0.01, \*\* p < 0.05, \*p<0.10

**TABLE 5**  
**LOGISTIC REGRESSION RESULTS OF CUMULATIVE GREEN BOARD CAPITAL AND FIRM ENVIRONMENTAL PERFORMANCE**

Equation Variables	Equation Estimator	
	(1)	(2) H4
Industry	-0.000*** (0.000)	-0.001*** (0.000)
ROA	0.02 (0.027)	0.02 (0.03)
Cumulative Green Board Capital		6.88*** (1.41)
Observations	143	143
LR chi2	16.94	50.26
Prob > chi2	0.000	0.000
Pseudo R2	0.095	0.272
Log likelihood	-84.082	-67.4

Notes: Columns 1 report coefficients and standard errors (in parentheses) from logit regression.  
\*\*\* p < 0.01, \*\* p < 0.05, \*p<0.10

To investigate whether the collective green board capital measure has a diminishing effect, we also included this cumulative measure with a squared term since recent literature concludes many relationships are assumed to be linear may in fact have a Too-Much-of-a-Good-Thing Effect (Pierce and Aquinis, 2013). Accordingly, the squared term was not significant and thus reinforces our hypotheses that increasing these varying types of green capital on boards has a positive and linear relationship with environmental performance.

## DISCUSSION AND CONCLUSION

Overall, the results support the primary research question proposed, which is: Does the board of directors' green capital share a relationship with a firm's environmental performance? By taking a governance perspective of the firm in regards to environmental performance, and then drilling down to

the individual unit of analysis, we observed a new factor in the existing phenomenon of corporate environmentalism. The study indicates that the environmental backgrounds of a board member do share a relationship with the firm's environmental performance; specifically, green corporate human capital and green relational capital.

As such, our study provides several alternatives by which firms can consider enhancing their environmental performance through the capital of their boards. The implications may enhance environmental performance while also amending firms' considerations when selecting board members. The results of this study can also be used by future researchers of boards to determine the backgrounds of new members to help guide firms to improve its environmental proactivity. Building on the theoretical premise that board members' diversity enhances organizational performance (Siciliano, 1996), our study suggests that the diversity of board members' intangible skills and resources might also enhance a firm's performance. For those members that have worked for environmentally proactive businesses, it appears the resources gained from that experience could be transferred to the firm they sit at as a board member.

Due to the nature of this study, some could construe green corporate human capital as an upper echelon story. The upper echelon theory (Hambrick and Mason, 1984) states that a firm focuses on whatever the top management team already knows how to do. In a sense, these managers are trained for certain industries, technologies, etc., and implement these things into any firm they are employed at. All but perhaps a few board members in our sample could be considered trained for environmental sustainability and do not have a majority of their background in enhancing environmental performance in firms. It has already been shown by Hillman, Keim, and Luce (2001) that having specific stakeholders on the board does not increase the firm's performance for the stakeholder group. Thus, this green corporate human capital best represents those board members that are able to focus on a double bottom line (Elkington, 1998) of the firm instead of either just a financial or environmental bottom line.

Our study also provides practical implications. Because we find green board capital to positively influence environmental performance, and environmental performance often translates to financial performance particularly in common law countries such as the United States (Horvathova, 2010), firms may enhance multiple performance outcomes by accruing more board members with green capital. Secondly, as shown in Table 1, we provide practical outlets for firms to obtain board members with green capital (e.g., green consultants and board members of other green firms). Third, due to significance of our cumulative measure, firms may not need to be overly concerned with specific types of green capital but rather, simply focus on obtaining members with any type of green capital to help enhance environmental performance. Fourth, we note that on average 13% of board members have green corporate human capital, 11% have green relational capital but only 2% have green regulatory human capital. Due to these descriptive statistics, firms should have more success finding board members with green corporate human capital and green relational capital. Despite our insignificant findings, we believe there may still be practical and strategic implications to pursuing green regulatory human capital due to such a low but potentially growing supply. Fifth, because the average firm only has approximately 7% of board members with some type of green capital, yet green capital clearly leads to better environmental performance, firms should continue to pursue these individuals in an effort to increase their likelihood of better environmental performance.

Our study is not without limitations. Although we rely on the organizational slack argument by selecting a top performing sample from the S&P 500, we realize that firms with greater net profit margin percentage may have unfair advantages when it comes to environmental performance. However, by comparing profitable firms to other profitable firms, we believe the bias is attenuated. Additionally, we believe the benefits outweighed the costs as more profitable firms are likely to make more calculated efforts toward environmental performance (Graves & Waddock, 1994) Secondly, despite conducting a thorough investigation (i.e., ~1500 board members), our sample using the S&P 500 may provide different findings than would smaller or private firms and thus we suggest other scholars continue to investigate different samples through a similar methodology.

Another potential limitation of this study is the use of the KLD data. The KLD dataset has had some criticism of its measures not truly indicating a firm's environmental performance (Trumpp, Endrikat et al.,

2015). However, it still remains a key dataset in understanding and reporting a firm's governance towards the natural environment (Tang, Lai et al., 2012). While those that accept the validity of KLD, there is also a subgroup that believes environmental strengths and weaknesses should remain as two separate constructs rather than combining them for one score (Mattingly and Berman, 2006; Walls, Berrone et al., 2012). The issue of spurious results is minimized, however, by dichotomizing the composite measure rather than interpreting it as a ranking variable.

There are many avenues for future research based off the findings of this piece. For instance, how do power dynamics of the board influence the board's utilization of green board capital (Haynes and Hillman, 2010; Shropshire, 2010)? Future research can attempt to go even further by integrating measures of professional background and personal values on environmental sustainability (Adams, Licht et al., 2010), as having the resources with the passion might provide deeper explanation for given outcomes. More can be understood about the interactions of the green board capital and other governance indicators within the firm (Walls, Berrone et al., 2012). Future work should also research if these findings can be extrapolated for board members and positive social outcomes.

Great work has been done to identify how board resources and abilities impact desired outcomes (i.e. Hillman & Dalziel, 2003), and how certain board characteristics are associated with environmental performance (i.e. de Villiers et al, 2011). However, there is still much more to unpack. While our paper begins to better understand the board members as individuals with unique backgrounds, we suggest the continued study of board members' abilities, skills, networks, and so forth to further understand how board member experiences and resources positively (or negatively) impact environmental performance; an issue relevant and important to both research and practice.

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