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The Green Onion: A Corporate Environmental Strategy Framework

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ABSTRACT
Since the 1990s, there has been a proliferation of research exploring the benefits of proactive corporate environmental management initiatives. Unfortunately, the absence of a comprehensive, strategic planning framework relegates much of this valuable research to a study of good ideas for making money while operating more sustainably. This paper presents a framework for guiding corporate environmental strategy to bring order to existing observations and allow social scientists to begin the process of 'orderly control and prediction'. The research is based on modified grounded theory and an extensive literature review pertaining to the benefits of corporate environmental management. The framework has been named the 'Green Onion' to highlight the multiple strategic layers of influence uncovered and the importance of retaining resilient outer layers (i.e., stakeholder management) to protect the highly potent core of functional environmental management initiatives (i.e., cost saving initiatives). Copyright © 2009 John Wiley & Sons, Ltd and ERP Environment.

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Introduction

SINCE THE 1990S, THERE HAS BEEN A PROLIFERATION OF RESEARCH EXPLORING THE CORPORATE BENEFITS OF proactive environmental management initiatives and examining the nuances associated with managing such initiatives. From a cost perspective, several authors have produced evidence that more effective environmental management can reduce operating expenses (Hart, 1997; Yakhou and Dorweiler, 2004), allow firms to make better use of resources (Graedel and Allenby, 2001; King and Lenox, 2001), and stimulate innovation in production technology (Porter and van der Linde, 1995b; McDonough and Braungart, 2002). On the revenue side, research indicates that firms can successfully leverage superior environmental management for competitive advantage (Kolk *et al.,* 2001; Cerin, 2002) and develop new market niches through green marketing (US EPA, 2000; Kiernan, 2001). Some proponents even contend that advocating for environmental regulation of industries is a way for environmentally superior firms to create competitive barriers to entry (Reinhardt, 1999), to induce innovation (Palmer *et al.,* 1995) and to improve attractiveness to investors (Chan and Welford, 2005).

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In addition to the economic justifications for adopting improved environmental governance practices, there are also strategically defensive justifications for doing so. Negligent corporate environmental stewardship cases have raised the ire of environmental interest groups, government regulators and society in general. Accordingly, improved environmental governance practices are viewed as a way to stave off both public protest and regulatory intervention (Reinhardt, 1999). In short, even for critics who view environmental governance as an overall cost of doing business, there is a degree of acceptance that environmental management practices have strategic defensive value (Palmer *et al.,* 1995; Kiernan, 2001). Khanna's (2005) framework depicted in Figure 1 summarizes many of the diverse forces that compel firms to adopt improved environmental management techniques.

In tribute to these earlier studies, a great deal is now known about the myriad of ways in which improved environmental governance can benefit firms; yet, the amalgamation of such knowledge into a functional strategic planning framework is still at an evolutionary stage. This has been highlighted previously by Porter and Kramer (2006, p. 80), who in relation to the broader field of corporate social responsibility pointed out: 'the prevailing approaches to CSR are so fragmented and so disconnected from business and strategy as to obscure many of the greatest opportunities for companies to benefit society.'

Since Porter and Kramer's summation of the state of play in CSR strategy, a horde of research has emerged on themes related to corporate environmental strategy; a significant number of studies have focused on contexts or themes that skirt the realm of applied strategic environmental planning but all have proven to be either too broad or too narrow in scope to be of applied use to corporate strategists in the manner that, for example, Porter's Five-Forces (Porter, 1980) has been for guiding thought on positioning strategy. To illustrate, research by Birkin *et al.* (2009), who examine sustainability as it relates to environmental strategy, presents a useful discussion on the conceptual boundaries of sustainable environmental strategy but the discussion is too broad for practitioners to use for applied strategic environmental planning. Similarly, Maximiano (2007) provides interesting guidance on how to apply a 'strategic integral approach' to institutionalizing CSR; however, it is too broad to be of use for applied *environmental* planning. Conversely, Sarkar's (2008) work which focuses on the nexus between public policy and corporate environmental behavior is an example of research that makes a unique contribution to corporate environmental strategy but is too narrowly focused contextually to be useful for guiding applied strategic environmental planning. Similarly, research by Holton *et al.* (2008), Chung and Parker (2008) and Epstein and Roy (2007) provides useful insights into industry-specific strategic environmental themes but the studies lack the level of comprehensiveness necessary for broader application. Research by Hahn and Scheermesser (2006),

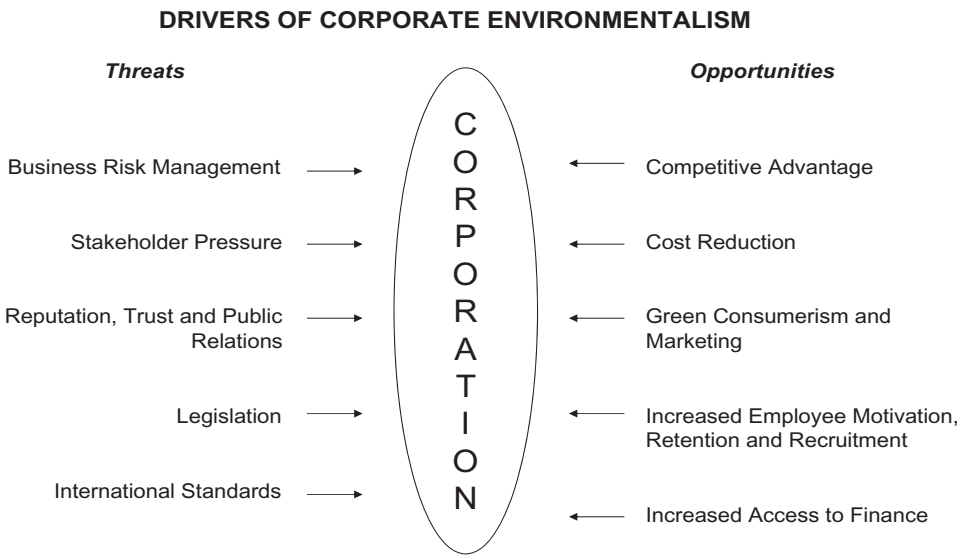

Figure 1. Summary of Environmental Management Catalysts (Khanna, 2005)

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Oskarsson and von Malmborg (2005), and Albino *et al.* (2009) also share the short-coming of being too narrow in terms of contextual or functional analysis to be of use for guiding comprehensive strategic environmental planning efforts. In short, it could be argued that in the absence of taxonomy for guiding strategic environmental planning, these studies serve to further fragment corporate environmental strategy knowledge. For corporate strategists to fully extricate the value of extant research in environmental management and strategy, a comprehensive, stakeholder-centric environmental strategy framework that is clear enough to permit application at the functional level is needed to allow for integration with mainstream strategic planning. To echo Porter and Kramer, the absence of such a comprehensive, strategic taxonomy hinders the ability of corporate strategists to fully exploit the research insights gleaned from these studies.

It could perhaps be argued that responsibility for championing conceptual frameworks does not typically fall under the domain of academic journals; rather, responsibility would typically fall within the remit of authors who write textbooks and mainstream monographs that describe generic business practices. Yet, even within this domain, the existence of a comprehensive, stakeholder-focused environmental planning framework is still non-existent.

Perhaps the closest attempts at explicating a *strategic* environmental management approach can be found in two top-selling monographs on the subject: *Natural Capitalism* (Hawken *et al.,* 1999) and *Green to Gold* (Esty and Winston, 2006). *Natural Capitalism,* a vanguard book in corporate environmental management, presents a number of eco-innovations stemming from themes such as reinventing transportation, eliminating waste, organic products, water and wastewater management, and emission control (Hawken *et al.,* 1999). However, as insightful as the book is, its eclectic ordering of themes fails to equip the reader with a comprehensive strategic picture of environmental management. *Green to Gold* exhibits more of an orderly attempt to classify initiatives by focusing the study around four main categories: revenues, costs, risks and intangibles (Esty and Winston, 2006). However the framework is too broad for strategic application and it, too, fails to link the themes back to one comprehensive strategic picture of environmental management. In order to construct a 'strategic' taxonomy, in addition to ensuring that all existing environmental management initiatives can be slotted into distinct categories, it is necessary to demonstrate how each of the parts fits into the larger strategic picture. Achieving this allows strategists to begin to compare efficacy across categories, delegate functional responsibilities and more effectively harness resources in support of environmental governance programs. Unfortunately, *Natural Capital* and *Green to Gold* represent well-crafted patchwork quilts when actually what is required is the cobbling together of pieces of the environmental management puzzle to form a holistic picture.

In response, this paper endeavors to create a framework for describing corporate environmental strategy that comprehensively classifies all benefits attributed to environmental management in a manner that affords integration with corporate strategy. The underlying merit of a framework for an emergent field such as corporate environmental strategy is that it brings order to existing observations in order for social scientists to begin the process of 'orderly control and prediction'. As Theodore Lowi asserted when constructing a similar taxonomy for categorizing policy instruments: 'to find the basis for classification reveals the hidden meanings and significance of the phenomenon, suggesting what the important hypotheses ought to be concerned with' (Lowi, 1972, p. 299).

Creation of a strategic taxonomy will convey benefits to both social scientists and practitioners. It will allow social scientists to begin to compare and contrast categories and variables in order to gain improved insight with regard to the efficacy of environmental management tactics. It will also allow practitioners to better conceptualize environmental management from a strategic perspective and in doing so create strategic programs that span functional divisions.

Model Construction

As this study was intended to be an inductive, model-construction exercise, grounded theory methodology was adapted to guide the process. The first step was to identify a strategy to guide the search for variables to include in the model. In grounded theory, researchers typically employ a 'scoping question(s)' to guide the process (Charmaz, 2006). In this study, a two-part scoping question was used: 'What elements influence how a firm

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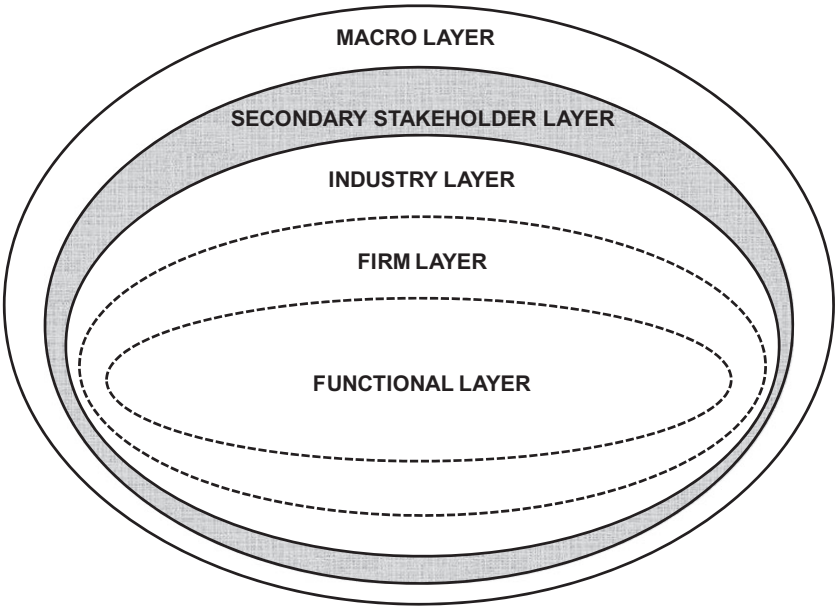

Figure 2. The Green Onion: Forces Influencing Environmental Strategy

approaches the development of environmental management initiatives and what can strategists due to influence these elements?'

Once the variable search parameters were defined, the next step was to define the research universe from which observations would be collected (Babbie, 2004). The decision was made to utilize the two database services (ProQuest and Scopus) as a research universe and to perform article searches using the key phrase 'corporate environmental management'. This search process uncovered a total of 1418 articles on ProQuest and 1816 articles in Scopus that contained the key phrase in the citation or abstract (albeit with considerable overlap). From this pool, articles and titles were vetted in order to identify studies which had relevance to the scoping question. In total, just over 100 articles were reviewed. Concerns that the two database services would not reveal an exhaustive list of variables was dismissed because of their wide academic coverage of management topics.

A coding strategy was employed during the article review stage in order to begin creation of categories for the taxonomy. In grounded theory, coding is an iterative process which involves the development and progressive refinement of categories for housing variables (Glaser and Strauss, 1967). Five broad categories emerged from the coding process as dominant forces which influence how a firm approaches the development of environmental management initiatives – macro elements, secondary stakeholder elements, industry-specific elements, firm-specific elements and functional elements (Figure 2). These will all be described in greater detail in subsequent sections.

The Green Onion: A Strategic Corporate Environmental Management Taxonomy

The Macro Layer

Macro forces (Figure 3) are the broadest forces that influence how firms approach environmental governance. In strategic management theory, these forces are referred to as PEST forces: Political, Economic, Social and Technological (Grant, 2005). The relevant tenet is that the PEST forces in each country influence the extent to which firms within industries approach environmental governance (Kolk, 2005).

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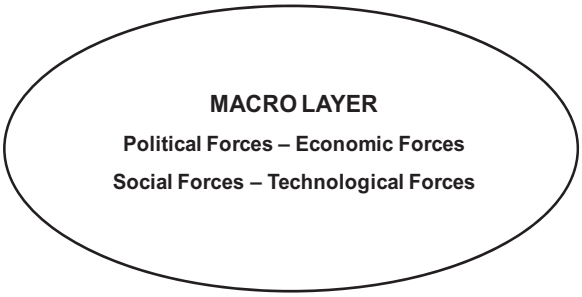

Figure 3. The Macro Layer

Examples of specific influences on environment governance within each of the PEST categories identified in Figure 3 include:

i) **Political factors:** Clearly, political forces can have a significant direct influence on corporate environmental governance strategy (Kolk, 1999; Kolk *et al.,* 2001). For example, accession to international environmental treaties such as the Montreal Protocol which regulates ozone emissions or the Basel Convention which regulates transboundary movement of hazardous wastes all eventually filter down to influence corporate governance practices (Perry and Sheng, 1999). Moreover, domestic environmental legislation and environmental regulatory policy influence the extent to which firms regulate pollution emissions, manage waste disposal and even design product packaging (Reinhardt, 1999; Esty and Winston, 2006). The impact of political initiatives affects all industries to a certain extent and certain industries to a greater extent. With the exception of some notorious multinationals who have been able to affect government environmental policy through political contributions and efforts of lobbyists (Hansen, 2008), the best tactic for corporate environmental strategists from most firms is to keep up to date with environmental policy developments and prepare the firm for any changes that may be required in response to regulatory activity.

ii) **Economic factors:** Countries that are economically disadvantaged do not have the resources or the political resolve to embrace stringent environmental regulation (Thampapillai, 2002; Baughn *et al.,* 2007). Alternatively, social pressure in economically advanced countries gives rise to high levels of environmental regulation. The relevance of these insights for corporate environmental strategists is that economic factors in a country act as a barometer for judging the emergence of stricter environmental policies. Firms that are operating in countries which have a rapidly advancing level of affluence (such as China) can expect stricter environmental regulation and enforcement over time. This insight gives strategists a chance to gain a head start over competitors by adopting loftier environmental standards in anticipation of such change.

iii) **Social factors:** Even within societies of similar affluence, there are socio-cultural differences that influence societal expectations of corporate environmental governance (Kolk *et al.,* 2001; Adams, 2004). For example, despite similar levels of economic affluence in Western Europe and North America, most Western European societies are far more committed to encouraging elevated environmental governance than is the case in either Canada or the United States (Kolk, 2005). In short, socio-cultural differences affect the levels of environmental governance and environment reporting in a given country and corporate environmental strategists must be aware of these differences when preparing environmental strategies and environmental reports for countries that a given firm operates in.

iv) **Technological factors:** Clearly the level of technological progress in a country has a significant influence on the ability of firms operating in the country to embrace environmentally friendly production initiatives (Georg and Fussel, 2000). Firms that operate in technologically advanced countries are often pressured by regulatory bodies to adopt prevalent best-practice environmental technology. Conversely, firms that operate in technologically challenged countries often face much lower environmental standards and as such, face less pressure to improve environmental governance.

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In summary, macro forces act as expectation dampeners. The macro forces impacting an industry frame the degree of environmental governance that stakeholders expect of a firm. Nevertheless, understanding how these forces influence environmental governance gives corporate environmental strategists an inside edge on preparing adaptation strategies as macro economic circumstances evolve.

The Secondary Stakeholder Layer

A significant amount of research has emerged over the past decade in support of Stakeholder Theory which postulates that firms must balance strategic objectives to ensure that a broad spectrum of stakeholders' expectations is adequately satisfied (Kaplan and Norton, 1996; Rowley, 1997; Neely *et al.,* 2002). Secondary stakeholders may have less direct contact with a given firm; but nevertheless, they possess formidable power in influencing the fortunes of the firm (Clarkson, 1995; Cormier *et al.,* 2004). Six of the main secondary stakeholder groups are identified in Figure 4 and the impact that each group has on corporate environmental governance policy is described below.

1. **Creditors:** Research has identified a number of influences that creditors have on a firm's environmental governance activities. From a creditor's perspective, it is desirable for borrowers to provide proof that environmental risks associated with operations are being adequately mitigated (Deegan, 2002). High environmental risk puts a firm's capital base at risk because penalties, fines and litigation could restrict cash flow and jeopardize a firm's ability to repay borrowed funds (Wilmshurst and Frost, 2000). Consequently, for many firms, there are incentives and even contractual covenants which both mandate the adoption of environmental risk mitigation measures and encourage the disclosure of environmental practice to existing and potential creditors. As an added incentive to adopt and promote environmental risk mitigation measures, the total amount of funds available to firms through socially responsible investment funds is reportedly in excess of $2 trillion (Khanna, 2005). Accordingly, access to such exclusive funding provides reason to adopt and publicize superior corporate environmental governance (Deegan, 2002). Finally, there has also been an emergence of research which indicates that current investors, whether they are green investors or not, wish to see evidence of improved environmental governance in order to reduce business risk exposure associated with their investments (Beets and Souther, 1999).
2. **Government regulations:** For firms that operate in highly regulated industries, there is pressure to publicly demonstrate that regulations are being met in order to stave off intensified government scrutiny and/or moderate the possibility of more stringent regulation (Kolk *et al.,* 2001; Cormier *et al.,* 2004). Furthermore, it has been shown that government regulation of industry is more likely in industries where environmental governance is poorest (Patten, 1992). Accordingly, there is incentive for firms to demonstrate through environmental disclosures that they are playing a positive role in promoting good environmental practice in order to avert regulatory responses (Reinhardt, 1999; Yakhou and Dorweiler, 2004).
3. **Interest group pressure:** Increasingly, environmental organizations and local environmental groups are exposing poor environmental practice at both firm and industry levels (Wilmshurst and Frost, 2000; Carter, 2001).

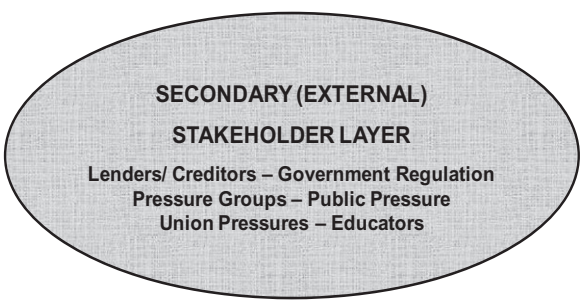

Figure 4. The Secondary Stakeholder Layer

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Consequently, firms are finding it defensively imperative to transparently report environmental activities in order to stave off adverse civic reaction (van Tulder and Kolk, 2001; Adams, 2004). The repercussions for firms that neglect this threat can be financially damaging. For example, environmental protests over Shell's disposal of the Brent Sparr oil platform in 1995 culminated in a consumer boycott in Germany where demand for Shell products dropped 30% almost overnight (Carter, 2001).

4. **General public:** In many countries, public expectations regarding corporate environmental governance have increased significantly (Deegan, 2002). To defend societal interests, concerned individuals and community groups are increasingly involved in monitoring corporate behavior (Cerin, 2002; Cormier and Magnan, 2003). The Internet has enabled individuals to widely disseminate information on illegitimate corporate activities and expediently muster public support for protesting such activities (van Tulder, 2005). Moreover, as diversified multinational corporations (MNCs) consolidate industries through acquisition (Grant, 2005), the extensive impact that civic protest can have on an MNC's network of companies elevates the need to adopt consistently sound environmental practices across all divisions. For example, protests in the 1980s against tuna-fishing practices which resulted in unnecessary dolphin mortality quickly escalated from civic protest against Star-Kist to civic protest against its parent company Heinz. Sales of Heinz products suffered significantly as a result (Vieter and Reinhardt, 1994).
5. **Educators:** Reports from the field of management education indicate that corporate social responsibility (CSR) is becoming an increasingly well-established topic in MBA programs (Russell, 2006). This has a filter-down effect on business practice because there are indications that strong leadership in environmental management from one or two managers can have a significant impact on the type of environmental governance programs that a firm adopts (Cormier *et al.*, 2004). Moreover, a firm's ethical track record, which includes environmental image, plays an increasingly influential role in successfully recruiting top management prospects (Carter, 2001; Kolk *et al.*, 2001).
6. **Union pressure:** Union pressure to improve workplace health standards has had an indirect impact on the adoption of environmentally friendly business practices. For example, pressures to limit worker contact with hazardous material have catalyzed improved practices related to hazardous materials handling and disposal. Indirectly, this has led to improved environmental governance. Similarly, concern over exposure to toxic emissions in the workplace has led to the introduction of a number of practices to abate toxic emissions.

In summary, with regard to environmental governance issues, responses from dissatisfied secondary stakeholders pose significant threats to firms (Khanna, 2005). Lenders and borrowers who are displeased with a firm's environmental stewardship can punish the firm by denying the firm access to funding (Wilmshurst and Frost, 2000). Government regulators who are displeased can impose stricter regulations, levy financial penalties and even force businesses to close (Beets and Souther, 1999). Union displeasure can result in plant closures. Most significantly, public pressure and pressure from environmental groups can severely impact the market viability of a firm's product offerings (Carter, 2001; van Tulder, 2005). Accordingly, given the severity of these threats, strategists should be well-motivated to embrace stakeholder theory and ensure that secondary stakeholder expectations are, at a minimum, satisfied.

The Industry Layer

In 1980, Michael Porter, an authority on corporate strategy introduced his Five Forces framework which demonstrated how forces impacting a firm's industry influence the attractiveness of the industry and define the parameters within which firms in the industry must operate if they are to succeed in the long run (Porter, 1980). Since industry forces influence overall strategy, it should come as no surprise that industry-specific forces related to environmental governance also influence a firm's environmental strategy. Research has identified at least six groupings of industry-specific forces that influence how firms approach environmental governance. These groups of forces are graphically summarized in Figure 5 and subsequently elaborated upon.

1. **Type of industry:** Industry type has been shown to exert influence on the voracity with which firms approach environmental governance (Campbell, 2003; Shirley, 2005). The most obvious reason is that some industries

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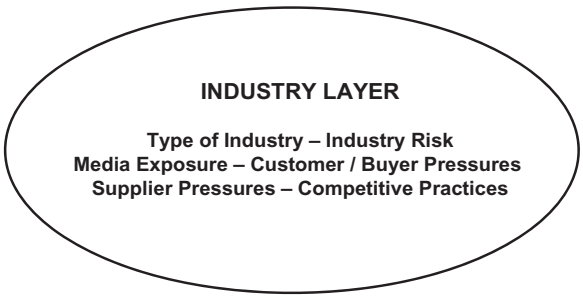

Figure 5. The Industry Layer

are heavily regulated and disclosure of corporate environmental governance practice is legally mandated (Kolk *et al.,* 2001). For example, US law requires facilities in industries which manufacture, process, or use significant amounts of toxic chemicals, to report annually on their releases of these chemicals (US EPA, 2002). Even in the absence of government regulation, firms operating in more environmentally sensitive industries exhibit a propensity to go to greater lengths to publicize corporate environmental governance (Deegan and Gordon, 1996; Shirley, 2005).

2. **Risk associated with specific industry tasks:** Cormier *et al.* (2004) point out that firms in relatively environmentally benign industries which occasionally engage in environmentally high-risk activities are prone to publicize environmental monitoring of such activities in order to avert public criticism. Failure to manage environmental risks associated with a firm's activities can result in public misperception and economically damaging criticism. Failure to treat the use of environmental endowments with care can lead to adverse public opinion, as Nestlé recently found out in relation to criticism that its sales of bottled water (representing 0.0008% of the world's total fresh water) adversely impacted access to fresh water in some countries (Porter and Kramer, 2006). Interestingly, studies indicate that many service firms claim their environmental activities are not worth reporting (Cerin, 2002). Such a perspective ignores the value of positive consumer perception in regard to environmental initiatives.
3. **Media exposure:** Certain industries have a higher public profile than other industries (Ray, 2008). Research indicates that industries which are exposed to a greater level of media scrutiny are apt to expend greater efforts to publicly disclose environmental governance practices (Deegan, 2002; Adams, 2004; Cormier *et al.,* 2004). Firms in high-profile industries must take extra care to ensure environmental management programs are developed in a comprehensive manner in order to avoid environmental mishaps that could lead to adverse media exposure.
4. **Customer (buyer) pressure:** Certain industries are prone to pressure by customers to improve environmental practices. For example, in the tuna industry, there is consumer pressure for firms to adopt dolphin-friendly tuna fishing practices (Vieter and Reinhardt, 1994). Similarly, in the automotive sector, firms such as Volvo and BMW are becoming increasingly insistent that their suppliers operate in an environmentally responsible manner (Kolk *et al.,* 2001). In industries where customer pressure to adopt improved environmental practices is high, firms are more likely to adopt more comprehensive environmental strategies to avoid adversely affecting the customer base (Wilmshurst and Frost, 2000).
5. **Supplier (vendor) incentives:** Increasingly, suppliers offer incentives to downstream firms/customers to adopt more environmentally friendly practices (Wilmshurst and Frost, 2000). For example, Xerox provides prepaid postage labels and return packaging to corporate customers to collect spent ink cartridges. Under this program, more than 3.2 million cartridges and toner containers were returned in 2004 alone (Xerox, 2005). Firms that establish solid environmental systems can strengthen network ties with such suppliers. Conversely, firms that adopt such systems can establish levels of good corporate governance throughout the supply chain, thereby boosting the environmental appeal of their goods and services.

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6. **Competitive practices:** Many studies have shown that environmental governance strategies can be influenced by competitive practices (Patten, 1992; Deegan, 2002). It is unclear whether this phenomenon is caused by rival response to one firm that is utilizing environmental governance to separate itself strategically from the competition (Reinhardt, 1999) or whether public knowledge of competitive best practice is catalyzing an industry-wide commitment to improved environmental governance (Cormier and Magnan, 2003; Avram and Kuhne, 2008). However, it does appear that improved environmental stewardship is a way to strategically differentiate product offerings from the competition (Kolk, 2005).

Although some industries place little demands on firms in terms of good environmental governance, this does not mean that there are no strategic advantages for firms which seek to establish superior positions in environmental governance. Ultimately, a firm's continued viability is directly related to its ability to profitably sustain competitive advantage (Porter, 1985). This is achieved through progressive innovation and increasingly delivering what consumers most desire (Porter, 1998). Environmental innovations typically satisfy both criteria. Firms which aim to go beyond standard industry practice by adopting innovative responses to stakeholders' environmental concerns stand to establish competitive advantage through environmental governance.

The Firm Layer

Firm-specific forces can be defined as influences on corporate environmental governance that arise as a result of the unique structure of a given firm. In particular, the type of ownership and characteristics of the firm's asset base influence the extent to which firms invest in environmental governance initiatives. There are five main firm-specific structural constraints on corporate environmental governance that have been identified in the literature (Figure 6).

1. **Ownership characteristics:** It has been shown that firms which have a broader ownership base tend to be more committed to adopting and reporting on environmental governance initiatives (Morck *et al.,* 1988; Cormier and Magnan, 2003). The reason postulated for this is that a broad shareholder base increases the breadth of shareholder expectations. With more owners, the possibility is higher that some shareholders would be positively influenced by a firm's superior environmental stewardship. Furthermore, firms that are widely owned also strive to maximize access to new investors (Cormier and Gordon, 2001) and one way to accomplish this is to appeal to green fund investors by embracing superior environmental governance strategies (Deegan, 2002).
2. **Firm size:** Cormier and Gordon (2001) point out that larger firms exhibit a deeper commitment to environmental initiatives. A number of reasons for this have been put forth including: (1) cost advantages from economies of scale enable environmental investments that smaller firms cannot afford (Cormier and Gordon, 2001); (2) larger firms are more prone to public criticism; thus, they are more prone to risks associated with poor environmental governance (Cormier and Magnan, 2003); and (3) larger firms have enhanced financial capacity to apply more sophisticated technology which can reduce pollution and other waste emissions (Kolk *et al.,* 2001).

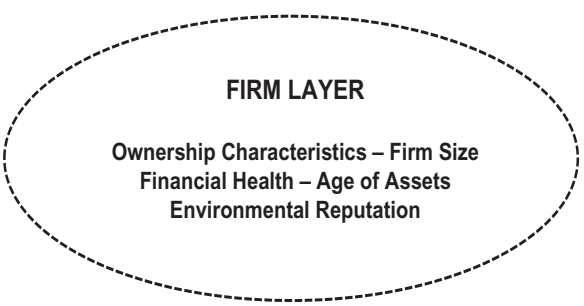

Figure 6. The Firm Layer

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3. **Financial health:** A firm's financial health, both in terms of cash flow and capitalized value, has also been identified as affecting corporate environmental governance (US EPA, 2000). Financially sound firms tend to exhibit improved environmental governance (Cormier *et al.,* 2004). Upon reflection, it is intuitively obvious that unprofitable firms would search for opportunities to pare costs; unfortunately, as Porter and van der Linde (1995a) point out, when costs need to be cut, environmental initiatives are often viewed as expendable luxuries.
4. **Age of assets:** Cormier *et al.* (2004) have shown that firms with older assets exhibit comparatively inferior corporate environmental governance. They postulate that this is because older equipment tends to be less efficient at processing materials. As a result, older equipment either generates more pollution or more waste (Cormier *et al.,* 2004).
5. **Environmental reputation:** Cerin (2002) and Patten (1992) have shown that in response to publicized environmental problems, negligent firms have a propensity to adopt stricter reporting standards. Furthermore, Deegan *et al.* (2000) have shown that publicized environmental mishaps from one firm tend to influence the reporting styles of other firms within the industry.

Two observations concerning the influence that firm-specific forces have on corporate environmental governance are worth highlighting. First, similar to the expectation-dampening impact that macro forces have on corporate environmental governance, firm-specific forces act as *constraints* to corporate environmental governance. This characteristic is important to understand because it implies that all firms do not share the same capacity to commit to superior environmental governance practices. Larger firms with more concentrated ownership bases, newer assets and healthy levels of cash flow are financially able to adopt more proactive environmental stewardship strategies.

Second, firm-specific forces represent the only cluster of forces that can be evaluated through quantitative analysis of a firm's financial statements. The breadth of the ownership base, the relative size of the firm, a firm's financial health and the age of assets can all be determined through quantitative financial statement analysis.

The Functional Layer

Activities that firms undertake in the environmental governance sphere which directly impact a firm's market valuation, revenue prospects or cost performance in either the short or long term are all found in the functional layer. These forces reflect the principle of 'economic rationality' – firms will adopt environmental management practices that enhance financial health (Deegan, 2002). As Figure 7 implies, research indicates that firms can leverage enhanced environmental management practice into improved financial performance in five broad strategic areas. These five strategic areas will be examined further in this section.

1. **Green positioning strategies:** Positioning strategies that incorporate environmentally friendly features into a product or service can insulate a firm from competitive threats by strengthening customer loyalty (Hawken, 1992; Berry and Rondinelli, 1998; Kiernan, 2001). Green positioning strategies can also give rise to the emergence of new profitable market niches (Hart, 1997; Kolk *et al.,* 2001) or entirely new industries (Dixon and Clifford, 2007). Body Shop, Patagonia and Ben & Jerry's are examples of firms that has successfully exploited green positioning opportunities (Porter and Kramer, 2006).

Figure 7. The Functional Layer

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2. **Financial strategies:** Environmentally friendly firms expand corporate access to funds by capturing the interest of green investment funds (Beets and Souther, 1999; US EPA, 2000). With over US$2 trillion in socially responsible funds to draw from (Khanna, 2005), environmentally responsible firms can significantly broaden access to funding. Conversely, responsible environmental performance also protects the capital base. For example, Blacconiere and Patten (1994) estimate that Union Carbide lost $1 billion in market capitalization in the aftermath of the Bhopal chemical accident in 1984.
3. **Brand protection strategies:** A positive environmental track record can fortify a firm's reputation and in doing so may also increase the value of a firm's brand (Hawken, 1992; Kiernan, 2001; Ruf *et al.,* 2001). Volvo, for example, sees its environmental management program as a 'competitive weapon' (Kolk *et al.,* 2001). Even for firms that have poor environmental track records, adopting improved environmental practices can help reverse adverse consumer sentiment (Cormier *et al.,* 2004).
4. **Quality strategy:** A key element of total quality management is the quest to eliminate input, process and output inefficiencies in order to do more with less (Deming, 2000). Unsurprisingly, there is considerable evidence that environmental initiatives are correlated with a firm's commitment to total quality management (Berry and Rondinelli, 1998; King and Lenox, 2001). For example, waste reduction strategies can lead to improved production efficiencies as well as cost savings (Kiernan, 2001). As an illustration, Stanwick and Stanwick (2001) report that in 1997, as part of a total quality management initiative, IBM saved $195 million from changes in its operations related to improved environmental management.
5. **Cost-control strategies:** Many business strategists have written about the strategic cost savings available to firms such as Dupont and McDonalds which adopt improved environmental management techniques (Reinhardt, 1999; Graedel and Allenby, 2001; Adams, 2004; Porter and Kramer, 2006). For example, Berry and Rondinelli (1998) report that over a ten-year period, 3M's Pollution Prevention Pays program reduced pollutants by 1.4 billion tons and saved the firm $750 million. Other studies have found that effective environmental management programs can actually avert future costs by reducing the probability of regulatory authorities imposing stricter, unexpected regulation on business (Deegan, 2002). In a similar vein, Yakhou and Dorweiler (2004) have argued that averting fines and law suits caused by poor environmental practice should also be considered as integral to cost control strategy.

Strategic Core of the Green Onion

The strategic chord that ties these five categories together is a progressive concentration of the 'locus of power' as one moves from the macro layer to the functional layer. Environmental strategists have the least control over macro forces. Consequently, strategies in this realm tend to focus more on anticipating changes and designing strategic responses that keep the firm ahead on the competitive green curve. For strategic management of secondary stakeholders, environmental reporting represents an indispensible tool for ensuring that the firm is insulated from stakeholder protest and maximizes goodwill built-up through its environmental activities (Steurer *et al.,* 2005). In terms of strategic initiatives in the industry layer, the critical challenge is for strategists to seek to benchmark industry best practice and established positions of environmental governance excellence in order to capitalize on the full array of benefits associated with superior environmental governance. For initiatives aimed at improving performance in the firm layer, management of capital assets becomes a key critical area. Finally, in the functional layer, a wide array of strategic initiatives can be implemented to enhance corporate reputation, enable premium pricing, reduce production costs and enhance the appeal of goods and services in the eyes of environmentally conscious and-consumers (Hawken *et al.,* 1999).

Conclusions and Future Directions

Strategists should not underestimate the importance of broadening strategic planning beyond the traditional realm of functional planning to include proactive programs for mitigating the constraining effects of macro forces,

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enhancing environmental reputation in the eyes of secondary stakeholders, distancing a firm's environmental governance strategy from those of industry competitors and breaking free from the restrictive bindings of adverse firm structure. Failure to do so places all the initiatives described under the functional layer at risk of being undermined by superior competitive performance or adverse reaction from secondary stakeholders. This is where the analogy with the onion becomes appropriate. The core of an onion is the most potent part in terms of smell and flavor; however, the potency is in part due to the fact that the core is insulated by its outer layers from the dissipative impact of oxygen. Similarly, as the Green Onion framework indicates, although environmental management strategists have the most to gain from initiatives undertaken in the functional layer, there is more to strategic environmental management than seeking to reduce waste (Aragon-Correa and Rubio-Lopez, 2007). Failure to ignore initiatives in the outer layers exposes the core to dilatory effects associated with adverse secondary stakeholder perception. The Green Onion indicates that at least 26 relevant variables exist that require attention in a firm's environmental management strategy (Table 1).

To date, such a conceptual framework has not existed in corporate environmental governance literature. Thus, the main academic contribution of the Green Onion framework to environmental management research is that it facilitates an examination of the inter-relationships between the forces that influence environmental governance strategy from a common conceptual blueprint. However, as is the case with any conceptual framework, it is also recognized that the Green Onion framework will likely evolve as new research emerges to identify additional variables influencing corporate environmental governance.

As is the case with all grounded theory models, the usefulness of the model is partly dependent on the comprehensiveness of the model. The main premise underlying the Green Onion is that there are five dominant forces which influence how a firm approaches the development of environmental management initiatives – macro elements, secondary stakeholder elements, industry-specific elements, firm-specific elements and functional elements. If another significant force can be identified which falls outside of the parameters of the framework, then the framework itself may require re-conceptualization. However, it is worth noting anecdotally that after presenting this framework to MBA students in Taiwan and Singapore, there has yet to be another significant force identified that cannot be accommodated within the existing parameters of the Green Onion framework.

As is also the case with all grounded theory models, the development of the Green Onion framework gives rise to a host of further research avenues than would help refine the effectiveness of the model. For example, corporate strategists will likely demand more specificity regarding which of the layers should receive priority attention to optimize financial health (short term and long term), corporate image, stakeholder satisfaction or any other desirable corporate outcome. Academics in CSR may be tempted to examine how disparate levels of performance in the five areas influence overall public perception of corporate environmental governance. Authors of mainstream business monographs may wish to try and define an exhaustive list of environmental initiatives for each of the five areas that strategists can reference for environmental planning. Business economists may be interested in examining how the forces from the five layers can be quantified in order to afford financial comparisons.

Macro Layer	*Secondary Stakeholders Layer*	*Industry Layer*	*Firm Layer*	*Functional Layer*
Political Forces	Lenders/Creditors	Type of Industry	Ownership Characteristics	Positioning Strategy
Economic Forces	Government Regulation	Industry Risk	Firm Size	Financial Strategy
Social Forces	Pressure Groups	Media Exposure	Financial Health	Brand Protection Strategy
Technological Forces	Public Pressure	Customer/Buyer Pressures	Age of Assets	Quality Strategy
	Union Pressure	Supplier Pressures	Environmental Reputation	Cost Control Strategy
	Educators	Competitive Practices		

Table 1. Variables of influence on environmental management practice

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Environmental management theorists may wish to examine the comparative costs and benefits related to initiatives in each of the five layers of the Green Onion. Answering any or all of these questions would improve the effectiveness of applying the Green Onion to guide corporate environmental strategy; however, given that this paper is designed to put forth a framework based on grounded theory, such questions are considered beyond the scope of this paper.

Despite acknowledgement that there is still work to be done to refine the effectiveness of the Green Onion as a corporate environmental planning tool, it is worth yet again noting anecdotally that the author has presented the Green Onion to MBA students in Singapore and Taiwan and observed both improved understanding of the breadth of initiatives available to environmental strategists and improved capacity to identify firm-specific innovations. While this epistemic value remains to be validated empirically, anecdotal evidence conveys promise for the Green Onion as an applied corporate environmental planning tool. Hopefully with further refinement, the traditional fare served up in strategic management classes will include Green Onion on the side.

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