PROACTIVE ENVIRONMENTAL STRATEGIES: A STAKEHOLDER MANAGEMENT PERSPECTIVE

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This paper includes an empirical analysis of the linkages between environmental strategy and stakeholder management. First, it is shown that several simultaneous improvements in various resource domains are required for firms to shift to an empirically significant, higher level of proactiveness. Second, more proactive environmental strategies are associated with a deeper and broader coverage of stakeholders. Third, environmental leadership is not associated with a rising importance of environmental regulations, thereby suggesting a role for voluntary cooperation between firms and government. Finally, the linkages between environmental strategies and stakeholder management, based on a sample of 197 firms operating in Belgium, appear more limited than expected. Country-specific characteristics may to a large extent account for these results. Copyright © 2002 John Wiley & Sons, Ltd.

INTRODUCTION

Most large manufacturing firms now devote substantial time and resources to environmental management. This is important as it allows industry to contribute to ecologically sustainable development through the application of total quality environmental management processes or through the redesign of products and manufacturing technologies (Shrivastava, 1995). It has often been argued that environmental regulation is instrumental to the introduction of better environmental management practices within firms, and that more stringent regulation is needed to further improve such practices (Newton and Harte, 1997; Porter and van der Linde, 1995). However, when crafting specific environmental strategies, firms undoubtedly attach importance to other stakeholders than government regulators (Neu, Warsame, and Pedwell,

1998). This suggests the relevance of conducting more inclusive stakeholder management analyses.

The green business literature usually makes a distinction between firms that are compliance-driven, and merely aim to meet legal requirements, and those that adopt more proactive environmental strategies, thereby taking into account a variety of forces other than government regulation (Schot and Fischer, 1993). More specifically, the inclusion of environmental issues into corporate strategy beyond what is required by government regulation could be viewed as a means to improve a company's alignment with the growing environmental concerns and expectations of its stakeholders (Garrod, 1997; Gladwin, 1993; Steadman, Zimmerer, and Green, 1995). If the greening of corporate strategies can be interpreted as an attempt to meet these stakeholder expectations, then identifying salient stakeholders becomes a critical step in corporate strategy formation. Yet, not all stakeholders are equally important for corporations when crafting environmental strategies. Henriques and Sadorsky (1996, 1999) evaluated the perceived importance of different stakeholder

groups using data of Canadian firms, and found that in addition to government regulation it is primarily customers, shareholders, and local community groups that affect corporate environmental management practices, especially the content of environmental action plans. According to Mitchell, Agle, and Wood (1997) the importance of stakeholders is relative, can change over time, and is issue-based.

The present paper evaluates empirically the relationship between the level of proactiveness of environmental strategies and the importance attached to stakeholders, using survey data from Belgian firms. The study of environmental practices in this small open economy is important for two reasons. First, small open economies such as Belgium are populated by firms that rely to a large extent on foreign markets, especially through the presence of MNE affiliates. The question then arises whether domestic firms and MNE affiliates will select similar or fundamentally different strategies in the environmental sphere. It is sometimes argued that MNE behavior deviates from prevailing domestic practices, partly because foreign MNEs lack experience, information, and tacit skills to deal with local conditions (King and Shaver, 2001) and partly because they may rely on an internal network approach to environmental strategy formation (Rugman and Verbeke, 1998). Second, many environmental strategy studies attach little or no importance to the specificity of the local institutional environment when describing and prescribing particular environmental management approaches. The present study builds upon the assumption that the local institutional context does matter, even in a small open economy.

The paper is organized as follows. In the next section, the criteria are determined that should permit the classification of firms according to their level of environmental proactiveness. Here, Hart's (1995) classification is empirically tested, resulting in three levels of proactiveness in environmental strategies. The third section briefly reviews the interests that various stakeholder groups may have in proactive corporate environmental management. In the fourth section, three hypotheses are developed that suggest a specific relationship between the proactiveness of environmental strategy and the importance attached to specific stakeholder groups. The fifth section discusses the empirical research methodology. The sixth section presents the main results.

A CLASSIFICATION OF ENVIRONMENTAL MANAGEMENT STRATEGIES

The work of Azzone and Bertelé (1994), Hunt and Auster (1990), and Roome (1992) is illustrative of the various typologies designed to classify firms according to their environmental management practices. These typologies represent an application to environmental issues of two earlier models developed by Carroll (1979) and Wartick and Cochrane (1985) on corporate social responsibility. Both models identified four 'generic,' firm-level approaches to corporate social responsibility: *reactive, defensive, accommodative,* and *proactive.* These strategies reflect an increasingly important focus on societal issues, both in terms of strategy formulation and implementation (Clarkson, 1995).

Building on the resource-based theory of the firm, Hart (1995) developed a more grounded typology of environmental strategies. The resource-based view of the firm suggests that corporate strategy will only lead to sustainable competitive advantage if it is supported by firm-level competencies (Barney, 1991; Rugman and Verbeke, 2002). Such competencies reflect unique combinations of resources that are rare, nonsubstitutable, difficult to imitate, and valuable to customers. These resource combinations may build upon a wide variety of basic components, including physical assets, employee skills, and organizational processes. In this context, Hart distinguished four types of resource-based environmental approaches: (1) the *end-of-pipe* approach, (2) *pollution prevention or total quality management* (TQM), (3) *product stewardship,* and (4) *sustainable development.* Investments in *end-of-pipe* technologies reflect a reactive posture to environmental issues, whereby limited resources are committed to solving environmental problems: product and manufacturing process improvements are made to conform to legal requirements. *Pollution prevention* implies that firms continually adapt their products and production processes in order to reduce pollution levels below legal requirements. To the extent that prevention at the source allows firms to achieve regulatory compliance at a lower cost and to reduce liabilities, this environmental strategy may be viewed as a cost leadership approach. *Product stewardship* can be viewed as a form of product differentiation, whereby products and manufacturing processes are designed so

as to minimize the negative environmental burden during the products' entire life cycle. A minimum requirement for the successful implementation of this strategy, according to Hart, is that some form of life cycle analysis (LCA) be implemented. LCA is used to assess the environmental burden created by a product from 'cradle to grave': material selection, production, distribution, packaging, consumption, and disposal (Welford and Gouldson, 1993). Finally, *sustainable development* aims to minimize the environmental burden of firm growth through the development of clean technologies. It requires a long-term vision shared among all relevant stakeholders and strong moral leadership, which according to Hart (1995) is a rare resource.

The great contribution of Hart's classification is that it is not based solely on casual empiricism. Hart's great conceptual insight was that simultaneous investments in several linked resource domains are required to move from one environmental strategy stage to the next. More specifically, he identified the interconnectedness among stages, as a result of path dependencies and embeddedness. Path dependencies primarily reflect the particular required sequence of resource accumulation in various individual resource domains to move from one stage to the next. Embeddedness implies the co-evolution of various resources and competencies instrumental to a shift in environmental strategy formation. A careful reading of Hart's classification permits a distinction to be made among five 'resource domains,' where firms can actually engage in purposive action to become 'greener.' These five domains are the following:

1. Investments in conventional green competencies related to green product and manufacturing technologies, in accordance with Hart's definition of four distinct stages of development (included in our empirical research as item 1).

2. Investments in employee skills, as measured by resource allocation to environmental training and employee participation (item 2).

3. Investments in organizational competencies, as measured by the involvement of functional areas such as R&D and product design, finance and accounting, purchasing, production, storage and transportation, sales and marketing, and human resources in environmental management (item 3).

4. Investments in formal (routine-based) management systems and procedures, at the input, process, and output sides.[1] At the input side, the development of a written environmental plan (item 4) can be used as a relevant parameter. More at the process side, the implementation of some form of LCA (item 5) is important. At the output side, the publication of internal and external environmental reports (items 6 and 7) and the importance attached to environmental performance as a parameter to evaluate top managers (item 8) seem critical. Although Hart (1995) did not discuss explicitly the need for formal incentive systems, the effective creation of a shared vision of the future where environmental concerns prevail is, in practice, largely dependent on the presence of formal incentive systems to reward environmentally responsible behavior.

5. Efforts to reconfigure the strategic planning process, by explicitly considering environmental issues (item 9) and allowing the individual(s) responsible for environmental management to participate in corporate strategic planning (item 10). As was the case with item 8, item 10 was not considered explicitly by Hart either, but his prescription of an environmentally proactive stance to be taken toward the firm's entire supply chain requires that environmental issues be dealt with in the strategic planning process on the basis of inputs from the manager(s) responsible for these issues.

Hart's (1995) resource-based thinking has been further extended by several authors, including Christmann (2000), Rugman and Verbeke (1998), Russo and Fouts (1997), and Sharma and Vredenburg (1998). The first resource domain above is usually considered as the clearest reflection of the firm's level of environmental proactiveness (Rugman and Verbeke, 1998). However, in this research, we tested empirically (using stated preferences through Likert scales, with possible scores ranging from 1 to 5 for items 2, 3, 8, 9, 10 and a binary scale for items 4, 5, 6, 7) the

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[1] Here, it could be argued that the adoption of metastandards such as ISO 14000 could be viewed as a measure of environmental proactiveness. However, as noted by Christmann and Taylor (2001), ISO 14000 does not require firms to act beyond respecting government regulations. In addition, these metastandards may be used for window-dressing purposes by firms with only a superficial commitment to environmental protection.

extent to which managerial attention devoted to the four additional resource domains is consistent with firm-level perceptions of environmental strategy choices as defined by the first item (investments in green product and manufacturing technologies, following Hart's fourfold classification).

The data used in this paper were gathered through a survey conducted in Belgium, mainly during 1999, before the dioxin crisis in the food industry. Firms were selected to participate in the survey if they contributed significantly to either water pollution or solid and hazardous waste (or both), as measured by the environmental taxes paid.[2] The relevant public agencies in Belgium were contacted to obtain the coordinates of companies contributing significantly to water pollution or waste production. The resulting population of 450 companies, accounting for 80 percent of water pollution and 80 percent of solid waste production in 1998, was first contacted in order to identify which manager was responsible for environmental issues in each firm and to solicit participation in the survey, which was subsequently sent to each firm. For firms with multiple production facilities, firm-level data rather than facility-level data were used, for two reasons. First, for most of these firms, only consolidated annual statements are publicly available. Second, the environmental manager is almost always hired at the level of the firm, implying that a single individual is made responsible for all production facilities. Large firms are required by law to create a 'position' for an environmental manager, who has the responsibility to ensure that a company complies with all environmental regulations (including reporting requirements). In addition to this legal requirement, the allocation of environmental management responsibilities to a single manager at the firm level, rather than at the plant or SBU level, may be typical for a small open economy such as Belgium, for two reasons. First, different plants of a single company are usually located in close geographic proximity to each other, so that a single manager can easily supervise

different production facilities simultaneously. Second, national subsidiaries of large, foreign multinational enterprises typically hire a single individual responsible for implementing corporate environmental strategy in the Belgian production operations and for directly reporting to headquarters on environmental issues. The research team provided the opportunity to all participating managers to obtain extensive guidance (by telephone or through a formal interview) when completing the questionnaire. A total of 197 usable responses were returned to the authors. The chemical industry, food industry, and textiles sector are particularly well represented.[3] Other characteristics of the sample are its bias towards larger firms and its high incidence of subsidiaries of multinational enterprises (97 firms), which is a common feature of many small, open economies.

All variables were standardized so as to give all criteria an equal weight in the subsequent cluster analysis. The 10 items measuring environmental practices were subsequently subjected to a cluster analysis, using the SPSS Quick cluster routine. Quick cluster only requires that the number of clusters (k) be specified *ex ante*. It then proceeds by selecting k cases with well-separated, nonmissing values as initial cluster seeds with which to begin the classification. The cluster seeds are updated as cases (firms) are added to each cluster. Quick cluster uses a squared Euclidean distance measure to assign a firm to its nearest cluster.

The environmental strategy profiles described in the green management literature suggest a four-cluster solution. Running quick cluster with four clusters resulted in the formation of a relatively small group of firms characterized by strong environmental management practices, a larger group of firms with poor environmental practices, and two intermediate groups, which differed from each other only in the application of some form of LCA. In other words, some firms that reported the use of LCA did not appear to be more proactive on average when judged by other criteria. In contrast, a number of firms with otherwise relatively strong environmental practices do not apply LCA. This suggests that many firms with at least some commitment to environmental issues find the costs of LCA prohibitive or cannot obtain good data to

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[2] In Belgium, the regions are responsible for environmental regulation and taxation. Taxes are currently levied on solid waste and water pollution. The water pollution load is calculated using a complex formula, which takes into account the different forms of water pollution. Both regions (Flanders and Wallonia) have been applying the same formula since 1994. For large industrial consumers of water, the calculation of the pollution load is based on actual measurements of wastewater quality, performed by the relevant public agencies. Firms from both regions were included in the sample.

[3] The chemical industry was represented by 23 firms in the sample, the food industry by 55 firms, and the textile sector by 22 firms.

Table 1. Final cluster means of resource-based environmental strategy profiles

	Reactive strategy	Pollution prevention	Environmental leadership	ANOVA F
Conventional green competencies				
Item 1: investments in product and manufacturing process related green competencies	1.66	2.12	3.29	79.9
Employee skills				
Item 2: investments in employee skills	2.04	2.78	3.48	47.3
Organizational competencies				
Item 3: investments in organizational competencies	2.41	3.21	3.97	76.6
Management systems and procedures				
Item 4: development of a written environmental plan	0.36	0.68	0.94	20.77
Item 5: life cycle analysis (LCA)	0.00	0.15	0.23	7.9
Item 6: internal environmental reporting	0.44	0.68	0.90	12.5
Item 7: external environmental reporting	0.13	0.16	0.77	38.9
Item 8: environmental performance inclusion in top management evaluation	2.56	3.83	4.32	113.1
Strategic planning process				
Item 9: integration of environmental issues	3.37	4.19	4.61	51.9
Item 10: participation of environmental managers in strategic planning	2.97	3.88	4.53	58.3
Number of firms	67	95	35	

implement this approach. It also implies that Hart's (1995) rather strong views on LCA must be moderated. Trying a three-cluster solution instead yielded a clear separation among the clusters, along all 10 items, as shown in Table 1. This solution was retained for the subsequent analysis of stakeholder management.

The robustness of the solution was tested in two ways. First, one-way analysis of variance was used to test whether the cluster means are significantly different for all the variables (Hair *et al.*, 1998). As shown in Table 1, all ANOVA *F*-statistics are highly significant. Second, following Henriques and Sadorsky (1999), cluster analysis was repeated on randomly selected subsamples of our sample. As the assignments made within these subsamples were for the most part to the same clusters (90% on average), the results can be considered independent of a particular classification or other sample characteristics.

Firms with a 'reactive' environmental strategy (67 firms), the equivalent of Hart's (1995) end-of-pipe approach, score poorly on all items.[4] Firms with what we call a 'pollution prevention'

strategy (95 firms) are characterized by the limited development of conventional green competencies (in terms of product and manufacturing technologies), little development of employee skills, a limited degree of organizational competency development, some adaptation of formal management systems (but overall relatively little external reporting and LCA), and, finally, a rather weak integration of environmental issues into corporate strategy and limited participation of the environmental managers in strategic planning. The 'environmental leaders' (35 firms) with an approach similar to Hart's sustainable development strategy outperform the other firms on all criteria, though it is the development of conventional green competencies and the practice of external environmental reporting that really set them apart.[5] It

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[4] We adopted the term 'reactive' rather than 'end-of-pipe' to indicate that, from a resource-based perspective, investments are withheld from several relevant resource domains, and not only from the manufacturing process.

[5] We chose the term 'environmental leadership' rather than 'sustainable development,' because the latter term, taken from Hart's (1995) framework, includes the 'moral leadership' dimension,

should also be noted that a positive correlation appeared between environmental strategy proactiveness and multinationality. In the subsample of 35 firms with an environmental leadership strategy, 25 are MNE affiliates and only 10 are domestic companies.[6]

A stakeholder approach to corporate environmental management

The previous section established that, from a resource-based perspective, three distinct, empirically significant environmental strategies can be observed. These are consistent with Hart's (1995) suggestion of interconnectedness, in the sense of a necessary accumulation and co-evolution of resources in various resource domains to shift from a lower stage of environmental proactiveness to a higher stage. This section discusses Hart's (1995) related suggestion that more proactive environmental strategies are associated with a stronger stakeholder orientation. In his seminal work *Strategic Management: A Stakeholder Approach*, Freeman (1984) defined the concept of 'stakeholder' to include any individual or group who can affect the firm's performance or who is affected by the achievement of the organization's objectives. Since the publication of this book, numerous authors have expanded on the concept. Stakeholder management has been explored from various perspectives, including agency theory (Hill and Jones, 1992), corporate social responsibility (Donaldson and Preston, 1995), network theory (Rowley, 1997), and resource-based thinking (Frooman, 1999). The stakeholder literature has two broad branches: a strategic and a moral branch (Goodpastor 1991; Frooman, 1999). The strategic stakeholder literature emphasizes the active management of stakeholder interests, whereas the moral stakeholder literature is interested primarily in balancing stakeholder interests (Frooman, 1999). The former literature classifies stakeholders as primary or secondary, based on the type of relationships they entertain with the firm. The primary stakeholders refer to employees, suppliers,

customers, and public agencies engaged in formal relationships with the organization. The secondary stakeholder groups include actors such as the media and special interest groups, not engaged in formal transactions with the organization (Clarkson, 1995; Savage *et al.*, 1991).

Mitchell *et al.* (1997) classified stakeholders based upon three attributes, namely power, legitimacy, and urgency. In their model, stakeholder salience, as perceived by managers, is positively related to the cumulative impact of the three stakeholder attributes. Since the degree to which managers give priority to competing stakeholder claims is dynamic, stakeholder salience can vary over time and depends on the issue considered. Managerial perceptions are critical in this model, because they ultimately determine stakeholder salience. These perceptions can be influenced by the managers' (own) values (Agle, Mitchell, and Sonnenfeld, 1999; Egri and Herman, 2000; Sharma, 2000). Jawahar and McLauglin's (2001) recent study is consistent with Mitchell *et al.*'s (1997) approach, as it also argues that organizations are likely to use different strategies to deal with different stakeholders and that these strategies may change over time.

The above analysis suggests that the identification of salient stakeholders for an organization at any point in time largely remains an empirical question. The modern stakeholder management approach thus suggests that corporations should not narrowly focus their strategic management decisions on creating shareholder value. They should broaden their objectives to address the expectations and interests of a wide variety of salient stakeholders (Garrod, 1997; McGee, 1998). Such objectives may include customer satisfaction, regulatory compliance, good corporate citizenship, and social and environmental responsibility among others. This need to conduct stakeholder analyses has also been identified in much of the recent environmental management literature (representative examples include Berry and Rondinelli, 1998; Beck, 1992; Henriques and Sadorsky, 1996, 1999; Shrivastava, 1995; and Welford and Gouldson, 1993).

At the micro level, poor environmental performance can seriously strain a company's relationship with its stakeholders. This may negatively affect the firm. Shareholders will suffer monetary losses on their investments if a company is found liable for environmental damage or if

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which is difficult to test directly and accurately through self-reporting.

[6] The further decomposition of the sample of 97 MNE affiliates (Belgian and foreign-owned) and 100 domestic firms led to the identification of 29 MNE affiliates with a reactive strategy, 43 with a pollution prevention strategy, and 25 with an environmental leadership strategy. These numbers for the domestic firms are 38, 52, and 10 respectively.

its poor environmental record makes the news (Hamilton, 1995). As a result, shareholders, but also financial institutions, perceive companies with a poor environmental record as riskier to invest in, and may demand a higher risk premium (Henriques and Sadorsky, 1996), or voice their discontent by withdrawing capital or refusing to extend new loans.

Moreover, companies with a reputation for ineffective environmental management may also find it harder to attract or retain highly qualified employees, who may themselves have a strong preference for proactive environmental management (Reinhardt, 1999). In this context, the success of companies aiming to develop green competencies strongly depends on the participation and involvement of their employees (Nehrt, 1998; Sharma and Vredenburg, 1998; Hart, 1995; Ramus and Steger, 2000). Green consumerism may also drive the transition towards more proactive environmental management, particularly in industries that have close contacts with final consumers (Arora and Cason, 1995). Consumers are increasingly better informed and more aware of the environmental impact of consumer products, and may demand that industry improve the environmental performance of its products (Williams, Medhurst, and Drew, 1993). The emergence of green consumerism implies that some consumers are willing to pay a premium for environment-friendly products (Vandermerwe and Oliff, 1990). However, consumer groups may also exert negative pressures by boycotting the products of a company with a reputation for poor environmental management (Greeno and Robinson, 1992). Similarly, green suppliers may stop delivering inputs to protect their own reputation (Henriques and Sadorsky, 1999).

In addition, a firm with a reactive environmental strategy may face an overall loss of competitive advantage if proactive environmental management becomes a common practice among its rivals (Garrod, 1997) or when there are substantial first-mover advantages associated with early investments in environmental technologies (Nehrt, 1996). It may also be confronted with negative publicity campaigns from environmental lobby groups or unflattering coverage by the media (Welford and Gouldson, 1993). MNEs face the additional complexity of a broader institutional field of stakeholders dispersed over multiple countries and as well as

the possibility of spill-over effects from one affiliate's behavior to other affiliates (Rugman and Verbeke, 2001).

The threats posed by the various stakeholders in response to poor environmental management may thus induce firms to improve their corporate environmental practices. Moreover, firms adopting advanced environmental strategies often cooperate with some stakeholders such as regulators and environmental, nongovernmental organizations (ENGOs), in the development of international environmental standards (e.g., the European Management and Auditing Scheme) and the conclusion of voluntary agreements (e.g., the gradual phase-out of CFCs). They may also form strategic alliances with major competitors in order to address complex environmental problems (e.g., the alliance among U.S. car manufacturers to reduce air pollution; see also Steadman *et al.*, 1995), or work more closely with ENGOs in their efforts to resolve pressing environmental issues (e.g., Ikea teamed up with Greenpeace to identify sustainable sources of timber supply after criticism that its practices contributed to the destruction of tropical forests).

Public agencies also play a prominent role in shaping corporate environmental management practices. Conventional welfare economics attempts to explain the 'greening' of corporations as a direct response to the recent surge in environmental regulation in industrialized countries (Baumol and Oates, 1988; Cropper and Oates, 1992; Palmer, Oates, and Portney, 1995), building upon the 'polluter should pay' principle. The increasingly complex nature of environmental regulation has increased the risks of noncompliance (Garrod, 1997).

Given the above context, Freeman, Pierce, and Dodd (2000) suggest that business could take a leadership role to improve the natural environment. Business must create value for stakeholders such as employees, financiers, customers, and suppliers, taking into account environmental issues. They recommend that senior managers rethink their corporate strategy in terms of four shades of green (light or legal green, market green, stakeholder green, and dark green), a framework largely consistent with Hart's (1995) model. They also suggest that firms should define basic values and then design strategies consistent with these values (Freeman *et al.*, 2000). Most importantly, they

propose a new approach[7] to business, grounded in values and entitled 'stakeholder capitalism' or 'values-based capitalism,' building upon the concept of environmental innovation: 'if we understand capitalism as a system of cooperation among stakeholders around important values, and if we understand businesses as being driven by enterprise strategy, then there are no limits for greening of enterprise strategy' (Freeman *et al.*, 2000: 32).

The above analysis suggests important linkages between the greening of corporate strategies and environmental stakeholder management. In the hypothesis development below, we make a distinction among three key groups of stakeholders, in line with the strategic stakeholder literature: regulators, primary stakeholders (with the exclusion of regulators), and secondary stakeholders. However, the validity of this stakeholder decomposition is then empirically tested, which permits the establishment in a more grounded fashion of the linkages between environmental strategy and importance attached to various stakeholders (dependent variables) in our statistical analyses. Here, it is important to mention that, in practice, the causality is likely to work in both directions: stronger environmental proactiveness likely leads to more sensitivity to stakeholder pressures, but these pressures may themselves trigger more proactiveness in environmental strategy.

Hypotheses

The classification of firms according to their environmental management strategy, as determined empirically in this paper's second section, suggests that firms with a reactive, end-of-pipe strategy do not view environmental management as a priority. They invest in environmental management merely to respect prevailing regulations. These are viewed as a mere institutional constraint rather than as an opportunity to improve managerial practices. Such a response may become very expensive when firms are faced with rapidly evolving and increasingly severe and complex environmental regulations (Berry and Rondinelli, 1998). End-of-pipe equipment must be adjusted continuously to changing regulatory pressures. When firms shift their focus towards preventing pollution at the source,

this is associated with investments in a variety of resource domains, as explained above. Given these investments, firms characterized by a pollution prevention strategy can be expected to attach much more importance, from a strategic management perspective, to regulatory pressures, namely if they use the evolving regulatory framework as the benchmark for strategy development and as the basis for future resource allocation (Henriques and Sadorsky, 1999). In other words, firms with a reactive strategy attach high importance to government regulation, but only in a static sense, as an almost mechanistic and daily routine-driven response to new regulatory requirements. In contrast, firms engaged in pollution prevention create more sophisticated adaptive routines that include a learning component: here, the dynamic evolution of government regulation is the key driver for resource allocation in various environmental management domains. In contrast, companies with an environmental leadership strategy view the firm-level creation of green competencies as a source of competitive advantage, which is merely strengthened by appropriate environmental regulations. As a result, it can be expected that firms with an environmental leadership strategy will not attach as much importance to environmental regulations as firms adopting a pollution prevention strategy.

Hypothesis 1: The perceived importance of regulatory pressures, in terms of impact on environmental decision making, is highest for firms adopting a pollution prevention strategy, and declines as firms adopt either an environmental leadership strategy or a reactive environmental strategy.

It has been noted that the primary stakeholder groups, who entertain formal relationships with the firm, such as employees, shareholders, customers, and suppliers, have the greatest impact on determining the success or failure of any environmental strategy (Buzzelli, 1991). It is precisely these formal relationships that make primary stakeholders directly relevant to the firm's survival, profitability, and growth (Clarkson, 1995; Hill and Jones, 1992). Employees and investors may benefit the most from sounder corporate environmental practices because they provide assets (human capital and financial resources respectively) that are tied to the firm and cannot necessarily be deployed alternatively without loss of value (Hill and Jones, 1992).

[7] This approach captures values-based innovation, which should allow all stakeholders to benefit over time. Continuous innovation drives this form of capitalism.

Moreover, as a firm adopts an environmental leadership strategy, employee participation in solving environmental problems as well as the commitment of substantial funds becomes indispensable (Nehrt, 1998; Sharma and Vredenburg, 1998; Hart, 1995). Environmental leadership strategies may also permit establishing better relationships with customers interested in products with a superior environmental performance and/or advanced supplier competitive strategies. To the extent that environmental leadership strategies are implemented globally, i.e., in all countries of operation, international customers and suppliers rather than domestic customers and suppliers are likely to become more important (Garrod, 1997). In contrast, companies with an end-of-pipe, reactive environmental strategy are unlikely to devote much time or resources to managing stakeholder relationships because stakeholder actions in response to poor environmental performance are not perceived as a threat to the survival of the company. The importance attached to primary stakeholders, namely employees, shareholders, customers, and suppliers, is thus likely to increase as environmental strategies shift toward environmental leadership, away from the reactive and pollution prevention approaches.

Hypothesis 2: Firms identifying themselves as practicing an environmental leadership strategy are more likely than pollution-preventing and reactive firms to attach high importance (in terms of perceived stakeholder impacts on environmental decision making) to primary stakeholders (employees, shareholders, customers and, suppliers).

Secondary stakeholders include competitors, agencies contributing to the development and implementation of international voluntary agreements (usually these agencies have only limited or no formal relationships with the firms targeted), environmental NGOs and the media (Berry and Rondinelli, 1998; Henriques and Sadorsky, 1996, 1999; Welford and Gouldson, 1993). Environmental leaders are the most likely to interact with these stakeholders in the context of joint problem solving and information sharing (Sharma and Vredenburg, 1998). Such firms may use the environmental practices of other industry leaders as their benchmark in their efforts to remain competitive globally (Schmidheiny, 1992). This view implies

that global competition rather than local competition is critical to the greening process. In addition, environmentally proactive firms from small, open economies use international environmental agreements and standards as benchmarks for their environmental strategy (Rugman, Kirton, and Soloway, 2000). Finally, the literature has identified reputation effects as a major benefit of environmentally proactive strategies. Hence, environmental leaders may seek publicity in the press and media, which are instrumental to shaping public opinion in favor of (or against) a company. In contrast, firms with a pollution prevention strategy have a more narrow focus, as they can be expected to be concerned primarily about anticipating environmental regulation (see Hypothesis 1). They can be expected to interact less frequently with other than primary stakeholders. Firms with a reactive environmental strategy do not view environmental management as an important function, implying that they are likely to perceive the claims of environmental NGOs and the media as illegitimate, and the framework provided by international voluntary agreements and the best practices of environmental leaders as less relevant to their corporate strategy.

Hypothesis 3: Firms identifying themselves as practicing an environmental leadership strategy are more likely than pollution-preventing and reactive firms to attach high importance (in terms of perceived stakeholder impacts on environmental decision making) to the firm's secondary stakeholders (industry rivals, international agreements, environmental, nongovernmental organizations (ENGOs), and the media).

Empirical analysis

The importance attached to different stakeholders was measured by asking managers to rate on a Likert scale of 1 to 5 the impact of various stakeholder pressures on decisions related to environmental management, with 1 denoting no influence at all and 5 a very strong influence. The list of stakeholders included: domestic and international customers, domestic and international suppliers, employees, shareholders, financial institutions, domestic and international rivals, international treaties and agreements, the media and ENGOs, and the national (and subnational) governments and local public agencies.

Principal component analysis

The 14 stakeholder influence items were entered into a principal component analysis, the purpose of which was twofold: first, to reduce the number of dependent variables; second, to allow a grounded classification of stakeholders, rather than to accept in a mechanical fashion the distinction made above among government regulators, primary stakeholders (other than government), and secondary stakeholders. Four factors emerged with large eigenvalues (5.41, 2.15, 1.04 and 1) and together accounted for 68 percent of the total variance. The factor loadings (after Varimax rotation) are listed in Table 2. As can be seen, all variables had factor loadings of 0.55 or more on at least one factor.

An analysis of the factor loadings suggests that the first and third factor capture primary stakeholder pressures. The first factor represents most 'external' primary stakeholders, namely domestic and international customers and suppliers, whereas the third factor includes mainly 'internal' primary stakeholders, namely employees and shareholders. However, it also includes financial institutions. To a large extent, financial institutions often have a much more direct impact on top management decision making, especially board of directors' decisions, than conventional suppliers of other inputs, given the impact that a threat of removal of financial resources could have on the firm and its negative signaling effect on

other stakeholders. The second factor includes the secondary stakeholder influences, namely domestic and international competitors, international agreements, ENGOs, and the media. Finally, the fourth factor represents government regulators at the national (and subnational) and local levels. The factor scores were computed to replace the original set of variables capturing stakeholder pressures by a smaller set to be used in subsequent analyses.

Control variables

The multinational character of a firm may strongly affect the importance attached to various stakeholders. Subsidiaries of multinational enterprises may be less responsive to national regulation as compared to local firms, especially if the country involved is a small open economy representing only a small portion of the multinational enterprise's total production and sales (Rugman, 1995). Multinational enterprises are also more exposed to pressures from international customers, suppliers, and rivals (often subsidiaries of multinational enterprises). They are also more likely to use international standards and other voluntary agreements as a benchmark for their own environmental strategy. The use of standardized environmental strategies has been shown to generate financial benefits for MNEs (Dowell, Hart, and Young, 2000). Such standards are likely to conform to the pressures of the most demanding stakeholders

Table 2.   Factor loadings of stakeholder influences

	External primary stakeholders	Secondary stakeholders	Internal primary stakeholders	Regulatory stakeholders
1. Domestic customers	**0.76**	0.12	0.11	−0.14
2. International customers	**0.69**	0.28	0.25	−0.23
3. Domestic suppliers	**0.85**	0.06	0.23	0.20
4. International suppliers	**0.85**	0.11	0.22	0.15
5. Employees	0.17	0.19	**0.77**	0.16
6. Shareholders	0.28	0.09	**0.71**	−0.09
7. Financial institutions	0.21	0.24	**0.76**	0.02
8. Domestic rivals	0.52	**0.58**	0.24	−0.01
9. International rivals	0.49	**0.62**	0.29	−0.19
10. International agreements	0.14	**0.69**	0.08	0.32
11. ENGOs	0.12	**0.80**	0.12	0.18
12. Media	0.02	**0.65**	0.28	0.28
13. National (and regional) governments	−0.01	0.20	0.09	**0.80**
14. Local public agencies	−0.02	0.19	0.02	**0.86**
Eigenvalue	5.41	2.15	1.04	1.00
Alpha	0.84	0.80	0.72	0.72

globally (Rugman and Verbeke, 1998; Christmann and Taylor, 2001).

A second moderating factor in the relationship between environmental strategy and stakeholder orientation may be firm size (though, in this sample, correlated with the multinational character of the firm). It is important to emphasize that many smaller domestic firms in Belgium are family-owned and do not have their shares listed on the stock exchange. This may be reflected in the perceived importance of shareholder pressures. Moreover, smaller enterprises may attach less importance to international customers, suppliers, and rivals than large firms. The natural logarithm of annual sales has been used most frequently to control for firm size, for example in studies of performance (Capon, Farley, and Hoenig, 1990) and was therefore also used in this study. Data on annual sales were obtained from the financial statistics compiled by the National Bank of Belgium.

Finally, industries vary in their perception of—and response to—stakeholder pressures, according to the heritage of stakeholder management in the industry's history. Industries also differ in the perceived importance of—and approach to—environmental management. For example, the chemical industry was instrumental to the development of responsible care systems. In order to account for these differences and their potential impact on the relationship between environmental strategy and importance attached to stakeholders, six sectoral dummy variables were included: (1) food and beverages, (2) other light industries such as textiles, pulp and paper, printing, furniture, plastics, and other packaging materials, (3) chemical products including pharmaceuticals, oils, detergents, and cosmetics, (4) heavy manufacturing and machinery, (5) natural resources, and (6) other sectors such as wholesale distribution, construction, transportation, and utilities.

Analysis

First, the means and standard deviations of the importance of each individual stakeholder group were computed for each environmental strategy cluster. One-way analysis of variance (ANOVA) was then used to test whether the differences in the perceived importance of each stakeholder among the three environmental strategies were statistically significant. *Post hoc*

statistical tests (Bonferroni test) were also conducted to test for statistical differences between clusters pairwise. As the importance attached to various stakeholder groups is often correlated, this procedure increases the probability of mistakenly accepting a linkage between environmental strategy and importance attached to stakeholders in general. Therefore, as mentioned above, factor analysis was used to reduce the number of dependent variables and resulted in four broad groups of stakeholder influences: (a) primary, external stakeholders, (b) secondary stakeholders, (c) primary, internal stakeholders, and (d) regulators at various institutional levels, each group represented by its corresponding factor score. The ANOVA test was repeated for each group of stakeholder pressures. A multivariate analysis of variance (MANOVA) was also performed to test the linkage between environmental strategy and the overall stakeholder orientation of firms. Finally, control variables (for multinationality, size and industry) were entered into the analysis as covariates, and one-way analysis of covariance (ANCOVA) was performed to verify whether differences in environmental strategy were still associated with differences in the perceived importance of each stakeholder group, after the other effects had been accounted for. A similar test was performed on all stakeholder groups taken together (MANCOVA).

RESULTS

The importance attached to each individual stakeholder by each group of firms is reported in Table 3. The corresponding ANOVA F-values are also listed. High F-values indicate that variations between firms in the perceived importance of an individual stakeholder are related to differences in the environmental management strategies adopted by firms. In addition, pairwise differences between cluster means that were statistically significant at 5 percent are underlined.

The descriptive statistics show that firms with a reactive environmental strategy attach importance primarily to domestic regulators, local public agencies, and international agreements. These findings confirm that firms pursuing a reactive environmental strategy would probably not even have addressed environmental issues in the absence of

Table 3.   Perceptions of individual stakeholder pressures under different environmental strategies

Stakeholder types	Reactive strategy	Pollution prevention	Environmental leadership	ANOVA F
External primary stakeholders				
Domestic customers	1.86	2.20	2.35	3.26*
	(0.95)	(1.07)	(1.17)	
International customers	2.13	2.39	2.97	4.85**
	(1.26)	(1.20)	(1.43)	
Domestic suppliers	1.51	1.78	1.87	3.09*
	(0.71)	(0.88)	(0.84)	
International suppliers	1.49	1.78	1.94	3.48*
	(0.77)	(0.91)	(0.99)	
Secondary stakeholders				
International rivals	1.70	2.06	2.55	6.88**
	(0.93)	(1.09)	(1.31)	
Domestic rivals	1.63	2.02	2.19	5.20**
	(0.76)	(0.96)	(1.17)	
International agreements	2.75	3.21	3.45	5.65**
	(1.19)	(1.04)	(1.09)	
Environmental NGOs	2.10	2.55	2.52	3.34*
	(1.11)	(1.19)	(1.16)	
Press	2.07	2.63	2.65	5.62*
	(1.05)	(1.13)	(1.31)	
Internal, primary stakeholders				
Employees	2.21	2.28	2.84	4.51*
	(0.99)	(0.94)	(1.21)	
Shareholders	2.14	2.75	3.19	9.71**
	(1.19)	(1.22)	(1.25)	
Financial institutions	1.70	1.98	2.26	4.11*
	(0.90)	(0.95)	(1.06)	
Regulatory stakeholders				
National (and regional) governments	3.76	4.07	3.87	2.45+
	(0.99)	(0.80)	(1.06)	
Local public agencies	3.41	3.76	3.45	2.83+
	(0.99)	(0.91)	(1.23)	

$^+ p < 0.10$; $^* p < 0.05$; $^{**} p < 0.01$

regulation. However, in accordance with Hypothesis 1, the findings demonstrate that firms pursuing a pollution prevention strategy attach even more importance to regulatory pressures, indicating the perception of regulation as a set of guidelines to further invest in various resource domains and to improve environmental performance, rather than as a mere constraint. In addition, these firms also appear to attach substantial importance to shareholders, the media, and ENGOs. The firms with an environmental leadership strategy appear to be associated with the largest set of stakeholders perceived as important. They differ from firms with a pollution prevention strategy mainly by the importance attached to employees, international rivals, and international customers.

The perceived importance of the four stakeholder groups (as measured by the factor scores) and corresponding ANOVA F-values are reported in Table 4.

Hypothesis 1 predicted that regulatory pressures would be perceived most strongly by firms pursuing a pollution prevention strategy and less strongly by the two other categories of firms. The factor score capturing the importance of regulation is indeed highest for the cluster of pollution prevention firms, second highest for

Table 4. Perceived importance of stakeholder groups under different environmental strategies

Stakeholder types	Reactive strategy	Pollution prevention	Environmental leadership	ANOVA F	MANOVA Wilki's λ
External primary stakeholders					
Mean	−0.21	0.08	0.23	2.76[+]	
S.D.	0.91	1.05	1.31		
Secondary stakeholders					
Mean	−0.25	0.11	0.23	3.86[*]	
S.D.	1.03	0.97	0.94		
Internal primary stakeholders					
Mean	−0.17	−0.02	0.46	4.68[**]	
S.D.	1.02	0.91	1.11		
Regulatory stakeholders					
Mean	−0.14	0.17	−0.22	2.90[+]	
S.D.	0.99	0.85	1.32		
Overall effect					0.86[**]

[+] $p < 0.10$; [*] $p < 0.05$; [**] $p < 0.01$

the cluster of reactive firms, and lowest for the cluster of environmental leaders, but the perceived differences in the importance of regulation among the clusters are small, as shown by the F-value. This is not surprising as the initial analysis of individual stakeholder importance (see Table 3) found the difference between reactive firms and pollution-preventing firms significant but not the difference between pollution-preventing firms and environmental leaders.

Hypothesis 2 predicted that the importance attached to primary stakeholders would be highest for environmental leaders, somewhat lower for pollution-preventing firms and lowest for reactive firms. The factor score capturing internal, primary stakeholders (which, in this research, include financial institutions) and the corresponding F-values both support the hypothesis. In contrast, the factor score capturing external, primary stakeholders (customers and suppliers) and the corresponding F-value do not provide much support for Hypothesis 2.

Finally, Hypothesis 3 suggested that the importance attached to secondary stakeholders (rivals, international agreements, ENGOs, and the media) would be highest for environmental leaders, much lower for pollution-preventing firms, and lowest for reactive firms. However, Table 3 reveals a complex set of linkages between the importance attached to individual stakeholders and the environmental strategy type. The set of environmental leaders (dominated by MNE affiliates) does appear to attach most importance to international

agreements and international (more than domestic) rivals, suggesting that environmental leaders are interested in the development and transfer of best practices in the environmental area. It should be emphasized, however, that all firms perceive international agreements as important, irrespective of their environmental strategy, implying that such agreements may provide a suitable institutional framework for public–private cooperation. Interestingly, environmental leaders do not perceive ENGOs and the media as more important than pollution-preventing firms. Better environmental management practices may thus be associated with efforts to avoid the threat of negative publicity and loss of legitimacy up to a point, but ENGOs and the media do not yet appear linked to environmental leadership.

The result of the MANOVA analysis for the four stakeholder groups taken together is significant. In the absence of other control variables, differences in environmental strategies are associated with 14 percent of the variation in the importance attached to stakeholders.

THE IMPACT OF MULTINATIONALITY, SIZE, AND INDUSTRY

As noted before, the sample can be decomposed into 100 domestic firms and 97 MNE affiliates (Belgian or foreign-owned). This raises the possibility that any observed linkage between environmental strategy type and stakeholder management

could result solely from the firms' status as MNE affiliates or domestic companies. The status of the firm as an MNE affiliate indeed appears to have an important effect on several linkages between environmental strategy choice and stakeholder management. The following examples, resulting from the comparison of the descriptive statistics for MNE affiliates and domestic Belgian firms (available from the authors) are illustrative:

1. Example of a strong divergence in results: MNE affiliates in all three strategy categories (reactive, pollution prevention, environmental leadership) appear to attach substantial importance to international customers. In the case of domestic firms, only those with environmental leadership strategies view international customers as important, but even there domestic customers are still viewed as more critical. Here, it is important to note that many of the domestic Belgian firms export a substantial portion of their production and are therefore also faced with international customers on a daily basis. The difference with the MNE affiliates is that the latter operate in a multinational network, whereby the firm's physical presence in a variety of countries provides an internal incentive, irrespective of its environmental strategy, to attach as much importance to foreign markets as to the local market.

2. Example of a difference in magnitude of importance in the results: the importance attached to international competitors is stronger for MNE affiliates than for domestic companies in every

strategy category. Here, too, the internal MNE network effect appears to separate MNE affiliates from domestic firms, which are otherwise equally exposed to international competition.

3. Example of full consistency across strategy categories: international agreements are viewed as important by all strategy categories of MNE affiliates and domestic firms.

The above results are important as they suggest that some of the linkages between environmental strategy choices and stakeholder management are fundamentally determined by the firm's status as a domestic firm or MNE affiliate. Hence, relatively strong, general prescriptions on the implications of environmental strategy choices for stakeholder management, such as voiced by Hart (1995), should again be moderated.

The following observations stand out in the quantitative analysis when accounting for multinationality, size, and industry effects (Table 5). The link between the importance attached to internal, primary stakeholders and environmental strategy choice is weakened after inclusion of the variables controlling for firm multinationality, size, and industry. More specifically, the relationship is moderated by the size effect, probably because many smaller firms in Belgium are still family-owned. Employees' power also tends to be stronger in larger firms, which are by law required to establish a social council with employee representation. When multinationality, size, and industry effects have been accounted for,

Table 5. Perceived importance of stakeholder groups under different environmental strategies, accounting for firm size, multinationality, and industry

	ANCOVA F				MANCOVA Wilki's λ
	External primary stakeholders	Secondary stakeholders	Internal primary stakeholders	Regulatory stakeholders	All stakeholders
Environmental strategy	1.95	2.81*	0.45	2.56+	0.92*
Covariates					
MNE affiliate	1.40	0.25	0.39	7.42**	0.95*
Size	0.02	2.83	8.34**	1.19	0.93*
Natural resources	0.03	0.56	1.68	0.13	0.98
Chemical industry	0.10	0.52	8.09**	3.42	0.935*
Manufacturing	0.06	4.15**	2.15	2.10	0.96
Light Industries	9.06*	1.67	0.44	2.43	0.93+
Others	0.01	0.13	0.32	0.92	0.995

$^+ p < 0.10$; $^* p < 0.05$; $^{**} p < 0.01$

differences in environmental strategy are still associated with 8 percent of the variance in the importance attached to stakeholders (Table 5, MANCOVA). Thus, moves from a reactive strategy toward a pollution prevention strategy and an environmental leadership strategy are indeed associated with both a 'deeper' and 'broader' stakeholder orientation. However, the analysis above has demonstrated that such moves do not imply a linear and equal increase in the importance attached to stakeholders across the entire set of relevant stakeholder groups.

CONCLUSION

This paper has evaluated the linkages between corporate environmental strategies and stakeholder management, with an empirical application to large polluting firms active in Belgium.

In this study, the firms were first classified according to their environmental management practices, building upon Hart's (1995) resource-based framework. Cluster analysis suggested a classification consisting of three dominant environmental management strategies: (1) *reactive*, (2) *pollution prevention*, and (3) *environmental leadership*. Whereas many firms included in the sample had already shifted from a reactive to a pollution prevention strategy, only a minority had adopted an environmental leadership strategy, most of them MNE affiliates. Overall, the companies included in the sample attached the highest importance to regulators (national government and local public agencies) and international agreements.

In accordance with the predictions of Hypothesis 1, there is some support for the view that firms with a pollution prevention strategy attach the highest importance to regulation. This finding suggests that an environmental leadership strategy has little to do with managing stakeholders in the regulatory sphere. It also suggests that further shifts from pollution prevention toward environmental leadership may require conventional environmental policy (e.g., command and control measures, economic incentives) to be complemented by cooperative efforts between industry and regulatory agencies.

This research supports the view that environmental leadership is associated with actively managing the changing norms and expectations of various stakeholders, other than regulators. However, not all stakeholders appear to be perceived as equally important for firms with an environmental leadership strategy. More specifically, only the linkage between environmental strategy and internal, primary stakeholder management (Hypothesis 2) appears rather strong. This linkage does not appear to be statistically significant for external, primary stakeholders. This result may be explained by the fact that most large manufacturing operations located in Belgium tend to specialize in the production of intermediate goods. The resulting relative absence of direct contact with final consumers may help explain inertia in prevailing supply chain management practices, even when firms become more environmentally proactive.

Although the secondary stakeholders as a set appear to be viewed as more important by environmental leaders, this does not hold for all individual secondary stakeholders (Hypothesis 3). More specifically, ENGOs and the media are not perceived as more important by firms with an environmental leadership strategy as compared to pollution-preventing companies.

Overall, the linkage between environmental strategy and stakeholder management, albeit statistically significant, has only a moderate importance. However, this situation characteristic of manufacturing operations located in Belgium could change in the future, if a number of trends observed in other developed economies such as Canada and the United States also took place there. For example, ENGOs could indirectly become more influential by targeting some of their lobbying efforts towards consumers and suppliers. In addition, the move toward more sophisticated environmental reporting could make it easier for the primary, external stakeholders as well as the financial markets to reward leaders and punish noncompliers.

This study has six key implications. The first implication is that effective environmental management requires the identification of important stakeholders. The key stakeholders may vary substantially depending upon the environmental strategy chosen and the relevant institutional context faced by the firm. Firms adopting an environmental leadership strategy clearly view as critical a broader range of stakeholders than pollution-preventing firms or reactive firms, but even for these companies some stakeholder groups are perceived as much more important than others.

Second, environmental stakeholder management is closely related to the development of green competencies: we demonstrated that shifts from a reactive approach toward pollution prevention and then to environmental leadership require substantial resource allocations in multiple domains: investments in green product and manufacturing technologies, in employee skills, in organizational competencies, in formal (routine-based) management systems and procedures, and, finally, in the reconfiguration of the strategic planning process. This implies that effective stakeholder management is much more than a skillful public relations exercise; it is the visible reflection of an underlying resource-based strategy, much in line with Hart's (1995) and Freeman et al.'s (2000) seminal work in this area.

Third, in this study the MNEs as a set appeared to have adopted more sophisticated environmental strategies than domestic firms. To some extent, this reflects the nonlocation-bound nature of their firm-specific advantages in greening. However, these do not arise primarily from government regulation, in contrast to the prescriptions of Porter and van der Linde (1995). Responsiveness to government regulation, even in the dynamic sense, and taking into account learning effects, is insufficient to push firms to move beyond pollution prevention. Environmental leadership builds upon a very different approach to strategy: it is associated with a long-term vision to broaden and deepen the linkages with a variety of salient stakeholders, in addition to the allocation of resources in the various resource domains described above.

A fourth implication, related to the above, is geared toward public policy-makers. They should pay attention to the finding that conventional environmental policy is perceived as having a somewhat reduced importance by firms adopting environmental leadership strategies. However, since such firms view the development of green competencies as a source of competitive advantage, they are likely to cooperate with regulators in the development of new regulations tailored to satisfy their firm-specific needs. In fact, there is already a tendency for regulatory agencies to consult with industry before enacting or implementing new environmental rules, and a greater emphasis on voluntary regulation in most industrialized countries (Rugman et al., 2000). This tendency is also reflected in the post-1992 EU environmental policy (Buysse, Coeck, and Verbeke, 1999). Nevertheless, given that many firms are still in the reactive and pollution prevention stages, this voluntary approach needs to be combined with a more stringent enforcement of conventional regulation.

Fifth, as regards future research, it appears critical in empirical studies on this subject not to take mainstream classifications of environmental strategies or relevant stakeholder groups found in the academic literature for granted. Each new piece of research should first carefully investigate the actual environmental strategy profiles of the firms included in the sample, as well as the decomposition of the stakeholder groups considered.

Sixth, managerial perceptions (stated preferences) merit more scholarly attention. The importance attached to specific sets of stakeholders, and which appears to be associated with a particular environmental strategy, is ultimately determined by managerial values, in line with Freeman et al. (2000). Future empirical analysis could study the forces influencing managerial values in the realm of environmental strategy. It could also investigate whether the match or conflict (mismatch) between managers' values and corporations' values influences the proactiveness of environmental practices.

Finally, the study's limitations should be noted. The findings reflect the perceptions of the companies that accounted for the bulk of water pollution and solid waste production in Belgium. Since it was primarily larger firms (as measured by annual sales) that participated in the survey, this bias should be kept in mind when interpreting the findings. Another limitation of the study is related to the nature of the country where the data were collected. The results reflect the perceptions of polluting firms operating in a small, open economy specialized in producing intermediary goods, and may not be generalizable to larger economic systems or to firms operating in regions with a different structure of industry as these may be faced with a different configuration of salient environmental stakeholders.

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