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The harm of symbolic actions and green-washing: corporate actions and communications on environmental performance and their financial implications

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ABSTRACT

We examine over 100 top performing Canadian firms in visibly polluting industries as we seek to answer four research questions: What specific environmental issues are firms addressing? How do these issues differ between industries? Are both symbolic and substantive actions financially beneficial? Does green-washing, measured as the difference between symbolic and substantive action, and/or green-highlighting, measured as the combined effect of symbolic and substantive actions, pay? We find that substantive actions of environmental issues (green walk) neither harm nor benefit firms financially, but symbolic actions (green talk) are negatively related to financial performance. We also find that green-washing (discrepancy between green talk and green walk) has a negative effect on financial performance and green-highlighting (concentrated efforts of the talk and walk) has no effect on financial performance. We provide explanations of our findings and put forth future research directions.

KEY WORDS: Corporate environmental performance, corporate websites, environmental categories, green-highlighting, green-washing, substantive actions, symbolic actions, green walk, green talk.

The Harm of Symbolic Actions and Green-washing: Corporate Actions and Communications on Environment Issues and Their Financial Implications

Margolis and Walsh (2003: 268) began their seminal article on how misery loves company by bluntly stating: "The world cries out for repair". Eight years later the world's cries are increasingly desperate, particularly in the environmental area. Global environmental problems such as climate change, resource scarcity, ozone depletion, pollution, and habitat destruction continue to expand with alarming speed, exceeding even the worst case scenarios predicted only a few years ago (Pacala & Socolow, 2004). Building off the work of scientists, activists and others, Al Gore's 2006 documentary—An Inconvenient Truth—brought substantial changes to the public discourse and perception of climate change and helped reshape the role of environmental protection in every citizen's life; from an infrequent conversation to a moral obligation (Lovgren, 2006). This new public discourse on environmental sustainability puts pressure on corporations as they have been portrayed as one of the key causes of climate change and environmental problems (Hawken, 1993; Korten, 1995).

As a result, numerous companies now take an active role in environmental management, some going as far as lobbying slow-moving governments for greater environmental regulations. However, others deal with the issues more strategically. For example, green-washing, a strategy that companies adopt to engage in symbolic communications of environmental issues without substantially addressing them in actions, has been identified by both academia and the mainstream media (e.g., Laufer, 2003; Ramus & Montiel, 2005 for academic and the environmental marketing firm Terrachoice is increasingly in the mainstream media). However, our knowledge of the corporate strategic communications on environmental performance

remains incomplete, and furthermore, the prevalence of green-washing and its financial implications have yet to be empirically examined.

Accordingly, the objective of this paper is to develop a better understanding of corporate communications on environmental performance and the resulting financial implications. Using a sample from the *Financial Post's* top 500 Canadian companies in 2008 we analyze corporate websites as we seek to answer four research questions: 1) What specific environmental issues are the top firms in Canada addressing? 2) How do these issues differ between industries? 3) Are both symbolic and substantive actions financially beneficial? 4) Does green-washing and/or green-highlighting pay?

Via the lens of corporate communications on environmental issues, our work advances our understanding of environmental performance of firms in several ways. First, prior research typically discusses environmental performance as an all encompassing construct, similar to reputation (i.e., see review, Walker, 2010). Yet we argue that environmental performance is composed of numerous separate issues, such as greenhouse-gas-emissions, environmental conservation and restoration, stakeholder engagement, product innovation, lifecycle analysis, environmental management systems, technological development, waste management, recycling, and independent environmental reviews/audits. To better understand environmental performance we think it is important to know which environmental issues firms are actively managing, and how these might differ across industries. For example, product innovation may be important for a chemical company, but less so for an oil and gas company which might be more concerned with greenhouse-gas-emissions. Thus instead of simply showing differences across one measure of environmental performance (research has tended to focus on emissions), we examine multiple categories.

Second, we address the criticism that prior research needs to examine environmental performance outside the predominant U.S. sample by focusing on Canadian firms (Salzman, Lonescu-Somers & Steger, 2005). The use of Canadian firms is also pertinent to our area of investigation as Canada is a resource-rich country with numerous firms operating in visibly polluting industries. In particular, Canadian companies are well-represented in our four industries of interest: forestry, energy, mining and chemical industries. Lastly, unlike the United States, Canada has publicly committed to emission reductions in signing the Kyoto Protocol and was one of the first signing countries (http://www.cbc.ca/news/background/kyoto/timeline.html), thus Canadian companies may feel greater regulatory pressure to be green, to green-wash, or both.

Third, different from previous work discussing green-washing at a conceptual level, we put forth arguments linking green-washing to firms' financial performances. To date, however, we are not aware of a study that has examined the financial implications to green-washing. Green-washing represents a relatively recent area of research inquiry because of the increased prevalence of environmental concerns and the attractiveness and effectiveness of marketing and advertising oneself as being green (e.g., Laufer, 2003; Ramus & Montiel, 2005). In an attempt to cash in on the green movement many firms with poor environmental performance sell themselves as being green. There are two motives for firms to engage in green-washing. The first motive is to attain legitimacy according to institutional theory (Oliver 1991). Second, according to signalling theory (Connelly, 2011), appearing to conform to green norms by engaging in symbolic actions or green talk can be effective at signalling to external stakeholders the firms' values with regard to green issues (Ramus & Montiel, 2005). Implementation wise, managers may prefer symbolic actions to substantive actions on environmental issues as signalling green

values is easier and permits greater internal flexibility than implementing these values with actions (Suchman, 1995). For example, Russo and Harrison (2005) found that ISO 14001 certification was paradoxically associated with greater toxic air emissions. They speculated that this might be because certification gives the appearance of being green without requiring any substantive actions on the part of the company. Similarly, evidence of green-washing has been found in setting up corporate governance structures (Westphal & Zajac, 1994; Zajac & Westphal, 1995), and in framing firms' ethics codes (Weaver, Trevino & Cochran, 1999).

The last contribution of our paper is that we develop a new concept which we label green-highlighting. In contrast to green-washing (which we conceptualize as the difference between symbolic and substantive actions), green-highlighting represents the combination of symbolic and substantive actions, where the firm discusses environmental responsibility in terms of what they are doing currently or have done (substantive action), and what they plan to do in the future (symbolic action). We develop green-highlighting to differentiate a firm whose motive is to engage in green talk to manage their corporate image (i.e., green-washing), from a firm whose green talk (symbolic actions) is accompanied with green walk (substantive actions). No prior work has contrasted these two types of communications and examined the financial implications to the combined effect of symbolic and substantive actions.

This paper will proceed as follows: we first discuss our hypotheses which investigate symbolic actions, substantive actions, green-washing, and green-highlighting. We do not make hypotheses for our first two research questions as they are descriptive. Next we describe the methods including the sample, the coding of the corporate websites and the operationalization of the variables. We then present the results followed by a discussion, and conclude with the limitations and areas for future research.

HYPOTHESIS DEVELOPMENT

With escalating global environmental problems and the perception that business is a major contributor to these problems (Hawken, 1993; Korten, 1995), corporations are under mounting pressure to perform environmentally. Research has found that under pressures from the external environment, some companies respond symbolically with little to no substance (Westphal & Zajac, 1998; Westphal & Zajac, 2001), while others take substantive actions to address their environmental performance (Weaver et al., 1999). Firms engaging in either symbolic or substantive actions are attempting to gain legitimacy among stakeholders.

A frequently used definition of legitimacy refers to it as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman 1995: 574). A more recent examination of legitimacy described it as actor's perceptions or judgements manifested in behavioural actions (Bitektine, 2011: 152). Attaining legitimacy is important for organizations as it can lead to greater access to resources, stronger exchange relationships with business partners, and better job applicants—subsequently leading to a stronger work force (Aldrich & Fiol, 1994; DiMaggio & Powell, 1983; Oliver, 1991; Pfeffer & Salancik, 1978; Turban & Greening, 1997). Ultimately, the benefits to increased legitimacy translate into improved financial performance (Deephouse, 1999).

Suddaby and Greenwood (2005) discuss comprehensibility as one of two types of cognitive legitimacy. They note that a key insight from this literature is an actor's use of symbolic devices to gain legitimacy (and offer empirical examples provided by Hargadon and Douglas (2001) and Rao (2002) for example). Pushing this even further is the observation that firms need only appear to conform to attain legitimacy (Oliver, 1991). Indeed, as we explain in the next section, a rational-actor may conserve resources by using symbolic as opposed to substantive actions.

Substantive Action

Although research examining the relationship between environmental and financial performance has been mixed (Salzman, Ionescu-Somers & Steger, 2005), the majority of research have found a positive relationship (Russo & Fouts, 1997; Margolis & Walsh, 2003; Orlitzky, Schmidt & Rynes, 2003). Reasons for the positive link include reduced costs, gaining competitive parity, and regulatory advantages associated with environmental performance. Specifically, environmental performance can reduce costs by lowering compliance costs, reducing waste, and improving efficiency and productivity (Ambec & Lanoie, 2008; Hart, 1995; Hart & Ahuja, 1996). Empirical research has demonstrated that environmental performance can lead to a competitive advantage through product differentiation (Ambec & Lanoie, 2008; Porter & van der Linde, 1995), international competitive advantages (Hart, 1995; Miles & Covin, 2000), greater appeal to consumers (Miles & Covin, 2000), improvements in legitimacy (Bansal & Clelland, 2004), strengthening firm reputation (Hart, 1995; Miles & Covin, 2000), selling of pollution control technology (Ambec & Lanoie, 2008), the creation of entry barriers (Dean & Brown, 1995; Hart, 1995; Russo & Fouts, 1997), and the development of new market opportunities and better access to markets (Ambec & Lanoie, 2008). Environmental performance has also been shown to offer regulatory advantages by leading to greater flexibility to adapt to legislative changes (Bansal & Bogner, 2002), through the ability to influence environmental laws and regulations (Faucheux et al., 1998; Hart, 1995; Hillman & Hitt, 1999; Miles & Covin, 2000), and by reducing or avoiding legal liabilities (Hart, 1995; Rooney, 1993).

Similarly, research has found negative implications to poor environmental performance. For example, Hamilton (1995) found that firms reporting pollution figures to the TRI suffered statistically significant negative returns in stock value within a day. Dramatic events, such as an

oil spill, can have a large effect on firm profitability as investors react to the potential liabilities, fines, penalties, and clean-up costs (Bansal & Clelland, 2004). Konar and Cohen (2001) found that legal chemical releases reported to the TRI had a significant negative effect on the intangible asset values of firms. On the other hand, they found that for the average firm in their sample, a 10 percent reduction in emissions resulted in a $34 million increase in market value. Lastly, Bansal and Clelland (2004) found that the release of new environmental information had an enduring impact on firms through the effect on unsystematic risk. Specifically, firms perceived as environmentally illegitimate experienced higher unsystematic risk.

Thus taken together, empirical evidence suggests that environmental and financial performance are positively linked. We believe that the financial benefits for firms in polluting industries can only be obtained with substantive actions (and not with symbolic actions as we will argue in the next section). This is because the financial benefits to environmental performance are realized only through actual improvements in environmental responsibility. For example, research has shown that environmental performance can reduce costs by lowering compliance costs, reducing waste, and improving efficiency and productivity (Ambec & Lanoie, 2008; Hart, 1995; Hart & Ahuja, 1996). Benefits such as lower compliance costs, reduced waste, and improvements in efficiency and productivity can only be obtained by real, substantive, actions, not symbolic actions.

Hypothesis 1: Substantive actions will have a positive effect on financial performance

Symbolic Action

From a rational-actor perspective we might expect managers and their organizations to act symbolically, as opposed to substantively, as appearing to conform is easier and permits greater internal flexibility than actual conformity while still conferring the benefits from

legitimacy (Suchman, 1995). Symbolic actions without substance have been found in the implementation of corporate governance structures (Westphal & Zajac, 1994; Zajac & Westphal, 1995), ethics codes (Weaver et al., 1999), and ISO 14001 certification (Russo & Harrison, 2005).

Even though symbolic actions could lead to greater appeal to consumers, and improvements in legitimacy and firm reputation based on signalling theory, we argue that symbolic actions pertaining to environmental performance will fail to confer legitimacy in our context. In particular, we argue that symbolic actions are harmful in visibly polluting industries for the following reasons. First, as we discussed earlier, to obtain financial benefits from greater environmental responsibility firms must actually, that is, substantively, engage in environmental performance. The symbolic engagement in environmental responsibility will not lead to lower compliance costs, waste reduction, or efficiency improvements (Ambec & Lanoie, 2008; Hart, 1995; Hart & Ahuja, 1996), nor will it help to reduce or eliminate potential liabilities, fines, penalties, and clean-up costs (Bansal & Clelland, 2004). Thus firms using symbolic actions will fail to obtain the financial benefits to substantive environmental actions. Furthermore, in visibly polluting industries, this will harm them financially. This is the case because in visibly polluting industries firms are subject to greater stakeholder pressures and increased monitoring of their environmental performance (Berrone & Gomez-Mejia, 2009; Stevens et al., 2995).

The increased stakeholder pressure comes from a variety of stakeholders, such as governments, suppliers, and customers (Weaver et al., 1999). These pressures are likely to lead to greater substantive and less symbolic actions as stakeholders are intent on seeing substantive behaviours, and they are more likely to monitor and scrutinize the outcomes (Stevens, Steensma, Harrison & Cochran, 2005). For example, in their examination of ethics codes Stevens et al., (2005) found that perceived pressure from market stakeholders lead to greater substantive actions. Thus, with the increased stakeholder pressure (Berrone & Gomez-Mejia, 2009; Stevens

et al., 2005) firms with substantive actions are more likely to use the limited space on their websites discussing what they *have* done, as opposed to what they *will* or *plan* to do. On the other hand, firms that use their websites to discuss what they will do may strategically do so to deflect the attention from their lack of substantive actions. This may lead stakeholders to perceive symbolic actions negatively.

The objectivity and availability of environmental performance data for visibly polluting firms means that symbolic actions are not only less effective but could be harmful as the green talk is not backed up with any green walk (Christmann & Taylor, 2006). With time environmental performance has become increasingly comprehensive and easy to monitor, although its measurement is far from perfect. For example, the Toxic Release Inventory (TRI) offers facility level data on the toxic chemical releases and waste management activities of 22,880 facilities/plants operating in the United States (the Canadian equivalent is the National Pollutant Release Inventory (NPRI)). It measures air, water and land releases both on-site and off-site, and has been widely used in academia (e.g., Clelland, Douglas & Henderson, 2006; Dooley and Fryxell 1999; Feldman, Soyka & Ameer, 1997; Klassen & Whybark, 1999; Konar and Cohen 2001). Similar objective and publicly available environmental data is widely available and commonly used by third-party organizations to rank corporations based on their environmental performance. Research has shown that symbolic actions are most effective when performance is difficult to measure (Christmann & Taylor, 2006). However, because environmental performance is relatively easy to measure and objective data is widely available for the firms in our sample, symbolic actions may indicate a lack of substantive actions which can be verified through the use of publicly available objective data. While stakeholders may not necessarily look into such data, they may make the assumption that if a firm spends valuable

space on its website discussing what it plans or hopes to do in the future, it is because it has done very little to date.

Lastly, because symbolic actions are less effective in visibly polluting industries, firms that utilize symbolic actions may be subject to increased suspicion from stakeholders. That is, if symbolic actions are not effective, why would a firm utilize them? Companies that use symbolic actions may be perceived by stakeholders as untrustworthy and opportunistic (King & Lenox, 2000). This may prompt stakeholders to limit their transactions with the firms until evidence of more substantive actions are forthcoming.

Therefore, because symbolic actions are not effective in reducing the real costs of poor environmental performance, and subject to greater stakeholder pressures and scrutiny in polluting industries thus rendering their use suspect, we first make the following hypothesis:

Hypothesis 2: Symbolic actions will have a negative effect on financial performance

Green-Washing

Given that it is a relatively new concept, there are few definitions of green-washing. One definition offered by Ramus amd Montiel (2005) is that green-washing is "disinformation disseminated by an organization so as to present an environmentally responsible public image", where disinformation refers to deliberately misleading information. We view green-washing differently as our interest is not in "disinformation", but information that is not backed by substantive actions. Accordingly, we define green-washing as symbolic information emanating from within an organization without substantive actions. Or, in other words, discrepancy between the green talk and green walk.

Green-washing differs from symbolic action in that it takes into account both symbolic and substantive actions. That is, a firm that has both symbolic and substantive actions (on the

same issue) would not be classified as green-washing (as the symbolic action is not "disinformation" because it is backed by substantive action), only a firm that demonstrates symbolic actions without substance would be. Green-washing can thus be viewed as the difference between symbolic and substantive actions. In this way, green-washing can be used as a strategic communication tool to camouflage a firm's lack of efforts in engaging in true environmental performance.

Hypothesis 1 and 2 assumed that stakeholders would be able to tell the difference between symbolic and substantive actions for firms in visibly polluting industries, and that they would reward firms accordingly. We make the same assumption here, but because green-washing examines the difference between symbolic and substantive actions we hypothesize that stakeholders will punish firms for green-washing. We make this hypothesis because green-washing in visibly polluting industries is more likely to be identified and subsequently punished.

First, because information on environmental performance in visibly polluting industries tends to be objective and widely available, it is relatively easy for stakeholders to identify green-washing (Christmann & Taylor, 2006). Once identified, green-washing firms may be viewed as untrustworthy, manipulative, and opportunistic (King & Lenox, 2000). For example, consumers armed with publicly available data and information from other independent third-parties and institutional watchdogs are more likely to be aware of green-washing in visibly polluting industries. Also, they are less likely to attach importance to symbolic actions that are unaccompanied with substantive actions, thus offering their business to firms with substantive environmental actions. Green-washing might also cause employees to lose trust in their organization as the unsubstantiated claims may make employees uncomfortable as unwilling participants. Other organizations may also lose trust in a green-washing firm (King & Lenox,

2000) making them less likely to conduct business and exchange resources with them. Through interactions with the firm they may fear being labelled as green-washers themselves, further increasing their desire to distance themselves. In addition, green-washing will not help a firm avoid government regulation, or evade significant fines, penalties and disposal and clean-up costs (Bansal & Clelland, 2004). Damage to these stakeholder relationships will ultimately lead to decreased financial performance.

Second, firms in visibly polluting industries are subject to increased stakeholder scrutiny. As stated by Berrone and Gomez-Mejia (2009: 103): "Because environmental issues are now a major social concern, companies in polluting industries face tight governmental regulations, increased media attention, and strong environmental activism." Green-washing is therefore less likely to be effective, more likely to be perceived, and finally more likely to be punished.

Third, with increased stakeholder scrutiny and pressure come heightened expectations for environmental performance. These expectations are heightened for firms in visibly polluting industries as these corporations are viewed as leading causes of environmental damage, and are thus expected to alleviate or at least minimize the damage. Failure to meet these expectations will ultimately result in a decrease in financial performance. For example, in regards to product recalls highly reputable firms tend to suffer greater declines in shareholder wealth because consumers have higher expectations and punish these firms more severely when their expectations are violated (Rhee & Haunschild, 2006). Furthermore, symbolic attempts to convince stakeholders that firms have met their expectations, which it has been argued are unlikely to be successful in visibly polluting industries without substantive actions, will only serve to further harm financial performance.

Thus for visibly polluting industries, because (1) information on environmental performance is widely available; (2) firms are subject to increased stakeholder scrutiny, and; (3) stakeholders hold higher environmental expectations, we hypothesize that green-washing will have a negative effect on financial performance.

Hypothesis 3: Green-washing will have a negative effect on financial performance

Green-Highlighting

In contrast to green-washing, green-highlighting represents information "disseminated by an organization so as to present an environmentally responsible public image" (partial definition of green-washing from the 10th edition of the Concise Oxford English Dictionary, from Ramus & Montiel, 2005). The key distinction between green-highlighting and green-washing, is that the former's use of symbolic action is backed by substantive actions, or in other words, the external communication of environmental issues are synchronized with internal actions. Thus green-highlighting can contain both symbolic and substantive action, where the firm discusses environmental responsibility in terms of what they are doing currently or have done (substantive action), and what they plan to do in the future (symbolic action).

We believe that green-highlighting will have a positive effect on financial performance for two reasons. First, examining external promises, the corporate branding literature has shown that alignment between a firm's external brand communication and its internal values and actions is one of the key drivers of a corporate brand's performance; financially and reputation wise (Hatch and Shultz 2001). In the case of visibly polluting firms, validation of the alignment between green actions and green talks can be obtained by the widely available data on the environmental performance of these firms. In providing substantive actions firms validate their environmental performance, and give credence to future environmental plans (symbolic actions).

Thus, the key to effective symbolic action is its accompaniment with substantive actions, and green high-lighting combines talking the talk with walking the walk.

Second, the combined effect of current substantive action with future plans illustrated in current symbolic actions demonstrates a heightened commitment to the natural environment. Thus organizations are not only able to inform stakeholders of what they have done and are currently doing in regards to the natural environment, but also what they plan to do in the future. Previously we argued that symbolic actions on their own would not be related to financial performance, but when symbolic actions are combined with substantive actions, we believe that stakeholders are more likely to believe and trust the firm's future environmental commitments and plans.

Thus for visibly polluting industries, because (1) past and current substantive actions provide validation to future-oriented symbolic actions, and; (2) the combined effect of substantive and symbolic actions demonstrates greater environmental commitment, we hypothesize that green-highlighting will have a positive effect on financial performance.

Hypothesis 4: Green-highlighting will have a positive effect on financial performance

METHODOLOGY

Sample

The sample comes from the annual ranking of the *Financial Post's* top 500 Canadian companies for 2008, ranked by revenue for the previous year. Such a sampling frame is recommended for coding websites (McMillan, 2000) and has been adopted in previous research. For example, Esrock and Leichty (1998) used a similar sampling frame by randomly selecting 100 companies from the *Fortune* 500 list.

With a focus on the natural environment and hypotheses that were specific to visibly polluting industries, we examined the chemical, energy, mining, and forestry industries from the *Financial Post* 500. Furthermore, companies in visibly polluting industries are more likely to report information on their environmental responsibility, thereby increasing the likelihood that this research would generate a non-zero variable for environmental performance (Bansal, 2005). With a focus on these four industries, our initial sample size was 130 companies. Furthermore, a number of these firms did not have a website or had merged with other companies, resulting in a final sample of 103 firms: 10 companies in the chemical industry, 54 in energy, 16 in forest and 23 in mining.

Dependent Variables

Environmental Categories. Although some researchers believe that simply coding the homepage is sufficient for website coding (Ha & James, 1998), this has been criticized for a lack of comprehensiveness (McMillan, 2000). Following this argument and more recent website coding (e.g., Dou & Krishnamurthy, 2007; Macias & Lewis, 2004), to gain an inclusive understanding of how the web was being used to convey environmentally responsible information the entire website was examined. Therefore, the unit of analysis in this study was the complete website, and the coding unit was corporate social responsibility material related to the natural environment (McMillan, 2000).

In addition, we excluded additional reports such as sustainability or corporate social responsibility reports as not all companies included their reports on their websites and for those that did the reports were accessed via an external link. Thus we excluded such reports not only for consistency across the sample, but more importantly, because our focus was specifically on website material and not external links or documents. While other studies have examined

sustainability reports (e.g., Arevalo, 2010; Castelló, & Lozano, 2011; Habisch, Patelli, Pedrini, & Schwartz, 2011), to our knowledge, none have examined environmental material on corporate websites.

Obtaining and coding the website data involved three steps. First, the lead author and a research assistant copied and pasted all website information pertaining to the environment onto a word file, averaging just under four pages per company and 499 pages in total. Saving web-pages first and coding them later is the preferred approach for coding websites because of the speed with which websites change (Dou & Krishnamurthy, 2007; Macias & Lewis, 2004). We also limited this initial coding period to one week to minimize any website changes during the coding (McMillan, 2000).

The authors conducted a series of meetings and training sessions with the research assistant to ensure proper coding, and in particular, that no data was missed. For example, the research assistant was instructed to code 10 companies which the lead author coded as well. Any discrepancies or problems with the coding were identified and resolved before actual coding began.

To ensure reliability, 20 companies overlapped between the first author and the research assistant. In all cases the information attained from the websites by the different coders were the same. The percentage of cross-coded websites was over 15 percent of the entire sample. This is in line with the majority of studies that analyze content of websites, which cross-code 10-20 percent of all sample sites (McMillan, 2000). To control for changes in content on the websites, coders were instructed to code on the same day at the same time (McMillan, 2000, referencing Wassmuth & Thompson, 1999). The time required to code individual websites ranged from five minutes to over 30 minutes for the most environmentally responsible companies.

Second, a preliminary analysis of the raw data was conducted to identify environmental categories in the sample. The goal here was to come up with environmental categories that were consistently identified in the sample, so we could break down (1) the environmental issues firms were engaged in; and, (2) the number of activities each firm was involved in within each category. This enabled us to begin to quantify the data. The final categories included: managing greenhouse gas emissions, product innovation, lifecycle analysis, environmental management systems, technological development, carbon capture and storage, recovery projects, stakeholder engagement, employee training, conservation and restoration, waste management, recycling, and independent reviews/audits[1]. Carbon capture and storage, and recovery projects were so similar as described on the corporate websites that we ultimately decided to combine them into a single category. Specific examples of the each environmental category are provided in Appendix A.

Third, armed with the list of categories the research assistant analyzed the raw data identifying what environmental categories each firm was engaged in, as well as the number of activities within each category. Before the coding at this stage began, however, the authors again conducted a series of meetings and training sessions with the research assistant to ensure proper coding. This involved the lead author and the research assistant coding the same five companies, then going through the coding together resolving any discrepancies or problems. This process was repeated three times at which point the research assistant was very proficient at coding.

In the end we had firm level data on the environmental categories engaged in, and the number of firm activities per category.

Financial Performance. Financial performance was measured using Return on Assets (ROA) in 2008 and 2009. We decided to use a lagged measure of ROA because we wanted to

[1] We initially included LEED certification but it was subsequently dropped as only one company in the entire sample mentioned it.

capture both the immediate financial benefits or consequences to what was reported on corporate websites in 2008, but also anticipated the need for the passage of time for actual financial outcomes to be manifested. Where possible we obtained the financial values for net income and total assets from Compustat. For about half of the companies in our sample no data was available on this database, thus we used annual reports accessed via company websites.

Given that some of our firms were private companies, financial data was not publicly available; this was the case particularly in the mining industry. In these situations we utilized the industry mean as the value for ROA.

Independent Variables

Substantive Action. This variable corresponds to the extent to which a firm provides concrete actions, or steps they have taken to care for the natural environment. For example, on their website Imperial Oil explains what they have done to improve, and by how much they have improved, their energy efficiency (http://www.imperialoil.ca):

> We continue to seek ways to improve the energy efficiency of our operations. In 2008, for example, we installed a high-efficiency vacuum furnace and heat exchangers at Dartmouth refinery to reduce energy use and capture waste heat. Through these and other improvements, our refineries are 15 percent more energy efficient than in 1990.

To code substantive action, the research assistant who had done the previous coding and at this point had developed a comprehensive understanding of the data, first read the material of 10 companies then gave them a preliminary value from 1-7, where 1 = no substantive action and 7 = all substantive action. After completing the 10 companies the research assistant had a greater understanding of what might constitute a three or a six for example. He then redid the 10 companies and continued to code the entire sample. Importantly, a single research assistant coded the entire sample in this manner to ensure consistent coding through-out.

Symbolic Action. This variable corresponds to the extent to which a firm discusses their commitment to the natural environment and their future plans. By measuring symbolic actions in this way firms could have both a high score for symbolic and substantive actions. Thus firms could either discuss their commitment and future plans without substantive actions, with substantive actions, or perhaps provide substantive actions alone without a discussion about their environmental commitment or future plans.

As an example of symbolic action, on their website Cascades Inc states: "It is because of its concern for transparency and credibility that Cascades initiated the steps that would lead to its *first* sustainable development plan" (www.cascades.com, italics added). In this sentence they mention their commitment to the environment and future plans, but have not provided actual actions completed.

Symbolic action was coded by the same research assistant in the same manner as substantive action.

Green-washing. In the hypothesis development section we discussed green-washing as the difference between symbolic and substantive actions. Accordingly, we measured it by subtracting the value of substantive action from that of symbolic action, where a high positive number indicates high symbolic action with little to no substantive action, and a high negative number indicates high substantive action with little to no symbolic action. The higher the number the greater the green-washing. Green-washing ranged from negative five to four, and had a mean value of -.47 (s.d. = 1.49).

Green-highlighting. In the hypothesis development section we discussed green-highlighting as the addition of symbolic and substantive actions, where a high positive number indicates a high combination of the two types of actions, and the higher the number the higher

the green-highlighting. Green-highlighting ranged from two to 11, and had a mean value of 5.6 (s.d. = 2.83).

Control Variables

There were four controls variables in this study. *Size* was controlled because larger firms tend to pollute more, and studies have found that larger firms are more likely than smaller firms to integrate environmental practices into their organizations (Chen, Lai & Wen, 2006; Lopez-Gamero, Claver-Cortes & Molina-Azorin, 2008; Moore, 2001; Russo & Fouts, 1997). In addition, previous research has used size as a proxy for firm visibility as highly visible companies are often under increased scrutiny from stakeholders (Adams & Hardwick, 1998; Brammer & Millington, 2008). Increased firm visibility could lead to higher costs associated with increased taxation, fines and litigation for example. It might also lead to increased environmental performance as these firms seek to appease the increased demands from stakeholders and to avoid or pre-empt environmental legislation (Brammer & Millington, 2008). It was measured as the log of total assets.

Slack was included as Douglas and Judge (1995) found a positive relationship between the amount of resources available for natural environment issues and the level of integration of environmental issues into the strategic planning process. In addition, Lee and Rhee (2007) found that a firm's slack resources were significantly related to environmental strategic change. Slack was measured as the logged value of the ratio of current assets to current liabilities (Bansal, 2005; Schuler, 1996).

Financial leverage (sometimes referred to as risk), measured as total liabilities divided by shareholder's equity, was controlled as prior studies have found level of risk to be related to all

major types of performance (Bromiley, 1991; Miller & Leiblein, 1996; Orlitzky et al., 2001). The sin value was used to bring it to normality.

Lastly, given that different industries may be subject to different stakeholder pressures related to the natural environment (government regulation, media exposure, environmental groups), *industry* was dummy coded using the NAICS code.

RESULTS

Our results are broken down into four sections, presented based on our research questions. The first two sections address our descriptive questions and the remaining two address symbolic and substantive actions, green-washing, and green-highlighting.

Research Question One: Environmental Issues Addressed

Our first research question asked what specific environmental issues top Canadian firms address. As described in the methodology section we identified a number of environmental categories/issues addressed by the companies in our sample. Table 1 provides descriptive statistics for each issue ranked by mean value.

Insert Table 1 about here

Taken as a whole, we see that environmental conservation had the highest occurrence (mean = 2.89 with a range of 25), and lifecycle analysis the least (mean = .10). Furthermore, within each industry environmental conservation had the highest occurrence among all environmental categories. In regards to the least occurrences within industries, in the chemical industry both employee training and carbon capture & recovery barely had any activity (mean =

.10 for both); in the energy industry product innovation and lifecycle analysis were very low (mean = .07 for both); in the forestry industry employee training, carbon capture & recovery, lifecycle analysis, technology development, and other were all low (mean = .06 for all); finally, in the mining industry product innovation and carbon capture & recovery were non-existent.

Research Question Two: Cross-Industry Comparisons

Our second research question asked how the environmental issues addressed by firms differed between industries. In answering this question some of the most interesting and surprising results occurred where no significant differences were found. For example, despite the relatively high mean values for management of greenhouse gases and environmental conservation, there were no significant differences across the four industries. Furthermore, these were the only two categories where the mean for all industries was at least one; meaning that on average firms in all industries addressed management of greenhouse gases and environmental conservation at least once on their corporate websites. For management of greenhouse gases, industries ranged between 1.00 for the chemical industry and 1.70 for the energy industry, and for environmental conservation, industries ranged between 1.60 for the chemical industry and 3.81 for the forestry industry. These are encouraging results which suggest that almost all firms in the industries we examined believe that the management of greenhouse gases and environmental conversation are important environmental issues which they can address.

Perhaps the most surprising non-significant result, however, is that there were no significant differences in the "Total" amount of environmental activities (measured as the sum total of all a firm's environmental activities), despite an average of just over eight activities per firm, with a standard deviation of close to 11.

Table 2 presents the means and standard deviations per environmental issue per industry, as well as any significant differences between industries.

Insert Table 2 about here

As shown in Table 2, firms in the forestry industry appear to be particularly good at using their corporate websites to portray a positive image with regard to addressing the environmental issues shown as compared to the chemical, energy, and mining industries. For example, the forestry industry was significantly higher than all other industries in stakeholder engagement. Indeed, when we look at the mean values, taken together the firms in the forestry industry performed better than the other industries in all areas listed in Table 2, with the exception of product innovation. The chemical industry performed particularly well with regard to product innovation, with a significantly higher amount of activities than the mining and energy industries.

As a whole, firms in the energy and mining industries seemed to perform the worst as they did not have a significantly higher amount of activities within any of our identified environmental categories. The greatest disparity was between the forestry and energy industries, as they had the greatest number of significant differences in environmental categories (significant differences across four of the five environmental categories mentioned).

Research Question Three: Symbolic and Substantive Actions

Our third research question asked if both symbolic and substantive actions benefit a firm financially. Table 3 provides the descriptive statistics and correlations among the variables used to test hypotheses 1-4.

Insert Table 3 about here

Table 3 shows that ROA is significantly correlated to: size (r = .37), meaning larger firms tend to have higher ROA; industry (r = -.37); meaning that as industries go from chemical, energy, forestry to mining they tend to have lower ROA; and green-washing (r = -.29), meaning that firms that green-wash tend to have lower ROA.

We see that size is correlated with: industry (r = -.27), meaning that our firms tend to decrease in size as they proceed through our dummy coding; both symbolic and substantive actions (r = .42), meaning that larger firms tend to have high symbolic and substantive actions; with green-washing (r = -.29), meaning larger firms tend not to green-wash; and with green-highlighting (r = .38), meaning larger firms tend to green-highlight.

We also see that symbolic and substantive action are correlated (r = .59), indicating that most firms that take substantive action also spend considerable space on their websites discussing symbolic action. Green-washing is negatively correlated with substantive action (r = -.67) as it should be, and green-highlighting is positively correlated with both substantive (r = .92) and symbolic (r = .86) action as it should be. Lastly, green-washing and green-highlighting are negatively correlated (r = -.33)

Due to the high correlations between green-washing and green-highlighting, and substantive and symbolic action, we run two separate regressions, one that includes symbolic and substantive actions as the only independent variables, and one that includes green-washing and green-highlighting as the only independent variables. To ensure that the relatively high correlations between symbolic and substantive action, and between green-washing and green-

highlighting, were not adversely affecting the results, we ran separate regressions. Since the results were the same we present the results for symbolic and substantive actions together in one table but in different models, and we do the same for green-washing and green-highlighting.

The results for the regression examining substantive and symbolic actions are provided in Table 4.

Insert Table 4 about here

Our first hypothesis stated that substantive actions would have a positive effect on financial performance. Our non-significant result for substantive actions in Table 4 does not support this hypothesis.

Our second hypothesis stated that symbolic actions would have a negative effect on financial performance. The negatively significant result ($p < .05$) for symbolic action in Table 4 supports this hypothesis.

Research Question Four: Green-Washing and Green-Highlighting

Our fourth and final research question examined green-washing and green-highlighting. The results for the regression examining green-washing and green-highlighting are provided in Table 5.

Insert Table 5 about here

Our third hypothesis stated that green-washing would have a negative effect on financial performance. The negatively significant result ($p < .05$) for green-washing in Table 5 supports

this hypothesis and suggests that talking about one's "greenness" without actual green behaviours negatively affects a firm financially.

Our fourth hypothesis stated that green-highlighting would have a positive effect on financial performance. Our non-significant result for green-highlighting in Table 5 does not support this hypothesis.

DISCUSSION

Environmental performance is usually discussed as an all-encompassing construct. In this study we found that top performing Canadian firms in visibly polluting industries tend to focus on particular environmental issues while ignoring others. Management of greenhouse-gases and environmental conservation were of particular importance to the firms in our sample regardless of industry. This may be because governments (and other stakeholder) are particularly concerned with these issues as attempts are made to deal with climate change and environmental destruction and degradation. This has lead to greater regulations, and a greater threat of future regulations, in these areas as opposed to other areas such as lifecycle analysis or employee training (environmental areas that were found to have little to no firm activity).

Relative success in certain environmental areas and relative failure in others (based purely as a comparison to peers within this sample), suggests that organizations are only able to deal with certain areas at a time. Indeed, it would be extremely difficult for a single firm to perform well in all environmental categories we identified, and no firm in our sample was able to do so. Therefore, it may be in the best interest of governments to focus on the areas of greatest importance, enabling firms to make quick progress in these areas without overburdening them by

enforcing all environmental areas simultaneously, while also permitting governments to focus and enforce in these particular areas.

We also found differences across industries, demonstrating that the importance of the environmental area differs across industries. For example, product innovation was clearly of high importance in the chemical industry but was not for the energy or mining industries. The strong environmental performance in certain areas is likely an indication of the financial incentives that exist in the area. Researchers examining the relationship between environmental and financial performance might, therefore, specify the industry and the environmental issue they are investigating. In the chemical industry for example, the relationship between environmentally friendly product innovation and financial performance is likely positive, but a negative relationship may exist between stakeholder engagement and financial performance (based on the low levels of stakeholder engagement in this industry). This reasoning is aligned with recent recommendations in the literature to move past one-size-fits-all prescriptions in our analysis of the relationship between environmental (or social) performance and financial performance, and to instead examine particular areas and contexts where financial benefits can be obtained (Barnett, 2007; Brammer & Pavelin, 2006). Governments might also find greater success in improving the environmental performance of firms by focusing on the areas that hold the greatest financial incentives.

Another intriguing result was that the forestry industry outperformed the energy industry in four out of the five environmental areas identified in Table 2. This result may have occurred for a number of reasons such as tighter government regulation, greater stakeholder pressure, weaker lobbying groups in the forestry industry, and so on. Reasons for such strong differences would merely be speculation at this point, but the results represent a rich area for future research

as we investigate why some industries are clearly environmentally outperforming others. This would represent a significant research shift in the level of analysis, moving from the firm-level to the industry-level. Given that environmental problems are global, moving to higher levels of analyses may be both necessary and fruitful.

Contrary to our hypothesis, substantive actions were not related to increased financial performance. In contrast, and consistent with our hypothesis, symbolic actions were related to decreased financial performance. This suggests that for firms in visibly polluting industries, the best use of space on their corporate websites would be to discuss actions completed instead of future plans and potential environmental commitments. In fact, the discussion of future plans and potential commitments may harm the firm financially.

Many studies have investigated the relationship between environmental and financial performance and most have found a positive relationship (e.g., Margolis & Walsh, 2003; Orlitzky et al., 2003; Russo & Fouts, 1997). Our study breaks down environmental performance into symbolic and substantive actions, and finds that only symbolic actions effect firms financially.

It may be that in visibly polluting industries, because of the heightened stakeholder pressures and scrutiny (Berrone & Gomez-Mejia, 2009; Stevens et al., 2005), firms are expected take real and substantive actions toward environmental performance. Such expectations may mean that even if they are fulfilled, they are not rewarded; a firm has simply met the standard. In contrast, the use of symbolic actions may be perceived as an attempt to make up for the lack of substantive actions, ultimately leading to negative financial consequences.

It may also be that while the substantive actions of the firms in our sample did not lead to financially significant efficiency improvements, they may have helped them to avoid potential

environmental liabilities, fines, penalties, clean-up costs (Bansal & Clelland, 2004), negative investor reactions (Konar & Cohen, 2001) and perceptions of increased risk (Bansal & Clelland, 2004). All potential costs that may have been realized by firms using symbolic actions. As summarized in Figure 1 (which we discuss further later in the paper), future research needs to address the underlying mechanism (mediators) that drive the negative relationship between symbolic action and financial performance.

Insert Figure 1 about here

To the best of our knowledge this is the only study to date that has examined the financial implications to green-washing, and has discussed the concept of green-highlighting. Measuring green-washing as the difference between symbolic and substantive actions, we found that it was negatively related to financial performance. We argued that this would be the case because in visibly polluting industries (1) information on environmental performance tends to be objective and widely available, making it relatively easy for stakeholders to identify green-washing; (2) firms are subject to increased stakeholder scrutiny making the identification of green-washing more likely, and; (3) firms are subject to higher stakeholder expectations pertaining to the natural environment, and failure to meet these expectations results in significant financial losses. In sum, we argued that green-washing would be more likely to be perceived, less effective, and finally more likely to be punished.

Measuring green-highlighting as the addition of symbolic and substantive action we found that it was not related to financial performance. It appears that all symbolic actions, even when accompanied by substantive actions (which appear to have mitigated the negative effects

thus resulting in a non-significant finding), harm a firm financially. Thus firms in visibly polluting industries would be well advised not to discuss symbolic actions on their corporate websites.

We have been using two main arguments to explain the consistent negative effect of symbolic actions on financial performance also evident in the negative results for green-washing: First that in using symbolic actions firms do not gain the potentially beneficial financial consequences to substantive actions and may incur greater negative consequences; and second, that stakeholders will perceive the symbolic actions of firms in visibly polluting industries negatively and ultimately punish the firm financially. While both arguments are valid, the latter may be particularly true given the non-significant relationship between green-highlighting and financial performance. That is, if a firm has both substantive and symbolic actions, they should still benefit from the real improvements of increased environmental performance such as lowering compliance costs, reducing waste, and improving efficiency and productivity (Ambec & Lanoie, 2008; Hart, 1995; Hart & Ahuja, 1996). Yet it appears, that any potential benefits from substantive actions (which themselves would appear to be minimal given the non-significant finding for substantive actions) are outweighed by the negative financial implications to symbolic actions. How might we explain this relationship? We do so using prospect theory (Kahneman & Taversky, 1979).

Prospect theory states that people value gains and losses differently, and that we are more sensitive to losses than we are to equivalent gains (Brenner, Rottenstreich, Sood & Bilgin, 2007). For example, consumer research finds strong evidence for loss aversion, where people react to losses more strongly than equivalent gains (e.g., the pleasure felt from finding $10 would be less

in absolute terms as compared to the pain felt from losing $10) (Kahneman & Tversky, 1984; Novemsky & Kahneman, 2005; Tversky & Kahneman, 1991).

Applied to our study, the results suggest that the pain/aversion people feel as a result of symbolic actions (a perceived loss) drives stakeholders to punish the firm more strongly than would be the drive to reward firms for substantive actions (a perceived gain). The sensitivity to losses/negative information is greater than toward gains/positive information.

Symbolic actions and green-washing may represent a perceived loss from the perspective of stakeholders. It may be that the stakeholders reading corporate websites expect to find what firms are doing currently, not what they plan to do. Thus any discussion on future plans may be perceived as an attempt to cover up the lack of substantive actions, or a means to falsely beef-up the "meagre" substantive actions. As laid out in Figure 1, future research should test whether perceived loss or lack of commitment mediates the relationship between green-washing and financial performance. In addition, future research can also identify boundaries conditions where green-highlighting can play a positive role in financial performance. For example, as we argued, the operations of firms in visibly polluting industries are under the careful scrutiny of regulators and external stakeholders, therefore, symbolic actions alone or green-highlighting do not benefit financial performance. However, for firms in other industries such as consumer goods (e.g., Body Shop) or retail (e.g., Starbucks), symbolic actions or green highlighting can be important signals of the firms' values in environmental issues. Such signals can serve as an important symbolic brand attribute to attract consumers who share similar values, and at the same time differentiate the brands from competitor brands who do not manifest such values.

Lastly, as Figure 1 indicates, future research can also test the antecedents of firms' symbolic actions, substantive actions, green-washing and green-highlighting. For example, there

can be two types of drivers (internal and external) stimulating firms' communication and activities with regard to environmental responsibilities. External pressures, for example, may come from a regulatory body, industry norms, or competition where substantive actions are perceived prevalent. However, firms' communication and behaviours with regard to environmental responsibilities can be internally driven by firm values, endorsed and implemented from within (Hatch and Schultz 2001). We suspect that in this case, green-highlighting and symbolic actions will have significant and positive effects on financial performance. Future research could examine these different and potential drivers of corporate environmental performance, ultimately linking it to financial performance.

Limitations

This study suffered from four limitations. First, we did not investigate causation, so it is possible that firms with higher financial performance (i.e., ROA) were more likely to take substantive environmental actions. It may be that higher financial performance enables these firms to take substantive actions, whereas firms with lower financial performance can only afford symbolic actions. We do not, however, believe this to be the case with our dataset, considering that it was obtained from the *Financial Post's* top 500 Canadian companies, ranked by revenue. Thus while there were differences across firms in the sample, all had strong revenue, and it is likely that all could afford substantive actions if they so desired. Furthermore, ambiguity surrounding causation is a common and ongoing issue in research that examines environmental and financial performance (Salzman et al., 2005).

Second, we examined companies in Canada only. While our focus on Canadian corporations was (1) in response to the criticism that research needs to examine environmental performance outside the predominant U.S. sample (Salzman et al., 2005); (2) pertinent to our

focus on visibly polluting industries; and, (3) important to our arguments about increased stakeholder pressures, it is possible that our results will not generalize to firms in other countries.

Third, our measure of environmental performance was inductive and derived from the websites of the company's in our sample. Whereas an objective and standardized set of measures on environmental performance is desirable, they run the risk of potentially being less relevant to the focal industries in our sample. Thus, our measure, while not without flaws, was particularly pertinent to the company's under investigation, and was consistently measured across each firm in our sample thereby reducing coder subjectivity.

Fourth, this is a cross-sectional study where we examined environmental performance as reported on corporate websites in 2008 only. Future research would be required to see if our results are generalizable to other years, or if our findings change when examined longitudinally.

CONCLUSION

Despite its importance to corporations and society, our understanding of corporate environmental performance is limited and understudied (Bansal & Gao, 2006). Our objective has been to develop a better understanding of corporate communications on environmental performance and the resulting financial implications. We obtained this objective through our four research questions. First, we listed 13 environmental categories and saw that the management of greenhouse-gases and environmental conservation were of greatest importance to the companies in our sample regardless of industry. Second, we delineated differences between industries, and in particular, noted that the forestry industry significantly outperformed the energy industry, and that industries can differ in which environmental categories they focus on. Third, we found that substantive actions neither harmed nor benefited financial performance, but symbolic actions

were related to decreased financial performance. Fourth and similarly, we found that green-washing harms firms financially, and green-highlighting neither harms nor improves financial performance.

Without question, researchers will continue to investigate the complexities of corporate environmental performance and we hope that our study, particularly the future research suggestions and Figure 1, will inspire and prove beneficial. After all, the existence of our species and planet may depend on our understanding and ultimate promotion of corporate environmental performance. While misery loves company (Margolis & Walsh, 2003), we know that companies do not love misery, and the long-term sustainability of all companies is dependent on answering the world's cry for repair.

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TABLE 1
Descriptive Statistics of Environmental Issues Discussed by Corporations

Environmental Category	**Mean**	**Standard Deviation**	**Range**
Environmental Conservation	2.89	4.83	25
Management of Greenhouse Gases	1.45	2.62	17
Stakeholder Engagement	.98	1.63	7
Environmental Audits	.81	1.21	6
Recycling	.41	1.08	6
Technology Development	.31	.99	7
Environmental Management System	.28	.45	1
Waste Management	.28	.69	4
Employee Training	.20	.47	3
Environmentally Friendly Product Innovation	.17	.63	5
Carbon Capture and Recovery	.14	.56	3
Other	.13	.41	2
Lifecycle Analysis	.10	.30	1
Total	8.15	10.85	50

Note: N = 103

TABLE 2
Cross Industry Significant Differences per Environmental Issue

Environmental Issue	**Chemical Mean (s.d.)**	**Energy Mean (s.d.)**	**Forest Mean (s.d.)**	**Mining Mean (s.d.)**	**Significance Between**
Environmental Management System	.30 (.48)	.15 (.36)	.62 (.50)	.35 (.49)	Forestry from energy ($p < .01$)
Stakeholder Engagement	.20 (.63)	.96 (1.48)	2.06 (2.65)	.61 (.89)	Forestry from chemical, mining (both $p < .05$) and energy ($p < .10$)
Environmental Audits	.50 (.97)	.67 (.87)	1.56 (1.86)	.74 (1.32)	Forestry from energy ($p < .05$)
Environmentally Friendly Product Innovation	.70 (1.57)	.07 (.26)	.38 (.81)	.00 (.00)	Chemical from energy and mining (both $p < .05$)
Recycling	.40 (.70)	.20 (.56)	1.19 (2.01)	.35 (1.07)	Forestry from energy ($p < .01$)

TABLE 3
Descriptive Statistics and Correlations

Variable	Mean	s.d.	1	2	3	4	5	6	7	8
1. Lagged ROA	-.05	.25								
2. Size	22.17	1.42	.32							
3. Slack	.90	.38	-.17	-.07						
4. Leverage	.43	.42	.11	-.14	-.19					
5. Industry	2.50	.948	-.37	-.27	.53	-.12				
6. Substantive action	3.02	1.80	.17	.42	.08	.10	-.08			
7. Symbolic action	2.55	1.36	-.09	.24	.10	.07	.01	.59		
8. Green-washing	-.47	1.49	-.29	-.29	-.01	-.06	.10	-.67	.20	
9. Green-highlighting	5.57	2.83	.07	.38	.10	.10	-.04	.92	.86	-.33

Notes:
1. Size and slack are logged values. Leverage is sin value.
2. Correlations above .20 or below -.20 are significant at the 5 percent level; correlations above .25 or below -.25 are significant at the .01 level.

TABLE 4
Regression Analysis for Substantive and Symbolic Actions

Independent and control variables	Unstandardized Coefficients (standard errors)		
	Model 1	Model 2	Model 3
Constant	(.402) -.875*	(.432) -.820 *t*	(.422) -.788 *t*
Industry	(.029) -.079**	(.029) -.079 **	(.029) -.077**
Size	(.017) .044*	(.019) .041*	(.018) .042*
Slack	(.070) .020	(.071) .016	(.070) .023
Leverage	(.056) .064	(.057) .060	(.056) .064
Substantive action		(.014) .005	(017) .026
Symbolic action			(.020) -.048*
Adjusted R^2	.164	.156	.195
Change in R^2	.191	.001	.045
Change in F-Statistic	5.996***	.127	5.693*

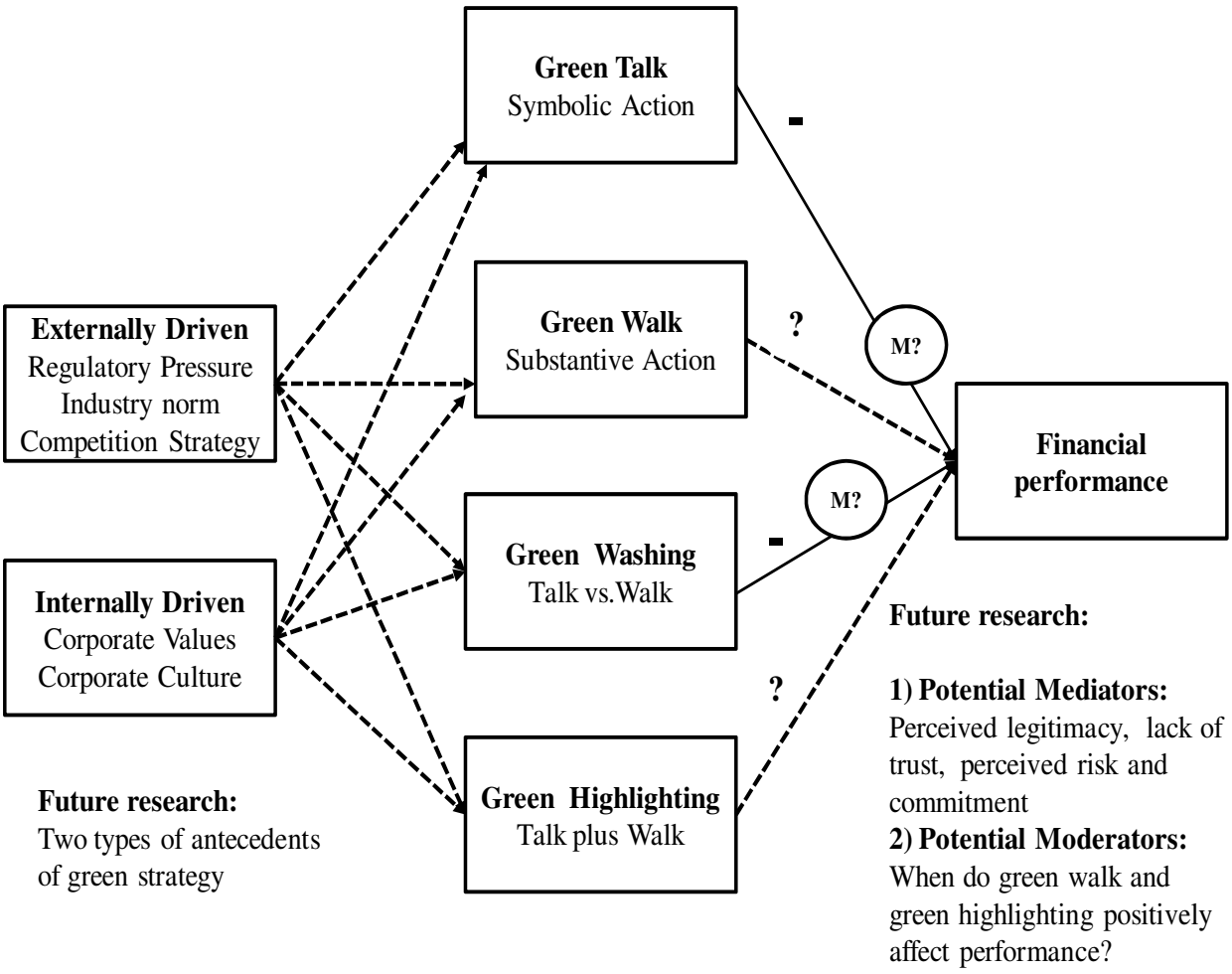
Notes:
1. Size and slack are logged values, leverage is sin value
2. All p values reported are at two-tailed significance; *t* p<.10 * p<.05 ** p<.01 *** p<.001
3. N = 103

TABLE 5
Regression Analysis for Green-Washing and Green-Highlighting

Independent and control variables	Unstandardized Coefficients (standard errors)		
	Model 1	Model 2	Model 3
Constant	(.402) -.875*	(.409) -.656	(.422) -.788 *t*
Industry	(.029) -.079**	(.029) -.077**	(.029) -.077**
Size	(.017) .044*	(.017) .034 *t*	(.018) .042*
Slack	(.070) .020	(.069) .012	(.070) .023
Leverage	(.056) .064	(.052) .055	(.056) .064
Green-washing		(.016) -.033*	(.016) -.037*
Green-highlighting			(.009) -.011
Adjusted R^2	.164	.191	.195
Change in R^2	.197	.034	.012
Change in F-Statistic	5.996***	4.313*	1.491

Notes:
1. Size and slack are logged values, leverage is sin value
2. All p values reported are at two-tailed significance; *t* p<.10 * p<.05 ** p<.01 *** p<.001
3. N = 103

Figure 1: Paper Summary and Future Research Directions



Appendix 1: Coding Scheme of Environmental Categories

Environmental Category	**Coded based on specific examples of…**	**Examples of firm activities taken directly from corporate websites.**
Conservation and restoration	…environmental conversation and restoration involvement as it relates to restoring land or water that was harmed during operations, or philanthropic donations to conserve habitat.	"DuPont has a strategy for land conservation that includes placing surplus property into protected status through the company's Land Legacy Program, as well as lending support to activities in local communities aimed at preserving green space. In addition, DuPont manages as much of its company property as possible for wildlife habitat."
Managing greenhouse gas emissions	…how the firm was managing greenhouse gas emissions.	"Dow Canada has made major strides in reducing its impact on the environment. From 1996-2005, our Canadian operations reduced emissions of priority compounds—29 compounds listed as persistent, toxic, bio-accumulative, carcinogenic, ozone-depleting or high volume toxic substances—by 94 percent. For example, in 2001, Environment Canada and Dow agreed on a five-year voluntary control action approach, implementing a management strategy for 1,2-dichloroethane (EDC) to minimize emissions at the Fort Saskatchewan, Alberta, production facility and the North Vancouver, British Columbia, distribution facility. This Environmental Performance Agreement successfully reduced EDC emissions by approximately 70 per cent, well exceeding the 50 per cent target."
Stakeholder engagement	…stakeholder engagement and involvement within the firm, excluding internal stakeholders such as employees.	"Suncor proactively consults with stakeholders to continually improve on the work we are doing to preserve biodiversity. Suncor regularly seeks input from our Aboriginal neighbours on reclamation initiatives. We are a member of the Cumulative Environmental Management Association, a multi-stakeholder group in the Regional Municipality of Wood Buffalo, to develop and implement management tools to reduce ecosystem disturbance in the region. We consult with other resource companies about how to minimize local impacts. This includes sharing access roads or using land already disturbed by previous development."
Environmental audits	…environmental reviews/audits.	"Agrium's policy is to audit each major production facility every three years, at a minimum, and each retail outlet every two years. Agrium has employees who are qualified to perform compliance, system, process and regulatory EHS&S audits. In addition, external EHS&S specialists are engaged where appropriate to review the audit processes and standards."
Recycling	Recycling programs within the organization.	Teck Cominco Ltd: "Overall, 2007 total recycled volumes from Operations increased significantly, due mainly to the addition of data from seven Operations to the company total (six Elk Valley Coal mines and the Lennard Shelf mine). The solid recycling volume increased from 35,928 tonnes in 2006 to 49,100 tonnes in 2007; these materials included a 37% increase in: lead-acid batteries, scrap metal and electronic waste (or "e-waste"; see below). The volumes

		of liquid recycling increased significantly from 1,678 m3 in 2006 to 4,789 m3 in 2007, again largely due to reporting of data from the additional Operations. Liquid materials consisted mainly of used oil and oily water. The "item count" of materials recycled in 2007 remained similar to last year, numbering almost 29,000 items including fleet tires, fluorescent tubes, plastic pails, drums, gloves, and raingear."
Technological development	…environmentally friendly technology development.	"**Advanced technology to minimize our footprint.** In-situ bitumen extraction allows Suncor to use only a fraction of the land required for conventional oil sands mining. In our natural gas operations, low-impact seismic lines and horizontal drilling help reduce our environmental footprint in sensitive areas."
Environmental management systems	…or descriptions of the environmental management system(s) in place.	First Quantum Minerals Ltd: "The Company has environmental management systems in place at each of its current operations. The procedures and protocols that form the operating framework of the Company's environmental management systems are in line with ISO 14001 requirements. The overall goals include: a commitment of management to pollution prevention; compliance with pertinent environmental regulations and legislation and continual improvement to protect the environment."
Waste management	…programs within the organization designed to reduce waste with the exception of recycling.	Teck Cominco Ltd: "We apply the principles of sustainability to the management of materials that were traditionally thought of as waste. An ever-growing list of materials once considered waste are now used as or converted to useful products. Important examples include…"
Employee training	…employee training programs related to the natural environment.	"Tolko's Management Team…[ensures] that employees receive the education and training necessary for them to carry out their work in an environmentally responsible manner. Employees will actively participate in environmental management and challenge operating principles they believe can be improved."
Environmentally friendly product innovation	…environmentally friendly innovative products developed by the firm.	Methanex Corp: "Our product, methanol, is a clear liquid made primarily from natural gas. It represents a low risk to the environment because it is soluble in water and readily biodegradable. In addition, the methanol production process is very clean, producing few solid or liquid wastes."
Carbon capture and storage and recovery projects	…carbon capture and storage/recovery projects that the firm was involved in.	"In 2007, Suncor participated in research on carbon capture and storage, investing more than $1.5 million."
Lifecycle analysis	…the examination of the environmental impact of a product from its birth to its death, or beyond.	"Product Stewardship is a product-centered approach to sustainability – a management concept that Alcan employs to consider the complete supply chain and downstream activities related to the life cycle of its products."