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Review

Moving Beyond Profit: Expanding Research to Better Understand Business Environmental Management

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Abstract: An extensive economics literature has examined business environmental management to identify characteristics and external institutional stakeholder pressures that influence management decisions. Frequently, it is assumed that profit pursuit is the goal, and organizations subject to the same pressures respond similarly. Studies have identified a narrow set of influential stakeholders, but have revealed that organizations respond differently to them. Recent research shows that an important moderating influence is the manager's attitude toward environmental protection, which may explain differing organizational responses, and that managers may perceive the ability to obtain utility beyond increased profit from engaging in strategic environmental management. A comprehensive framework for assessing moderating perceptions is lacking, but recent research combining institutional theory and utility maximization shows increased explanatory power and exposes the relative importance of manager perceptions. This paper synthesizes economics and management literature on institutional determinants of environmental management, utility maximization, and attitudes and behavior to illustrate the usefulness of an integrated approach for both disciplines.

Keywords: Environmental management; voluntary environmental management; environmental attitudes; management environmental attitudes; institutional theory; institutional factors; utility maximization

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1. Introduction

An extensive economic literature examines the motivations for environmental management, particularly voluntary or "beyond compliance" efforts [1–11]. This literature describes how businesses

and industries are increasing sustainability efforts in response to changes in the marketplace. High-profile environmental incidents that incur substantial recovery costs (e.g., the 2010 BP Gulf of Mexico spill) and extreme natural disasters that expose systemic vulnerabilities (e.g., the March 2011 earthquake and tsunami in Japan) have generated negative publicity and increased public pressure on responsible companies and government agencies alike [12–15]. Meanwhile, regulatory agencies are addressing budget reductions, resource limitations (e.g., information gathering and enforcement capacity), and inadequacies in traditional regulation by pursuing flexible, cost-effective approaches [9,16].

In examining businesses' responses to these changes, research has demonstrated that organizations choose a wide variety of voluntary environmental management strategies, ranging from participating in formal voluntary environmental management programs (VEPs), to implementing any number of wide-ranging individual environmental management practices (EMPs). Literature has also provided useful information about which types of organizations choose different types of strategies, and conditions under which organizations can profit financially by voluntarily exceeding regulatory compliance [9,17,18].

Importantly, mounting evidence indicates that financial profit is not the only (nor even necessarily the primary) motivation for voluntary environmental management. While contrasting with some common views about business practices—namely, that rational firms seek primarily to increase profit and shareholder value [17,19], this evidence supports long-standing economic theories. As Simon, 1993 [20] notes, economics assumes that people maximize utility (the perceived use, value, or benefit obtained) beyond increased financial profits, and that economic gain is not the dominant human motive.

Businesses are demonstrating this by stating a variety of motivations for voluntary environmental management—not all of which directly relate to profit. Businesses report engaging in voluntary activities to accomplish the following [15,21–23]:

- Reduce costs, increase efficiency, or increase productivity (gain competitive advantage)
- Manage risks
- Address stakeholder interests: customers, investors, regulators, environmental groups
- Satisfy perceptions of personal or social responsibility (*i.e.*, "do the right thing")

One approach used to examine motivations for environmental management incorporates institutional and neo-institutional theory (examining the influences of various stakeholders) into profit-maximization frameworks. This specific approach merits review for several reasons. First, it has been widely used [6]. Second, it is robust, yielding fairly consistent results across numerous studies [6]. Third, studies have identified both a fairly narrow set of consistent determinants of environmental management (e.g., customers, regulatory pressures) and which determinants are most relevant to different types of organizations (due to the moderating influence of organizational factors)—each of which is informative for policy [6,7,9,17]. Finally, recent extensions to this approach have examined the pursuit of utility beyond profit potential—with promising results. Some studies have incorporated managers' attitudes toward environmental protection—not commonly examined empirically in the environmental economics literature—with findings indicating that these attitudes are among the most important determinants of voluntary environmental management, in that they substantially moderate other influences. The strategic management literature also has found attitudes to be an important driver of environmental strategy, but has not often related attitudes to institutional pressures.

This paper proposes that our understanding of the motivations for voluntary environmental management can be enhanced by examining institutional influences within a utility maximization framework in lieu of a profit model [24–26]. This approach helps address the common refrain that our understanding of business environmental management remains partial due to the lack of a comprehensive framework within which to evaluate factors for respective influence [17,27–29]. Using institutional theory and profit maximization together has identified important, consistent, determinants of environmental management, but our understanding of how these determinants are moderated by motivations other than the pursuit of profit is limited. Meanwhile, Simon (1993) [20] states that economics recognizes utility but is silent as to what utility is. The combined approach could increase our understanding of moderating influences while also providing insights into some types of utility managers derive from voluntary environmental management.

This paper draws primarily on economics, and secondarily on strategic management literature, integrating concepts to create a comprehensive discussion of moderating influences on environmental management. Although this discussion emphasizes economic theories and findings, Rumelt, Schendel, and Teece (2009) [30] note that strategic management literature has drawn heavily on economics, and the intent is to provide insights useful to both lines of inquiry. The next section reviews institutional determinants and moderators of environmental management when profit maximization is the assumed objective. Section 3 describes a conceptual model combining institutional theory and utility maximization. Section 4 presents empirical studies incorporating management attitudes as a moderating factor. Section 5 provides a brief summary discussion, and Section 6 concludes that our understanding of business environmental management may be enhanced by integrating analytical frameworks, and specifically examining managers' attitudes.

2. Institutional Theory and Institutional Determinants of Environmental Management

Originating with "green" organizational theorists, institutional theory emphasizes how social and cultural pressures influence organizational structures and practices, and has been shown to be relevant for describing sustainable organizations. This theory argues that organizations subject to similar social frameworks of norms and values tend to behave similarly to achieve social legitimacy—where 'legitimate' organizations are those whose behavior is considered desirable or appropriate by the affected community. Institutional theory argues that organizations recognize the importance of social approval to long-term viability, challenging the view that rational firms are strictly profit-seeking [25,28,31].

Studies typically use models including: (1) relevant characteristics of the organization, industry, market, and community; and (2) measures of stakeholder pressures, commonly including customers, environmental interest groups, investors, competitors (or level of competition), and regulators [7,8,10,11,17,21,25,32–45]. Findings are fairly consistent, identifying a common set of determinants of environmental management and showing that organizations are responding to institutional pressures (also referred to as external motivations). These factors are typically described as "objective", because for the most part they are institutionalized or established outside a given organization's control (e.g., industry regulation), or comprise accepted standard practices (e.g., maximizing shareholder value), and the organization may take them as given [28].

Models include organizational and market characteristics because such characteristics have been found to moderate the effects of external stakeholder pressures on environmental management decisions. For example, a small company and a multinational corporation may respond to customers differently because the multinational corporation may serve a more diverse customer base [7,8,10,11,17,21,25,33,35–46]. Dependent variables typically comprise one of the following: (1) the adoption of one or more EMPs, such as conducting periodic internal audits and modifying processes; (2) participation in formal VEPs sponsored by government agencies, industry, trade associations, or other groups; or (3) certification to a standard, such as ISO 14001. Common practices and programs are well-documented elsewhere and are not discussed in detail here [5,7–11,47,48].

This paper describes only those determinants (institutional influences/external motivations) of environmental management and the moderating factors (market, industry, and organizational characteristics) that have been most consistently identified as significant, and which are relevant to suggested future research. Institutional influences are described in Section 2.1, and moderators in Section 2.2. Findings discussed in the text are also summarized in Table 2, following these two subsections.

2.1. Institutional Influences (External Motivations)

Table 1 below summarizes the motivations for environmental management associated with key institutional influences. Relevant findings for each institutional factor are summarized in the sections following the table.

Table 1. Common Motivations Associated with Key Institutional Influences.

Investors	Environmental Interest Groups	Customers	Regulators
▪ Reduce risks due to accidental spills or releases	▪ Avoid boycotts or sanctions	▪ Attract environmentally conscious customers	▪ Preempt future regulations
▪ Enhance shareholder value	▪ Partner with these groups in strategic development or policy discussions	▪ Avoid losing environmentally conscious customers	▪ Influence current/future regulations (e.g., developing standards adopted by authorities)
▪ Reduce cost of capital		▪ Obtain price premia for differentiated products	▪ Obtain relief under current regimes (e.g., reduced inspections)
▪ Protect personal reputation of manager-investors			
Opportunities for Competitive Advantage			
▪ Reduce costs, increase efficiency, and increase productivity ▪ May be achieved through any number of efficiency strategies (e.g., process improvements, waste reduction, employee productivity) ▪ May be associated with the above stakeholder groups (e.g., strategic coordination with regulators, favorable terms offered by investors) ▪ Dependent on organizational and market characteristics (e.g., facility size, industry concentration)			

2.1.1. Investor Pressures

Previous studies show that investor interests—shareholder and other—are affected by environmental performance, and that investor pressures for improved performance tend to be positive determinants of environmental management efforts. Both shareholder pressures and susceptibility to investor pressures, as proxied by sales-asset ratio (with a lower sales-asset ratio being the determinant), have been found to be significantly related to environmental management system (EMS) comprehensiveness [25,32]. Empirical findings also suggest that a company's stock price is sensitive to its environmental performance, and by inference, to its environmental management effort. Studies typically show a positive association between stock price and good environmental performance [9–11,49,50].

One theory for this association is that shareholders urge companies to avoid the financial liabilities associated with environmental risk, possibly because they view themselves as "not simply token" owners—risking reputational damage when the companies they invest in cause environmental harm [44,51]. Barnea and Rubin, 2010 [52] argue and show that managers may seek to overinvest in corporate social responsibility out of self-interest (e.g., to improve their own reputations) if they have an equity stake in the company.

Another theory is that good environmental performance may reduce the cost of capital, due to the reduced risks from environmental incidents. Sharfman and Fernando, 2008 [53] found a lower weighted average cost of capital for companies with proactive environmental strategies. These companies had greater leverage with debt markets more willing to provide financing. Other authors cite increasing environmental screening in investment funds and increased involvement in policy development by social investment groups as further evidence of investor pressure for reduced environmental risk [15,51].

The demonstrated positive relationship between investor pressures and environmental management intensity, and growing interest in socially responsible investing, suggest that a viable policy direction would be to support access to credible information about environmentally proactive companies to foster informed investments.

2.1.2. Environmental Interest Group Pressures/Voluntary Pollution Prevention and Reduction

With major environmental incidents and mounting global environmental stresses attracting public interest, environmental interest group boycotts or sanctions may be perceived as a threat by businesses, particularly large emitters [13,14,23]. Businesses can mitigate threats by contributing financial and other support to environmental interest groups, and collaborating with them to improve corporate social responsibility [54]. Case studies show that interest group involvement can significantly influence organizations' implementation of VEPs, but that results depend on the effectiveness of the corporation-interest group collaboration [55].

Empirical findings are mixed. Studies of large companies have found interest group pressures to be significant determinants of voluntary environmental management, and that states with strong environmental group membership and high emissions levels showed greater emissions reductions over time [41,44]. In contrast, in a study predominated by small-and medium-enterprises (SMEs) [3,56,57] and including both manufacturers and nonmanufacturers, Ervin *et al.*, 2012 [17] found that

environmental interest group pressures were not a significant determinant of environmental management. These contrasting results support the idea that environmental interest groups may be perceived as a greater threat by large emitters. However, few studies have examined the role of environmental interest groups in shaping environmental strategy at SMEs; additional research is warranted.

2.1.3. Customer Desire for Environmentally Friendly Products and Services or Willingness to Pay (WTP)/Differentiation

The premise here is that companies seek to attract environmentally conscious customers either to avoid losing business to more environmentally friendly competitors, or to command higher prices for green products and services [23,58–60]. Environmental product differentiation depends on the presence of barriers to entry and mobility in the industry (often a regulatory function) or imitation (e.g., holding patents). When such barriers exist, organizations may be able to capture a price premium for providing more public good characteristics (lower environmental impacts) in their products or services, regardless of whether they provide the greater private benefits (e.g., appealing style) typically associated with product differentiation.

Willingness to pay (WTP), though, has not been consistently evident in the marketplace [58]. Studies of retail consumers reveal that they state preferences for socially responsible brands, respond to ecolabels, and are willing to pay higher prices for some environmentally friendly goods. In one example, Aerni, 2011 [61] found that consumers purchased more organic than either conventional or genetically modified (GM) breads when products were labeled, but that consumers were price sensitive. Consumers purchased more GM bread when it was less expensive than the organic product.

However, willingness to pay depends on the type of product or service, the type of consumer, and the consumer's motivation. Numerous studies have found greater willingness to pay higher prices for organics among women, particularly mothers with young children. Willingness to pay is often presumed to be based on self-interest (e.g., health benefits) [39,61–67], but socially responsible consumers may also be motivated by altruism. Elfenbein and McManus, 2010 [62] found that auction items that yielded charitable contributions commanded higher bids and higher closing prices than identical products with no charitable component, reflecting that consumers receive utility beyond their personal use (the satisfaction of providing a public benefit) from the purchase [68,69].

In industrial markets, product differentiation strategies have historically differed from consumer markets, with industrial differentiation driven more by total cost reduction and less by branding and image. Industrial suppliers generally must demonstrate that the reduced environmental footprint of their products or services in turn reduces the environmental impacts of their industrial customers, thereby reducing their customers' environmental management costs for activities such as compliance and disposal [23,58].

Accordingly, findings for customer influences on environmental management in the industrial market are mixed. Previous literature reviews concluded that customer pressures had not exerted a large effect on business environmental management as of the turn of the century [10,11]. Consistent with earlier results, Wu and Wirkkala, 2009 [70] found that while retailers were more likely to have overcomplied with mandatory environmental requirements, results were not statistically significant.

However, more opportunities to enhance an organization's reputation and capture price premia for differentiated products and services are arising in industrial markets. Developers may be able to command higher rents and sales prices for green properties, while companies leasing space may save on utility costs, while also signaling their environmental intent to stakeholders [71]. Empirical estimates find that rents for certified green office space in the United States are a minimum of 3%–5% higher than comparative unrated space, and that sales prices for rated buildings can be up to 16% higher than for comparable conventional properties, controlling for other factors. Studies also show that companies operating in green buildings report reduced absenteeism and increased productivity, but to date, these effects have been difficult to quantify [71,72].

In other findings, Darnall, Henriques, and Sadorsky, 2008 [25] and Khanna and Anton, 2002 [38] each found consumer pressures to be a determinant of EMS comprehensiveness. Jones, 2010 [21] found that customer pressures determined participation in VEPs, but not the implementation of individual EMPs. These results support the idea that VEPs appeal to organizations seeking to signal their environmental efforts to stakeholders through product labels and program publicity campaigns. Public recognition is a primary benefit of VEPs, so these programs are expected to have greater appeal to organizations that are more visible to consumers [5,6].

From a policy standpoint, research on consumer preferences and companies' responses to them is relevant because policymakers are central to the consumer-producer relationship. Public agencies set standards for residential, commercial, and industrial buildings, emissions, wastes and recycling, as well as consumer goods, such as major appliances, so these agencies influence both the availability of environmentally preferable alternatives and consumer interest in them. As public agencies strive to achieve community-wide environmental protection, they can enable consumers to make informed choices and assist companies in signaling their environmental achievements to consumers. Formal VEPs, including certification schemes (e.g., Energy Star), can meet both purposes. VEPs typically require participating organizations to meet specific performance standards or adhere to particular procedures intended to achieve a desired level of environmental protection, and simplify consumers' choices by differentiating the environmentally preferable alternative [73–75].

These programs, though, need to provide credible information and guidance for consumers [9]. In a study of curbside waste collection in Italy, De Feo and De Gisi, 2010 [76] found that while citizens perceived themselves as properly managing waste, recyclables, and compost, workers reported numerous compliance problems, revealing a need for information and education. Other authors argue that agencies should support socially responsible consumerism by providing information and education, sponsoring efficiency incentives, and modifying infrastructure. Findings show that individuals are more likely to find information campaigns to be relevant and meaningful if they are sponsored by local authorities than for-profit businesses [77,78].

Studies also find that agencies need to provide public oversight and clear standards in order to achieve adequate environmental protection. Mandatory requirements may be required in residential markets, where reliance on consumer goodwill may be inadequate. In a survey of United Kingdom citizens, Fudge and Peters, 2010 [78] found that despite high awareness of the relationship between energy consumption, greenhouse gas emissions, and global warming, few individuals routinely made efforts to reduce energy in their daily lives. Respondents generally prioritized comfort and convenience over energy efficiency, indicating that information and education are not likely to be

sufficient to induce behavioral changes. Similarly, De Feo and De Gisi, 2010 [76] reported that one-quarter of waste collection workers felt that information was not sufficient to reduce collection problems, and that penalties for noncompliance would be necessary.

Overall, it appears that customer pressures exhibit enough complexity and variation that it is difficult to determine a definitive influence on environmental management. Pressures vary between retail and industrial markets, and opportunities to command higher prices for environmentally preferable alternatives vary depending on good or service offered, and the type of customer. However, there is potential for regulatory agencies to help create more consistent opportunities. Research informing the design of VEPs that address consumer and producer behavior in a coordinated manner would be helpful.

One potential starting point is to examine spillover effects. Studies of spillover effects reveal opportunities to leverage the knowledge gained through implementing voluntary environmental management in the workplace for the residential and consumer markets. In a study of waste management at three Swedish workplaces that had adopted an EMS, Andersson *et al.*, 2012 [79] found that source separation at work spilled over into the home environment, with the level of home activity correlated with employee awareness of the EMS. Employees with greater awareness exhibited more waste prevention and source separation at work, and a significant increase in source separation in the home, after the EMS had been implemented at their workplace. The authors hypothesize that spillover effects result in part because engaging in environmentally proactive behavior influences attitudes toward environmental protection, which then inspires additional environmentally conscientious behaviors in other areas.

Given that every individual—whether a regulator, business manager, or employee—is also a consumer, studying how professional knowledge and work habits affect consumerism—and vice versa—may reveal leverage opportunities for policy intended to achieve a community-wide level of environmental protection. Additional research into the complex ways that regulatory agencies, businesses, employees, consumers, and residents each contribute to creating the market for "green" products and services should be prioritized.

2.1.4. Regulatory Pressures

Regulators are clearly an important stakeholder group and source of institutional pressure because of their authority and enforcement capability, their ability to provide technical assistance, information, and positive publicity for environmental achievements, and their role in creating a market for environmentally preferable products and services [28]. It makes sense, then, that studies nearly universally have found regulatory pressures to be among the most significant determinants of environmental management effort and environmental performance [10,11,13,18,21,25,30,32,34,42,44,48,80].

Given the importance of regulation, a large literature has been developed to explain how organizations can work within prescriptive regulatory systems to gain competitive advantage. (Competitive advantage is described in the next subsection, but is discussed here as the reason typically offered for exceeding regulatory compliance.) Opportunities exist because despite being designed to achieve consistent emissions targets, specific standards can vary dramatically across industries and organization types. This occurs in part because individual standards are often considered

as distinct conditions, rather than components of larger regulatory programs [81,82]. Further, inefficiencies exist because pollution is waste, and properly crafted (*i.e.*, flexible) regulation can be used to encourage innovation to reduce such waste [83,84]. These opportunities and inefficiencies can therefore foster an interactive relationship between organizations and regulators.

According to Lyon and Maxwell, 2004 [2], after an issue is identified and proposed regulation is discussed publicly by opinion leaders, organizations may attempt to preempt future regulations by voluntarily reducing environmental impacts. Later, when laws are crafted, organizations may seek to influence impending regulations, perhaps through developing new technologies or processes and encouraging the regulator to adopt the new standard. Finally, as regulations are implemented and enforced, organizations may seek to reduce regulatory inspections and other enforcement actions by voluntarily exceeding requirements.

Strategic behavior is not limited to organizations—regulatory agencies can restrict both output and entry in an industry, thereby increasing profitability for existing firms. Frequently, this occurs through grandfathering, where differential requirements are mandated for new businesses [85]. Conversely, regulators may seek to improve their own position by adjusting requirements (e.g., lowering compliance costs, offering technical assistance) to attract business or investment to their jurisdictional region [86,87].

Evidence shows that organizations may gain competitive advantage by exceeding compliance in certain situations, and that regulators may exert significant influence over competitive advantage by implementing regulatory strategies that create entry barriers, transfer rights to existing firms, or create other benefits for top environmental performers. However, despite the extensive literature, regulatory pressures merit more in-depth scrutiny because research exhibits some common limitations. First, most studies have examined large producers, creating an underlying assumption that organizations are subject to some form of environmental regulatory framework that would affect environmental management decisions. SMEs and nonmanufacturers that fall below regulatory thresholds for permitting and reporting would likely violate this assumption.

Second, regulatory pressures are often assessed with a single indicator, such as the number of annual inspections. Regulatory influences have not typically been measured using composite indices, but when such measures are used in studies of heterogeneous samples, results are less consistent [17,21,88,89]. For example, Jones, 2010 [21] classified organizations as highly, moderately, or lightly regulated based on a collection of specific regulatory attributes such as the number and type of regulatory permits held by the organization. In contrast to previous research, organizations subject to greater regulatory constraints were less likely to participate in VEPs, while the relationship between regulatory constraint and EMP adoption was nonlinear—moderately regulated organizations adopted more practices than the other groups. By way of explanation, VEPs may not provide sufficient flexibility to appeal to highly regulated facilities that prefer to develop tailored solutions for their operations. The nonlinear relationship for EMPs may suggest that beyond a certain threshold of mandatory requirements, organizations have implemented sufficient environmental management to perceive little benefit from additional efforts. It is also possible that, assuming that the greater the regulatory burden, the greater the compliance costs, that the most highly regulated organizations lack sufficient financial resources to exceed compliance.

These recent findings suggest that additional research into regulatory pressures is needed. So few studies have included SMEs that little is known about either their relative contribution to environmental impacts, or their needs for information and assistance. Research could help determine whether current regulation is adequately addressing SME impacts, and help identify compliance needs. These recent findings comparing different types of environmental management are also showing that regulation has different effects on different strategies (e.g., VEPs compared to EMPs). Studies involving such comparisons appear to be limited [17,18,21,35]. Additional research regarding the most effective initiatives for different industries or market segments would be useful for policy design.

2.1.5. Competitive Advantage/Cost savings

Evidence is mounting that companies are taking strategic environmental approaches to develop cost-effective beyond-compliance abatement methods in order to gain competitive advantage. For example, Ervin *et al.*, 2012 [17] found that the potential to gain competitive advantage through proactive environmental management significantly influenced both the adoption of EMPs and the implementation of specific pollution prevention practices. These findings are consistent with earlier research [38,40,42,44,45,48]. Explanations are found in traditional business and economic theories: the more a company can reduce costs and increase productivity, the greater advantage it has over competitors. But, opportunities depend on various factors, including the regulatory pressures described in the previous section, and also market characteristics—industry concentration in particular [90].

Findings for industry concentration are mixed, but in some cases, both competitive and noncompetitive organizations can profit from voluntary environmental management. Stoeckl, 2004 [9] finds this is the case for the following: (1) competitive firms able to take advantage of cost-reducing VEPs (they can retain a substantial portion of the savings in the short-run); and (2) organizations in highly concentrated industries that are able to raise short-run costs and long-run benefits (they can pass on a large share of cost increases).

Organizations in concentrated industries that have developed cost-effective abatement strategies may be more likely to exceed compliance with regulatory standards because they can persuade regulators to mandate the higher standards, putting competitors at a disadvantage [91,92]. Also, by comparison, organizations in “unconcentrated” industries may not benefit from a cost advantage if a VEP is implemented simultaneously by competitors. In that case, competitive organizations will have no opportunity for differentiation [9]. Conversely, there is some evidence that industry concentration has a negative effect on innovation, suggesting that companies with more competitors may pursue environmental strategies in an effort to remain competitive or to improve their market position [9,15,93].

Conventionally, competitive advantage gained through strategic environmental management has been demonstrated through case studies where organizations innovated technologies and processes [15,23]. This limits the applicability of findings, given that some organizations (e.g., SMEs, organizations without R&D) may lack sufficient resources to innovate technologies and processes. Simpson *et al.*, 2004 [94] found that SMEs perceived little opportunity to gain competitive advantage through environmental differentiation, and exhibited more reactive, compliance-oriented environmental management.

However, new insights may be attained by expanding research to include human resource efficiencies—an opportunity available to organizations of all sizes. The importance of employee contributions to organizational success in general has long been recognized, but specific employee contributions to environmental achievements, and their effects on competitive advantage, have received less attention. Where these contributions have been examined, companies have cited improved employee productivity, reduced absenteeism, and the ability to attract more qualified employees at competitive salaries as motivations for environmental management. This phenomenon appears to be due both to the fact that employees prefer to work for companies with values similar to their own, and also because companies that make environmental protection a priority also tend to view social issues as an important business responsibility [15,58].

In the empirical literature, Darnall, Henriques, and Sadorsky (2008) [25] found that employee commitment (encompassing both individual contributors and managers) was positively correlated to both EMS comprehensiveness and business performance at both large and small organizations. Boiral, 2007 [95] found that even in highly automated processes, employee participation in technology selection and operation can reduce emissions. The authors found that emissions varied across aluminum processing facilities with similar operations, and that 20%–70% of the variation could not be accounted for by major differences in technologies. The differences were attributed to employee training, experience, and involvement.

Although the evidence demonstrates the importance of employee contributions, these contributions have not commonly been rewarded with economic incentives [23]. Jones, 2007 [96] examined a sample of large and small organizations operating in a mix of manufacturing and nonmanufacturing sectors, and found that only 6% of respondents reported offering employee incentives for environmental improvements. Management compensation, though, has been linked to environmental performance. Berrone and Gomez-Mejia, 2009 [97] found that good environmental performance had a positive impact on a CEO's compensation, and that, over the long term, CEO compensation had a positive effect on environmental performance. Companies reward pollution prevention more than end-of-pipe controls because of the greater skills and expertise required, and the greater potential for cost-savings and improved business performance.

In summary, competitive advantage is an important determinant of environmental management, but our understanding remains limited due to the research emphasis on large producers and organizations with innovative capacity. One topic for future research is employee productivity. Productive employees are an asset to any organization, and with the potential for spillover effects mentioned earlier, there may be substantial potential to enhance community-wide environmental protection by stimulating employees to contribute to environmental improvements.

2.2. Moderating Factors (Market, Industry, and Organizational Characteristics)

The following subsections describe the organization and market characteristics most consistently found to moderate the effects of the external influences described above. Other characteristics have been studied, with less consistent findings. Table 2 in Appendix A summarizes the studies described here, and contains references to numerous studies, which have included additional moderating factors.

2.2.1. Size and Global Market Participation

Organization size as measured by number of employees is consistently found to be positively associated with business environmental management, with several arguments offered in explanation. Larger companies may: (1) have greater monetary and personnel resources available to devote to voluntary activity; (2) realize lower marginal environmental management costs through economies of scale; (3) perceive greater potential for gains in market share and profits from attracting environmentally conscious customers; and (4) be more "visible", with actions (or lack of) attracting more attention. Managing more employees or facilities involves greater costs, so it may be more efficient to implement standard policies across the organization, whether or not they are required by regulation. Conversely, managers of smaller organizations may perceive their organization's impacts to be negligible, lack the time and funds to exceed compliance, and—absent stakeholder attention—have little incentive to adopt voluntary measures [7,9,11,33,44,49].

Among empirical studies, Nishitani (2009) [36] and Nakamura, Takahashi, and Vertinsky, 2001 [33] each found size to be a significant positive determinant of ISO 14001 certification among manufacturing firms in Japan. Montiel and Husted, 2009 [35] examined EMS certification among Mexican manufacturers, and found that 'institutional entrepreneurs' (companies that take a leadership role in legitimizing issues relevant to their industry and crafting standards) were significantly larger than late adopters. Johnstone *et al.*, 2007 [34] and Henriques and Sadorsky, 2007 [98] both found size to be a significant determinant of the presence of an EMS, while Darnall, Henriques, and Sadorsky, 2008 [25] found size to be related to EMS comprehensiveness. Khanna *et al.*, 2007 [18] found that facilities with more employees were more likely to participate in formal VEPs. Johnstone *et al.*, 2007 [88] found that facilities with more employees were more likely to have taken pollution reduction actions and to report reductions in air pollution, water pollution, and solid waste. Arimura, Hibiki, and Johnstone, 2007 [99] found that facilities with more employees spent more on environmental R&D [100–102].

Findings for multinational corporations (MCs), which tend to be large [101], typically show a significant positive relationship between global market participation and voluntary environmental management. Multinational corporations have been found to be more likely than other organizations to implement EMPs; to have a more comprehensive EMS; to engage in environmental disclosure; and to demonstrate awareness of stakeholder interests [25,98,103] In contrast, Khanna *et al.*, 2007 [18] found that facilities owned by MCs were more likely than other facilities to participate in VEPs, but not to implement more individual EMPs. Possibly, formal programs appeal to MCs because VEPs offer greater standardization and public recognition than individual practices [6,18].

With literature showing larger companies engaging in more extensive environmental management, it follows that policy should aim to encourage more activity among smaller organizations. Although any individual organization may have seemingly minor impacts, collectively, the effects of small- and medium-enterprises (SMEs) are substantial. As a proportion of the global market, SMEs are estimated to comprise 90% or more of all businesses and to account for 50%–60% of all employment [3,49,89,104]. In the United Kingdom, SMEs have been estimated to be responsible for about 60% of CO_2 emissions [94].

Specific policy recommendations, however, require more research. Large production facilities have been investigated much more frequently than SMEs, and management literature describes several ways these organizations differ, limiting the applicability of findings for large producers [3,4,17,46,94,105].

SMEs may have very limited operations, highly entrepreneurial attitudes, personalized or intuitive management styles, and focus more on the internal aspects of social responsibility such as worker health and safety. Conversely, large companies may use more formalized planning and uniform standards, and emphasize external aspects of social responsibility such as signaling adherence to international standards to stakeholders [3,4,104,105].

Few studies explicitly investigate specific barriers to voluntary environmental management, but among available findings, the most frequently reported issues are time, cost, and a lack of perceived benefits to investing in environmental strategies [3,4,9,17,21,32,43,44,46,106,107]. Findings show that such issues may disproportionately affect SMEs because these organizations: (1) have difficulty keeping abreast of regulatory requirements and supporting compliance costs; (2) experience lower consumer demand for environmental improvements; and (3) may lack an organizational network (e.g., trade association) that supports voluntary environmental management [21,94,104,105,108]. More research specifically addressing barriers to voluntary environmental management would be helpful.

2.2.2. Public Companies/Publicly Traded Status

Findings for public companies traded on stock exchanges consistently show that such companies undertake more voluntary environmental management than private companies [10,11]. Findings show that public companies are more likely than private companies to implement pollution prevention practices and general EMPs; use environmental cost accounting; participate in VEPs; have a formal EMS or a more comprehensive EMS, and to maintain dedicated environmental staff [17,21,25,98,99]. One explanation is that shareholders exert pressures on companies to avoid the financial liabilities associated with environmental risk [44]. In addition, companies that publicly report financial information and industrial organizations that report emissions to regulatory agencies may take advantage of existing infrastructure to include environmental information in public reports [109].

Although consistent, these findings have limited applicability for comprehensive policy. While conventional profit-maximization research captures the effect of public status—synonymous with a focus on profit and shareholder value—the concepts of "exclusively profit seeking" and "shareholder primacy" are becoming outdated. Traditionally, shareholders have often been viewed as homogeneous—interested only in maximizing risk-adjusted returns—but in fact investors have varied preferences, including differing perspectives on business ethics and social responsibility [13,19]. In addition, the proportion of public companies is small—less than 10% of the U.S. and global markets [19,21,102,110].

Research emphasizing private companies would provide more broadly applicable findings to inform policy; however, such research is constrained by a lack of publicly available information, so policies that increase the availability of private company data to facilitate analysis should be prioritized [9,15,17].

Table 2 below summarizes key findings for influences and moderators described in the preceding text.

Table 2. Summary of Findings for Key Institutional Influences.

Concepts/Theories	Brief Summary of Findings
Investors	
Investors (shareholders and others) seek to reduce financial liabilities associated with environmental risks [44]. Good environmental performance may reduce the cost of capital, due to reduced risk [53].	Shareholder pressures and susceptibility to other investors have been shown to be positively associated with EMS comprehensiveness [25,32]. Stock prices are typically positively associated with good environmental performance [9–11,49,50].
Environmental Interest Groups	
Organizations, particularly large emitters, may seek to avoid boycotts or other sanctions instigated by poor environmental performance [13,14,23].	Empirical findings are mixed. Environmental interest group pressures have been found to be a significant determinant of the presence of an environmental plan at large organizations [44]. Findings for SMEs have not found a significant association [17]. States with greater numbers of environmental group members per capita have shown greater emissions reductions over time [41].
Customers	
Organizations may seek to retain or gain market share or command higher prices by offering environmentally preferable products and services. The ability to command higher prices may depend on barriers to entry and mobility in the industry, and barriers to imitation by competitors [30,67].	Willingness to pay has not been consistently demonstrated in retail markets, and depends on the product and type of consumer [39,58,61–67]. Findings in industrial markets are mixed; earlier literature often found only weak customer influences [10,11,70]. More recently, some studies have found a positive association between consumer pressures and the comprehensiveness of the organization's EMS [25,38].
Regulatory Pressures	
Regulators have authority and enforcement capability, provide information and assistance, and can create or influence "green" markets [28]. Organizations may be able to obtain competitive advantage by voluntarily exceeding compliance, which may reduce costs [2]. Regulators may attract businesses to their region by adjusting requirements for top performers [87].	Findings nearly universally indicate that regulatory pressures are among the most significant determinants of environmental management strategy [17,18,21,25,34,42,44,48]. Research is affected by common limitations. Studies are often limited to large manufacturers (creates the underlying assumption of a regulatory framework; studies typically use single indicator (e.g., number of annual inspections). Findings are less consistent with composite variables [21].
Competitive Advantage	
The premise is that the more a company can reduce costs and increase productivity, the greater advantage it has over competitors. Strategic environmental approaches include developing cost-effective abatement methods.	Potential to gain competitive advantage is often found to be significant determinant of proactive environmental management [17,38,40,42,44,45,48]. Findings for industry concentration are mixed. Some studies find organizations in concentrated industries more likely to exceed regulatory compliance [91,92];others find that industry concentration has a negative effect on innovation [15,93]. Findings apply more to large firms; SMEs perceive less opportunity [94].
Firm Size/Global Market Participation	
Larger companies may have greater resources to devote to voluntary activity; SMEs may lack incentives if less visible to stakeholders [4,7,9,11,33,44].	Firms with more employees and multinational corporations engage in more proactive environmental management than SMEs [18,25,33–35,88,98,99,103]. Applicability of findings to SMEs is uncertain [3,4,17,21,46,94,105].
Public Trading Status	
Shareholders pressure companies to avoid the financial liabilities of environmental risk [44]. Firms already publicly reporting information may leverage existing infrastructure to include environmental information [109].	Public companies consistently engage in more proactive environmental management than privately held firms [10,11,17,21,25,98,99].

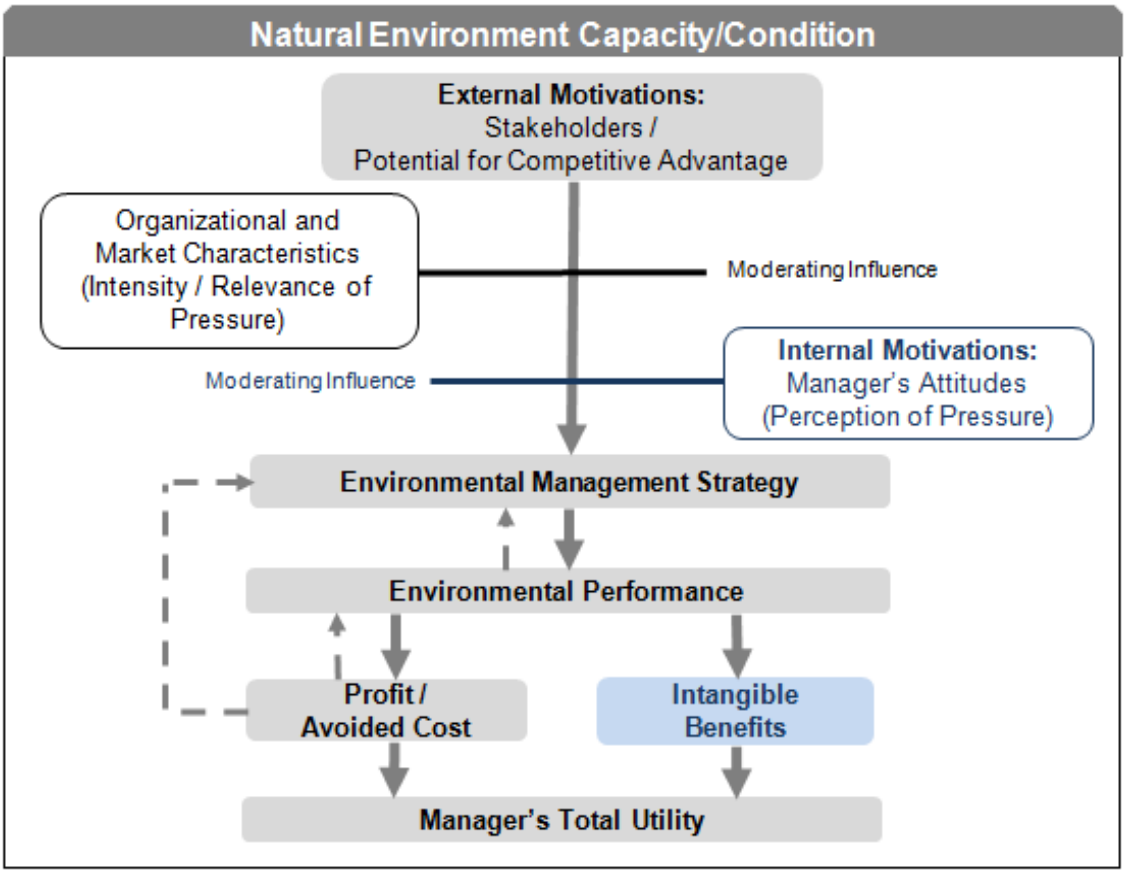
3. A Conceptual Model Combining Institutional Theory and Utility Maximization Theory

The research described in Section 2 identifies common institutional influences on environmental management, and shows that organizations subject to similar institutional pressures pursue differing strategies [7,9–11,25,28]. At least two arguments to explain this variation involve managers' perceptions. Some research posits that managers at different facilities—even within the same company—make different decisions because they have different perspectives on how institutional pressures affect environmental and financial performance [28]. Other research argues that managers with strong environmental values may receive the equivalent of monetary incentives from these potential effects of voluntary environmental management: positive publicity, regulatory relief, positive public relations, favorable investment terms, and opportunities to gain competitive advantage. Each of these benefits could reasonably be expected to directly or indirectly contribute to increased profits through cost reductions, increased efficiencies, or increased revenues [17]. However, the research described so far has not included the moderating influence of manager's attitudes. This section describes how combining institutional and utility maximization theories can address the limitations of each used separately (noted in the introduction), and assess the important effects of managers' perceptions.

Using utility maximization can capture a full range of managers' motivations—both those mentioned above as well as moral concerns that may not directly relate to a perceived monetary equivalent [111,112]. This distinction is relevant because altruistic actions and reactive actions (e.g., responding to environmental interest group pressures) may have different financial effects. When an organization engages in voluntary activity for the purpose of increasing demand for products or to reduce costs, the effect on financial performance would be expected to be positive. If the organization acts defensively (e.g., to avoid a boycott or sanction), the policies required to defray the threat increase costs, possibly having a negative financial impact. In addition, these differing motivations may lead to differing choices of voluntary environmental management strategies, reflecting, for example, the desire to signal stakeholders or not [112]. Since different motives may yield different choices, using utility maximization can address the question as to why organizations facing the same level of institutional pressures adopt varying strategies [113,114].

By way of illustration, Figure 1 on the following page graphically depicts institutional influences on and moderators of environmental management strategy [7,17,89]. The chart shows relationships between: (1) external motivations/institutional factors (described in Section 2.1); (2) the moderating influence of industry, organizational, and market characteristics; (3) the moderating influence of manager's attitudes/perceptions; (4) the organization's environmental strategy; (5) the resulting environmental performance; (6) any profit or intangible benefits obtained; (7) and the overall utility obtained. The outer frame of the chart illustrates that all decisions and processes take place within the conditions and capacity of the natural environment—at least as far as the manager understands these environmental conditions to affect the organization, or has a personal interest in environmental protection [7,17,89,115].

Figure 1. Moderating Influence of Manager's Attitudes toward Environmental Protection.



The first element in the figure represents the external motivations/institutional influences that are described in Table 1 and the text in Sections 2.1.1–2.1.5. This element represents the pressures stemming from different stakeholders such as investors, environmental interest groups, customers, and regulators, as well as the opportunities for the organization to gain competitive advantage through strategic environmental management. The motivations for environmental management represented in this first element include the various opportunities (e.g., potential to obtain favorable interest rates), and challenges (e.g., potential sanctions by environmental interest groups) associated with different stakeholders.

Organizational and market characteristics are shown here as a "first filter" moderating external stakeholder pressures (institutional influences) because different firms face different levels of pressure, and have different resources available with which to respond to influences [9,28]. For example, as described earlier, a large company may attract more attention from, say, environmental interest groups, rendering those groups more relevant to a large organization than to a smaller firm. Likewise, the larger organization may have more resources with which to respond to such groups, or may face greater impacts in the event of a sanction (e.g., negative publicity), than a smaller organization. This depiction of external motivations moderated by market, industry, and organizational characteristics reflects the approach incorporating institutional theory into profit-maximization models. From there, the manager would be expected to make environmental management decisions that directly or indirectly contribute to profit.

In expanding beyond the profit-maximizing rationale, manager's perceptions are shown as a "second filter". Research indicates that the manager's perceptions of both the external motivations and their capacity to respond influence the actual environmental strategy implemented [17,28,33]. That strategy, in turn, produces results, which may affect profit, provide intangible value, or both. Blue is used to highlight those elements that would not be included in a profit maximization model. Under profit-maximization, manager's attitudes would be limited to perceived opportunities for profit or competitive advantage, while intangible benefits would be excluded.

The diagram is necessarily oversimplified. The dotted lines indicate a few potential feedback loops, but many more feedbacks are likely present. Those shown indicate that profits/losses may be reinvested in the environmental strategy, or may serve as a performance metric to determine modifications. Presumably any intangible results would also feed back into strategy decisions, although a literature search did not reveal sufficient information to propose such pathways here.

Also omitted are the numerous, overlapping information feedback loops, which would affect manager's attitudes and perceptions. Environmental management decisions depend on access to information on numerous elements: institutional influences; market and organizational characteristics; relevant conditions of the natural environment; and performance data from existing strategies. Information access and attributes, therefore, create another factor influencing environmental management decisions. Simon, 1955 [116] notes that past decisions influence present and future alternatives, and that part of the utility obtained may be information acquired as a result of implementing a particular strategy.

What becomes clear in diagramming even the basic influences on motivations for environmental management is that decisions are affected by many factors, not all of which can be accommodated by focusing on short-run profits. Yet, traditionally, business investments have been assessed under what has been termed a "technocentric view". This view assumes that current ecological conditions persist through the given planning horizon, with investments based primarily on financial factors such as return on investment and payback period [115].

One reason for this is uncertainty about the future. In the absence of credible information about future costs and benefits, organizations use higher discount rates [17]. Managers can have a risk-averse perspective, which favors short-run returns, supported by such commonly used estimation methods as net present value (NPV). NPV applies higher discount rates when returns appear to be less certain, thereby capturing possibilities that returns may be lower than expected, but not appropriately reflecting the possibility of returns being higher than expected [115].

Importantly, uncertainty may disproportionately affect SMEs, given that empirical studies generally find that that these organizations have higher discount rates than large companies, possibly even being so high that SMEs effectively rule out considerations of long-run profits altogether [9]. Although the combined research approach suggested in this paper does not specifically address time preferences for money, short-run *versus* long-run planning, or the uncertainty inherent in environmental issues, appropriate strategic environmental management includes short- and long-run planning. It is conceivable that, given the flexibility of the utility maximization framework, researchers could probe managers' perspectives on long-run strategy. Any insights gained, such as the types of information managers seek for such long-range planning, would be useful for policymakers.

4. Empirical Findings for Managers' Attitudes as a Moderating Factor

A few studies have replaced profit-maximization models with utility-maximization models while retaining the institutional framework [17,33,117]. Empirical findings show that (1) utility-maximization models generally increase explanatory power; (2) management attitudes toward environmental stewardship are among the strongest influences on environmental strategy; and (3) managers' perceptions of institutional pressures affect environmental management decisions. Therefore, integrating institutional and utility maximization theories may meaningfully increase our understanding of voluntary environmental management decisions, and prove useful for policy decisions [17,21,33,111,112].

Ervin *et al.*, 2012 [17] examined a suite of institutional factors and managers' attitudes toward environmental protection using a sample of over 680 facilities of various sizes operating in a variety of industries. The authors posit that manager utility depends on the organization's profits, environmental performance, and managers' attitudes toward environmental stewardship. Managers who were more altruistic were expected to engage in voluntary action even without potential to increase profit, whereas other managers were expected to balance profit potential with other benefits such as positive public recognition or regulatory relief. The authors assessed the effects of organizational characteristics and customer, environmental interest group, competitive, investor, and regulatory institutional pressures on two decisions: to adopt EMPs or to adopt specific pollution prevention practices.

Results showed that organizations were more likely to adopt both more EMPs and specific pollution prevention practices if upper management believed that their organizations had a moral responsibility to protect the environment, should conserve natural resources, and that strategic environmental efforts provide potential for competitive advantage. These management attitudes were the strongest positive determinant of EMP adoption (even more so than regulatory pressures), and their inclusion increased explanatory power. Models consisting of organization, industry, and market characteristics explained 15% of the variance. (Comparable estimates for institutional influences under profit-maximization have explained 10%–40% of the variance [25,40].) When management attitudes and other institutional factors were added, alternative specifications explained between 47%–52% of the variance.

Nakamura, Takahashi, and Vertinski, 2001 [33] examined the effect of organization characteristics and management attitudes toward environmental protection on the level of environmental commitment at nearly 200 Japanese manufacturers. Environmental management decisions were assumed to be based on potential profits, the costs involved, and the intrinsic value the manager derived from environmental stewardship.

Surprisingly, organizations where managers expressed stronger beliefs about environmental vulnerability to human impacts and the importance of living in harmony with nature were less likely to have implemented a formal environmental policy. Possibly, this indicates that formal recognition is not important to managers who hold deeply personal beliefs about environmental protection. In contrast, managers who felt a responsibility toward the environment, and who felt they had some control over impacts, were more likely to view environmental objectives as an integral part of business operations. Feelings of responsibility toward the environment were also a determinant of ISO 14001 certification. These attitudes were among the strongest determinants for both the presence of a formal policy and the level of policy integration, with civil and government pressures exerting relatively less influence.

Including both institutional factors and attitudes explained 42% of the variance; models excluding these factors explained 22% [33].

A large management literature also demonstrates the importance of managers' attitudes [118]. The "CEO effect", which describes how upper management attitudes exert an important influence on a broad range of business strategies and performance measures, has been well documented [119–121]. This effect is apparent in environmental management research as well. In a study of individual and institutional drivers of environmental stewardship in the U.S. wine industry, Marshall, Cordano, and Silverman, 2005 [108] found that winery managers have strong personal beliefs about environmentalism, and wineries have cultures that link environmental stewardship to the long-term sustainability of their organizations. Cordano and Frieze, 2000 [122] found that managers' beliefs that pollution prevention was worthwhile and that regulation was important were significantly positively associated with preferences for source reduction activities.

Given that both the economics and management literatures are demonstrating the importance of individual manager's attitudes, this is an important area in which to expand research.

5. Summary Discussion

Although policy typically is intended to change behavior, and not necessarily attitudes, the interrelation between the two is complex, and measuring attitudes is a first step toward understanding the role of perceptions in environmental management decisions. In a meta-analysis of the determinants of environmental behavior, Bamberg and Möser, 2007 [27] state that proactive environmental behavior is actually one component of a nexus of psychosocial variables: attitude, level of perceived control, sense of moral responsibility, and behavioral intention. The analysis supports the notion that proactive environmental behavior is a mix of self-interest and social motivations, and that a more complete understanding of such behaviors requires taking both motivations and morality into account. In a discussion of how executives respond to crisis, Brockner and James, 2008 [123] note that the more attainable the objective and the more potential value that is perceived, the more likely managers are to perceive opportunities associated with proactive behavior. However, perceived attainability also depends on learning capacity and controllability, which vary by individual and organization. In evidence presented here, Ervin *et al.*, 2012 [17] and Nakamura, Takahashi, and Vertinsky, 2001 [33] each found that moral responsibility was a significant determinant of proactive environmental management, with Nakamura, Takahashi, and Vertinsky, 2001 [33] finding this was also the case for controllability.

A thorough discussion of the interrelationship of attitude and behavior is beyond the scope of this paper, but the preceding information demonstrates the relevance of perceptions and the importance of assessing them, given that voluntary behavior depends on a willingness to be proactive. This position is supported by other authors who propose further research into managers' attitudes toward different stakeholders because these attitudes explain some of the differences in environmental strategies observed at different organizations subject to the same level of institutional pressures [89,124]. Some authors also posit research should be conducted to investigate whether the values of the manager and the organization are aligned, for at least two reasons: (1) both sets of values influence environmental proactiveness [124]; and, (2) the identification of employees and executives with organizational goals

has a major role in economic motivation [20]. For SMEs, manager and organizational values would be assumed to be in alignment, although attitudes would still be unique to each organization. Jamali *et al.*, 2009 [3] go so far as to suggest that small business owners cannot be separated from their organizations with respect to values, policies, and day-to-day operations. They have more management discretion, freedom, and autonomy compared to large companies, and their ethics often influence their socially responsible organizational practices. And yet, this does not mean that SME operations will be more sustainable than large organizations. Gadenne *et al.*, 2009 [104] found that SME managers who felt they lacked the time and financial resources to address environmental issues were less likely to have positive environmental attitudes.

6. Conclusions

Perhaps the primary contribution of this literature synthesis is that it supports positions earlier advanced by Simon, 1993 [20]: first, individuals matter, and second, individuals—and, by extension the organizations which they manage—are not necessarily a homogenous, profit-seeking group, which some strands of literature have traditionally held them to be [19,51]. Scholars from various disciplines have questioned the use of models that assume strict profit-seeking behavior, pointing out that both literature and real-world outcomes (*i.e.*, poor market performance over the past ten years) have demonstrated the need for revised frameworks [13,19].

Simon [20] stated that new theories would incorporate altruism, and the position of this paper is that studies incorporating institutional theory, altruism, and other attitudes are increasing our understanding of the motivations for environmental management. Moreover, existing methodology—institutional and utility maximization theory—can be leveraged to advance research in this area, potentially in both the economics and strategic management literatures. Although such research constitutes only one potential path forward, this paper proposes that it is a logical extension, given the availability of existing theories and methods.

The usefulness of this approach is that it captures responses to objective influences (institutional influences) and moderating perceptions (perceived utility) and is flexible enough to retain a profit-seeking rationale or to measure purely altruistic motivations. Furthermore, research using this integrated approach shows increased explanatory power over profit-maximizing frameworks and demonstrates that managers' attitudes are among the most important influences on environmental strategy.

The integrated approach suggested here is only one possible approach to expand research to address numerous limitations. Other modifications are needed to extend the applicability of findings to policy design for the broader marketplace or community.

First, policies are needed to overcome information limitations, both to address long-run uncertainty, and to improve access to information on SMEs and private companies. Information is more readily available for public companies and larger organizations that meet thresholds for mandatory emissions reporting, creating gaps in the information needed to develop broad-based policy.

Second, studies should include SMEs, specifically by investigating their relative contribution to environmental impacts, and the barriers inhibiting voluntary environmental management at such organizations. However, as described in the previous section, SMEs may be as diverse as the managers

who operate them, posing particular issues for policy. Researchers have concluded that a "silver bullet" is not likely to emerge, and that a range of policy options addressing diverse needs is expected to be required [17,125,126]. Still, a greater understanding of common barriers to environmental management, if research reveals such commonalities, would help to target policy efforts.

Finally, research should be expanded to investigate how the various institutional factors interact and overlap, as described in Section 2.1.3. Policymakers could benefit from information demonstrating how comprehensive initiatives could address multiple market segments (e.g., consumers, businesses).

Conflict of Interest

The authors declare no conflict of interest.

References and Notes

1. Voluntary environmental management is defined here as "environmentally friendly actions not required by law" [2]. The term "corporate environmentalism" is not used because small businesses dominate the marketplace. Some authors argue that terms including "corporate" and the research focus on multinational corporations create an underlying expectation for greater social involvement by large companies, limiting the discourse [3,4]. The term "corporate" is used in citations where needed for consistency. Otherwise, the terms business environmental management and voluntary environmental management indicate the strategic environmental efforts of organizations of all sizes. Organizations are referred to as such, or as businesses, companies, or—for single locations—facilities.
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81. This is a result of the rulemaking process, where regulatory agencies examine the potential impacts of a specific substance and determine standards for that substance. Agencies then decide how to apply the standard across heterogeneous firms that face different compliance costs, often with input from facilities through the public comment process. Resulting standards often do not apply uniformly across all regulated facilities [82].
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are those which are dominated by a few large companies responsible for most of the output. Unconcentrated industries have fewer dominant firms and are closer to perfectly competitive.

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