

**Stakeholder perspectives on accounting information:
Three essays on environmental accounting**

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ABSTRACT

Stakeholder perspectives on accounting information: Three essays on environmental accounting

Michelle Rodrigue
Concordia University, 2010

Through their use of resources, their investments and their output, corporations have a significant impact on our natural environment. In that regard, the long term sustainability of the current business model is currently attracting widespread attention. However, corporations have access to several environmental management tools at both the technical and managerial levels. The challenge is to integrate and implement these tools in their business activities to improve corporate environmental performance. Among these tools, accounting plays a critical role in the environmental management of organizations as it directly relates to the measurement and disclosure of corporate environmental performance.

The purpose of this dissertation, which comprises three essays, is to study the role of stakeholders in the environmental accounting-related issues of environmental investment, performance measurement and disclosure. The first essay focuses on environmental resource allocation decisions and specifically examines the influence of corporate governance over the intensity of environmental capital expenditures. Results show that governance mechanisms dedicated to stakeholder accountability and environmental protection increase the intensity of environmental capital expenditures. The second essay concentrates on environmental performance measurement by investigating the role played by stakeholders in the selection of internal environmental performance indicators. Results suggests that stakeholder influences over internal

environmental performance metrics are organized along a continuum ranging from narrow unidirectional influence to broad interactive influence necessitating environmental benchmarking. The last essay shifts the attention toward voluntary environmental reporting. More specifically, I contrast corporate and non-corporate (stakeholder) environmental disclosure, focusing on a single organization and its critical stakeholders. Results from the analysis of these environmental reporting dynamics show that different disclosure patterns arise among the perspectives, ranging from uniformity to performance-neutral and performance-biased gaps between the case firm's and stakeholders' disclosures. Overall, these results lead to the conclusion that stakeholders influence environmental accounting, but the form and extent of their influence depends upon the nature of the stakeholder group and the environmental issue at stake. As a whole, by bringing nuances into the portrayal of stakeholder influences, the dissertation enhances our knowledge of firms-stakeholders interactions with respect to environmental accounting.

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As for my family, no words can express how grateful I am to my partner Ian for embarking on this journey with me. His constant loving support, patience and understanding were instrumental to the completion of this dissertation. I thank him from the bottom of my heart for always standing by me. Many thanks to my parents, Liette

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PREFACE

Contribution of authors

The thesis comprises three distinct essays. The second essay, entitled “Stakeholders’ influence over the choice of internal environmental performance indicators”, is being developed into a co-authored paper with Professors Emilio Boulianne and Michel Magnan. I provided the initial intellectual impetus to launch the research project. I performed most of data collection and analysis and wrote the first drafts of the paper. Professors Boulianne and Magnan contributed additional expertises in the areas of environmental disclosure and management control research. The ultimate outcome is a joint effort with all three coauthors contributing to writing and developing the paper.

INTRODUCTION

The worrying context of climate change (see Worldwatch 2009) has called the environmental impacts of all social actors into question. Solutions must be found and implemented by all actors for the planet to survive. Among the social actors, businesses generate significant amounts of pollution and other environmental impacts that are not sustainable in the long term. Environmental tools at both the technical and managerial levels of corporations must be integrated in business activities to improve corporate environmental performance. As such a tool, accounting can contribute to the environmental management of organizations. Indeed,

“(j)ust as conventional management and financial accounting has been a powerful tool in the management, planning, control and accountability of the economic aspects of an organization, broader techniques of sustainability accounting and accountability have the potential to be powerful tools in the management, planning, control and accountability for organizations of their social and environmental impacts” (Unerman et al. 2007:3).

In this respect, the dissertation examines several environmental accounting issues from a stakeholder perspective. The three interrelated essays in the dissertation examine the following accounting issues: (1) budgeting (e.g. Fisher et al. 2002; Hansen et al. 2003) in the form of investments in *environmental capital expenditures* (2) strategic performance measurement systems (e.g. Hoque and James 2000; Ittner et al. 2003), in the form of *internal environmental performance indicators*, and (3) voluntary external reporting (e.g. Gibbins et al. 1990; Healy and Palepu 2001), in the form of *corporate environmental disclosure*. These three issues cover related environmental matters. Investment in environmental capital expenditures dedicated to pollution control and abatement (essay 1) necessitates environmental performance monitoring (essay 2) to ensure that the expected

improvements in performance are accomplished. Results from this monitoring process can then be voluntarily externally reported to stakeholders concerned with environmental issues (essay 3). As a whole, the dissertation ranges from internal environmental decision-making to external reporting on environmental activities and performance. It adopts a stakeholder perspective to acknowledge and emphasize that underlying any attempt at social (including environmental) accounting there are (internal or external) stakeholder recipient(s) to whom the environmental account is addressed (Gray et al. 1997). Specifically, the three essays respectively focus on the following research questions:

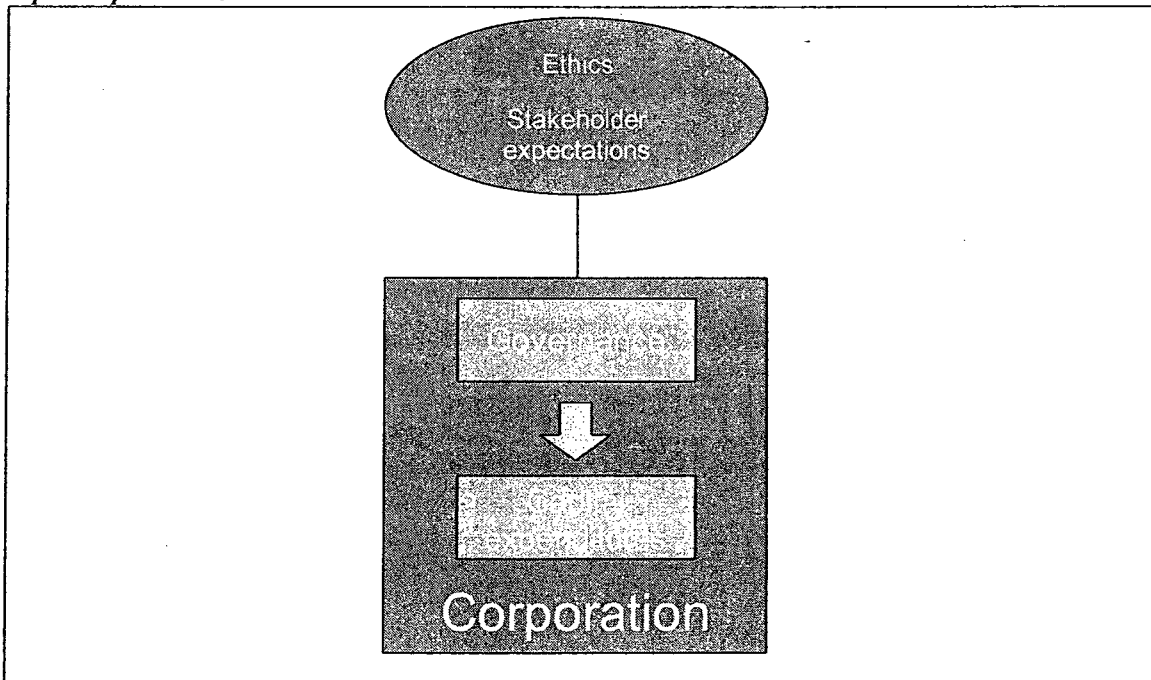
- 1) To what extent do governance mechanisms affect the intensity of environmental capital expenditures investments?
- 2) How do stakeholders influence firms in the selection of internal environmental performance indicators?
- 3) How different are corporate and non-corporate external environmental disclosures?

Each essay will now be briefly introduced.

With its focus on the intensity of capital expenditures, the first essay is part of the budgeting literature (see Covalleski et al. 2003 for a review). This literature covers both the amount of resources allocated to a specific purpose and the process of elaborating and using budgets (Covalleski et al. 2003). The first essay extends this substream by studying the drivers of capital expenditures allocation decisions. In particular, the essay examines the role played by corporate governance in the intensity of environmental capital

expenditures. Stakeholder- and ethics-based arguments on corporate governance hypothesize that better environmentally governed firms invest more in environmental capital expenditures. This argument is analyzed with the help of a regression model testing the relationship between the intensity of environmental capital expenditures and board characteristics related to environmental management (e.g. the presence of an environmental committee on the board) on a sample of 197 firm-year observations from companies in the S&P 500, operating in environmentally sensitive industries. Figure 1 depicts the relationship analyzed in the first essay.

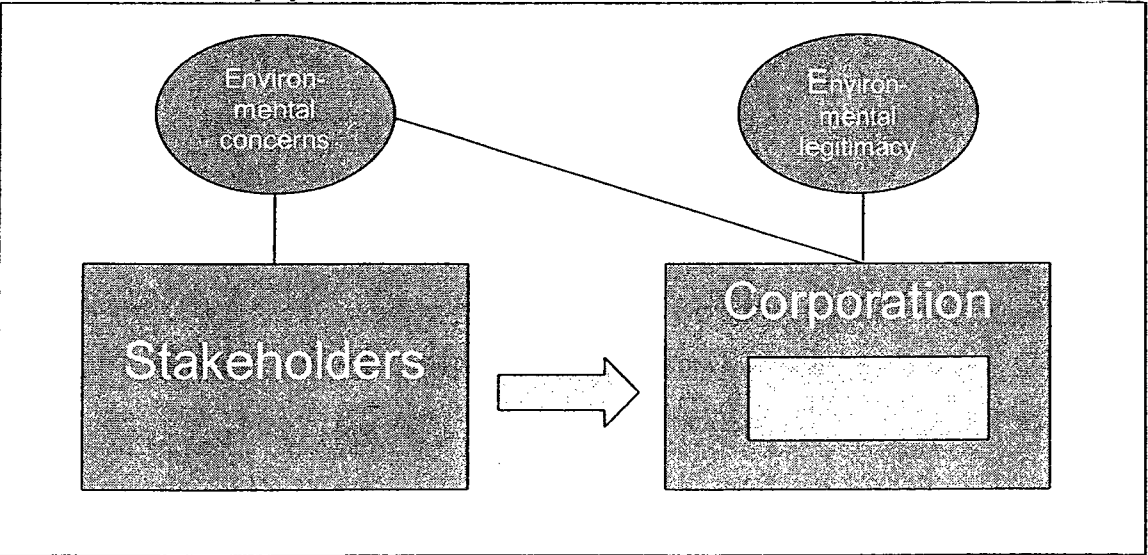
Figure 1: The relationship studied in the first essay ‘The impact of governance on environmental capital expenditures’



Within the accounting literature, internal environmental performance indicators are included in strategic performance measurement systems. A strategic performance measurement system is a type of management accounting system that features a set of

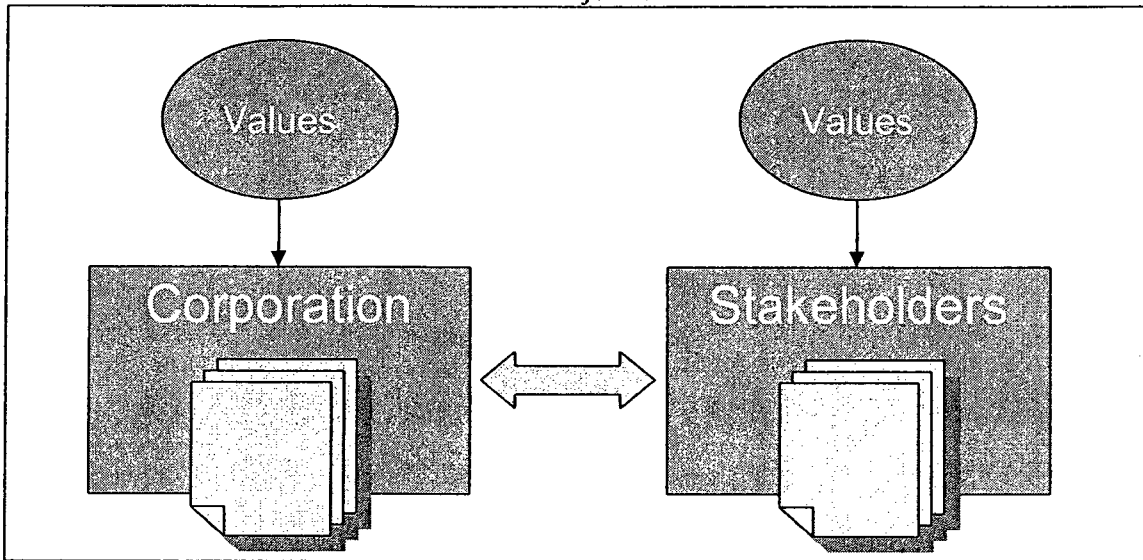
performance measures designed to align managers' actions with the strategy of the organization (Atkinson et al. 1997; Webb 2004). This system contains multiple performance measures, including internal environmental performance indicators. The objective of the second essay is to study strategic performance measurement systems through the stakeholder lens by investigating the role stakeholders play in the selection of internal environmental performance indicators. The essay adopts a qualitative field research methodology that relies on complementary information sources; interviews with managers and a review of corporate documents and policies. The field setting is a large multinational organization that is active in an environmentally sensitive sector with operations on all continents. Interviews were conducted with key environmental management executives from the firm's worldwide headquarters. Both stakeholder theory and legitimacy theory are drawn upon to structure and integrate the interpretation of managers' responses and corporate documents. Figure 2 provides an overview of the relationship studied in the second essay.

Figure 2: The relationship studied in the second essay 'Stakeholders' influence over the choice of internal environmental performance indicators'



The third essay falls within the scope of voluntary disclosure research. Voluntary environmental accounting disclosure is part of the broad stream of accounting research analyzing all sorts of voluntary disclosure (see Healy and Palepu 2001; Berthelot et al. 2003 for reviews). This stream of literature examines the determinants (e.g. Botosan and Harris 2000; Clarkson et al. 1994; Cormier and Magnan 2003) and consequences (e.g. Leuz and Verrecchia 2000; Richardson and Welker 2001) associated with the voluntary disclosure of accounting information. The third essay covers both the determinants and consequences of corporate voluntary environmental disclosure by analyzing the informational dynamics of environmental management. These dynamics refer to the way constituents (the firm and its stakeholders) release environmental information, react to the releases from other constituents and affect each other in their disclosures (adapted from Buhr 2007). The analysis is accomplished through a longitudinal case study contrasting environmental information reported by the case firm with environmental information about the firm disclosed by four stakeholder groups or their representatives, namely governments, community, environmental non-governmental organizations and investors. The case firm selected for this study is a large international corporation operating in the forest and paper products industry throughout North America and the United Kingdom. The differences between corporate and stakeholder environmental values underlined by the conceptual framework of ethical relativism are employed to interpret the patterns found in the informational dynamics. Figure 3 illustrates the relationship investigated in the third essay.

Figure 3: The relationship studied in the third essay: *'Contrasting realities: Corporate environmental disclosure and stakeholder-released environmental information'*



Taken as a whole, the dissertation provides related insights into stakeholders' concern for and impact on accounting information. The first essay examines how stakeholder- and ethics-driven governance affects the accounting decisions concerning environmental capital expenditures resource allocation. The second essay presents stakeholder influences on the management accounting issue of environmental performance measurement. The third essay provides evidence of stakeholder actions and impacts regarding the financial accounting issue of voluntary environmental reporting. Overall, the dissertation contributes to accounting knowledge by presenting a nuanced portrayal of stakeholder influence on environmental accounting issues. It shows that different forms and degrees of influence arise for different issues. This knowledge is extremely important in the environmental context of the climate change affecting the planet. In Canada today, one of the most important pieces of information needed by organizations to properly address sustainability issues is how to adapt business strategy to climate change (RNSB 2008). The guidance on firm-stakeholder interaction for environmental

investment, performance measurement and disclosure that is provided by this dissertation is a valuable resource for corporations. It will potentially help organizations move towards greater accountability and/or sustainability with respect to environmental performance.

The dissertation is organized as follows. The first three chapters present each doctoral essay. The fourth chapter adopts an integrative perspective to discuss the dissertation as a whole. A conclusion follows, which includes a summary, limitations and avenues of future research.

CHAPTER 1: THE IMPACT OF GOVERNANCE ON ENVIRONMENTAL CAPITAL EXPENDITURES

Abstract

This paper combines the governance and the environmental accounting literature to explore the impact of corporate governance on environmental budgeting decisions. Specifically, a pooled cross-sectional sample of firms from environmentally sensitive industries is employed to investigate the relationship between the intensity of environmental capital expenditures and board characteristics related to environmental performance management. Results provide support for the stakeholder- and ethics-based argument that the presence of environmental governance mechanisms at the board level leads corporations to invest more in environmental capital expenditures. Complementary analyses show that the influence of environmental governance over environmental capital expenditures is broader for firms with an environmental board committee than for firms functioning without such a committee. However, this influence is more limited for firms pursuing a reactive rather than a proactive environmental strategy. These results suggest that environmental governance is intended to improve environmental protection rather than to greenwash. By providing exploratory evidence on the role of the board with respect to environmental investment, this study innovates by demonstrating that corporate governance exerts an influence beyond the realm of conventional financial activities. The paper thus begins answering the call for research on the relationship between environmental accounting and governance.

1.1. Introduction

Corporate social responsibility is increasingly considered part of the scope of corporate governance (Conference Board of Canada 2008; SustainAbility 2001; 2008; Milnes 2009). To manage the social and environmental responsibilities faced by corporations, diverse voluntary governance mechanisms are implemented at the board and the top management levels. For instance, some boards delegate the management of social responsibilities to a committee. Exxon Mobil has such a committee and formulates its mission as follows: “This (Public Issues and Contributions) Committee reviews the effectiveness of the Corporation’s policies, programs, and practices with respect to safety, health, the environment, and social issues. The Committee hears reports from operating units on safety and environmental activities, and also visits operating sites to observe and comment on current operating practices” (Exxon Mobil proxy statement April 16, 2009, p.10). Other boards recruit directors with environmental expertise. For example, both Alcoa and Du Pont had former World Wildlife Fund¹ executives on their boards in 2009 (Alcoa proxy statement March 16, 2009; Du Pont proxy statement March 20, 2009). Still other boards incorporate environmental incentives in their executive compensation scheme (see U.S. Steel proxy statement of March 13, 2009 for an example).

While voluntary environmental governance activities are rapidly evolving, controversy around voluntary environmental initiatives is found in the academic accounting literature. Some researchers argue that greater environmental disclosure is used to cover poor environmental performance (e.g. Hughes et al. 2001; Patten 2002) whereas others

¹ WWF is an environmental non-governmental organization whose mission is “to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature” (WWF 2009).

maintain the opposite, i.e. that superior environmental disclosure demonstrates better environmental performance (e.g. Al-Tuwaijri et al. 2004; Clarkson et al. 2008). In the midst of this controversy, the current context of climate change and pollution of our planet (see Worldwatch 2009) underlines the necessity to differentiate greenwashing activities² from sound environmental initiatives in order to foster organizational change towards sustainable development (see Birkin et al. 2005; Adams and McNicholas 2007; Bebbington 2007), specifically by curbing greenwashing while enhancing environmental protection. Environmental governance has not been broadly studied in this respect, although the motives behind this function certainly deserve attention. At the very least, the implementation of environment-related governance mechanisms on boards may signal a concern for the environment. Is this concern translated into tangible pro-environment actions? This question is the starting point of this paper, which broadly aims to study the environmental consequences of environmental governance.

More specifically, the paper investigates the impact of environmental governance mechanisms on the intensity of environmental capital expenditures. Environmental capital expenditures (hereafter ECE) are capital expenditures dedicated to pollution control and abatement. From an accounting perspective, ECE provide future incremental economic benefits related to competitive advantages (Clarkson et al. 2004) and are part of the capital expenditure budgeting process. ECE are also important from regulatory, strategic and financial perspectives. From a regulatory standpoint, current and future environmental laws require corporations to invest in diverse equipment for compliance

² Greenwashing refers to the process by which corporations attempt to shape their image through the announcement of environmental actions and/or the mention of environmental concerns in their communications for the purpose to appear environmentally responsible (Laufer 2003).

purposes (Johnston 2005). As such, environmental regulators regard current and future ECE as key elements of environmental performance compliance. In addition, ECE and projected ECE are specifically targeted by the Securities and Exchange Commission (Johnson 1993; SEC 2008). The financial regulator therefore considers information on environmental capital spending of significant importance to the overall financial portrayal of corporations. From a strategic standpoint, for the environmental strategy to create organizational value, it has to rely on valuable resources (Hart 1995). ECE are some of those valuable resources that, by definition, contribute to the improvement of environmental performance. They are thus strategically important (Buysse and Verbeke 2003). From a financial standpoint, the contribution of ECE in the improvement of environmental performance is recognized by investors, who confer value-relevance to ECE in certain situations (Clarkson et al. 2004; Johnston 2005). In addition, as ECE represent potential means by which corporations can reduce their greenhouse gas emissions, they also have market significance from the carbon-trading financial perspective (Johnston et al. 2008). In brief, given the accounting, regulatory, strategic and financial significance of ECE and the purported environmental dedication of certain governance mechanisms, this paper investigates whether environmental governance mechanisms can trigger greater environment-related investments.

Governance is traditionally defined as “the set of mechanisms that influence the decisions made by managers when there is a separation of ownership and control” (Larcker et al. 2007: 964). It aims to ensure the optimal allocation and utilization of resources and the protection of shareholders’ interests (Bushman and Smith 2001). In the social accounting

literature, the definition of corporate governance is broadened to take into account directors' duties towards stakeholders (Haniffa and Cooke 2005; Sacconi 2006; Milnes 2009). Corporate governance refers to “the system of checks and balances (...) which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activity” (Solomon 2007: 14). In line with this second definition of corporate governance, the conceptual framework of the paper adopts a stakeholder and ethical perspective on governance. It attributes to directors economic, ethical and social (including environmental) responsibilities towards stakeholders for which accountability must be discharged (Brennan and Solomon 2008; Collier 2008; Rossouw 2005). As such, directors need to institute mechanisms that will ensure that established ethical standards are followed throughout their organization (Rossouw 2005). Further, directors consider environmental compliance one of the most important stakeholder expectations (Wang and Dewhirst 1992). This entails that corporate governance is an important determinant of environmental performance (Johnson and Greening 1999; Kassinis and Vafeas 2002; Lam and Li 2007). Accordingly, corporate governance can be deemed to influence ECE decisions because ECE are, by definition, related to environmental performance improvement. Taken as a whole, this conceptual framework proposes that firms that have implemented environmental governance mechanisms will undertake more intensive ECE investments. The intensity of ECE investments is defined as the proportion of capital expenditures dedicated to pollution abatement and control for a given year.

I explore this proposition by regressing the intensity of ECE on three environmental governance mechanisms and several environmental and financial control variables. The environmental governance mechanisms examined are (1) the presence of an environmental committee on the board; (2) the proportion of external board members having specific environmental knowledge; and (3) the presence of environmental incentives in executive compensation. These mechanisms are derived from the financial governance literature, in which similar mechanisms were found to be relevant to financial decisions and outcomes (see Cohen et al. 2004 for a review). The study's sample consists of firms included in the S&P500, operating in the 10xx to the 39xx industry SIC code (environmentally sensitive industries) and disclosing ECE information in their 10-Ks. The final sample comprises 197 firm-year observations that were collected from years 2003 to 2007.

Results provide support for the argument that the presence of environmental governance mechanisms at the board level leads corporations to invest more in ECE. The influence of environmental governance is broader for firms with an environmental board committee than for firms functioning without such a committee. However, the influence is more limited for firms pursuing a reactive rather than a proactive environmental strategy. These results imply that environmental governance is intended to improve environmental protection rather than to greenwash.

By providing exploratory evidence of the effectiveness of environmental governance on environmental investment, this paper answers the call for more research on the

relationships between environmental accounting and governance (Berthelot et al. 2003). Specifically, it extends two accounting streams of literature: the social and environmental stream and the governance stream. Indeed, social accounting research has concentrated on the impact of general governance mechanisms on social disclosure (Haniffa and Cooke 2005; Van der Laan Smith et al. 2005; Aerts et al. 2007; Cormier et al. 2009). In addition, to date, most governance research has focused on the factors inherent in the monitoring of financial activities, such as audit committee characteristics, board composition and ownership structure (Bushman and Smith 2001; Cohen et al. 2004); environmental governance mechanisms have been neglected (Kassinis and Vafeas 2002; Brennan and Solomon 2008; Berrone and Gomez-Mejia 2009). The paper innovates by studying multiple environmental governance mechanisms in an environmental budgeting decision.

The paper also has practical and policy implications. In the current context of burgeoning environmental governance, the paper offers evidence relevant to directors, regulators and stakeholders. Indeed, the results will provide guidance to boards concerned with environmental issues on mechanisms to improve environmental performance. This is especially important because the environmental governance movement, which is mainly driven by practitioners and environmental non-governmental organizations (ref: Conference Board of Canada 2008; SustainAbility 2001; 2008), has been the subject of little scientific research. Results will also be useful to regulators and standard setters reflecting on the best ways to shape policies in order to stimulate wider corporate care for the environment. For instance, such reflection took place at the World

Economic Forum of Davos (Elkington 2006). Finally, although they are well-developed theoretically, stakeholder engagement and dialogue practices have yet to be broadly employed (Unerman and Bennett 2004; Thomson and Bebbington 2005; O'Dwyer et al. 2005a; Unerman 2007). Before these practices reach a satisfactory level of implementation, stakeholders looking for means to assess the impact of environmental governance for a given corporation may rely on the results of this study.

The paper is organized as follows. The relevant literature is introduced in the second section, along with the conceptual framework and related hypothesis development. The methodological approach is described in the third section while the fourth section presents the results. The last section summarizes the findings and identifies limitations and future research opportunities.

1.2. Background literature and hypothesis development

1.2.1. Environmental capital expenditures

This section summarizes the literature on ECE. The first set of studies focuses on different aspects of ECE disclosure. Cho and Patten (2008) observe the level of ECE disclosure over a ten-year period. They conclude that the breadth and depth of disclosure on the subject is limited and not improving, although the materiality of ECE increases over time. Patten (2005) examines the reliability of projected future ECE by comparing financial report projections with actual spending. He finds that most of the time, projected ECE are overestimated, i.e. that actual environmental investments are lower than previously projected. He concludes that these disclosures “project an image of impending action on environmental matters that is not carried out in reality” (462).

Similarly, Cho et al. (2009) argue that ECE are disclosed not to signal improved future environmental performance, but rather to legitimize poor past environmental performance in the eyes of stakeholders.

A second stream of literature concentrates on the value associated with ECE investment. Clarkson et al. (2004) study the value relevance of ECE conditioned on environmental performance. Their results show that only ECE from low-polluting firms are valued by the market. In other words, the market does not consider that ECE by high-polluting firms generate value for these corporations. Johnston (2005) extends this first study by examining the value-relevance of voluntary and regulatory ECE in terms of abnormal earnings, stock prices and stock returns. Johnston argues that regulatory ECE are investments incurred to comply with environmental laws while voluntary ECE demonstrate an environmental commitment exceeding compliance. He shows that regulatory ECE are negatively associated with all relevance measures, whereas voluntary ECE are not significantly relevant to any measure.

In summary, ECE research demonstrates that ECE disclosure is associated with low levels of environmental performance, in line with the finding that the relevance of actual ECE depends on environmental commitment. However, to the best of my knowledge, the drivers of ECE investments have not been investigated until now. I suggest that environmental governance represents some of these drivers. Thus I add to the ECE accounting literature by examining the influence of governance on ECE spending. The

conceptual relationship between environmental governance and environmental investments is described in the following section.

1.2.2. Governance

The management and finance literature attributes three strategic functions to the board of directors: (1) the *advice* function, whereby board members shape and evaluate strategic decisions; (2); the *monitoring* function, in which they protect shareholders' interests by monitoring managers' behavior; (3) and the *resource-dependence* function, through which they facilitate access to the resources and legitimacy crucial for corporate success (Johnson et al. 1996; Zahra and Pearce 1989; Fama and Jensen 1983). Both the *advice* and the *monitoring* functions of the board can affect ECE intensity. This argument is developed below using studies on the influence of corporate governance on (1) environmental management and (2) on investment decisions.

1.2.2.1. The role of governance in environmental performance management

The firm's strategy is shaped and evaluated through the *advice* function of the board (Zahra and Pearce 1989). To understand this function with respect to environmental management, it is necessary to extend the definition of corporate governance beyond the realm of the mechanisms solely concerned with protection of and accountability to shareholders (see Bushman and Smith 2001; Cohen et al. 2004 for reviews). Indeed, both research and practice suggest the emergence of a broader definition of corporate governance encompassing a wide range of stakeholders (Kolk 2008; Brennan and Solomon 2008), with directors' fiduciary duty encompasses responsibilities towards stakeholders and the environment (Sacconi 2006; Milnes 2009). Specifically, this

definition of corporate governance attributes to directors economic, ethical and social (including environmental) responsibilities for which accountability must be discharged (Brennan and Solomon 2008; Collier 2008; Rossouw 2005). As a result, the economic, social and environmental performance of a corporation depends on the type of corporate governance adopted (Elkington 2006). This section describes the ethical and social (environmental) responsibilities of the board. The economic responsibilities of the board are discussed in the next section.

From a stakeholder perspective, stakeholder accountability and organizational responsibility are issues of corporate governance (Bhimani and Soonawalla 2005; Haniffa and Cooke 2005; Sacconi 2006). In other words, “corporate governance requires firms to take responsibilities for their impacts on societies and on their stakeholders” (Rossouw 2005: 33). Indeed, directors consider themselves responsible towards multiple stakeholders and are aware of stakeholders’ needs and expectations (Wang and Dewhirst 1992). Environmental performance represents an important expectation for stakeholders, including shareholders (Henriques and Sadorsky 1999; Buysse and Verbeke 2003; Tilt 2007; Thomas et al. 2007). This is acknowledged by directors who consider environmental compliance one of the most important stakeholder expectations (Wang and Dewhirst 1992). Following this line of thought, governance practices designed to respond to stakeholder environmental expectations should increase the intensity of environmental activities such as ECE.

From an ethical perspective, directors are responsible for the ethical performance of their firm (Schwartz et al. 2005; Ibrahim et al. 2003). They need to institute mechanisms that will ensure that established ethical standards are followed throughout their organization (Rossouw 2005). Environmental protection is one of the ethical issues under directors' responsibility (Schwartz et al. 2005).³ As such, the oversight of ECE by the board can be motivated by directors' ethical responsibilities. Indeed, corporate governance is an important determinant of environmental performance (Johnson and Greening 1999; Lam and Li 2007). More specifically, boards of directors are key actors in the development and monitoring of the corporate environmental strategy (Kassinis and Vafeas 2002). ECE represent a significant element of this strategy and contribute to environmental performance management (Buisse and Verbeke 2003; Hart 1995; Clarkson et al. 2006). Thus, the supervision of environmental strategy by the board of directors encompasses environmental investments decisions. This coverage of ECE is an essential step in the monitoring of environmental strategy (either reactive or proactive),⁴ because ECE are necessary both to comply with environmental laws and to improve environmental performance beyond compliance (Johnston 2005). Accordingly, governance mechanisms designed to address environmental performance should drive the intensity of ECE.

³ The ethics of corporate environmental protection are underpinned by ecological and human arguments. For instance, the natural environment deserves ethical consideration by the corporation owing to its intrinsic value, i.e. plants, animals and all other components of the natural environment are as worthy to be treated with high moral standards as are human beings (Hoffman 1991). Further, business' responsibility towards future generations and their environmental rights are embedded in the ethics of the collective good (Jeurissen and Keijzers 2004), which translate into moral obligations towards the environment in the present.

⁴ Environmental strategy is defined as an action plan "intended to manage the interface between business and the natural environment" (Sharma 2000: 682). The environmental literature depicts the environmental strategy construct as a continuum with a reactive strategy at one end, and a proactive strategy at the other (Aragón-Correa 1998). The sole objective of a firm with a reactive strategy is compliance with legal requirements, while a firm pursuing a proactive strategy aims for environmentally sustainable development (Hart 1995).

1.2.2.2. The role of governance in investment decisions

Part of the corporate governance *monitoring* function includes the oversight of investments by the board owing to directors' economic responsibilities (Osma 2008). In this respect, corporate governance plays a significant role in various investment-related decisions such as acquisitions (Francis and Smith 1995; Cheng 2008), restructuring (Gibbs 1993; Hoskisson et al. 1994) and the development of innovation (Tihanyi et al. 2003; Hoskisson et al. 2002; Kroll et al. 2008; Nickerson and Silverman 2003).

Corporate governance also significantly influences research and development (R&D) spending. R&D expenditures are similar to ECE owing to their discretionary nature (Johnston 2005; Osma 2008), their potential value for the organization (Clarkson et al. 2004; Deutsch 2007) and their restrained focus (compared with business acquisition, for instance). A general argument of this literature is that strong governance reduces the incentives to manipulate R&D investments. Indeed, various features of corporate governance have a monitoring effect on this investment decision. Board composition and size affect the level of R&D expenditures, as does directors' compensation (Deutsch 2005, 2007; Cheng 2008; Kor 2006). Ownership structure also impacts the level and timing of R&D spending (Francis and Smith 1995; Tribo et al. 2007). Board composition also constrains attempts to manage earnings through cuts in R&D investments (Osma 2008). Collectively, this literature underlines the active stance of corporate governance vis-à-vis strategic investment decisions such as R&D. The same response can be expected towards the environmentally strategic decision of ECE investments.

1.2.2.3. Combining roles

The level of investment in ECE is a corporate decision that contains both a mandatory and a voluntary element (Johnston 2005). The mandatory element reflects capital expenditures that are needed to comply with environmental regulation (Johnston 2005). The voluntary element allows a corporation to move beyond compliance as it positions itself to face future regulation (Clarkson et al. 2004). Voluntary ECE investments also reflect a decision to improve current environmental performance in the spirit of environmental leadership (Hart 1995). Corporate governance potentially influences both elements of ECE through its functions. Through its risk management responsibilities (Jensen and Meckling 1976; Fama and Jensen 1983), which include environmental risks, directors monitor the mandatory component to ensure compliance with environmental regulations, thereby managing environmental risks. Similarly, as part of the responsibility to shape and evaluate the firm's environmental strategy (Zahra and Pearce 1989), the board oversees voluntary ECE when the corporation's environmental strategy aims to go beyond compliance.

In brief, by fulfilling its *advice* function, the board of directors plays a significant role in the development of the environmental strategy, because environmental issues are part of their social and ethical responsibilities towards stakeholders. Corporate governance can therefore be expected to positively affect environmental issues that are significant for the environmental strategy, such as ECE. Further, governance affects the levels of strategic investments such as R&D expenditures, as executed by the *monitoring* function of the board. Corporate governance can therefore be expected to determine the intensity of another type of strategic investment: ECE. Collectively, these arguments suggest that the

extent of consideration for the environment at the board level will determine the proportion of capital expenditures dedicated to environmental protection in given a corporation. Hence, formally stated:

H: *Environment-related governance mechanisms will be positively associated with the intensity of ECE.*

1.3. Method

1.3.1. Sampling process

The sample comprises firms included in the S&P 500 index, operating in the 10xx to 39xx industry SIC codes (environmentally sensitive industries), for whom ECE, governance, environmental and control data are available. ECE are gathered from 10-K reports, governance data are collected from the Historical Governance database of Audit Analytics when available and from proxy statements otherwise, environmental performance originates from the KLD Socrates database (KLD 2009b) and the Corporate Environmental Profiles Database (RMG 2001), whereas financial data originate from Compustat. To avoid noise caused by changes in governance policies following the introduction of the Sarbanes-Oxley Act, data collection was performed for post-SOX years 2003-2007. The final sample comprises 197 firm-year observations.

1.3.2. Empirical model

$$\begin{aligned} & \text{Intensity of environmental capital expenditures}_{it} \\ & = f(\text{Environmental governance mechanisms}_{it}, \text{Environmental performance}_{it-1 \text{ or } t-2}, \\ & \text{Economic characteristics}_{it \text{ or } t-1}, \text{Size}_{it}, \text{Industry}_{it}) \end{aligned} \quad (1.1)$$

Equation (1.1) presents the empirical model designed for this study. The intensity of ECE is examined relative to environmental governance mechanisms and several

environmental and financial control variables. The intensity of ECE is defined as the proportion of capital expenditures dedicated to pollution control and abatement. Three environmental governance mechanisms are examined: the existence of an environmental board committee, the proportion of environmentally aware directors on the board and the presence of environmental incentives in executive compensation. These mechanisms are derived from the financial governance literature, in which similar mechanisms were found to be relevant to financial decisions and outcomes (see Cohen et al. 2004 for a review). Both board level and committee level governance variables are integrated in the model. This is intended to take into account the embeddedness of committees in the board (Klein 2002; Cohen et al. 2004). Executive level governance then adds an additional layer of analysis to the model. Multiple governance variables are examined in order to enrich the portrayal of corporate governance (Vafeas 2005; Cerbioni and Parbonetti 2007). Controls for size and industry are included in the equation because ECE are likely to be tailored to both firm size and the nature of the industry in which the firm operates. Each independent variable is described below.

1.3.2.1. Environmental governance

Existence of an environmental board committee: The relation between corporate governance and sustainability can be expressed by a sustainability-related committee at the board level (Kolk 2008). Indeed, the presence of an environmental committee is a purely voluntary choice by the board of directors and reflects its intention to oversee environmental affairs (Lam and Li 2007). Just as the audit committee influences financial information decisions (Cohen et al. 2004), the environmental committee should positively influence environmental decisions such as the intensity of ECE.

Environmentally aware directors: Environmentally aware directors are board members that can be expected to be knowledgeable about environmental issues given their prior experience in (1) environmental organizations or (2) a peer industry company. The latter experience is considered to proxy for environmental awareness because of the directors' familiarity with the context and the associated environmental issues of the industry in which the corporation operates. This awareness can be deemed a form of expertise these members bring to the board. The literature contains two alternative views of the impact of expertise among board members. For one, board members with industry-specific expertise may be suspected of defending management's poor environmental strategy to protect their industry's financial interests to the detriment of the environment (Kassinis and Vafeas 2002). In contrast, evidence that financial expertise on the audit committee reduces earnings management and restatements (Xie et al. 2003; Bédard et al. 2004; Abbott et al. 2004) and increases internal control quality (Goh 2009; Hoitash et al. 2009) suggests that just as financial expertise improves financial monitoring, environmental expertise may help board members monitor financial decisions such as ECE. Given these competing views, no prediction is made with respect to the direction of the relationship between environmentally aware directors and ECE intensity.

Environmental incentives in executive compensation: Executive compensation influences corporate social and environmental performance (Mahoney and Thorne 2005, 2006). Indeed, environmental incentives are drivers of environmental performance (Henri and Journeault 2007) and as such can be considered relevant elements of environmental

governance (Lam and Li 2007). Focusing executives' attention on environmental issues via their compensation should lead them to spend more on ECE.

1.3.2.2. Environmental performance

Environmental weaknesses: Environmental performance levels (good or bad) trigger responses by the performing corporation (e.g. Al-Tuwaijri et al. 2004; Patten 2002; Deegan and Rankin 1996). ECE intensity can be considered a potential response to this performance. In other words, environmental performance results help shape the environmental strategy (including ECE) and enable the company to take the necessary steps to meet the established environmental objectives (Rodrigue et al. 2009). In this way, past environmental performance will determine the necessary ECE for the upcoming years. It is expected that weak environmental performers in a given year will require more investments in ECE in the following year in order to remain compliant with environmental regulation.

Environmental compliance is proxied by two variables: *environmental violations* and *environmental fines*. Violations of environmental regulation are an important aspect of environmental performance (Kassinis and Vafeas 2002) and, as such, environmental compliance is the minimum level of performance targeted by all types of environmental strategies (Hart 1995). In the present study, the number of environmental violations identifies the existence of a compliance problem within a corporation, whereas environmental fines represent the economic consequences associated with this problem. Non-compliance with environmental regulation can be solved with investments in ECE (Johnston 2005). Accordingly, both *violations* and *fines* are expected to be positively

associated with ECE intensity. To allow for the length of legal procedures and for the interval until the consequences of these procedures reach the organization, a lag of two years is integrated in the model between the two independent variables and intensity of ECE.

1.3.2.3. Economic characteristics

Profitability and growth in cash flows: The financial resources available to a corporation in a given year will determine the change in its environmental performance in the following years (Clarkson et al. 2006). Specifically, economic factors may influence ECE investment decisions (Patten 2005) and thus need to be controlled for. In the present context, lag *profitability* is meant to represent the general economic situation of the corporation, whereas *growth in cash flows* is intended to portray the increase in liquidity available for (environmental) investments more directly.

Age of assets: Older property, plants and equipment employ more pollution intensive technologies (Cormier and Magnan 1999; Cormier and Magnan 2004). The age of these assets should drive investments in ECE for compliance and update purposes.

1.3.3. Variable measurement and data collection

Table 1: Variable measurement

VARIABLES		MEASUREMENT
Intensity of environmental capital expenditures		ECE/ Total capital expenditures
Environmental governance mechanisms	Environmental committee	Indicator = 1 if the board has an environmental committee
	Environmentally aware directors	Proportion of environmentally aware directors on the board (Aware directors/Board size)
	Environmental incentives in executive compensation	Indicator = 1 if environmental incentives are included in executive compensation
Environmental performance	Environmental weaknesses	Total number of environmental concerns attributed by KLD (score out of 7)
	Environmental violations	Total number of violations
	Environmental fines	Fines attributed for environmental violations scaled by sales (Fines/Sales)
Profitability		ROA
Growth in cash flow		Increase in cash flow over the last 3 years
Age of assets		Net PPE/Gross PPE
Size		Log(Total Assets)
Industry		Industry indicator variables

Table 1 summarizes the measurement of the variables. The intensity of investments in ECE is calculated by scaling ECE by the total capital expenditures of a given year. As for environmental governance, a firm is considered to have a board committee with a clear environmental mandate if it has a “public policy,” “public affairs,” “public issues,” “social responsibility,” “corporate responsibility,” “sustainability,” “sustainable development” or “environmental” committee listed in the Historical Governance database of Audit Analytics. Environmental awareness on the board was established by reading the directors’ descriptions gathered from the same database. Any director with prior experience in the same two-digit industry SIC code as the corporation is considered knowledgeable about the industry and its environmental issues and as such brings environmental awareness to the board. Any director with prior experience in an environmental organization is also considered to raise environmental awareness. Any

corporation that attributes importance to environmental performance in its compensation approach is classified as offering environmental incentives. For the purpose of classification, the executive compensation section of the proxy statement was read to identify whether environmental performance is taken into consideration in executive compensation. In addition, I searched for the keywords “social responsibility,” “environment,” “sustainability,” “pollution,” “ecology,” “qualitative” and “non-financial” in the proxy statement to ensure full coverage.

Environmental weaknesses are measured by the score of the KLD Socrates database. KLD data have been widely used in management research (e.g. Graves and Waddock 1994; Johnson and Greening 1999) and are now employed in environmental accounting research (Cho et al. 2006; Cho and Patten 2007). KLD conducts a detailed assessment of corporate social, environmental and governance performance each year for almost 3000 companies (KLD 2009a). The environmental criteria examined in this assessment are listed in Appendix 1. Strengths and concerns are identified for each corporation as a result of the process. In the context of ECE intensity, at the very least, corporations have to invest in ECE to manage their environmental (compliance) weaknesses (concerns, in the KLD vocabulary), whereas ECE are not necessarily required by environmental strengths. This intuitively hints towards employing concerns as a measure of environmental performance in the model. This intuition is supported by prior work using concerns as the main measure of environmental performance (Cho and Patten 2007). The total number of environmental concerns attributed by KLD represents the environmental performance variable of the model.

Environmental compliance is measured based on the data provided by the Corporate Environmental Profiles Database of the Risk Metrics Group. This database compiles the number of civil, criminal and administrative violations and the corresponding penalties related to eight environmental Acts (RMG 2001). These Acts cover energy, air, water and chemical issues. A detailed list of the environmental regulations encompassed by the database is provided in Appendix 2. This database, although still not widely employed in the academic literature, is built on sound raw data, because the Risk Metrics Group uses federal U.S. agencies (primarily the Environmental Protection Agency) as its source of information (RMG 2001).

Finally, financial control variables are measured as follows. Profitability is measured by return on assets (ROA). Growth in cash flows is measured as the increase in cash flows in the three years preceding the ECE investment. The ratio of net to gross PPE proxies for the age of assets (Cormier and Magnan 1999). Size is measured as the logarithm of total assets and industries indicator variables are employed.

1.4. Results

1.4.1. Descriptive statistics

Table 2 presents descriptive statistics on ECE, environmental governance and financial and environmental control variables. The median ECE per year amounts to \$31 million (mean: \$145.11 million)⁵ and a sample firm spends on average 7.22% of its capital expenditures on ECE. 51% of sample firms have an environmental committee and 35%

⁵ The average ECE of \$145.11 million is similar to the 2005 average ECE of \$167.8 million reported by Cho and Patten (2008). These authors also reported that, on average, ECE in their 2005 sample comprised 0.57% of the assets. ECE in my sample roughly correspond to 0.48% of assets (\$145.11 million/ \$30 362 million), in line with the previous findings.

have environmental incentives in their executive compensation package. On average, 11% of board members are considered environmentally aware. In terms of environmental performance, sample firms have on average 2.05 environmental weaknesses and 2.01 violations per year. The mean environmental fine in the sample is \$2.79 per \$1 million of sales. As for economic characteristics, firms in the sample are large, with assets totaling \$30 362 million on average. They are profitable (mean ROA 7.13%) and experience growth in cash flows (16.64% on average). The mean age of assets is 50.87%, meaning that the assets are about halfway through their useful life. The sample is spread across six industry categories, and is dominated by firms from the petroleum (21.8%) and the chemicals (34%) sectors. Table 3 provides correlations between the variables. Most of the independent variables are significantly correlated with the dependent variable ECE intensity. The correlation matrix does not show high correlation among independent variables in general; only one of the correlation coefficients exceeds 0.50 (size and environmental weaknesses at 0.644).

Table 2: Descriptive statistics

	Mean	Median	Std dev.	Min	Max
ECE (\$ million)	145.11	31	298.552	1	1600
ECE intensity	0.0722	0.0409	0.1022	0.0007	0.6109
Environmental governance					
Environmental committee	0.51	1	0.501	0	1
Environmentally aware directors	0.11	0.09	0.126	0	1
Environmental incentives	0.35	0	0.478	0	1
Environmental performance					
Environmental weaknesses	2.05	2	1.543	0	5
Environmental violations	2.01	0	3.779	0	23
Environmental fines (\$)	78 859	0	324 461	0	2 971 131
Environmental fines scaled by sales	2.79	0.00	10.2498	0	80.06
Economic characteristics					
Profitability	0.0713	0.0706	0.0569	-0.1652	0.2755
Growth in cash flows	0.1664	0.1066	0.263	-0.5351	1.5499
Age of assets	0.5087	0.4919	0.1219	0.274	0.8758
Assets (\$ million)	30 362	15 601	41 968	1 217	242 082
Industry					
Mining	0.066			0	1
Consumer products	0.117			0	1
Forest & paper	0.102			0	1
Chemicals	0.340			0	1
Petroleum	0.218			0	1
Metal	0.061			0	1
Industrial products	0.096			0	1
N:197					

Table 3: Correlation matrix

	ECE intensity	Enviro. committee	Enviro. aware directors	Incentives	Enviro. weaknesses	Enviro. violations	Enviro. fines	Profitability	Growth in cash flows	Age of assets
ECE intensity	1									
Environmental committee	0.12*	1								
Environmentally aware directors	0.199***	0.109	1							
Incentives	0.215***	0.319***	0.135*	1						
Environmental weaknesses	0.272***	0.392***	-0.078	0.497***	1					
Environmental violations	0.113	0.217***	-0.114	0.321***	0.371***	1				
Environmental fines	0.193***	-0.028	-0.085	0.035	0.117	0.211***	1			
Profitability	-0.06	0.003	0.066	0.065	0.028	0.10	-0.118*	1		
Growth in cash flows	0.358***	0.007	0.123*	0.09	0.17**	0.164**	0.061	0.121*	1	
Age of assets	0.431***	-0.06	0.163**	0.084	0.085	-0.005	0.093	0.112	0.206***	1
Size	0.011	0.339***	-0.187***	0.392***	0.644***	0.326***	0.088	0.06	0.001	0.142**

Note: * p < 0.10; ** p < 0.05; *** p < 0.01. Two-tailed. N: 197.

1.4.2. Multivariate analyses

Table 4 presents the results of the pooled cross-sectional Ordinary Least Squares (OLS) regression of ECE on environmental governance using robust standard errors to account for OLS assumption violations (Huber 1967; White 1980). Year and industry effects were controlled for but are not shown. I hypothesize that environmental governance mechanisms are positively related to ECE intensity based on a stakeholder and ethical perspective of governance. Results provide some support for this hypothesis. Firms with an environmental committee invest more in ECE than firms without this mechanism ($p < 0.0751$). Environmental awareness among directors ($p < 0.348$) and environmental incentives in executive compensation ($p < 0.246$) do not significantly influence the intensity of ECE. The environmental committee is therefore the governance mechanism with the most impact on ECE investment decisions. As for environmental control variables, firms with more environmental weaknesses ($p < 0.000$) and greater environmental fines ($p < 0.084$) spend more on ECE the following year but these investments are not determined by the number of environmental violations ($p < 0.149$) from two years ago. Economic characteristics also affect ECE intensity. Indeed, growth in cash flows is associated with greater ECE spending ($p < 0.006$).⁶ More profitable firms spend relatively less on ECE ($p < 0.002$) and firms with newer assets spend more on ECE ($p < 0.000$).⁷ Overall, the results of this analysis suggest that ECE intensity is strongly driven by environmental performance and economic characteristics but only marginally driven by environmental governance.

⁶ These results are in line with prior literature that demonstrated that greater cash flows are typical of corporations deciding to improve their environmental performance (Clarkson et al. 2006).

⁷ These results contrast with prior findings showing that economic performance is a driver of environmental performance and disclosure (Cormier and Magnan 2003; Al-Tuwaijiri et al. 2004; Clarkson et al. 2006). This contrast might be explained by the specific nature of ECE in comparison to the broad scope of environmental performance or disclosure.

Table 4: OLS regression of ECE intensity on environmental governance mechanisms (robust standard errors)

	t= year of ECE intensity	Expected relationship	ECE intensity Coefficient	p-value
Environmental governance				
Environmental committee	t	+	1.44*	0.0751
Environmentally aware directors	t	+/-	0.94	0.348
Environmental incentives	t	+	0.69	0.246
Environmental performance				
Environmental weaknesses	t-1	+	3.92***	0.000
Environmental violations	t-2	+	1.05	0.149
Environmental fines	t-2	+	1.39*	0.084
		+		
Economic characteristics				
Profitability	t-1		-2.89***	0.002
Growth in cash flows	t-3 to t		2.57***	0.006
Age of assets	t		3.84***	0.000
Size	t		-4.67***	0.000
R ²	0.5156			
F-statistic	4.54***			
N: 197				

Note: * p < 0.10; ** p < 0.05; ***p < 0.01. One-tailed if there is a predicted sign, two-tailed otherwise. Year and industries indicators not shown.

1.4.2.1. Characteristics of the environmental committee

The above analysis provides evidence that the presence of an environmental committee on the board stimulates greater environmental investments. The financial governance literature shows that characteristics of board committees have an impact on financial information, results and decisions (Beasley et al. 2000; Xie et al. 2003; Vafeas 2005; Kanagaretnam et al. 2007). This suggests that environmental committee characteristics are likely to influence ECE intensity decisions. For the sample firms that have an environmental committee (n=100), I examine the impact of two committee characteristics: *committee size* and *number of meetings*.

On average, the environmental committee of the sample firms comprises 4.83 members and meets 3.38 times a year. The size of a board committee can be considered reflective of its power and effectiveness (Becker-Blease and Irani 2008). Goh (2009) shows that larger audit committees are more successful at remediating to internal control weaknesses in a timely manner than smaller ones. This suggests that larger environmental committees should be more influential regarding environmental decisions and hence should positively influence ECE intensity. As for the number of meetings of the environmental committee, Larcker et al. (2007) consider meetings an indication of the level of monitoring exerted by the board. This implies that with respect to environmental matters, more frequent meetings of the environmental committee should trigger greater ECE intensity. To investigate the impact of environmental committee size and activity on ECE intensity, I use these two variables to replace the environmental committee variable in Equation (1.1). Results are presented in Table 5.⁸

⁸ Given the small sample size, results should be interpreted with caution and considered exploratory.

Table 5: OLS regression of ECE intensity on environmental committee characteristics (robust standard errors)

	t= year of ECE intensity	Expected relationship	ECE intensity Coefficient	p-value
Environmental governance				
Environmental committee size	t	+	1.53*	0.066
Number of meetings of the environmental committee	t	+	-0.35	0.363
Environmentally aware directors	t	+/-	2.12**	0.037
Environmental incentives	t	+	1.91**	0.03
Environmental performance				
Environmental weaknesses	t-1	+	1.93**	0.029
Environmental violations	t-2	+	1.95**	0.028
Environmental fines	t-2	+	-1.51*	0.068
		+		
Economic characteristics				
Profitability	t-1		0.49	0.313
Growth in cash flows	t-3 to t		2.52***	0.007
Age of assets	t		1.65*	0.052
Size	t		-4.42***	0.000
R ²	0.6827			
F-statistic	7.68***			
N: 100				

Note: * p < 0.10; ** p < 0.05; ***p < 0.01. One-tailed if there is a predicted sign, two-tailed otherwise. Year and industry indicators not shown.

Larger environmental committees marginally influence the intensity of ECE ($p < 0.066$), consistent with the view that larger committees are more effective and influential (Becker-Blease and Irani 2008). Committee activity does not appear to influence ECE decisions, because the number of meetings is not associated with the intensity of environmental spending ($p < 0.363$). Interestingly, for firms that have an environmental committee, environmentally aware directors ($p < 0.037$) and environmental incentives in

executive compensation ($p < 0.03$) positively influence ECE intensity.⁹ The environmental committee thus appears to be the key governance mechanism that allows the other mechanisms to be effective. These findings provide support for the hypothesis that governance has an impact on ECE intensity. They show that directors recognize their environmental responsibilities and implement mechanisms that ensure the established environmental standards are followed in the organization. As for the impact of environmental performance on ECE intensity, lagged environmental weaknesses ($p < 0.029$) and two-year lagged environmental violations ($p < 0.028$) are associated with more intense ECE investment, consistent with expectations. However, two-year lagged environmental fines are marginally negatively related to ECE intensity ($p < 0.068$). Results for economic characteristics are similar to those of the prior regression, apart from profitability, which is no longer significant. Taken as a whole, these results show how environmental governance mechanisms, environmental performance and economic conditions influence the intensity of ECE for firms with an environmental committee.

1.4.2.2. Interaction of governance and environmental strategy

The analysis in this section concentrates on the complexity of corporate governance and environmental management. Larcker et al. (2007) argue that the complexity of corporate governance is better captured by grouping governance mechanisms into dimensions. These authors performed an exploratory analysis of financial corporate governance using principal component analysis to group mechanisms into distinct dimensions or factors. I adopt their approach to build an environmental governance factor. Specifically, I use

⁹ The results for environmentally aware directors also argue in favor of the view that expertise at the board level improves the monitoring function (Xie et al. 2003; Abbott et al. 2004; Bédard et al. 2004).

principal component analysis to determine if the existence of an environmental committee, the proportion of environmentally aware directors and the presence of environmental incentives in executive compensation can be grouped in a single governance dimension. Results, presented in Table 6A, confirm that these mechanisms all load on the same factor, which has an eigenvalue of 1.412 and explains 47.07% of the total variance in the data. The loading (the correlation between the factor and the variable) of the three variables are satisfying because they all exceed 0.40 (committee = 0.761; environmentally aware directors = 0.505 and incentives = 0.759) and are statistically different from zero at conventional levels (Larcker et al. 2007).

ECE are composed of mandatory and voluntary elements (Johnston 2005), thus adding another layer of complexity to the study. The voluntary element implies that firms choose to invest more (or less) in ECE based on their environmental strategy (Hart 1995). Firms with a proactive environmental strategy are likely to spend more on ECE than firms with a reactive environmental strategy (Hunt and Auster 1990). The impact of governance on ECE is then likely to depend on the environmental strategy of the firm. This implies that to better circumscribe the influence of environmental governance on ECE intensity, it is necessary to take into account the interaction of the environmental strategy with environmental governance.

Because the environmental strategy is unobservable, I rely on environmental performance to proxy for it, in line with Clarkson et al. (2006). More specifically, I use exploratory principal component analysis to combine all environmental performance measures into a

unique factor representing corporate environmental strategy. Results are presented in Table 6B. All environmental performance variables (weaknesses, violations and fines) load on the same factor, with an eigenvalue of 1.494 and a proportion of explained total variance in the data of 49.79%. All variables load adequately on the factor with loadings of 0.755 (weaknesses), 0.807 (violations) and 0.523 (fines) and are statistically different from zero at conventional levels. Given the negative environmental issues composing the factor, a higher factor score is interpreted as a more reactive environmental strategy.

Table 6: Principal component analyses: Factors loading and descriptive statistics

PANEL A		PANEL B	
Environmental governance factor		Environmental strategy factor	
Eigenvalue	1.412	Eigenvalue	1.494
% of variation explained	47.069%	% of variation explained	49.785%
<u>Variables</u>	<u>Component loading</u>	<u>Variables</u>	<u>Component loading</u>
Environmental committee	0.761	Environmental weaknesses	0.755
Environmentally aware directors	0.505	Environmental violations	0.807
Environmental incentives	0.759	Environmental fines	0.523
<u>Factor scores</u>		<u>Factor scores</u>	
Q1	-0.9783	Q1	-0.7183
Median	-0.0956	Median	-0.2824
Q3	0.9803	Q3	0.5255

I perform an OLS regression on these two factors and financial control variables to examine the impact of the environmental governance dimension on ECE intensity and to investigate the potential interaction effect of environmental strategy and environmental governance on ECE intensity. Results are presented in Table 7. The environmental governance factor is positively associated with ECE intensity ($p < 0.023$). Better

environmental governance triggers greater environmental investments, as predicted. Environmental governance is used as a means to manage corporate environmental responsibilities and meet stakeholder expectations by enabling greater ECE investments. The environmental strategy factor is also positively associated with ECE intensity ($p < 0.001$), implying that worse environmental performers in prior years are likely to spend more on ECE in the following year. The interaction of environmental governance and environmental strategy is negatively related to ECE intensity ($p < 0.041$). This suggests that a reactive environmental strategy reduces the investment intensity triggered by environmental governance. This finding highlights how the impact of environmental governance on environmental investment might be limited without corporate governance being accompanied by proactive environmental strategy. In other words, a reactive environmental strategy reduces the importance to meet stakeholder expectations and to protect the environment generated by the stakeholder- and ethics-based conception of governance developed in this paper. Finally, results for economic characteristics are similar to those of the initial regression in Table 4.

Table 7: OLS regression of ECE intensity on environmental governance and strategy factors (robust standard errors)

	Expected relationship	ECE intensity	
		Coefficient	p-value
Environmental governance factor	+	2.02**	0.023
Environmental strategy factor	+	3.17***	0.001
Governance factor X Strategy factor	+/-	-2.06**	0.041
Economic characteristics			
Profitability (ROA)		-3.18***	0.001
Growth in cash flows		2.67***	0.004
Age of assets		3.57***	0.000
Size		-4.11***	0.000
R ²	0.5156		
F-statistic	5.55***		
N: 197			

Note: * p < 0.10; ** p < 0.05; ***p < 0.01. One-tailed if there is a predicted sign, two-tailed otherwise. Year and industry indicators not shown.

1.4.3. Sensitivity analyses

A pooled sample of firm-year observations like the one employed in this study comprises more than one observation from the same company. As such, observations are not independent as assumed in OLS regression technique and the above use of OLS may have lead to misspecification. Sensitivity analyses were conducted to examine this issue. First, I used a pooled GLS technique to estimate the regression coefficients (Clarkson et al. 2004). GLS results (untabulated) for the initial model (Equation 1.1) are all similar to the results from the OLS regression, with the addition that environmental awareness among directors becomes significant (p< 0.03), reinforcing the impact of governance on ECE intensity. Results from the environmental committee characteristic regression all hold when GLS technique is employed, except for environmental fines which are no longer significant (p< 0.184). Results from the GLS regression on the interaction between the governance dimension and the environmental strategy dimensions are also consistent

with those of the OLS regression for all the independent variables. Again to test the sensitivity of the results to the use of the OLS technique on pooled data, I also conducted OLS regressions controlling for firm effect instead of industry effects (untabulated). All results are consistent with the results presented in the previous sections, with the exception of the size of the environmental committee, which is no longer related to ECE intensity ($p < 0.129$) in the model focusing on the impact of environmental committee characteristics on ECE. Collectively, results from these analyses support the hypothesis developed in this paper. They strengthen the findings that environmental governance is a driver of ECE investments.

Significant attention is given to endogeneity in recent governance-research (Campbell and Mínguez-Vera 2008; Linck et al. 2008; Boone et al. 2007; Coles et al. 2008). Interrelations potentially exist between ECE, environmental governance and environmental performance. As posited in the hypothesis, environmental governance is thought to influence the intensity of ECE. Environmental governance was also shown to influence the litigation component of environmental performance (Kassinis and Vafeas 2002). ECE being meant to improve pollution abatement and control, they also have an influence over future environmental performance. Nonetheless, both environmental governance and ECE can be driven by environmental performance, if they are considered to be corporate responses to poor or superior environmental performance (Al-Tuwaijri et al. 2004; Clarkson et al. 2008). The potential simultaneous impact of environmental governance, environmental performance and ECE on one another requires testing for endogeneity. Results from the Hausman test show that endogeneity was not significant

for these interrelationships (ECE and environmental governance: $p < 0.12$; ECE and environmental performance: $p < 0.22$). Cormier et al. (2009) obtain similar results from the Hausman test and conclude to the absence of endogeneity. They then proceed to their analyses without further consideration for endogeneity issues. Thus, for the purpose of this paper, it is legitimate to examine the impact of environmental governance on ECE in isolation.

1.5. Discussion and conclusion

The purpose of this essay was to investigate the impact of environmental governance on ECE intensity. It was argued that, from a stakeholder and ethical perspective on governance, significant environmental issues such as ECE are part of the scope of corporate governance owing to directors' economic, social and ethical responsibilities. From this conceptual framework the hypothesis was derived that governance mechanisms committed to environmental protection and stakeholder accountability increase the proportion of capital expenditures dedicated to pollution abatement and control. Results from the analysis of a pooled cross-sectional sample of 197 observations from firms operating in environmentally sensitive industries over the period 2003 to 2007 show that environmental governance mechanisms influence ECE, but mostly under certain circumstances. In general, environmental governance only marginally influences ECE intensity, through the existence of an environmental board committee (Table 4). However, when firms have an environmental committee in place, the size of this committee, along with the presence of environmentally aware directors and environmental incentives in executive compensation have a positive impact on ECE intensity (Table 5). Environmental strategy also affects the relationship between

environmental governance and ECE intensity. Indeed, it was shown that a reactive environmental strategy reduces the positive impact of governance on ECE investment (Table 7). These results support the conceptual argument that directors are aware of their environmental responsibilities towards stakeholders and implement governance mechanisms to ensure that the established environmental standards are followed throughout the organization. In doing so, directors also fulfill their economic responsibilities by overseeing to strategic investment decisions.

The paper differentiates itself from prior ECE literature owing to its focus on the determinants of ECE investments. Whereas research on the determinants of ECE disclosure shows that ECE are reported for purposes of legitimacy (Patten 2005; Cho et al. 2009), this paper provides evidence that ECE are spent for directors to fulfill their environmental responsibilities. This paper also complements research on the market consequences of ECE investments (Clarkson et al. 2004; Johnston 2005) by taking a step back to understand the motivations underlying these investments. Finally, the study contributes to the broader social accounting and governance literatures not only by analyzing governance mechanisms neglected by prior research, but also by performing the analysis into an under-researched environmental accounting context.

Although the paper shows that environmental governance increases ECE investment, the fact that its effectiveness depends on the circumstances suggests that environmental governance is not the main driver of environmental expenditures. Given that the research motivation was to explore whether environmental governance contributes to greater

environmental protection or to greenwashing, these results indicate that the signal of environmental concern sent by these governance mechanisms translates into minor pro-environment actions. Future research should investigate whether environmental governance translates into greater pro-environment actions in other contexts. This would be helpful to position the role of environmental governance in a corporation's move toward improved environmental performance. Studying the determinants of environmental governance mechanisms as well as their impact on environmental performance would also help set the bases of the emerging body of knowledge on environmental governance.

Different limitations of the study need to be acknowledged. First, because the analysis was performed on firms from environmentally sensitive industries, the results may not apply to firms from other industries. However, this limitation also implies that results are applicable to the most polluting industries, thereby providing them with means to improve their environmental performance. Second, focusing on ECE implies that results will not be automatically generalizable to other types of environmental decisions. The fact that the environmental issue examined in this study is relevant to investors, as demonstrated by prior ECE research (Clarkson et al. 2004; Johnston 2005), counterbalances this by indicating that a significant aspect of environmental accounting is analysed. Future research may investigate other environmental decisions such as environmental management system implementation. Third, the governance mechanisms analyzed are not exhaustive. However, significant efforts have been made to maximize the relevance of the findings for practitioners by selecting some of the most prevalent

environmental governance mechanisms found in practice. Other environmental governance mechanisms have been left for future research. These limitations do not prevent the study from contributing to the literature by providing exploratory insights on the influence of environmental governance mechanisms on ECE investment decisions, thereby showing how corporate governance can contribute to the protection of stakeholders' environmental interests.

CHAPTER 2: STAKEHOLDERS' INFLUENCE OVER THE CHOICE OF INTERNAL ENVIRONMENTAL PERFORMANCE INDICATORS

Abstract

This paper explores how stakeholders influence a firm's choice of internal environmental performance indicators (EPI) included in strategic performance measurement systems. Internal EPI are used to support management in decision-making and performance evaluation. Relying on stakeholder and legitimacy theories, we conduct a field investigation within a large multinational operating in an environmentally sensitive industry. Our investigation comprises interviews with key environmental executives at the case firm's world headquarters, a review of corporate documents, and examination of information obtained directly from the case firm's stakeholders. Our analysis indicates that stakeholders influence the choice of internal EPI in four ways, which we aggregate in a continuum. The firm's environmental impact on specific stakeholders and its need for legitimization underlie the continuum. This study extends research on the relationships among stakeholders, society and corporate environmental management and provides insights into how environmental considerations are integrated in a firm's internal strategic performance measurement system.

2.1. Introduction

This paper explores how stakeholders influence a firm's choice of internal environmental performance indicators (EPI). Internal EPI are used to support management in decision-making and performance evaluation. Stakeholders such as customers, investors, employees, governments and communities are increasingly concerned with corporate environmental issues (e.g. Cormier et al. 2004; Henriques and Sadosky 1999) and with the methods corporations employ to measure, monitor and report on these issues (Bouma and Kamp-Roelands 2000; O'Dwyer et al. 2005b). To deal with these concerns, firms have increased the level of environmental information included in their annual reports, and several now publish sustainable development reports with EPI such as greenhouse gas emissions and energy consumption. From an internal control perspective, management must consider and weigh stakeholders' concerns and society's expectations to select the set of internal EPI to be monitored. Despite numerous references to stakeholders' environmental concerns in the literature, little is known about their actual influence over a firm's choice of internal EPI (Ayuso 2006; e.g. Berthelot et al. 2003).

This paper reports findings from an exploratory study of the interrelations between stakeholders and internal EPI selection. The paper adopts a field research methodology that relies on complementary information sources: interviews with executives, a review of corporate documents and policies and examination of information obtained directly from stakeholder sources. The field setting is a large organization with worldwide operations in an environmentally sensitive sector.¹⁰ Interviews were conducted with key

¹⁰ A confidentiality agreement with the organization prevents us from revealing details that may lead to its identification.

environmental executives from the firm's global headquarters. We rely on stakeholder theory and legitimacy theory to guide our work.

Based on our analysis, we develop a continuum where stakeholders influence the firm's choice of internal EPI in four ways. First, stakeholders affect the firm via their impact on environmental strategy, which is a mediated influence on EPI choice. In addition to this indirect influence, the firm is subject to direct pressure from stakeholders concerning which EPI it chooses to manage environmental performance. Third, stakeholders' direct and indirect influence can evolve into a joint effort where stakeholders and the firm interact to achieve a common environmental goal. Fourth, the influence of this relationship broadens when stakeholders provide the firm with a way to evaluate its environmental performance; this environmental benchmarking influence imposes additional pressure on the firm to adjust its environmental strategy and EPI choice.

The firm's environmental effects on stakeholders, as well as its organizational legitimacy needs, represent the underlying drivers of these influences. Such a continuum of influences does not appear in the literature. Until now, most environmental and stakeholder-based studies have depicted stakeholders' environmental influence on firms as straightforward and one-directional (e.g. see Cormier et al. 2004; Roberts 1992; Kassinis and Vafeas 2006). By suggesting a continuum, our results extend prior research by demonstrating stakeholders' influences in a more nuanced manner than the one-directional approach reported in the literature. Therefore, this study contributes to

research on relationships among stakeholders, society and corporate environmental management.

Gaining a better understanding of how firms select environmental performance measures, beyond the information they disclosed, is important for multiple reasons. First, sizable financial resources are now allocated to green and socially responsible investment funds, whose portfolios include firms that are perceived to have the correct profile based on their disclosure (e.g., Dow Jones Sustainability Index). A similar argument can be made for firms that embrace social responsibility or green indices. It thus appears critical to map the process underlying the construction of a firm's environmental performance. Second, with the emergence and widespread adoption of disclosure platforms such as the Global Reporting Initiative, it is only a matter of time before stricter reporting and measurement standards emerge with respect to environmental performance. For standards to be effective, they will have to be based on the accurate mapping of all parties involved in the determination of EPI. Third, for boards and management that face the upcoming challenges that underlie sustainable development, how they manage their relationships and interact with various stakeholders is critical to their firm's future. Our study provides insight into this interaction. Otherwise stated, the paper extends the strategic performance measurement systems literature into a new realm that more closely matches current concerns about environmental issues with the control challenges organizations face in addressing them.

The paper's sequence is as follows: Section 2.2 presents environmental performance indicators; Section 2.3 positions our theoretical background composed of stakeholder and legitimacy theories; Section 2.4 describes the research methodology; Section 2.5 provides an analysis of the information collected; Section 2.6 corroborates results from interviews with information obtained from stakeholders; Section 2.7 reviews the continuum of stakeholders' influences over EPI choice with a discussion on theoretical perspectives. The last section offers concluding comments.

2.2. Environmental Performance Indicators

Environmental performance indicators (EPI) can be defined as "specific expressions that provide information about...[the] results of an organization's management of its environmental aspects" (ISO 1999, p. 2). Significant differences exist between publicly disclosed EPI and internal EPI used by managers. Internal EPI are specific, strategic and numerous and support decision-making and performance evaluation (Chenhall 2003; Kaplan and Norton 2004; Henri and Journeault 2009). Conversely, externally disclosed EPI typically comprise a few aggregate numbers that are assembled from the list of internal EPI. For example, internal EPI developed for greenhouse gases are monitored according to each of the categories of gases emitted by the firm, whereas externally disclosed indicators are derived from a selection and grouping of the internal individual greenhouse gas indicators. Therefore, external EPI represent voluntary environmental disclosure and provide, at best, a general and partial account of a firm's environmental performance (Adams 2004; Patten 2002). Our paper focuses on internal EPI, rather than externally disclosed EPI. This focus allows us to analyze the environmental performance

management processes rather than the outputs of those processes as portrayed by the firm through its external disclosure.

In line with the environmental management accounting literature, we position internal EPI within the strategic performance measurement system (SPMS) (Bartolomeo et al. 2000). An SPMS is a management accounting system having a set of performance measures designed to align managers' actions with the strategy of the organization (Atkinson et al. 1997; Webb 2004). An SPMS contains multiple performance measures, including EPI, and may have different purposes including monitoring, which encompasses the measurement of performance measures to meet stakeholders' requirements, and legitimizing, to justify and validate a firm's current and future actions and enhance credibility (Henri, 2006). Therefore, focusing on internal EPI concentrates the research on EPI that represent the concrete implementation of the corporate environmental strategy (Ittner et al. 2003; Chenhall 2003) and that are crucial to the monitoring of corporate environmental performance (Henri and Journeault 2009).

Knowledge of EPI arises from two broad perspectives. The first perspective focuses on the inclusion of EPI in management systems. Firms may integrate environmental issues, including EPI, in their SPMS (e.g. diNordia 1996; Figge et al. 2002). Relying on the Balanced Scorecard concept, Van der Woerd and Van der Brink (2004) develop a Responsive Scorecard and conduct a pilot study on the implementation of EPI in the tourism industry. Similarly, Caldelli and Parmigiani (2004) elaborate on and test an approach to evaluate how well a management information system, including EPI, could

provide the information required to monitor its sustainability objectives. Henri and Journeault (2009) illustrate that environmental performance measurement systems, defined as the diversity and intensity of EPI usage within an organization, are broadly included in manufacturing firms' performance measurement systems. These recent studies examined the integration of EPI in managerial decision-making systems.

The second perspective focuses on the various EPI attributes firms publicly disclose, since EPI embedded in SPMS are useful not only in decision making but also for external reporting purposes (Henri and Journeault 2009). Based on this perspective, the characteristics and features of effective EPI have been applied to EPI disclosures in water company reports (Johnston and Smith 2001). Marshall and Brown (2003) also describe publicly disclosed EPI, but unlike Johnson and Smith, they base their analyses on recommendations from the European Environmental Agency and focus their attention on the attributes of publicly available EPI in environmental reports.

The first research perspective on EPI acknowledges its internal use with SPMS, while the second perspective focuses on the use and shortcomings of EPI in publicly disclosed corporate reports. The strategic importance of internal EPI in decision-making and the low quality of externally disclosed EPI highlight the relevance of focusing our research work on internal rather than external EPI. Until now, knowledge about internal indicators remains elusive, since their selection has yet to be explicitly examined.

2.3. Theoretical background: Stakeholders, Society and Environmental Issues

Our literature review indicates that the most frequently adopted theoretical perspectives in environmental accounting research are stakeholder theory and legitimacy theory (Deegan and Blomquist 2006; Gray et al. 1995). This section summarizes the way these theories have been applied to explain corporate environmental management.

2.3.1. Stakeholders

The stakeholder perspective emphasizes the need for managers to take stakeholders' demands into account in the strategic management process (Roberts 1992; Mitchell et al. 1997). Stakeholders are "persons or groups that have, or claim, ownership, rights, or interests in a corporation and its activities, past, present, or future. Such claimed rights or interest are the result of transactions with, or actions taken by, the corporation, and may be legal or moral, individual or collective" (Clarkson 1995: 106). Applied to environmental management, this theoretical perspective highlights the interaction between stakeholders and organizations on environmental matters. Research on the interface between stakeholders and firms regarding corporate environmental performance can be classified into four dimensions. First, prior research suggests that managers are aware of stakeholders' environmental concerns and recognize the need to address them. For example, Henriques and Sadorsky (1996) suggest that firms implement an environmental plan as a result of environmental demands arising from their customers, shareholders, governments and community. Harvey and Schaeffer (2001) show that managers recognize and respond to green stakeholder concerns on different levels because of the impacts these concerns may have on their organization. Therefore, the first

perspective suggests that managers are responsive to environmental pressures arising from different stakeholder's groups.

Second, the development and implementation of an environmental strategy allows firms to identify and integrate stakeholders' environmental concerns.¹¹ Henriques and Sadorsky (1999) show that firms with proactive environmental management are concerned about more stakeholder groups than firms pursuing a reactive environmental strategy. Buysse and Verbeke (2003) show that as a firm's environmental strategy evolves from a reactive approach to a proactive one, the depth and scope of its stakeholder focus increases. In other words, the environmental strategy adopted by a firm affects the range of stakeholders it considers important.

Third, through external reporting of environmental information, firms are able to convey some of their environmental management information to stakeholders. Roberts (1992) finds that the level of social responsibility information disclosed by a firm, including environmental information, is related to the intensity of stakeholder power. Cormier, Gordon and Magnan (2004) examine the different categories of environmental information disclosed by firms and their association with stakeholders, and find that "the decision to disclose specific types of environmental information is related to corporate concerns reflective of the stakeholder groups [the] environmental managers associate

¹¹ Environmental strategy is defined as an action plan "intended to manage the interface between business and the natural environment" (Sharma 2000, p. 682). The environmental literature represents the environmental strategy construct as a continuum, where at one end there is a reactive strategy and at the other end there is a proactive strategy (Aragón-Correa 1998). A firm pursuing a reactive strategy has as its sole objective conformity with legal requirements, while a firm pursuing a proactive strategy has a goal of environmental sustainable development (Hart 1995).

with these concerns” (p. 159). Deegan and Blomquist (2006) report that the development of an environmental report and scoring grid by WWF-Australia (formerly the World Wide Fund for Nature) led Australian firms in the mineral industry to enhance their environmental-reporting behavior. Overall, prior research suggests that a firm’s stakeholders influence its environmental disclosure.

Fourth, one emerging theme is the relationship between stakeholders and environmental performance. Kassinis and Vafeas (2006) show that the community represents a powerful stakeholder group capable of influencing a firm’s EPI, such as its reduction of toxic emissions at the plant level.

Prior research on the interface between stakeholders and firms’ environmental management performance focuses on four complementary dimensions representing managerial stakeholder considerations regarding corporate environmental concerns, environmental strategy, environmental disclosure and environmental performance. Despite the underlying importance of internal EPI in these dimensions, the role played by stakeholders in their selection has yet to attract significant attention.

2.3.2. Legitimacy

While stakeholder theory concentrates on different groups within society, legitimacy theory adopts the perspective of society as a whole (Deegan 2006; Deegan and Blomquist 2006). We select the following definition of legitimacy to guide our work:

“Organizations seek to establish congruence between the social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system in which they are a part. Insofar as

these two value systems are congruent, we can speak of organizational legitimacy” (Dowling and Pfeffer 1975, 122).

To achieve legitimacy, organizations must take actions to align their business operations with corporate behaviors accepted by society. Several studies confirm that management will adopt specific strategies based on perceptions of what the broader community and society expect regarding environmental matters (Guthrie and Parker 1989; Neu et al. 1998; O'Donovan 1999; Patten 1992). Research also suggests management will inform society about their activities (Deegan and Blomquist 2006), which in turn reinforces the importance of studying their choice of EPI.

Most environmental accounting research that adopts legitimacy theory focuses on external environmental disclosure. Within that context, environmental disclosure decisions aim to present the firm in a positive way, and corporate reports are viewed as a public relations document used by management to convey favourable environmental performance (Neu et al. 1998). Concerns about legitimacy are drivers of environmental reporting (Gray et al. 1995; Deegan et al. 2002; Cormier et al. 2005). For instance, Milne and Patten (2002) and Cho (2009) find that communication strategies may help restore or repair organizational legitimacy. O'Donovan (2002) finds that when an issue or event is of little importance, it is not considered a threat to legitimacy and therefore is not mentioned in annual reports. De Villiers and Van Staden (2006) argue that despite reductions in disclosure in terms of the quantity and specificity of environmental information, firms can maintain their legitimacy if societal expectations veer away from environmental issues.

In short, prior legitimacy research indicates that environmental disclosure practices allow more effective management of a firm's visibility, accountability and public relations. Although internal EPI can subsequently be used for external disclosure purposes (Henri and Journeault 2009), little is known about how internal EPI are selected and used by firms in their attempts to legitimize their environmental management.

Stakeholder and legitimacy theories can be seen as complementary, the former offering a micro perspective, the latter a macro perspective (Deegan 2006; Deegan and Blomquist 2006; Cormier et al. 2004). Collectively, these theories can provide a better understanding of organizational behaviour (Gray et al. 1995). The purpose of this study is to examine how a large firm is influenced by its stakeholders in its choice of EPI using the lenses provided by stakeholder and legitimacy theories. Our objective is to extend the literature on the role of stakeholders and society in shaping firms' behavior towards the environment.

2.4. Research Methodology

We adopt the field study approach to investigate stakeholders' influences on EPI selection. Field study research is defined as the examination of a real-world phenomenon through direct contact with managers (Ahrens and Dent 1998; Yin 2003). The objective is to obtain a rich and real understanding of a relevant business matter (Merchant and Van der Stede 2006). Our focus of interest is the way multiple stakeholders can influence a firm's choice of EPI. Understanding how firms are affected by stakeholders in their choices requires an in-depth analysis of the business context (Creswell 1998; Eisenhardt 1989). Also, Leonard-Barton (1990) argues that a case study approach is appropriate

when little knowledge is available on a subject, as is the case for the selection of internal EPI. Finally, prior research shows that qualitative case studies are relevant in the investigation of environmental issues (e.g. Herbohn 2005; Deegan and Blomquist 2006; Hendry 2005).

2.4.1. Case selection

In order to investigate an information-rich case (Patton 2002), the selection of the case firm was based on industry conditions and environmental strategy criteria. First, the case firm has to operate in an environmentally sensitive industry, requiring it to manage its environmental performance due to the important environmental impacts of its activities. Applying this criterion allows for the selection of a firm that strongly exhibits this focus of interest (Patton 2002) and can help in the collection of detailed information on the role of stakeholders regarding the choice of internal EPI. Second, the case firm has to pursue a proactive environmental strategy because the more proactive it is, the broader the range of stakeholders it perceives as important (Buysse and Verbeke 2003; Henriques and Sadosky 1999). Therefore, we can gain more insight by investigating an environmentally proactive firm owing to the greater array of stakeholder groups and the variety of stakeholder influences. As a result, the selection of the research site is based on two criteria: 1) the firm must operate in an environmentally sensitive industry; 2) the firm must demonstrate a proactive environmental strategy. The selected firm is a large multinational with operations on all continents in the natural resources industry. It is publicly listed and is a component of various sustainability stock indices. Focusing on a single firm provided an in-depth understanding of its business context.

2.4.2. Information collection

Information was collected from interviews and from an examination of corporate documents. A request was made to interview the individuals responsible for the selection and monitoring of EPI. Interviews were conducted with executives from the Vice-President – Environment team at the worldwide headquarters of the case firm. These executives are in charge of managing the global environmental responsibility of the organization. The selection, enforcement and monitoring of EPI at the highest level of the organization are among their main responsibilities. Semi-structured interviews averaging 75 minutes were conducted with (1) the Environmental Manager, (2) the Environmental Director and (3) the Environmental, Health & Security Performance Data Manager. These respondents represent a key, information-rich source regarding the focus of our study because of their day-to-day involvement with the firm's internal EPI (Patton 2002). The interview guide is presented in Appendix 3. All interviews were recorded and transcribed. Several corporate documents were also thoroughly examined: (1) the internal *Manual of Environmental Strategy*, (2) the *Environmental Indicators Guideline*, (3) an internal presentation on the firm's corporate sustainability issues, (4) the last annual report and (5) publicly available reports on sustainability matters. Corroboration of interviewee information using corporate documents allowed us to triangulate information collected (Yin 2003). In addition, a multi-method multiple respondent approach reduces the threat of response bias (Kren 1997; Abernethy and Lillis 2001).

2.4.3. The research site

The case firm is a world leader in its industry sector and it applies a proactive environmental strategy. Firms adopting this type of strategy strive to be environmental

leaders by aiming for environmental excellence (Hunt and Auster 1990). Buysse and Verbeke (2003) assert that proactive firms integrate environmental issues into their strategic planning, invest in green manufacturing processes, and employ elaborated environmental management systems. These proactive environmental firms also benefit from the commitment of top management (Hunt and Auster 1990). The case firm's conformity to these characteristics was established during the case selection process and then confirmed during interviews:

“Environmental issues are parts of big projects...We have the best [environmental] practices with existing technologies...Key [environmental] indicators are established, followed, explained and analyzed, all of that within a well-defined framework...There is a commitment from top management towards [environmental emission] reduction”

Excerpts from interviews substantiate the case firm's commitment to a proactive environmental strategy. Its goal of environmental excellence is not only supported by top management's high level of involvement, but also by an integrated environmental management process. The case firm includes strategic environmental issues in its corporate strategic planning. Interviewees indicated that the firm uses an elaborate management system that allows managers to monitor environmental issues; EPI are established, followed, explained and analyzed. The examination of internal corporate documents confirms the proactive environmental strategy of the case firm.

2.4.4. Information analysis

The information collected was imported in the *Atlas.ti* software (Atlas.ti 2004). The software was employed to organize the data and to provide a structure to data analysis. Coding and further analyses were performed by the researcher. The approach used to

analyze the collected information is based on Kisfalvi (2000) and Langley (1999). Codes were generated from interview transcripts and the reviewed corporate documents. After the initial coding, all codes were reviewed to verify the reliability of the coding. Any inconsistency was investigated and adjusted if necessary. A final review of all codes then followed to further ensure coding reliability. Codes and their associated quotations were then grouped into main categories according to common themes. Three major code categories emerged: environmental strategy, EPI and important stakeholders. The information from each category was analyzed using a within-category analysis method to identify trends and to summarize each main theme. Next, categories were compared using a cross-category analysis method in order to identify potential interrelations between environmental strategy, EPI and important stakeholders. To perform cross-category analysis, each category was compared with the two remaining categories using a matrix. This first analysis resulted in 2X2 interrelations and was followed by a simultaneous comparison of the three matrices, intended to study interrelations between these three categories concurrently, and to make sure that all potential interrelations were considered.

2.5. Evidence from the case study

2.5.1. Environmental strategy and internal environmental performance indicators

Before presenting the various relationships between important stakeholders and EPI, we examine the association between the case firm's environmental strategy and internal EPI.

2.5.1.1. The role of environmental strategy

Excerpts from interviews highlight the first type of association between environmental strategy and internal EPI. They indicate a direct relationship where environmental

strategy influences the choice of EPI. The firm's strategic orientation, specific to its business activities, has an affect on its choices of environmental measures.

"Sometimes, we don't have regulation here but we make sure to respect some voluntary standards. We want to be an environmental world leader, so we measure EPI even if it is not asked" ... "The environmental impact of our different industrial processes yields the issues we manage" ... "EPI are set up due to our environmental impacts"

These excerpts from interviews show how a proactive orientation leads the case firm to have a broader range of internal EPI than regulation requires, and how the array of EPI employed is based on the firm's strategy. Indeed, the quotes highlight the influence the strategy has on EPI. First, they explain the content of the environmental strategy (issues managed because of their related environmental impacts), and how EPI are implemented based on this content, i.e., the impacts. Therefore, internal EPI are developed based on the environmental issues the firm wants to document. For example, during interviews, pollution (in its multiple forms) was mentioned by interviewees twenty times as a motivation for measuring this environmental strategy component, which was one of the most frequently cited items. The above evidence stresses the role environmental strategy plays in the choice of EPI.

2.5.1.2. The role of internal environmental performance indicators (EPI)

The second association works in the opposite direction, where internal EPI affect environmental strategy. Specifically, the environmental performance evaluation accomplished through EPI analysis affects the environmental strategy and indicates areas that require remediation. The relationship between internal EPI and environmental strategy is documented in the case firm's *Manual of Environmental Strategy*, where the utilization of leading environmental indicators is emphasized as a way to accomplish

environmental objectives. The *Manual* underlines how internal EPI play an important role in benchmarking vis-à-vis the competition, and in the evaluation of improvements related to the firm's environmental strategy objectives. This association between EPI and the firm's environmental approach has also been mentioned by the interviewees:

“You build a strategy, you apply it (...) so you need indicators”... “Perfluorocarbons, which are included in greenhouse gas and in other indicators, allow us to see how it is actually going and if we notice difficulties, we will work on (...) technologies or raw materials to see what we can do”

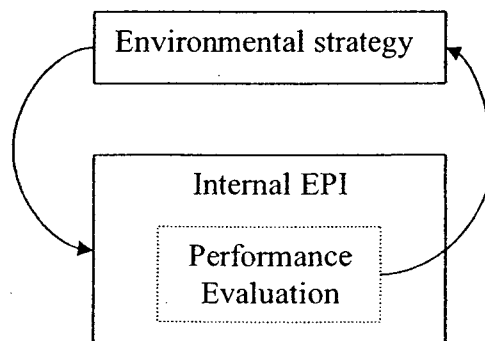
The monitoring role of internal EPI regarding the environmental strategy is clear: internal EPI are utilized to follow the environmental strategy and “to see how it is actually going.” The quotes underline how problematic EPI results lead to remediation actions, such as the review of manufacturing processes, technologies and raw materials sourcing. These processes are important elements of a proactive environmental strategy. Evidence from interviews and corporate documents suggest that EPI influence environmental strategy via the performance evaluation process.

2.5.1.3. Interrelations between environmental strategy and internal EPI

Characteristics of the relationship between environmental strategy and EPI are presented in Figure 4. Internal EPI are first selected and implemented based on the key aspects of the firm's environmental strategy. This concurs with the strategic performance measurement literature, which suggests that organizational strategy influences the choice of performance measures (Ittner et al. 2003; Chenhall 2003). Next, internal EPI are used to evaluate the success of the firm's environmental strategy, and to suggest improvements to certain aspects of the strategy, if required. Required improvements are incorporated

into a revised strategy where the list of EPI is re-examined, and then the cycle starts over. This second type of association is consistent with an interactive approach between the intended strategy (formal plans formulated by corporate managers) and the realized strategy (the current one observed), which leads to an emergent strategy with the firm's business context dictating certain patterns of action, and where the strategy is revisited (Mintzberg 1978; Mintzberg and Waters 1985; Mintzberg 1999). The comparison of results achieved on EPI versus targets is one of these patterns. These interrelations between environmental strategy and EPI, described by one interviewee as an “*ongoing improvement process*,” are illustrated by the arrows in Figure 4. In this figure, the ‘performance evaluation’ rectangle is included in the ‘EPI’ rectangle to emphasize the specific, but not exclusive, use of these indicators for performance evaluation. This analysis is useful to understand the role of stakeholders in reference to EPI choice to which we now turn.

Figure 4: The interrelation between environmental strategy and internal environmental performance indicators (EPI)



2.5.2. How stakeholders influence the case firm in its choice of internal EPI

Based on the interviews and collected information, we identify four ways in which stakeholders influence the case firm's choice of internal EPI and environmental strategy.

Each of the four is explained below.¹²

2.5.2.1. Mediated influence through environmental strategy

The first way stakeholders influence the choice of internal EPI is through the firm's environmental strategy. As reported in interviews, stakeholders can influence aspects of environmental strategy without having a direct effect on internal EPI. Because environmental strategy influences internal EPI, stakeholders that exert pressure on the case firm concerning its environmental strategy indirectly influence its choice of EPI.

The following are quotes from interviewees about the influence of clients and creditors on environmental strategy:

(about Clients) *"They ask that we be certified ISO 14001...Some clients asked us to have management systems to ensure environmental quality... So we had to make sure to obtain this [ISO] certification. Some clients are interested in the LCA [Life Cycle Analysis] approach to manage our products (...) It is a driver for us"*¹³

(about Creditors) *"They want to know if the firm has good management systems in place... They ask more for action plans than for specific measures"*

¹²The role of stakeholders regarding internal EPI was raised in two ways during the interviews. In some cases, interviewees spontaneously introduced stakeholder issues during the discussions, while in other cases, stakeholders' roles were addressed directly through specific interview questions.

¹³ *ISO 14001* is an environmental management system, i.e., "the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy" (ISO 1999, p. 2). *Life cycle analysis (LCA)* is the assessment of the environmental impacts of a firm's product from "the cradle to the grave," i.e., from the extraction of the natural resources to the disposal of the product after usage (Gauthier 2005).

These quotes illustrate that clients and creditors make requests to the case firm regarding environmental management systems, a key component of a proactive environmental strategy. Their requests range from specific subsystems, such as life cycle analysis, to the overall effectiveness of the management processes, such as good management systems to ensure environmental quality. Clients even ask for external acknowledgment of the system's quality via the International Standard Organization (ISO). The case firm recognizes clients' influence because it responds to these demands: "we had to make sure to obtain this certification." As one interviewee stated, "*All plants must be certified ISO 14001. New plants have two years to obtain it...plants that are more than two years old are all certified.*" However, interviewees do not recognize any direct influence on clients and creditors with respect to internal EPI selection. Therefore, clients and creditors seem to influence the case firm only at the environmental strategy level. Accordingly, clients and creditor stakeholders have a mediated influence on internal EPI choice through their impact on environmental strategy.

2.5.2.2. Direct and indirect influence

Stakeholders may also simultaneously influence the case firm's choice of internal EPI at the strategic and environmental performance measurement levels. The following are quotes from the case firm's interviewees about the influence of investors and investor representatives¹⁴ on environmental strategy and EPI:

(Investors on strategy) "*During annual shareholder meetings, there is an increasing number of questions asked on environmental issues... People vote [on these issues] and it ends up influencing (...) actions, strategies and other*

¹⁴The case firm's environmental performance is frequently assessed by evaluation firms for the purpose of sustainability stock indices. These evaluation firms, referred to here as investor representatives, are a significant stakeholder group for the corporation.

things that will be implemented...Investors want to know how we manage greenhouse gases”

(Investors on EPI) “Regarding certain aspects, they ask to have more measures. The biodiversity aspect is one of those...It is very important to have EPI to answer their questioning”

(Investor representatives on strategy) “Stock listing evaluation firms from sustainability indices assess us by sending surveys, and we later know our performance. This is for sure an incentive”

(Investor representatives on EPI) “Yes, we look at what the surveys demand. We evaluate their demands: Are we able to answer or not? Is it good for us to answer or not? How can we answer...It is the external demands (...) of [stock listing evaluation firms] that analyse the firm’s sustainable performance...Some [stock] indices do that: they take our report and divide our numbers by our sales, so we do that too”

Investors and their representatives employ particular events and criteria, such as annual shareholder meetings and sustainability index surveys, to communicate environmental concerns to the case firm. These concerns are mentioned to have an effect on its environmental strategy. These stakeholders also request the adoption of specific EPI, such as biodiversity measures that have been recently implemented by the case firm. Quotes suggest that from the investors’ perspective, firms remain responsible for developing and providing EPI to address any questions investors may have. Similarly, demands from investor representatives are weighted heavily, as illustrated by the critical range of questions following sustainability indices’ surveys: “Are we able to answer or not? Is it good for us to answer or not? How can we answer?”

Therefore, investors and their representatives influence the case firm’s choice of internal EPI, both indirectly and directly; the first type of influence uses environmental strategy to

attain the desired effect, while the second addresses matters involving EPI in a more straightforward manner.

2.5.2.3. Joint effort

When considering green stakeholders, the case firm is not only affected by direct and indirect influences, but also by company-stakeholder interaction. A particular relationship seems to emerge, one that is a catalyst for cooperation between the firm and its stakeholders in a joint effort to achieve common environmental goals. Stakeholders with whom the case firm engages in initiatives in a cooperative spirit are governments, the community and employees. The following are quotes by interviewees from the case firm about the influence of these stakeholders on the environmental strategy and EPI:

(about Governments on strategy) *“The respect of norms and regulations is at the core of our environmental strategy. We don’t want to be in non compliance, and we must go beyond”*

(about Governments on EPI) *“They can ask certain measures, they can impose measures...For water, the government determined on what we must comply”*

(about Community on strategy) *“It [their influence] makes us try to have a proactive approach”*

(about Community on EPI) *“There have been perceptions of communities surrounding certain plants, which were saying that particulate materials may cause, well, certain damages...If a neighbour wants the plant to measure noise because he/she thinks it is important, the plant must measure noise”*

(about Employees on strategy) *“There has been a workshop in which plant supervisors or key persons in plants were directly participating (...) to validate the [environmental strategic] planning”*

(about Employees on EPI) *“Employees can encourage the introduction of certain [environmental] measures...Yes. They can have [this influence] at the plant level”*

The influence all three stakeholder groups have on the case firm's environmental strategy is explicit. While governmental regulation sets the basis for the firm's environmental strategy ("regulation is at the core"), the community alone constitutes a significant motivation for the firm to further its strategic development by adopting a proactive environmental approach. Regarding employees' contribution to environmental strategy, their participation in strategic environmental planning highlights their importance. Furthermore, stakeholder groups have a direct impact on the choice of internal EPI: governments influence environmental measurement through regulation as they "ask," "impose" and "determine" specific indicators; the community motivates the addition of internal EPI through its concerns, i.e., "particulate materials may cause certain damages" or "important noise"; employees suggest the implementation of internal EPI at the plant level.

Of interest is the spirit behind the stakeholders' influences that emerges from the interviews. There is a clear recognition of each stakeholder group's influences. The following are quotes related to evidence of a joint effort:

(Joint effort with Governments) *"we work in partnership, instead of one monitors the other. So this is important, I think, we work with the same objective: improvement...Of course, it is a corporate point of view versus a governmental point of view, but I think they know we don't want to generate waste or emissions and we try to help them"*

(Joint effort with Community) *"it does not necessarily come from complaints. It is more in the course of working, a joint work, in a spirit of mutual progress... We are partners with the neighbouring community"*

(Joint effort with Employees) *"with our environmental strategy, we think it is not only management; it is a mindset for employees. We are all responsible to manage, we need everyone to manage"*

These comments show that relationships between the firm and its stakeholders are associated with cooperation because “joint work in the spirit of mutual progress” is accomplished by sharing the same “mindset” and working “with the same objective.” Terms employed within these descriptions fall under the definition of partnership or joint effort. The existence of such a partnership between the case firm and these stakeholders has also been observed when we examined the *Manual of Environmental Strategy and Reports on Sustainability Matters*. In summary, the stakeholders’ direct and indirect influence over EPI choice can evolve into a joint effort.

2.5.2.4. Environmental benchmarking

The last way stakeholders can influence the case firm’s EPI choice is through benchmarking, when environmental performance evaluations are performed by the firm with the help of its industry associations. This gives the firm a way to evaluate its environmental performance with its peers.¹⁵ The following are quotes by interviewees from the case firm about the influence of industry associations on environmental strategy and EPI:

“Associations will set [environmental] objectives, either voluntary or mandatory, and this is a driver for us... We are a member, so if we decide to follow [the association’s new objectives] and to set a target, we will make sure to implement the indicator if it does not exist... Through the association, we were always coming across (...) some (environmental) measures, but we did not have these measures. We added them”

Based on these quotes, environmental decisions made by industry associations are presented as drivers of environmental strategy. The influence these associations exert

¹⁵These industrial stakeholders are different from the stock listing evaluation firms (investor representatives) presented earlier because the former give the firm the means to evaluate its performance by itself, while the latter conduct an independent performance evaluation of the firm.

over internal EPI is stated through the case firm's membership status. Indeed, the member firm will implement the necessary EPI following its decision to adopt a voluntary recommendation by its industry association.

The collaborative spirit described in the previous section also exists in the firm-stakeholder relationship, as indicated by the following quotes:

“Lot of things are developed at the association level... We work together a lot and we try to have the same measures and the same ways to measure... We are in partnership with many associations [regarding environmental matters]”

In addition to the above ways industry influences the case firm in its choice of internal EPI, industry-level information on environmental issues is provided to the firm by the associations. As indicated by the following quotes, this information offers the firm an opportunity to evaluate its environmental performance relative to other members of the industry:

“We give our data to certain sub-industrial associations or industrial associations, which perform studies or analyses that they return to us in an anonymous format. Then we are able to see where we are situated within the industry [in terms of environmental performance... If we are not leaders, we conclude that, since we employ a similar technology, we are definitely able to improve our performance... and actions will be taken”

It has been previously mentioned that EPI represent a way to monitor the successful implementation of the environmental strategy and to make sure that, when necessary, the required remediation is undertaken. Accordingly, the case firm faces additional stakeholder influence when receiving industry environmental performance information to conduct benchmarking. Due to its environmental world leadership objective, this

information stimulates the case firm to improve its performance through the adaptation of its strategy and choice of EPI.

2.6. Corroboration of interviews with information obtained from stakeholders

We corroborate with stakeholder-derived information the results of the interviews and corporate documents regarding stakeholder influence on EPI. Reports obtained from websites are examined for clients, creditors, governments and industry associations. For creditors, we also examine the annual reports of all major banks (Canadian, American, and European). Information on the community and employees is sought in national and local newspapers from the ABI Inform and Eureka databases. Finally, we find information on investors and their representatives in the Corporate Social Investment Database from Jantzi Research, used here as a proxy for the investment perspective.¹⁶ This section presents the findings of our analysis of stakeholders' documents in support of their influence on the case firm's environmental strategy and internal EPI choice.

2.6.1. Mediated influence by the clients and creditors

The mediated influence of stakeholders on internal EPI occurs through an impact on environmental strategy. Through industry association bulletins, we found that the case firm signed a long-term contract to supply a major airplane manufacturer. The latter, a client of the case firm, published a report entitled *Environmental Requirements for Suppliers* stating that both the manufacturer and its suppliers must implement an ISO 14001 compliant environmental management system to minimize environmental risks.

¹⁶The Corporate Social Investment Database provides interested investors with detailed reports and related industry rankings and scores on the social, environmental and governance performance of hundreds of publicly traded firms (Jantzi Research 2008). Jantzi Research is the Canadian counterpart of the U.S.-based KLD (KLD 2009a) frequently used in management and accounting research.

The manufacturer's purchasing department is required to consider environmental criteria in the selection of suppliers. Similarly, industry association bulletins also indicate that the case firm supplies major car manufacturers, and an examination of these manufacturers' websites shows that they all require their suppliers to have an environmental management system in place and comply with a life cycle analysis approach. For example, a car manufacturer's sustainability report emphasizes the special attention required for the selection of materials from suppliers and how management teams from the manufacturer and suppliers must meet and reach a partnership agreement on environmentally compatible production processes.

In summary, the interviews corroborate the clients' documents related to the clients' influence on the case firm's environmental strategy. Clients ask their supplier, the case firm, to have an environmental management system in place and to comply with a life cycle analysis approach, which is a form of mediated influence in the continuum of stakeholders' influences. Nonetheless, we do not find documents directly supporting the interviews' results for creditors. This outcome is not surprising since banks are very reluctant to disclose any information about their customers, be it sensitive or not. Confidentiality and privacy are bank trademarks. However, the importance of respecting environmental regulations, as mentioned in the general loan policies of the case firm's bank, hints at an influence on environmental strategy.

2.6.2. Direct and indirect influence by investors and their representatives

Direct and indirect influence suggests that investors and their representatives exert pressure on both environmental strategy and EPI selection. One way investors influence

the case firm's environmental strategy is through shareholder proposals on environmental issues during annual meetings. Jantzi Research reports reveal that ethical funds submitted proposals to have the case firm endorse principles on environmental practices. Similarly, newspapers report that investors asked the case firm to improve their community consultation process on environmental issues.

Jantzi Research surveys firms and provides scores on their environmental performance; it is considered an investor representative. Its survey allots significant attention to environmental performance measurement and monitoring, and lists the internal EPI the case firm measures. Given that the environmental score Jantzi Research attributes to the case firm depends, in part, on its results on environmental performance measurement, the emphasis Jantzi Research places on this issue is a form of influence on the case firm's EPI choice. Further evidence of investor representatives' influence on EPI is the fact that both Jantzi Research and the case firm use the same environmental metric. Therefore, documents from investors and their representatives suggest influence on the case firm's environmental strategy and choice of internal EPI. These influences form the direct and indirect pattern used by these stakeholders.

2.6.3. Joint effort influence of government, the community and employees

Stakeholders exert a joint effort influence over internal EPI when their direct and indirect influence evolves into a partnership. Evidence of collaboration between the case firm and the Ministry of the Environment are available on government websites. The parties agree on "memorandums of understanding" to work jointly to develop and implement pollution

prevention plans, cooperate with local governments and the community, and develop and monitor internal EPI.

Newspaper analysis reports that the community puts pressure on the case firm to find an environmentally friendly way to transform toxic waste, which leads to several public consultations. Newspapers report that a community representative praises the case firm as an “exemplary corporate citizen” on this issue, which leads to the firm’s receiving an environmental award presented by the local media.

The joint effort taking place between the case firm and its employees is presented as a shared mindset. Newspapers report how the case firm works to raise the awareness of environmental issues among its managers in developing countries, and how it promotes environmental protection among employees by means of financial incentives for greenhouse gas reduction. The press emphasizes that these initiatives, aimed at building a shared environmental mindset between the case firm and its employees, result in increased motivation and greater employee participation in the improvement of environmental performance. In short, documentation reveals that the case firm is involved in pollution prevention with governments, cooperation with communities, and the sharing of environmental responsibilities among employees. This evidence suggests a joint effort influence by these stakeholders.

2.6.4. Environmental benchmarking influence of the industry and associations

Benchmarking influence takes place when stakeholders working in joint effort with the firm enable it to benchmark its environmental performance. Industry association

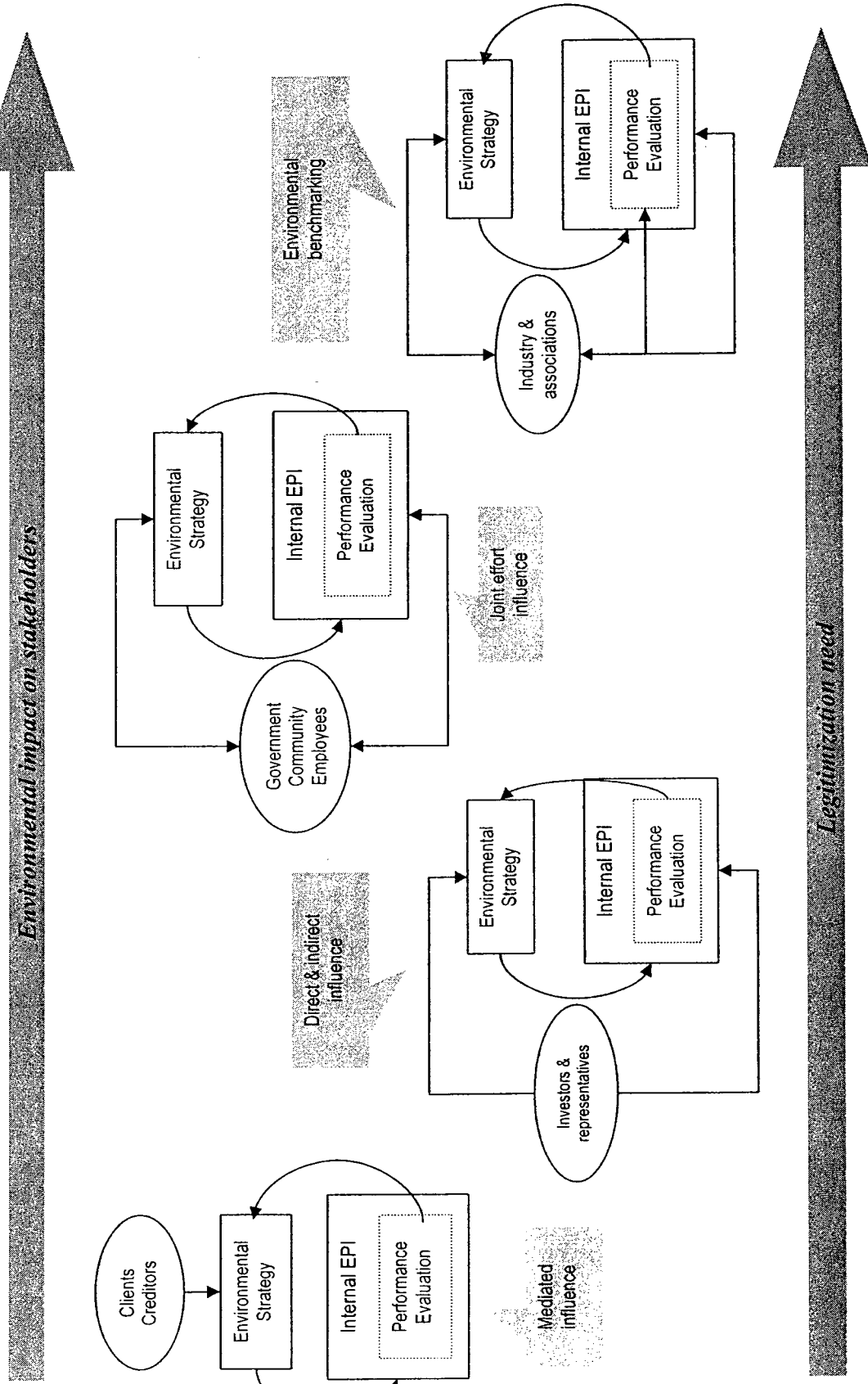
newsletters indicate that the case firm, and major firms in its industry, take a voluntary approach with the government to reduce greenhouse gas emissions. They negotiated an agreement where specific EPI are defined, measured, targeted, monitored and audited by an independent third party. The influence of the industry on environmental strategy and EPI is evident; the case firm actively participates to achieve the industry association's objectives by developing and implementing the same EPI. The case firm provides its data to its industry association, and receives aggregate information for the whole industry, which permits the firm to assess where it is situated with respect to its peers in terms of environmental performance. Reports in a newsletter indicate that for more than 15 years the industry association has systematically performed environmental benchmarking regarding the measurement and monitoring of EPI. Each indicator is measured annually and the results are sent to an international institute, which then provides a report allowing each firm to measure its performance relative to that of other industry members. This institute also establishes environmental objectives for reduction in PFC emissions, energy use, consumption of water, and the implementation of environmental management systems.

In summary, available documentation supports the interview results on the environmental benchmarking influence. Working with its industry associations to develop a common environmental strategy and EPI allows the case firm to use benchmarks to measure itself against its peers in terms of environmental performance.

2.7. Description of a continuum of stakeholders' influences over EPI choice, theoretical perspectives

Our findings are summarized in Figure 5, which shows that stakeholders influence the case firm in various ways regarding its choice of internal EPI. These influences evolve along a continuum, beginning with a narrow, one-way influence, and progressing toward a broad, interactive influence. First, stakeholders influence the case firm via their impact on environmental strategy, which constitutes a mediated influence on EPI choice. Second, in addition to this indirect influence, the case firm also experiences direct stakeholder influence when it receives explicit pressures from stakeholders concerning which EPI it chooses to manage environmental performance. Third, stakeholders' direct and indirect influence can evolve into a joint effort where stakeholders and the firm interact with the objective of achieving a common environmental goal. In Figure 5, the bidirectional arrows linking the two groups appearing on the continuum illustrate this interaction between stakeholders and the firm. Finally, the influence of this relationship broadens when stakeholders provide the case firm with a way to evaluate its environmental performance; in this environmental benchmarking influence, the case firm receives additional pressure to adjust its environmental strategy and EPI choice.

Figure 5 : Illustration of a continuum of stakeholders' influences over the case firm's choice of internal EPI



Each pattern illustrated along the continuum of stakeholders' influence over EPI choice can be associated with prior research, even though this type of continuum does not exist in the literature. For example, the mediated influence and the direct and indirect influence are consistent with Atkinson et al. (1997) regarding stakeholders' influence on organizational strategy. These authors assert that the contributions and expectations of important stakeholders form the basis upon which strategy should be developed, and performance measures associated with the strategy should address stakeholders' expectations. The joint effort influence appears to be the convergence of green stakeholders' influence on corporations (e.g. Hendry 2005; Henriques and Sharma 2005; Frooman 1999) and stakeholder management approaches to deal with green stakeholders (e.g. Knox et al. 2005; Unerman and Bennett 2004; Harvey and Schaefer 2001). This convergence guides the work of the firm and its stakeholders toward a common environmental objective. Next, the environmental benchmarking influence recognizes the role of stakeholders in environmental performance, and is consistent with Kassinis and Vafeas (2006). Finally, the continuum of stakeholders' influence meshes with the environmental strategy continuum where firms can evolve from a reactive to a proactive approach (Hunt and Auster 1990).

2.7.1. Theoretical interpretation

Theories can be used to reinforce the external validity of a single case study (Yin 2003). In this context, stakeholder and legitimacy theories are the underlying foundations of the continuum of stakeholders' influences. Stakeholder theory is the most apparent theoretical explanation underlying the study. This theory stipulates that groups with different interests and concerns regarding corporate actions evolve around a firm with the

ability to have an impact on its activities (Clarkson 1995). A firm's management must address stakeholder expectations by simultaneously paying attention to all relevant stakeholders (Freeman 1984; Donaldson and Preston 1995; Rowley 1997). Because the environment is becoming increasingly important for numerous stakeholders (e.g. Harvey and Schaefer 2001), firms must consider their environmental expectations in order to meet their demands.

Support for stakeholder theory is found throughout our analysis. Each form of influence on environmental strategy or internal EPI that causes the case firm to adapt its environmental approach and EPI choice illustrates how a firm may address stakeholders' environmental expectations. Stakeholder theory also explains one of the driving forces of the continuum: the importance for stakeholders of corporate environmental impacts. As we move along the continuum, the environmental impacts of the case firm's activities become more and more important for the respective stakeholder groups. These environmental impacts matter least of all to clients and creditors (business stakeholders) unless they begin to interfere with their contracts with the case firm (Cormier et al. 2004). Therefore, their influence over the firm's environmental management can be limited to a mediated influence. Investors and their representatives (financial stakeholders) consider the environmental impacts of the firm's activities to be more important, because they can affect the value of their investment (Cormier and Magnan 1997; Hassel et al. 2005). Their investment implicitly requires environmental management, which they monitor through their direct and indirect influence. Next, the necessity for governments, communities and employees (social stakeholders) to exert a joint effort influence arises

from their greater sensitivity to the firm's environmental impacts; being closer to the firm's activities, they experience the externalities associated with the case firm more deeply. Finally, the firm's environmental impact is of utmost importance to its industry, because these externalities bear potentially significant consequences for the image and reputation of the industry sector as a whole (e.g. Hoffman 1999), which leads this stakeholder group to apply a benchmarking influence. Overall, this driving force of the continuum is consistent with the strategic performance measurement systems literature where firms monitor performance in light of stakeholders' requirements (Henri 2006).

We can also interpret the continuum of stakeholders' influences over EPI choice from a societal perspective using legitimacy theory. The case firm engages in actions on environmental matters to preserve its legitimacy with respect to society (Patten 2005). Elements of legitimacy such as "public image," "reputation," "visibility," "long-term license to operate" and "future acceptability" are frequently mentioned throughout the interviews and the corporate documents examined, as presented in Table 8. Concepts such as "public image," "reputation" and "visibility" emphasize the importance of society's perceptions of the case firm, while "license to operate" and "acceptability" refer to the case firm's survival. Given the importance society places on environmental issues, maintaining legitimacy is a significant reason to consider stakeholders' environmental demands (Deegan and Blomquist 2006; Cormier et al. 2004). For example, investor representatives are regarded as very influential stakeholders because of their impact on public image. The importance of these stakeholders is documented by one interviewee: *"Reputation has an intangible value...we have a long-term license to operate and we*

want to preserve it, so we must have a good reputation.” Similarly, reports on sustainability underline the importance of the community from a legitimacy perspective by linking current and future access to natural resources with community trust. Addressing stakeholder demands seems to be a way for the case firm to adapt its operating methods to secure its future (Dowling and Pfeffer 1975).

Given the case firm’s awareness of stakeholders’ environmental concerns, preserving legitimacy also appears to motivate the adoption of a proactive environmental strategy. For example, reports on sustainability matters show that proactive water and land management is often associated with reputation enhancement and preservation of the firm’s long-term license to operate. Similarly, when questioning turned to the motivation behind proactive water management, one interviewee insisted that the case firm had good management in place to continue to benefit from the right to access and utilize water. In addition, reports on sustainability matters also relate the future acceptability of the case firm’s products and activities to the outcomes associated with its management of crucial environmental issues. Collectively, the examination of corporate documents, interviews and information obtained directly from stakeholders suggests that the case firm associates the future of its activities with its environmental strategy. Therefore, pursuing a proactive environmental strategy represents one way in which the case firm adapts its objectives and methods of operation to preserve its legitimacy in society (Dowling and Pfeffer 1975).

Table 8 : Frequency of references to legitimacy issues

DATA SOURCE	REFERENCES TO THE FOLLOWING LEGITIMACY CONCEPTS							TOTAL PER SOURCE
	PUBLIC IMAGE	REPUTATION	VISIBILITY	LICENCE TO OPERATE	FUTURE ACCEPTABILITY			
Environmental manager	2							2
Environmental director		4	3	5	2			14
Environmental performance data manager	2	2	2					6
Corporate documents	3	5		4	2			14
TOTAL NUMBER OF REFERENCES	7	11	5	9	4			36

Legitimacy is the second driving force of the continuum of stakeholders' influences over EPI choice. We contend that the case firm's legitimacy needs increase as we move along the continuum. This need for legitimacy is related to the importance of the environmental impact for the respective stakeholders (the first driver of the continuum). The environmental legitimacy need is at a minimum with clients and creditors that view the firm as mostly legitimate when it fulfills its contracts with them within reasonable environmental boundaries. This is represented by a mediated influence. The direct and indirect influence exerted by investors and their representatives suggests a greater need for environmental legitimacy for these groups because the firm wants to retain its current investors and attract future financing (Henriques and Sadosky 1999). The firm's legitimacy need increases with respect to governments, communities and employees. Through the joint influence, the firm works in conjunction with these stakeholders that are directly affected by its externalities to legitimize its activities in their minds (Kapelus 2002). Finally, the case firm's need for environmental legitimacy peaks at the industrial stakeholder level. The firm recognizes the industry's benchmarking influence, and complies with and exceeds industry standards. It thus uses the benchmarking results as a legitimizing tool. Overall, this driving force behind the continuum is consistent with the strategic performance measurement systems literature's being employed to legitimize actions (Henri, 2006).

2.8. Concluding comments

The objective of this paper was to conduct an exploratory investigation of the role stakeholders play in the selection of EPI. Adopting a field study approach, both stakeholder theory and legitimacy theory are drawn upon to analyze managers'

interviews, corporate documents, and information obtained directly from stakeholders. We highlight stakeholders' influences over the case firm in its choice of EPI. These influences are represented by a continuum with a narrow unidirectional influence at one end, and a broad bidirectional influence at the other end. Results demonstrate stakeholder and societal influences on environmental management and performance measurement. This paper contributes to the understanding of the stakeholders' role in shaping a firm's behavior toward the environment. It takes into consideration internal EPI, whereas prior research concentrated mainly on environmental concerns, strategy and external disclosure.

This study is subject to limitations. Focusing on a single firm has allowed an in-depth understanding of the firm's business context regarding environmental indicators; it also limits the generalizability of the results. While stakeholders can influence the selection of EPI through other means, they were not uncovered during our investigation. Future research could examine the communication strategies a firm adopts in order to shape stakeholders' influences over its environmental performance evaluations. The absence of certain stakeholders from the continuum developed could also be explored. For example, requests made by environmental non-governmental organizations (ENGOS) are widely publicized in the media, and supply chain issues are increasingly considered essential parts of corporate environmental management. However, our investigation suggests neither ENGOS nor suppliers seem to fall within the scope of the continuum. This issue will therefore require further investigation.

CHAPTER 3: CONTRASTING REALITIES: CORPORATE ENVIRONMENTAL DISCLOSURE AND STAKEHOLDER-RELEASED INFORMATION

Abstract

This paper studies the informational dynamics taking place between a firm and its stakeholders with respect to corporate environmental management. These dynamics refer to the way in which constituents (the firm and its stakeholders) release environmental information, react to the releases from the other constituent and affect each other in their disclosure (adapted from Buhr 2007). The analysis rests on a longitudinal case study contrasting environmental information reported by the case firm with environmental information about the firm disclosed by four key stakeholder groups or their representatives (governments, community, environmental non-governmental organizations and investors) over a period of three years. These environmental disclosures have been analysed and compared to identify the similarities, differences, overlaps and omissions of corporate reporting vis-à-vis stakeholder-released information. The case firm under study is a large international corporation operating in the forest and paper products industry throughout North America and the United Kingdom. Results suggest the presence of a gap composed of different patterns between corporate and stakeholder environmental disclosures. The patterns range from uniformity between corporate and stakeholder disclosures to performance-neutral and performance-biased gaps, with stakeholders complementing or contradicting corporate disclosures. The relativism arising between the environmental ethics of the case firm and that of its stakeholders is employed to interpret findings and assess the accountability of the case firm. Specifically, the differences in the environmental values of the case firm and those

of its stakeholders explain the gap between the information reported by the perspectives because different environmental values call for different environmental disclosures. In addition, the more intense the ethical relativism between the firm and its stakeholders for a specific environmental issue, the lower the accountability of the case firm regarding the issue at stake.

3.1. Introduction

Developing an understanding of corporate environmental management and performance can be compared to looking through the different facets of a prism. One facet advocates that good environmental performance creates value for the corporation (Hart 1995; Russo and Fouts 1997; Al-Tuwaijri et al. 2004). Another facet of the prism proposes that greater environmental disclosure is used to mask poor environmental performance (Hughes et al. 2001; Patten 2002) while a third one argues the opposite, i.e. that superior environmental disclosure demonstrates better environmental performance (Al-Tuwaijri et al. 2004; Clarkson et al. 2008). Another facet suggests that stakeholders influence corporate environmental performance (Sharma and Henriques 2005; Kassinis and Vafeas 2002, 2006) and corporate environmental disclosure (Roberts 1992; Cormier et al. 2004; Adams and Whelan 2009). Still another facet states that stakeholders are influenced by environmental performance and disclosure (Deegan and Blomquist 2006; Hendry 2005; Milne and Patten 2002). All these perspectives depict different aspects of corporate environmental performance, much like each facet presents a different view of the same prism. How can we get a sense of the overall picture of a corporation's environmental management and performance? Adams (2004) and Dey (2007) suggest that this can be achieved by studying environmental information released by both the firm and by its stakeholders.

The paper explores informational dynamics taking place between a firm and its stakeholders with respect to corporate environmental management. These dynamics refer to the way constituents (the firm and its stakeholders) release environmental information, how they react to the releases from the other constituent and how their disclosures affect

each other (adapted from Buhr 2007). The dynamics are analysed through a longitudinal case study contrasting environmental information reported by the case firm with environmental information about the firm disclosed by four key stakeholder groups or their representatives: governments, community, environmental non-governmental organizations (ENGOS) and investors. The case firm is Abitibi Consolidated, a large international corporation operating in the forest and paper products industry throughout North America and the United Kingdom. Information released through corporate environmental disclosure (annual reports, sustainability reports, web, press releases) along with the environmental information released by concerned governments, communities, ENGOS and investors has been collected for the period of 2005 to 2007. These environmental disclosures have been analysed and compared to identify the similarities, differences, overlaps and omissions of corporate reporting vis-à-vis stakeholder-released information.

Economic and socio-political approaches are often employed to study environmental disclosure (Berthelot et al. 2003). Ethical approaches, although scantily used so far,¹⁷ are also of significant relevance for social and environmental accounting (Andrew 2000). Indeed, corporate environmental management raises important ethical issues, such as the extent to which it could be considered ethical for a corporation to generate profits while harming the environmental resources belonging to society (Jeurissen and Keijzers 2004). I thus adopt an ethical stance to analyze the informational dynamics of Abitibi Consolidated and its stakeholders. Specifically, I employ ethical relativism to investigate the research question. This perspective stipulates that what is considered ethical or

¹⁷ See Parker (2005) for a review of the theories employed in social and environmental accounting research.

unethical is not objective and changes from one individual, stakeholder or society to another, and over time (Lewis and Unerman 1999; Wong 1993).

The results suggest a gap between corporate and stakeholder environmental disclosures. This gap is composed of different patterns ranging from uniformity (the absence of a gap) in disclosures to performance-neutral and performance-biased gaps between the corporate and the stakeholder perspectives. Using ethical relativism, I attribute this gap to the differences in environmental values between the firm and its stakeholders. Indeed, from this perspective, environmental disclosure is considered to be dedicated to the demonstration of the fulfilment of environmental values (Richardson 1987). The relativism of environmental values implies that the information disclosed is likely to be appropriate for some stakeholders but not for others (Lewis and Unerman 1999), thereby explaining the gap existing between corporate environmental disclosure and stakeholder-released environmental information. In addition, contrasting stakeholder information with corporate disclosure sheds light on the level of accountability of the corporation (Adams 2004). Complementing the ethical relativism analysis with an accountability appraisal indicates that the different patterns of disclosure are associated with different levels of accountability; the more relativism there is in a pattern, the lower the level of accountability.

Studying the informational dynamics of environmental management is important for the evolution of corporate environmental disclosure. So far, accounting standard setters worldwide regulated only the reporting of environmental contingencies, asset retirement

obligations and other environmental costs and liabilities.¹⁸ By exposing the nuances in the gap between corporate and non-corporate environmental disclosures, this paper concretely underlines the extent to which voluntary corporate environmental reporting meets stakeholders' information and accountability needs (Adams 2004; Unerman and Bennett 2004). These results will be helpful in assessing the transparency of environmental information disclosed and the requirements of the information users. They contribute to the debate on the necessity and usefulness of regulating social and environmental reporting (see Buhr 2007) by providing standard setters and other interested parties with relevant information on the consequences of leaving most decisions about environmental disclosure to the discretion of organizations. The results may also interest corporate environmental information users as they offer guidance regarding the adequacy of the given information for decision-making. Similarly, the results provide companies with insights about how corporate awareness of stakeholders' environmental values may help them improve their accountability.

This paper contributes to the literature by answering the repeated call for research into the overall portrayal of corporate social and environmental performance available through multiple information sources (Thomson and Bebbington 2005; Adams and Harte 1998; Owen 2008; Unerman 2000; Georgakopoulos and Thomson 2008). In particular, this study contributes to the environmental accounting literature by offering insights into the accountability of corporate environmental disclosure from a stakeholder perspective. This perspective helps break down the gap between corporate and non-corporate

¹⁸Internationally: IAS 37 of the International Financial Reporting Standards.
Canada: Sections 3290 and 3110 of the Canadian Institute of Chartered Accountants Handbook.
United States: SFAS 5 and 143.

environmental disclosure and helps identify the extent to which the organization is accountable to its stakeholders. Another contribution of the paper lies within the analysis of the results in light of the conceptual framework of ethical relativism (Wong 1993), a philosophical perspective on which little empirical research has been performed in the social and environmental accounting literature.

The rest of the paper is organized as follows. The next section discusses the background literature and elaborates on the concept of informational dynamics. The third section develops the conceptual framework of the study around ethical relativism. The fourth section introduces the case firm, Abitibi-Consolidated, and details the research design. The fifth and sixth sections analyze and discuss the results respectively, and the last section offers concluding comments.

3.2. Background

The last two decades of environmental accounting research witnessed the development of knowledge about how corporations report on their environmental management and performance around three main streams of literature (Berthelot et al. 2003). The first stream examines the determinants of voluntary environmental disclosure (Aerts et al. 2006; Neu et al. 1998; Roberts 1992; Gray et al. 1995; Deegan 2002; Cormier and Magnan 2003; Islam and Deegan 2008; Belal and Owen 2007) while the second studies the value relevance of environmental accounting information (Blacconiere and Patten 1994; Cormier and Magnan 1997; Li and McConomy 1999; Richardson and Welker 2001; Clarkson et al. 2004; Johnston 2005).

The last stream of literature, the one most closely related to this study, analyzes the reliability of reported environmental information. A number of studies in this stream investigate whether environmental performance is adequately reflected in environmental disclosure (Al-Tuwaijri et al. 2004; Clarkson et al. 2008; Patten 2002). Another substream, to which this study contributes, examines reliability by assessing the substance of environmental disclosure. Substance has been evaluated through the appraisal of compliance with mandatory reporting standards (Freedman and Stagliano 1995; Alciatore et al. 2004), comparisons of corporate policies with subsequent disclosures (Patten 2005; Tilt 2001), the analysis of the nature of disclosure (Deegan and Gordon 1996; Deegan and Rankin 1996; Deegan et al. 2002) and the degree of compliance with voluntary social and environmental disclosure guidelines such as AccountAbility 1000 (ISEA 1999) and the Global Reporting Initiative (GRI 2006) (Belal 2002; Guenther et al. 2006; Morhardt et al. 2002; Moerman and Van Der Laan 2005; Adams 2004; Ruffing 2007).

These perspectives adopted to examine substance unanimously assert the presence of a gap in corporate environmental reporting. However, in most instances, only specific pieces of information were examined (Alciatore et al. 2004; Freedman and Stagliano 1995; Patten 2005; Tilt 2001) or only a general appraisal of the content of a reporting medium (usually the annual report) was conducted (Morhardt et al. 2002; Deegan and Rankin 1996; Guenther et al. 2006; Deegan and Gordon 1996; Deegan et al. 2002). Few detailed, in-depth, appraisals of environmental reporting were performed (Belal 2002; Moerman and Van Der Laan 2005) and fewer studies compared corporate social and environmental reporting to external sources of information (Adams 2004; Ruffing 2007).

Most prior research that examines relations among stakeholders and corporations in the context of environmental disclosure adopted a static perspective in which stakeholders had a straightforward directional influence on environmental disclosure, with the focus generally being on corporate outputs such as annual or sustainability reports (Roberts 1992; Cormier et al. 2004; Belal and Owen 2007; Islam and Deegan 2008). However, I argue that a broader and more refined depiction of stakeholder-firm interactions related to environmental disclosure is emerging in the literature under the concept of “informational dynamics.” In these dynamics, corporations report environmental information in response to their interpretation of stakeholders’ opinions. This in turn shapes subsequent stakeholder disclosures (or decisions not to disclose) on the environmental issues at stake (Buhr 2007). Thus these dynamics encompass many environmental accounts issued by different reporters (the corporation and various stakeholder groups), and these reports are shaped by the respective environmental “ideologies, rationalities and values” of the reporters (Georgakopoulos and Thomson 2008: 1118). In these dynamics, the overall environmental performance of a corporation is understood through a construction of the performance’s portrayal based on the multiple reports (Georgakopoulos and Thomson 2008).

Prior studies are helpful in acknowledging the existence of a gap between corporate environmental reporting and external information about the firm’s environmental management and performance, but there is work to be done in order to identify the nuances within the gap. Initial steps were taken by Adams (2004). Relying on emerging trends in social and environmental reporting research, this study extends Adams (2004)

by analysing the informational dynamics taking place between a firm and its stakeholders with respect to its environmental management.

3.3. Conceptual framework: ethical relativism and environmental disclosure

Both natural and human arguments advocate for the ethics of corporate environmental protection. One may argue that the natural environment deserves ethical consideration from the corporation due to its intrinsic value, i.e. plants, animals and all other components of the natural environment are as worthy to be treated by high moral standards as human beings (Hoffman 1991). Others may claim that embedded in the ethics of the collective good is business' responsibility towards future generations and their environmental rights (Jeurissen and Keijzers 2004), which translate into moral obligations towards the environment today. Environmental disclosure has the potential to lead to the expression of ethical environmental concerns (Mathews 1995) and therefore is worth analysing from an ethical perspective.

Another argument for studying environmental issues from an ethical standpoint lies in moral philosophy. Moral philosophy is an important component of ethics. It shapes people's system of values by disentangling 'right' from 'wrong' (Ferrel et al. 2000). Values are significant drivers of corporate social performance. Indeed, some models of corporate social performance (including environmental performance) are based on the conviction that corporations "must behave in a manner that is consistent with society's values" (Wartick and Cochran 1985: 759). Values can be considered to be embedded in corporate social performance in a way that shapes corporate response to social issues (Swanson 1995). In the case of environmental performance, this response can take the

form of corporate environmental communication (Cormier et al. 2004). Within the corporation, external affairs management is often responsible for the external communications of the corporation (e.g. public relations department). According to Swanson (1999) this corporate function is also responsible for detecting the social values the firm has to respond to. The values identified by external affairs are likely to shape the content and format of corporate communications. In fact, the double responsibility of external affairs (corporate communications and value detection) eliminates intermediaries between value detection and corporate communication and as such reinforces the influence of values on communication. In short, the role played by values in environmental disclosure provides another argument for studying the informational dynamics of environmental reporting from an ethical perspective.

Accordingly, in studying the case firm's environmental disclosure strategy in light of the release of environmental information by its stakeholders, the moral philosophy of ethical relativism is retained. This moral philosophy was selected following work on corporate social performance and values emphasizing the need to account for value relativism (ref.: Swanson 1999). This work also underlines the need to consider interactions between corporations and social groups as a means to exchange ideas on the values at stake. On some level, these interactions relate to the informational dynamics that are the focus of the study.

Ethical relativism implies that individuals have different conceptions of moral values and of what is right and wrong (Wong 1993). What is considered to be ethical or unethical is

therefore subjective and changes from one individual to another (Wong 1993; Mackie 1987). In other words, “what is considered good at a particular point in time by one society, individual or stakeholder group might not be regarded as good at other times or by other societies, individuals or stakeholder groups” (Lewis and Unerman 1999: 521). Extreme relativism implies that all moral standards can be thought to be right or wrong depending on the context (Taylor 1987). Proponents of ethical relativism advocate for a less radical version of relativism, recognizing that although there is no single morality, some values or moral codes might be wrong given the situation (Wong 1993). Along this line of thought, Lewis and Unerman (1999) developed a form of reasoned ethical relativism in which most behaviors are subject to be deemed ‘good’ by some and ‘bad’ by others, with certain behaviors being considered unacceptable at all times (such as torture).¹⁹

This moderate form of relativism is adopted for the purpose of the paper. It stipulates that ethical values are not objective, but instead are subjective and relative. It also recognizes that although some broad-based values may be shared by different members of the same society at the same point in time, the fulfillment of these values in everyday life is likely to be relative, due to divergence on the specific moral standards used to establish the morality of a behavior (Stace 1983; Lewis and Unerman 1999). Different members of the same society are likely to have different takes on how to respect the general moral values. Thus, the way to follow the somehow shared broad moral values is also relative. In brief, this moral philosophy stipulates that different moral grounds are to be expected from different members of the society (Stevenson and Godden 1992; Ferrel

¹⁹ Lewis and Unerman’s (1999) example.

et al. 2000). Ethical relativism echoes the political arena approach, in which representatives of different ideologies, rationalities and values interact around a common issue (Georgakopoulos and Thomson 2008).

The above description of ethical relativism remains at the societal level. Ethical relativism has also been conceptualized and empirically investigated at the corporate and managerial levels (e.g. Chan and Armstrong 1999). For the purpose of this study, ethical relativism has significant implications for social and environmental reporting (Lewis and Unerman 1999). Voluntary social and environmental disclosure have long been recognized as a legitimation device (Gray et al. 1995; Deegan 2002; Cho and Patten 2007) aiming to illustrate the firm's respect for its stakeholders' values (Richardson 1987). Therefore, "because of ethical relativism, such values vary both between different stakeholder groups or societies, and over time, then the focus of legitimation, and the form and content of corporate reporting used to support such legitimation, can also be expected to vary in this manner" (Lewis and Unerman 1999: 526). This entails that social and environmental reporting will be affected by the values managers have identified as those that the corporation needs to demonstrate that it respects (Swanson 1999). More precisely, social and environmental reporting will be grounded in the values of the stakeholders/society targeted by the disclosure. Because those values are ethically relative, it is complex for corporate social and environmental disclosure to meet the needs of multiple different stakeholders (Solomon and Solomon 2006). Difference in values will lead to differences in the presentation and interpretation of information (Stevenson and Godden 1992). Accordingly, social and environmental disclosure "that is appropriate

for one society or stakeholder group at one point in time might not be appropriate for other societies/stakeholder groups or other times” (Lewis and Unerman 1999: 523). Prior work identifies cross-company and cross-country differences in social and environmental disclosure (Lewis and Unerman 1999) and uncertainty concerning the nature of the information to disclose (Solomon and Solomon 2006) as consequences of ethical relativism for social and environmental reporting.

In the present study, the case firm and its stakeholders provide separate accounts of the firm’s environmental performance within the informational dynamics of environmental management. These accounts can be compared to different metaphors depicting the case firm’s environmental situation. For each reporter, some elements are considered and others are left out, leading to different conceptions of the firm’s environmental performance (Morgan 1988, 1997). The inclusion and exclusion of certain elements suggest that different values or ways to respect those values underlie each of these metaphors or reporting perspectives. In other words, according to ethical relativism, as different members of society, the firm and its various stakeholders are likely to abide by different environmental values or follow different detailed codes to evaluate the moral value of certain environmental behaviors. This would in turn, be reflected in their respective environmental disclosures.²⁰ Therefore, applied to the present case study, reasoned ethical relativism suggests that the case firm’s disclosure might differ from its stakeholders’ disclosure on the same environmental matters due to disagreement over what is considered environmentally right and wrong from each perspective. It can be

²⁰The impact of ethical relativism on disclosure is likely to affect both the content and the objectives underlying disclosure. The study focuses on the content to avoid speculation concerning the objectives.

argued that the reporting of the same message by both the case firm and its stakeholders would imply that they share similar environmental values on this issue, whereas different messages provided by the firm and by its stakeholders would reflect diverging environmental values.

3.4. Research design

3.4.1. Research method

I use a longitudinal case study to investigate the dynamics of environmental reporting. Multiple stakeholders potentially play a role in the voluntary reporting dynamics (Buhr 2007). Each stakeholder group may play its role differently and thereby each offers a different perspective on the reporting firm. As such, understanding the multiple perspectives associated with the dynamics of environmental reporting requires an in-depth analysis, which is the focus of the case study (Creswell 1998; Eisenhardt 1989). Moreover, it is necessary to gather a deep contextual knowledge of accounting practices aimed at demonstrating conformity with moral values, such as environmental reporting (Richardson 1987). The case study also offers the opportunity to take the values of the parties involved into account (Cooper and Morgan 2008), in line with the conceptual framework. The scant evidence currently available on the dynamics of reporting also justifies the case study approach (Leonard-Barton 1990). Finally, focusing on a single case is appropriate for longitudinal analysis (Yin 2003).

The study is therefore conducted through a case study in which corporate environmental disclosure is compared with environmental disclosure related to the case firm reported by stakeholders. For each selected stakeholder group, corporate environmental disclosure is

contrasted with that particular group's disclosure. This approach allows the comparison of corporate disclosure with stakeholders' needs as expressed in their own release of information. The relevance of the stakeholder perspective for this study is supported by the stakeholders' influence on corporate environmental disclosure (Cormier et al. 2004; Deegan and Blomquist 2006) and by the stakeholders' role in the voluntary disclosure dynamics (Buhr 2007). Four stakeholder groups are analyzed: investors, governments, community and ENGOs. These stakeholders were chosen because of their recognition in prior stakeholder literature (e.g. see Donaldson and Preston 1995), their interest and influence over environmental reporting (Tilt 2007) and the importance of considering these groups when evaluating corporate environmental performance (Ilcinich et al. 1998; ISO 1999).²¹ The disclosure is analysed over a period of three years (2005 to 2007) in order to fully capture the dynamics of environmental reporting.

3.4.2 The case firm

Intensity sampling, which focuses on "cases that manifest the phenomenon of interest intensely" (Patton 2002: 234), was used to identify the firm to study. Applying this sampling strategy led to the selection of a firm that discloses a significant volume of voluntary environmental information owing to the important environmental impact of its activities, and that attracts a high level of environmental disclosure from external sources. In other words, such a sampling strategy led to the selection of a case where the quantity of environmental information disclosed, by the organization as well as by external

²¹Employees, clients and suppliers were considered as relevant perspectives for the study but were excluded due to data unavailability.

sources, is significant, and thereby ensures the investigation of an information-rich case (Patton 2002).

The case firm selected for the analysis is Abitibi-Consolidated (hereafter AC). Operating in the forest and paper products industry, the case firm produces newsprint, commercial printing papers and wood products, and is headquartered in Montreal, Canada. In addition to Canada, the company operates in the United States and the United Kingdom; and had more than 12,500 employees at the end of 2006 (Hoover 2008). Its sales totalled \$4.1 billion in 2006, and it was listed on both the Toronto Stock Exchange and the New York Stock Exchange for the period under study.²²

The major environmental areas of concern in the forest and paper products industry are forest management, recycling, climate change, air, water and energy (FPAC 2008). AC's performance with regard to these issues is addressed to different degrees in its annual report, its sustainability report (entitled 'Complete Global Review') and its website. AC's environmental performance is also of interest to a broad range of stakeholders. As a major employer in Canada and the United States, AC's economic and environmental activities are monitored by governments (e.g. Government of Ontario 2005; NRC 2005). AC's size ensures that its environmental actions are highly visible within communities through media coverage (Cormier and Gordon 2001). The environmentally sensitive nature of its activities also attracts the attention of ENGOs. Investors are interested in the environmental performance of this publicly traded firm, as evidenced by the firm's

²²Abitibi-Consolidated merged with Bowater on October 29, 2007. The resulting company, AbitibiBowater, is not included in this study.

inclusion in rankings of social and environmental investments (Brearton et al. 2005; Brearton et al. 2007). The wide attention given to AC's environmental performance makes the firm a worthwhile case for the investigation of the dynamics of environmental reporting.

3.4.3. Data collection

The first step in data collection was to identify, based on prior literature, the different documents that would represent each of the five perspectives (AC, governments, ENGOs, community and investors).²³ Table 9 below presents an overview of the types of documents that were collected for each perspective, with an explanation of the relevance of each document in the representation of the perspective.

²³Guidance from Adams and Laing (2000) was especially useful in the process. These authors provide information on where and how to search for information on companies. They cover sources of information on the general industry background, the general company background and social performance. They also highlight how to approach the practitioner and the academic literatures.

Table 9 : Documents collected for each reporting perspective

PERSPECTIVE	DOCUMENTS COLLECTED^a	EXPLANATION
Abitibi Consolidated (case firm)	<ul style="list-style-type: none"> ◆ Annual report (AR) ◆ Stand-alone sustainability report (Entitled 'Complete Global Review' (CGR) by AC) ◆ Environmental brochures ◆ Press releases on environmental issues ◆ Website 	As in Gray (1997) and Van Staden and Hooks (2007), all examples of organized corporate environmental disclosure were collected in order to capture the most comprehensive picture of the firm's environmental reporting.
ENGOS	<ul style="list-style-type: none"> ◆ Publications ◆ Press releases ◆ Website 	Official publications, press releases and websites are considered to be the main disclosure outlets of ENGOS (Dey 2007; Adams and Laing 2000).
Community	<ul style="list-style-type: none"> ◆ Newspaper articles 	Media attention is used as a proxy for community concern as in Brown and Deegan (1998) and Deegan et al. (2002).
Investors	<ul style="list-style-type: none"> ◆ Reports and rankings from the Corporate Social Investment Database (CSID) of Jantzi Research 	The CSID provides to interested investors detailed reports and related industry rankings on the social, environmental and governance performance of hundreds of publicly traded firms (Jantzi Research 2008). Jantzi Research is the Canadian counterpart of the U.S.-based KLD (ref.: KLD 2009a). Because KLD data have been widely used in management research (e.g. Graves and Waddock 1994; Johnson and Greening 1999) and are now employed in environmental accounting research (Cho and Patten 2007; Cho et al. 2006), it is considered relevant to employ the Canadian equivalent of KLD data, Jantzi Research's CSID, as a proxy for investors' perspective in this study.
Government	<ul style="list-style-type: none"> ◆ Studies/Publications ◆ Press releases ◆ Websites 	Official publications, press releases and websites are considered to be the main disclosure outlets of governments (Adams and Laing 2000).

^a In order to be collected, all non-corporate documents had to communicate information on the case firm's environmental issues.

The second step in data collection was the delimitation of the boundaries of each perspective, i.e. where does data collection end for each group? For some perspectives,

the delimitation was straightforward. Corporate communication outlets were designated as the boundaries for AC whereas Jantzi Historical Profiles were selected as the limits of the investors' perspectives. Delimitation of the remaining perspectives required a more elaborate approach. Given the large number of existing ENGOs and the numerous levels of governments from which information could potentially be gathered, the following criteria were adopted to delineate data collection in these two perspectives. ENGOs were selected based on their national or international scope or impact. This method ensures that data collection is centered on the key messages in the ENGOs disclosure. In total, nine ENGOs were found to have disclosed environmental information related to the case firm for the period under study. As for governments, because the case firm is headquartered in Canada, levels of government were selected based on their involvement in Canadian broad-scope environmental regulation. Consistent with this criterion, data were collected for the Canadian federal government and the four provincial governments in which the case firm operates (British Columbia, Newfoundland, Ontario and Quebec). Finally, the community perspective was confined to newspaper articles covering the case firm's environmental issues in the ABI Inform, Eureka and Factiva databases.

The third step of data collection was the selection of relevant documents from all those available from each perspective. Documents were retained if they 1) cover an environmental issue and 2) relate to AC. For databases and website searches, a search engine query using keywords²⁴ was employed to identify the relevant information on AC and the environment. In total, 225 documents were gathered for analysis for the years 2005, 2006 and 2007.

²⁴The keywords employed are "environment", "pollution", "emission" and "sustainability". Keywords were truncated to broaden the scope of research.

The last step of data collection was the classification of the documents into the appropriate year for the period under study. The documents collected were categorized for either 2005, 2006 or 2007 based on their date of publication. For instance, AC's 2005 annual report was categorized for the year 2006 because it was released in early 2006. Applying this rule was necessary to follow the sequence of firm-stakeholder disclosures essential to the analysis of the dynamics of reporting.

3.4.4. Data analysis

Once qualitative data collection is completed, the raw information collected needs to be transformed into meaningful data (Patton 2002). To reduce the raw information, I classified the information collected into categories using an adapted version of the coding scheme of Cormier and Magnan (2003) and Aerts, Cormier and Magnan (2008). This coding scheme organizes environmental disclosure into 39 categories grouped into six themes. The scheme is designed for information classification across industries, and as such is not industry-specific. Given the in-depth analysis of a single firm performed here, it was necessary to adjust the coding scheme to the forest and paper industry in which the selected firm operates. To do so, I followed the steps suggested by Guthrie et al. (2008). These authors recommend developing an industry-specific coding scheme based on information disclosed by 1) industry associations, councils and governmental bodies; 2) sustainability ranking organizations and 3) best practices in sustainability reporting in the industry. Only step 2) was not accomplished, because a sustainability ranking organization is included as a data source (CSID by Jantzi Research proxies for investors' perspective) thus following this step would have led to the inappropriate development of a coding scheme specifically tailored to one of the perspectives investigated in the study.

The result of the adjustment process was the addition of forestry-related (compliance with forest regulation, biodiversity, forest management, logging practices, forest certification, forest renewal), production-related (water consumption, environmentally friendly products), energy-related (efforts to reduce energy, energy sources) and performance-related (rankings) categories to the original coding scheme. The extended coding scheme, containing 52 categories divided into seven themes, is presented in Appendix 4.

Once each corporate or non-corporate document was collected, it was imported into Atlas.ti software (Atlas.ti 2004). The software was employed to organize the data and to provide a structure to data analysis. Coding and further analyses were performed by the researcher. Coding was accomplished by classifying each individual unit of environmental information in corporate and non-corporate documents as a quotation within a disclosure category and an information source category (AC, Investors, ENGOs, Governments or Community). After the initial coding, all codes were reviewed to verify the reliability of the coding. Any inconsistency was investigated and adjusted if necessary. A final review of all codes then followed to further ensure coding reliability.

The approach used for data analysis is based on Kisfalvi (2000) and Langley (1999). On a yearly basis, the content of each environmental disclosure category was analyzed for each information source (within-perspective analysis) in order to understand and summarize the information collected regarding each topic. Next, each category of environmental disclosure is compared across information sources (cross-perspective analysis) in order to identify differences and similarities in the environmental information reported by the

various disclosers. To perform this cross-perspective analysis, seven matrices were produced. Each matrix places the information reported by the firm and its stakeholders in relation regarding one of the disclosure themes (An example of a matrix is presented in Appendix 5). In total, 21 matrices were elaborated, seven for each of the three years of the study. While it provides insight on the outcomes of the informational dynamics taking place between AC and its stakeholders, this approach does not account for the intentions underlying the disclosure strategy of each perspective. Similarly, it does not expose the rationale behind the absence of disclosure. These elements are left to future research.

To summarize, using Langley's (1999) terminology, a grounded theory strategy is adapted to form the basis of data analysis. - The visual mapping strategy is used to complement and refine analysis and interpretation. Both strategies aim at creating sensemaking through the development of patterns (Langley 1999), in this case within the firm's environmental reporting dynamics. Disclosure was uneven across the categories, with some categories receiving more attention (e.g. logging practices) than others (e.g. financing for investments). Below, the results are discussed for the categories for which disclosure was sufficient to allow and support the identification of patterns.

3.5. Comparing AC's and its stakeholders' environmental disclosures

This section introduces different patterns of disclosure observed through the analysis of the nature of the information disclosed by the case firm and its stakeholders. All patterns emerged from data analysis. Each pattern is described with supporting evidence, linked to prior literature and interpreted in light of the conceptual framework. All the corporate

and stakeholder documents (i.e. data sources) cited or quoted in this section are listed in Appendix 6.

3.5.1. Uniformity

The first disclosure pattern observed is labelled *uniformity*. In this pattern, the same message is disclosed by all reporting perspectives. All stakeholders have the same opinion of a specific aspect of the case firm's environmental approach (i.e. a disclosure category) and accordingly report a message that corresponds with the case firm's message. Adams (2004) does not mention having encountered such a disclosure pattern in her comparison of corporate and non-corporate social disclosure. Accordingly, the *uniformity* or performance agreement pattern presented here may extend the stream of literature on the social reporting performance gap. The quotations listed in Table 10 provide evidence of disclosure uniformity regarding ISO 14001 certification, the environmental manager/governance, environmental policy and recycling.

Table 10a: Quotations and citations supporting the *uniformity* pattern for 2005

DISCLOSURE CATEGORY	PERSPECTIVES			
	ABITIBI	GOVERNMENTS	COMMUNITY	INVESTORS ^b
ISO 14001	“At the end of 2004, all the Company’s operations were certified ISO 14001, except for recent acquisitions.” (AR 2004: 61)	“The company has attained ISO 14001 registration” (Government of Ontario 2005: ii)	---	“The company’s objective was to have all its (...) facilities and sawmills certified to the ISO 14001 environmental management system standard by the end of 2004. It essentially achieved this objective in December 2004.”
Environmental manager/governance	- Refers to AC’s Vice-president Sustainability & Environment (Press release 11/2005)	- Refers to AC’s Vice-president Sustainability & Environment (NRC 2005)	- Refers to AC’s Vice-president Sustainability & Environment (Wells 2005)	- Mentions the board environmental, health and safety committee - Lists the vice-presidents’ environmental responsibilities
Environmental policy	We are dedicated to the protection and enhancement of natural resources (Report on forest certification 2005: 1)	[Quoting a representative from AC in a interview on forest management] “Abitibi-Consolidated’s motto for living up to its commitment to protect and enhance the resources in its care is ‘Doing the right things right’” (NRC 2005)	Reports on “... the commitment of the Canadian producer towards sustainable forestry” (Translation from Hétu 2005)	“The company’s stated values include a commitment to the protection and enhancement of the natural resources in its care.”
Recycling	“[We] are the world’s largest recycler of old newspapers and magazines, managing the recovery of over 2.3 million tonnes of paper per year in North America, Europe and Asia” (AR 2004:13)	---	“Abitibi-Consolidated, the largest recycler of newspapers and magazines in the world, offers the program” (Detroit News 2005)	“Abitibi-Consolidated is the largest collector and recycler of old newspapers and magazines in North America and the largest newspaper recycler in the world.”

^a ENGOs are absent from the table because they did not provide information on the listed environmental categories.

^b All quotes and citations are from Jantzi Research (2005).

Table 10b: Quotations and citations supporting the *uniformity* pattern for 2006

DISCLOSURE CATEGORY	PERSPECTIVES ^a			
	ABITIBI	COMMUNITY	ENGOS	INVESTORS ^b
ISO 14001	"At the end of 2005, all the Company's operations were certified ISO 14001, except for recent acquisitions." (AR 2005: 32)	---	---	"The company's objective was to have all its (...) facilities and sawmills certified to the ISO 14001 environmental management system standard by the end of 2004. It essentially achieved this objective in December 2004."
Environmental manager/governance	- Refers to AC's Vice-president Sustainability & Environment (CGR 2005: 16) - Refers to the environmental, health and safety committee of the board (AR 2005: 92)	---	---	- Mentions the board environmental, health and safety committee - Lists the vice-presidents' environmental responsibilities
Environmental policy	"Responsible for the forest management of approximately 16.8 million hectares of woodlands in Canada, the Company is committed to the sustainability of the natural resources in its care" (AR2005: 12)	---	[About an agreement in which AC donates land to an ENGO] "The event was attended by many (...) guests wishing to underscore AC's generosity as well as its social and environmental commitment, highlighted by its large donation." (Translation of press release 12/2006)	"The company's stated values include a commitment to the protection and enhancement of the natural resources in its care."
Recycling	"We are also North America's largest recycler of newspapers and magazines." (AR 2005: 2)	"More organizations should join the 650 regional schools, churches and nonprofits taking advantage of the fund-raising program offered by Abitibi Consolidated, North America's largest paper recycler." (Knight Rider Tribune 2006)	---	"Abitibi-Consolidated is the largest collector and recycler of old newspapers and magazines in North America and the largest newspaper recycler in the world."

^a Governments are absent from the table because they did not provide information on the listed environmental categories.

^b All quotes and citations are from Jantzi Research (2006).

Table 10c: Quotations and citations supporting the *uniformity* pattern for 2007

DISCLOSURE CATEGORY	PERSPECTIVES ^a	
	ABITIBI	INVESTORS ^b
ISO 14001	<i>"All the Company's operations are certified ISO 14001."</i> (AR 2006: 36)	<i>"The company's objective was to have all its (...) facilities and sawmills certified to the ISO 14001 environmental management system standard by the end of 2004. It essentially achieved this objective in December 2004."</i>
Environmental manager/governance	- Refers to the environmental, health and safety committee of the board (AR 2006: 110)	- Mentions the board environmental, health and safety committee - Lists the vice-presidents' environmental responsibilities
Environmental policy	<i>"Responsible for the forest management of approximately 15.8 million hectares of woodlands in Canada, the Company is committed to the sustainability of the natural resources in its care."</i> (AR2006: 13)	<i>"The company's stated values include a commitment to the protection and enhancement of the natural resources in its care."</i>
Recycling	<i>"Abitibi-Consolidated is also one of the largest recyclers of newspapers and magazines in North America."</i> (CGR 2006: 3)	<i>"Abitibi-Consolidated is the largest collector and recycler of old newspapers and magazines in North America and the largest newspaper recycler in the world."</i>

^a Governments, community and ENGOs are absent from the table because they did not provide information on the listed environmental categories.

^b All quotes and citations are from Jantzi Research (2007).

For 2005, 2006 and 2007, in all four disclosure categories, the message conveyed by each of the stakeholder perspectives is coherent with the message of the case firm. Governments and investors confirm the certification of the AC environmental management system by ISO 14001 standards. Similarly, the existence of individuals responsible for environmental management at the board or executive levels is recognized by governments, community and investors. Further, AC's commitment to the "sustainability of natural resources" is echoed by community through "sustainable forestry," by governments and investors through the "protection and enhancement of natural resources in its care" and by the "environmental commitment" underlined by ENGOs. AC's leadership in paper recycling is acknowledged by the community and investors through their statements on the large scale of the firm's recycling activities and

with the acknowledgement that AC's recycling program increases environmental awareness within the communities in which it operates.

Uniformity is found between the case firm and its stakeholders from 2005 to 2007 for all disclosure categories, although fewer stakeholder groups report on those issues in 2006 and 2007. Governments, community and ENGOs disclose mainly in 2005 or 2006, whereas investors report information on the four disclosure categories consistently over the three years. The message reported by the case firm and its stakeholders is uniform within and across all three years. Uniformity in the message disclosed in a given year does not in itself demonstrate ethical relativism, because stakeholders and the firm agree on the current state of the environmental issues at stake and they appear to share similar values concerning these issues. However, ethical relativism is also a matter of values changing over time (Lewis and Unerman 1999; Wong 1993). A weak form of relativism is found in the decreasing number of stakeholders reporting on the issues over the years. While investors keep reporting on ISO 14001 certification, environmental manager/governance, environmental policy and recycling, governments, community and ENGOs all decrease their disclosure or turn to other environmental issues over the years. This change in stakeholder disclosure away from AC's disclosure is likely to be a change in stakeholders' values over time towards concerns other than the categories listed in Table 10.

3.5.2. Silos

Silos refer to the pattern of disclosure in which some stakeholders and the case firm report different pieces of environmental information regarding the same disclosure

category. The message reported by stakeholders does not confirm or contradict the message reported by AC, but instead complements it. The case firm and its stakeholders report on their respective interests in the disclosure category without relating to one another, i.e. they report in silos. Table 11 gathers the different elements reported by each of the disclosers on operating costs.

Table 11: Citations supporting the silo pattern of disclosure

DISCLOSURE CATEGORY: OPERATING COSTS	SUBJECTS COVERED BY THE PERSPECTIVES ^a			
	ABITIBI	GOVERNMENTS	COMMUNITY	INVESTORS ^b
2005	<ul style="list-style-type: none"> - Total environmental operating costs (AR 2004) - Environmental initiatives on material that help to manage costs (Press release 11/2005) - Concerns for natural gas and electricity prices (AR 2004) 	<ul style="list-style-type: none"> - Costs incurred by AC to protect fish habitat in Quebec (Ressources naturelles et faune 2005b) - Costs incurred by AC for ecosystem remediation (Environment Canada 2005b) - Environmental initiatives on energy that reduce costs (Agence efficacité énergétique 2005, Environment Canada 2005a) 	<ul style="list-style-type: none"> - Different opinions on whether high environmental compliance costs caused the closure of one of AC's mills (Capiello 2005) - Loss of revenue incurred for fish passage in Newfoundland (Wilmore 2005) 	
2006	<ul style="list-style-type: none"> - Total environmental operating costs (AR 2005) - Environmental initiatives on transportation and water usage that help to generate savings (CGR 2005) - Concerns about natural gas and electricity prices (AR 2005) 	<ul style="list-style-type: none"> - Costs incurred by AC for ecosystem remediation in the Great Lakes (Environment Canada 2006) - Environmental initiatives on energy that reduce costs (NRC 2006) 	<ul style="list-style-type: none"> - Cost incurred by AC for ecosystem remediation in Newfoundland and Québec (Gibbens 2006, Desmeules 2006) 	<ul style="list-style-type: none"> - Cost-effective offsets are part of greenhouse gas strategy - Approach to energy management includes a purchasing strategy intended to minimize price spikes
2007	<ul style="list-style-type: none"> - Total environmental operating costs (AR 2006) - Environmental initiatives on energy that help to generate savings (CGR 2006) - Concerns about energy costs (AR 2006) - Savings generated by GHG strategy (CGR 2006) - Energy purchasing strategy to minimize prices - Energy assets are providing a competitive advantage (CGR 2006) 	<ul style="list-style-type: none"> - Environmental initiatives on energy that help to generate savings (Hydro-Québec 2007) 	<ul style="list-style-type: none"> - Environmental initiatives on energy that help to generate savings (Rochette 2007) - Carbon trading savings (Les Affaires 2007) 	<ul style="list-style-type: none"> - Approach to energy management includes a purchasing strategy intended to minimize price spikes - Environmental initiatives on energy that help to generate savings

^a ENGOs are absent from the table because they did not provide information on operational costs. ^b All quotes and citations are from Jantzi Research (2006).

The following observations are derived from the analysis of Table 11. While environmental operating costs are covered by AC, governments, community and investors, the type of costs and the way costs are discussed vary from one perspective to the other. For instance, in 2005, AC discloses its total costs, its concern about future costs and some environmental initiatives that reduce costs. Governments mention the costs paid by AC for conservation and remediation projects and other environmental initiatives that reduce costs. Finally, the community supplies information on compliance costs and the costs incurred for another conservation project. In 2006, AC again provides information on its total costs, its concern about future costs and some environmental initiatives that reduce costs. Governments cover the costs paid by AC for remediation projects and the savings obtained through environmental initiatives. As for the community, it releases cost information on other remediation projects. Finally, investors concentrate on purchasing strategies and the cost of carbon offsetting. In 2007, AC discusses the different aspects of environmental costs, savings generated by greenhouse gases, energy strategies and the related competitive advantage, while governments, the community and investors report information on other energy initiatives that generated savings. The community also mentions carbon-related savings. In each of the three years, it seems that each disclosing stakeholder seeks to complete AC's disclosure by adding particular performance elements that matter in their perspective.

Within the 3-year time span covered by the study, silos appear to be stronger in the first two years than in the last one. The different categories of costs covered by AC and its stakeholders are more distinct in 2005 and 2006 than in 2007. Silos appear to fade in

2007, because although AC is the sole reporter to mention total environmental costs, concerns about energy prices and savings (competitive advantage) derived from GHG strategy (energy assets) and only the community refers to carbon trading, all reporters discussed alternatives employed by AC to generate savings through energy efficiency programs, and both investors and AC cover the issue of energy purchasing strategy. The similar message provided by all perspectives on some cost issues suggests that all reporting perspectives are moving towards the *uniformity* pattern (Section 3.5.1.) in 2007.

In the *silo* pattern, ethical relativism is found in the content of the operating cost disclosures. The ethics of this subject is relative in that different disclosures are deemed appropriate by each reporter for the purpose to cover the same operating costs issue. The detailed moral code regarding the ethical management of operating costs varies from one reporting perspective to the next. However, the level of relativism in the present situation appears to be low because stakeholders do not criticize or contradict the case firm, as a bigger clash between corporate and stakeholder values would have demanded (see the *opposition* pattern (Section 3.5.4.) for instance). Instead, the stakeholders opt to simply complement the information provided by AC, evidenced by the fact that most stakeholder disclosure occurred after corporate disclosure.²⁵

²⁵This pattern differs from the *opposition* pattern (Section 5.1.4) in the sense that the information provided by stakeholders does not contradict AC's disclosure, but instead complements it. From a broader legitimacy perspective, the arguments of biased corporate environmental disclosure (see Berthelot et al. 2003 for a review) are not validated in this situation, because the information disclosed by stakeholders is not negative, hence it cannot be claimed that the firm voluntarily omitted harmful environmental information. Yet, in line with prior literature, the information provided by AC on operating costs can be qualified as incomplete because it does not satisfy stakeholders' interests (Adams 2004; Belal 2002; Moerman and Van Der Laan 2005; GRI 2006; ISEA 1999). Nonetheless, the *silo* pattern adds nuances to this stream of literature by demonstrating that not all omissions are negatively biased and aim to withhold detrimental information from stakeholders. Omissions could result from an inadequate assessment of stakeholders' values and interests.

3.5.3. (Ir)responsibility

In this third disclosure pattern, stakeholders report the case firm's appropriate and inappropriate behaviors regarding the same environmental issue. Stakeholders not only recognize the environmental responsibility demonstrated by the case firm, but also denounce its environmental irresponsibility. The environmental performance underlined by this pattern of disclosure is coherent with an emerging stream of management literature arguing that firms can simultaneously be socially responsible and irresponsible. Strike et al. (2006:850) contend that "firms can be socially responsible in some activities and irresponsible in others" and they provide evidence that the more internationally diversified a multinational corporation is, the more it acts in a socially responsible manner in some countries and in an irresponsible manner in others. Assuming that stakeholder disclosures reflect the environmental performance of the case firm, the findings below extend this stream of literature in two ways. First, it shows that a firm can be environmentally responsible and irresponsible regarding the same activity, here logging practices. Second, it demonstrates that a firm can be environmentally responsible and irresponsible within the same country, because all practices described in Table 12 took place in Canada.

Table 12a: Quotations and citations supporting the (ir)responsibility pattern for 2005

DISCLOSURE		PERSPECTIVES				
Category	Content	ABITIBI	GOVERNMENTS	COMMUNITY	ENGOS	INVESTORS ^b
Logging practices	Responsible	<p>"We deliberately promote natural regeneration by careful harvesting" (AR 2004: 30)</p> <p>"Together with wildlife organizations, scientific and regional partners, we developed a new logging pattern aimed at protecting the habitat of the woodland caribou, a species considered to be vulnerable in Canada" (AR2004:30)</p>	<p>[On the management of the Iroquois Falls Forest^a in Ontario] "This reduction in the area of mechanical site preparation took place as the results of careful logging methods that resulted in considerably more natural regeneration than more conventional clearcutting" (Government of Ontario 2005: 81)</p>	<p>"Selection logging and other clear-cutting alternatives are taking place on a experimental basis at some model forests across Canada, such as one in Cochrane, Ont., with the help of the forestry company Abitibi-Consolidated Inc" (Brautigam 2005)</p>	<p>"To its credit, ACI [Abitibi-Consolidated Inc] has agreed to postpone most logging operations during this five-year plan in the remnant mature intact areas identified by CPAWS Wildlands League. This provides a window for addressing how to protect these areas in the longer term." (CPAWS 2005: 3)</p>	<p>Describe how AC concluded a 20-year Working Partnership agreement with some Ontario First Nations communities regarding harvesting practices.</p>
	Irresponsible	---	<p>In January 2005, AC was fined for having harvested more wood than allowed by its harvesting permit in the Quebec city region. (Ressources naturelles et faune 2005a)</p>	<p>"Forest companies, including Abitibi-Consolidated, have intentions on this zone of approximately 600 km² where one of the last intact primitive forests in the province stands." (Translation from Bégin 2005)</p>	<p>"The Whiskey Jack Forest^f is in trouble because logging operations being carried out there are not economically, socially or environmentally sustainable. Most of the serious problems we found in the plan can be traced back to one root cause: Extensive cutting by logging companies combined with high rate of natural disturbances has left most of the forest in a young condition." (CPAWS 2005: 12)</p>	<p>"There has been logging in the [Whiskey Jack Forest^f] area of the Grassy Narrows community since the 1950s, although, according to the community, the area of harvesting moved much closer to the community during the 1990s, and its negative impacts has increased quite significantly. There are now many clear-cut areas nearby, and much wildlife habitat has been destroyed."</p>

^a Forests exploited by AC.

^b All quotes and citations are from Jantzi Research (2005).

Table 12b: Quotations and citations supporting the (ir)responsibility pattern for year 2006

DISCLOSURE		PERSPECTIVES ^a			
Category	Content	ABITIBI	COMMUNITY	ENGOS	INVESTORS ^b
Logging practices	Responsible	<p>"In an effort to salvage burned wood resulting from extensive forest fires in the summer of 2005, additional volume has been allocated to the Company's sawmills." (AR 2005: 30)</p> <p>---</p>	<p>[About a campaign aiming to protect forest areas in a Canadian province] "During this time, about fifteen forest companies, of which Abitibi-Consolidated is the largest, keep on harvesting. We agreed to postpone harvest from September to December 2005. Then again until March, explained Daniel Leclerc, spokesman for the company. But because no action was taken by the government, we had to move ahead with our forest management plan." (Translation from Le Soleil 2006)</p>	---	<p>[Referring to a negotiation with Aboriginals on the use of forestland] "The company offered to stop logging within ten kilometres of the Grassy Narrows community and to stop clearcutting and change harvesting practices within 20 kilometres."</p>
	Irresponsible	---	<p>"If you were in charge of managing one of Canada's most valuable commodities, you probably wouldn't pay companies to run that commodity into the ground. But that's exactly what Ontario Premier McGuinly is doing by subsidizing companies like Weyerhaeuser and Abitibi Consolidated. He's also allowing those same companies (...) to employ ecologically devastating logging practices." (Forest Ethics 2006)</p>	<p>Report the complaints of ENGOS (such as the Canadian Parks and Wilderness Society) and Aboriginals (including the community near the Whiskey Jack Forest^c) about AC's overcutting and clearcutting practices.</p>	

^a Governments are absent from the table because they did not provide information on logging practices in 2006.

^b All quotes and citations are from Jantzi Research (2006).

^c Forest exploited by AC.

Table 12c: Quotations and citations supporting the (ir)responsibility pattern for year 2007

DISCLOSURE		PERSPECTIVES ^a			
Category	Content	ABITIBI	COMMUNITY	ENGOS	
				INVESTORS ^b	
Logging practices	Responsible	<p>"All harvested areas are quickly regenerated. Nearly all forests managed by Abitibi Consolidated are in Canada, where over 90% of the original forest is preserved." (Brochure on supply 2007: 5)</p> <p>"An action plan was put in place to harvest as much of the burnt wood as possible while ensuring adherence to the highest environmental standards. (...) Between August 2005 and July 2006, more than 2.6 million cubic metres of burnt wood underwent transformation at sawmills in Chibougamau, Girardville, La Doré, Saint-Thomas and Roberval, yielding approximately 500 million board feet of lumber. Close to 80% of the harvest came from burnt wood." (CGR2006: 17)</p>	<p>"Top management at Abitibi-Consolidated claimed to not understand the green organization's attitude. 'We are surprised, because we had ongoing discussions with Greenpeace with respect to organizing a meeting with our president to discuss the accusations ["irresponsible corporate citizen" & "looter of our forests"] made by Greenpeace', declared Denis Leclerc, spokesman for the forestry company." (Translation from Le Sotell 2007)</p> <p>"Despite past damages, the [forestry] companies nonetheless made efforts to improve their practices in recent years, obtaining different certifications in sustainable forest management." (Translation from Rochette 2007b)</p>	<p>---</p>	<p>Same elements as in 2005 and 2006. No new responsible practice mentioned by investors. (See panels A and B)</p>
	Irresponsible		<p>"Protesters scaled Abitibi-Consolidated's headquarters Wednesday to unfurl a giant banner accusing the company of looting the forests." (Marowitz 2007)</p>	<p>"Greenpeace is demanding that Abitibi-Consolidated-a manufacturer of lumber and specialty papers such as copy, book and newspaper-stop logging in intact areas of the Boreal Forest and immediately move to more sustainable logging practices. "This company has been looting Canada's Boreal Forest for years, taking what it wants, and leaving ecosystems and communities in ruin," said Christy Ferguson, a forests campaigner for Greenpeace Canada. "Global warming is accelerating. Species are going extinct. Communities are in trouble. This needs to end. "" (Greenpeace 2007)</p>	<p>"In July 2007, Greenpeace activists hung a banner from Abitibi's Montreal headquarters reading, "Abitibi-Consolidated: Looters of our forests". The group has strongly criticized the company for what it claims are unsustainable logging practices, including logging in previously intact areas of Canada's Boreal forest."</p>

^a Governments are absent from the table because they did not provide information on logging practices in 2007.

^b All quotes and citations are from Jantzi Research (2007).

In 2005 (see Table 12a), all stakeholders describe some logging practices performed by the case firm as adequate. Governments talk of “careful logging methods” stimulating forest renewal; the community refers to areas where AC employs alternatives to clear-cutting; ENGOs reveal that AC “postponed most logging operations” in designated intact areas; and investors draw attention to harvesting agreements reached with Aboriginals. At the same time, all stakeholder groups point out inadequate logging practices carried out by AC. Governments report that the case firm harvested more timber than allowed by regulation; the community highlights how AC and others would like to harvest one of the few remaining intact forests in the province of Quebec; ENGOs and investors identify “environmentally [un]sustainable” logging operations, “clear-cut areas” and wildlife habitat destruction.

A similar acknowledgement of responsible and irresponsible logging practices is found among disclosing stakeholders in 2006 (see Table 12b), albeit with some nuances. The community and investors mention responsible logging practices such as postponing or stopping harvesting in areas marked for protection. However, these stakeholders again identify irresponsible logging practices. The community reports that harvests have resumed in a controversial area while investors reveal how AC is accused of overcutting and clearcutting. In the community disclosure, the environmentally appropriate and inappropriate practices are intertwined in the same quotation, as if the stakeholder intended to underline the relative logging performance of the case firm. As for ENGOs, they appear to have given up the recognition of environmentally appropriate logging practices performed by AC to concentrate their disclosure strategy on inappropriate

logging practices, exemplified by the “ecologically devastating logging practices” they denounce in Table 12b.

In 2007, a similar (ir)responsibility pattern is found, again with some nuances. In that year, Greenpeace launched a vast campaign aiming at denouncing AC’s unsustainable logging practices. Most ENGOs disclosures that year are related to that campaign, and all refer to unsustainable logging practices. Like in 2006, the ENGOs do not identify any responsible logging efforts. As for the community, it gives credit to AC for some responsible practices in the general efforts forestry companies made to improve their practices, and in acknowledging AC’s communication with an ENGO. Those two elements are the sole responsible practices the community attributes to AC for that year. Investors do not identify any new responsible logging practices in AC’s actions, so they mention responsible practices they had identified in previous years. At the same time, the community and investors underline irresponsible logging practices performed by AC in 2007 by reproducing the message Greenpeace released on AC’s unsustainable logging practices (“looters of our forests”). Although they report both responsible and irresponsible logging practices in 2007, the community and investors appear to lean towards the irresponsible perspective, because their disclosure of responsible practices is weaker: the community only has two responsible elements in all its disclosure and investors do not provide any new information on AC’s responsible practices. Moreover, both groups used the message of irresponsibility reported by ENGOs to emphasize the irresponsibility they noticed.

This pattern of informational dynamics generally holds over the three years under study for most stakeholder groups. Community and investors disclose both responsible and irresponsible logging practices every year, even though they tend to reduce their release of responsible practices in the last year. As for ENGOs, they stop disclosing positive information on AC's wood harvesting practices in 2006 and continue to disclose only negative information in 2007. Although the pattern is maintained in 2007 for two of the three reporting stakeholders, altogether, the stakeholders appear to be moving towards the *opposition* pattern (Section 3.5.4.) of disclosure for logging practices - if they have not already done so.

This pattern of firm-stakeholder disclosure demonstrates ethical-relativism in the form of an agreement on a general environmental principle (sustainable logging) for which the detailed rules one must follow in order to fulfill this principle are relative (Lewis and Unerman 1999). The coverage of logging practices from all reporting perspectives stresses the importance of this environmental principle for all. However, the ground rules to follow in order to achieve sustainable logging practices appear to differ between the firm and its stakeholders. AC only reports good practices (i.e. detailed moral rules) it has implemented in order to log in a sustainable manner. However, while the stakeholders concede that the firm follows some good logging practices, they also denounce its violation of other detailed moral rules related to sustainable logging in the form of reporting irresponsible logging practices. Accordingly, what is considered ethically adequate by AC in order to log sustainably is not considered totally ethically adequate by all of its stakeholders, and this relativism concerning logging practices increases over the

years. The community, ENGOs and investors decrease the quantity of their responsible comments over time, and ENGOs even halt their disclosure of acceptable behaviors on AC's logging practices. This suggests a move towards more demanding sustainable logging practices in stakeholders' environmental values over time that has not been identified or acknowledged by AC (Lewis and Unerman 1999; Wong 1993).

The case firm's disclosure strategy in this pattern is also interesting. The quotations presented in Table 12 are the sole quotations collected that specifically discuss AC's logging practices, and they mention responsible practices, namely 1) careful harvesting for regeneration, 2) development of a logging pattern dedicated to the protection of the caribou habitat and 3) harvesting burnt wood instead of growing trees, with some practices being repeated over the years. For instance, regeneration of the forest after harvesting is mentioned in 2005 and again in 2007. The use of burnt wood as a raw material was also reported for two years in a row, 2006 and 2007. It seems like AC presents an indirect reply to stakeholder statements on poor logging practices through numerous statements concerning forest management certification.²⁶ Three of these statements are presented below.

“By the end of 2004, some 13.6 million hectares were certified under SFM [Sustainable Forest Management] stands, representing 78% of all public and private forestland we manage. We were the first producer in Ontario, Québec and Newfoundland to get tenures certified under the CSA-SFM standard.” (AR 2004: 7)

²⁶ “[Forest] certification is primarily about providing objective evidence of sustainable forest management planning and practices. Its concept is similar to a financial audit inasmuch as third-party experts verify a company's performance against a set of objective standards” (FPAC 2008). The internationally recognized standards by the Canadian Standards Association (CSA), the Forest Sustainability Council (FSC) and the Sustainable Forestry Initiative (SFI) are employed in Canada.

“By having our forest practices independently evaluated and certified, we are demonstrating our commitment to the sustainability of the forests entrusted to us.” (Report on forest certification 2005: 1)

“Our objective is to have all the forests entrusted to us certified to an SFM [Sustainable Forest Management] standard by the end of 2005. This aggressive timetable will help meet the needs and expectations of our stakeholders and the general public.” (Report on forest certification 2005: 1)

In these quotations, AC underlines its general commitment to the sustainability of the forests, its leadership in forest management certification as well as its concern for stakeholders' expectations in this matter. The other quotations (not cited) collected from AC on forest management certification cover the available standards (what they are and how they compare with each other) and AC's chain-of-custody certification project.

Overall, although AC states its concern for stakeholders' expectations regarding forest management (forest management implicitly including logging practices) in the third quote above, its disclosure does not address the stakeholder concerns listed in Table 12, namely the quantity of wood harvested (governments), the forest to be harvested (community) and the way the forest is harvested (ENGOs and investors) and instead concentrates on forest certification. It appears that the detailed code of conduct the case firm is following to achieve the value of sustainable logging attributes significant importance to general forest management, whereas stakeholders' detailed moral code emphasizes more specific logging practices. This results in different portrayals of AC's forest-related environmental performance and reinforces the relative ethical standpoint from which stakeholders and AC judge the firm's achievement of sustainable logging.

3.5.4. Opposition

The last pattern of disclosure is the opposite of the first pattern (Section 3.5.1). In the *opposition* pattern, stakeholder disclosures contradict corporate disclosures. In these situations, stakeholders and the case firm differ in their interpretation of a specific aspect of the case firm's environmental performance (i.e. a disclosure category) and stakeholders voice their opposition by reporting a message that conflicts with the case firm's message. The quotations below support the pattern by demonstrating that investors, ENGOs and the community disagree with the case firm's disclosure on some aspects of its environmental performance.

Investors' and AC's assessment of the firm's compliance registry contrast significantly. In its evaluation of AC for investors in 2005, Jantzi Research mentioned: "*Despite the company's efforts to reduce emissions, it has experienced ongoing environmental compliance problems in a number of jurisdictions over the last five years*" (Jantzi Research 2005). Again in 2007, reports from investors' representatives underline AC's environmental compliance issues: "*Producing paper and wood products still generates significant air and water pollution, and companies such as Abitibi-Consolidated, Norbord, Tembec and West Fraser Timber have all paid significant fines for violating environmental regulations in recent years*" (Brearton et al. 2007). Nevertheless, in early 2005, 2006 and 2007, AC simply stated that "*The Company believes that it is in material compliance with all laws and regulations governing its activities*" (AR 2004:61; AR 2005: 32; AR 2007: 35). The quotations are contradictory, since investors draw attention to AC's problems of compliance whereas AC mentions that it does not have any problems in this area.

Similarly, biodiversity management is evaluated differently by AC and ENGOs. A report on forest certification published by AC in October 2005 affirms that it “*value[s] biodiversity in the natural habitat*” (Report on forest certification 2005: 2). However, a report published a few weeks later by the Canadian Parks and Wilderness Society contradicts this statement by listing “*diminishing wildlife habitat*” (CPAWS 2005: 6) and “*loss of intact wilderness*” (CPAWS 2005: 3) as consequences of AC harvesting levels in the Whiskey Jack Forest of Northern Ontario. Similarly, in a brochure on responsible wood and fibre supply published in 2007, AC presents “*Biodiversity maintained*” (Brochure on supply 2007: 4) as one of the benefits of its adoption of sustainable forest practices. In the same year, Greenpeace argued that “*Not only are these companies [Abitibi-Consolidated, Kruger and Bowater] impacting biodiversity values such as intactness and habitat for threatened wildlife, but there are serious climate change implications to their logging practices as well*” (Greenpeace report 2007: 5). Here again AC and one of its stakeholder groups are in opposition. The firm states that it is committed to biodiversity protection, yet ENGOs argue that AC caused damage to biodiversity through its logging practices or, in other words, that the firm’s biodiversity commitment, if any, is not convincing.

AC and the community have divergent opinions on the firm’s water discharges. In early 2006, AC underscores how it decreased its water pollution: “*The drop in BOD [Biological Oxygen Demand] (-93%) and in TSS [Total Suspended Solids] (-66%) is due to the installation of effluent treatment systems at all mills, as well as fibre loss reduction program within the mills*” (CGR 2005: 19). In late 2006, a local newspaper challenged

the AC statement on water pollution when it reported a ranking of the fifty biggest water polluters in Canada: “*The paper-maker Abitibi-Consolidated (...) ranks second [in terms of water pollution], due in part to the sixfold increase in its phosphorus emissions at its Alma plant*” (Translation of Moreault 2006). Once again AC and one of its stakeholder groups present contradictory discourses. While AC emphasizes the improvement of its water-related environmental performance, a community representative highlights AC’s poor overall achievement in terms of water pollution.

From a longitudinal perspective, opposition is the only inconsistent pattern over the years. It is ad hoc in that stakeholders disclose their discontent with the firm regarding the issue at stake only when they deem it necessary and do not repeat their disagreement from year to year. Further, from the evidence provided above, it appears that the opposition pattern occurs in a specific manner: the case firm discloses positive environmental information that is contradicted by negative stakeholder information or, otherwise stated, the firm presents good environmental performance arguments while stakeholders report poor environmental performance arguments. The pattern is explained to a great extent by ethical relativism, because it demonstrates how some behavior is considered to be ethical by the corporation while it is considered unethical by the stakeholders. Corporate environmental disclosure is intended to legitimize a corporation by demonstrating how its actions have fulfilled environmental moral values (Lewis and Unerman 1999; Richardson 1987). AC accomplishes this demonstration by highlighting its good performance with respect to compliance, biodiversity and water discharges. However, the responding stakeholders appear to have different values on these issues,

values they voice by reporting AC's bad performance on the environmental matters of interest. The relativism existing between AC's and its stakeholders' values regarding biodiversity, water and compliance renders the corporation's disclosure inappropriate for the selected stakeholders.²⁷

Placed within the broader legitimacy literature, the *opposition* pattern of disclosure presented here is consistent with the stream of environmental reporting literature arguing that environmental disclosure is biased towards positive information (e.g.: Deegan and Gordon 1996; Deegan and Rankin 1996) and that it does not reflect the underlying environmental performance of the firm (Patten 2002, 2005; Adams 2004; Hughes et al. 2001; Cho 2009).

3.5.5. Interrelations among patterns

The four disclosure patterns appear to be more interrelated than independent. Indeed, *opposition* is found in the *(ir)responsibility* pattern, and the former pattern could almost be thought of as a subset of the latter. Also, a change in stakeholder disclosure strategy may lead to a shift from one pattern to another. All stakeholder groups weakened their *silo* pattern and moved towards *uniformity* in disclosure in 2007. Similarly, ENGOS moved from *(ir)responsibility* to *opposition* in 2006. With these shifts, stakeholders' stances become more approving or more critical of corporate environmental activities. Both the diversity of possible shifts in patterns and the implicit changes in stakeholders' assessments of the corporation's environmental performance associated with these shifts

²⁷Because governments are the sole stakeholder group that do not formulate opposition vis-à-vis AC, it could be speculated that AC's disclosure on compliance, biodiversity and water discharges are dedicated to this stakeholder, with which the firm appears to share similar values (Lewis and Unerman 1999).

underscore the complexity of the informational dynamics taking place between AC and its stakeholders with respect to environmental issues.

3.6. Discussion

3.6.1. Intensity of ethical relativism

Ethical relativism stipulates that what is considered ethical or unethical is subjective and thus varies from one individual, stakeholder and society, or point in time to another (Wong 1993; Lewis and Unerman 1999; Mackie 1987). I argue that the intensity of ethical relativism is bound to vary due to its subjective nature. I define weak ethical relativism as characterized by minor differences (if not similarities) in values whereas strong ethical relativism is distinguished by significant differences in values. Table 13 groups the four patterns of disclosure described above along with their environmental issues and their intensity of ethical relativism.

Table 13: Summary of the results in light of ethical relativism and accountability

PATTERN	PATTERN DESCRIPTION	ENVIRONMENTAL ISSUES	INTENSITY OF RELATIVISM	ACCOUNTABILITY
Uniformity	The same message is reported by the case firm and all the disclosing stakeholders.	<ul style="list-style-type: none"> - ISO Certification - Broadly defined environmental policy - Governance mechanisms - Volume of recycling activities 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">From weak to strong</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">From low to high</p>
Silos	The case firm and its stakeholders report on their respective interests in the disclosure category without overlap between each other's disclosure.	Environmental costs		
(Ir)responsibility	Stakeholders released both positive and negative environmental information on the same issue.	Logging practices		
Opposition	The information provided by the case firm is contradicted by the stakeholders.	<ul style="list-style-type: none"> - Level of compliance - Biodiversity conservation - Water pollution 		

The summary in Table 13 indicates that ethical relativism varies in intensity depending on the environmental issues at stake. The issues of ISO certification, environmental governance mechanisms, volume of recycling activities, broadly defined environmental policy and environmental costs are associated with weaker ethical relativism, depicted by the *uniformity* and *silo* patterns. It may be the factual nature of these issues that makes them less subject to interpretation, since factual reality leads to agreement among communicators (Watzlawick 1976). Less ambiguity about the interpretation of an issue diminishes the possibilities of evaluating it from a different moral standpoint. The existence within the case firm of ISO certification, environmental governance mechanisms and a broad environmental policy, along with the volume of the recycling activities (in terms of weight of recycled paper) and the sum of the firm's environmental costs are all verifiable environmental activities that call for less subjectivity when they are presented to stakeholders in environmental reports.

However, issues like logging practices, compliance level, biodiversity conservation and water pollution are associated with stronger ethical relativism, as seen in the *(ir)responsibility* and the *opposition* patterns. The fact that these issues are more prone to appraisal and judgements may explain this greater degree of relativism. The extent to which logging practices, environmental compliance levels, biodiversity conservation and water pollution are considered environmentally satisfactory depends on the (moral) criteria upon which those activities are assessed and hence constitutes a matter of appraisal for each reporting perspective. A greater opportunity for appraisal augments

the possibility of relativism in the values underlying these issues. The outcome is necessarily a more subjective evaluation of the situation (Watzlawick 1976).

3.6.2. To what extent is AC accountable to its stakeholders in its environmental disclosure?

Contrasting corporate social disclosure with external sources of information on the corporation “seek[s] to construct, in as complete and transparent a way as is possible, a picture of organizational accountability” (Dey 2007: 322). Therefore, the next step in the comparison of AC’s and its stakeholders’ environmental disclosures is to assess the degrees of accountability expressed by the patterns of disclosure depicted above. Accountability is defined as the duty of an organization to provide an account of the actions for which it is held responsible in the eyes of its stakeholders (Gray et al. 1997). Addressing stakeholder expectations is the focus of accountability (Unerman and Bennett 2004) and, as such, stakeholders may be said to define the terms of accountability based on their respective interests (Gray et al. 1997). Therefore, correspondence between stakeholders’ interests (in this situation as depicted in their disclosure) and corporate disclosure is an important aspect of accountability (Unerman 2007). In particular, completeness and reliability of environmental disclosure are fundamental to stakeholder accountability in environmental management and performance (Gray et al. 1996; Adams 2004).

The patterns of disclosure between AC and its stakeholders demonstrate different levels of accountability for different aspects of the case firm’s environmental performance. In the *uniformity* pattern (Section 3.5.1.), the message reported by AC corresponds to that of its stakeholders. AC’s message appears to be complete and reliable because it is

confirmed by its stakeholders. This coherence suggests a high level of accountability for the environmental aspects (information categories) under this pattern, namely environmental management and recycling. In the *silo* pattern (Section 3.5.2.), stakeholders and the case firm report different pieces of environmental information regarding the same disclosure category. The message reported by stakeholders does not confirm or deny the message reported by AC, but instead complements it. AC's message is not as complete and reliable as a fully accountable message would be, but based on the additional information offered by the stakeholders, the information not provided by AC is not intended to be harmful to the stakeholders. This conveys a moderate level of accountability for environmental operational costs, the disclosure category in which the pattern is observed. In the *(ir)responsibility* pattern (Section 3.5.3.), stakeholders disclose information on AC's responsible and irresponsible environmental (logging) practices. AC acknowledges responsible practices in its disclosure but does not address irresponsible practices. In addition, AC appears to be deflecting the issue of logging practices towards the issue of sustainable forest certification. In light of stakeholders' disclosure, AC's message is therefore incomplete and unreliable, as it gives a partial portrayal of AC's environmental performance with respect to logging practices. This implies that a low level of accountability is offered by AC concerning its logging practices. In the *opposition* pattern (Section 3.5.4), the information reported by the stakeholders contradicts that reported by AC. Again, completeness and reliability are an issue for this disclosure pattern, and the information conveyed by AC about compliance, biodiversity and water discharges cannot be perceived as the outcome of an accountability process since it conflicts with stakeholder disclosures. The last two

patterns appear to be dedicated to the strategic legitimation of the case firm, and are not meant to generate accountability (Deegan 2007). Table 13 summarizes these results.

The varying levels of accountability found in different elements of environmental disclosure suggest that while the case firm cannot be praised for its full accountability, it cannot be accused of being totally unaccountable either. This implies that AC's environmental reporting is not entirely based on the values of the stakeholders examined. Nonetheless, within the legitimacy literature, environmental disclosure is intended to demonstrate correspondence between the firm's actions and its stakeholders' values (Lewis and Unerman 1999; Richardson 1987). Why is this not the case here? Three potential explanations based on ethical relativism are proposed. First, relativism can be observed at one point in time (i.e. the time of the disclosure) between the environmental values of AC and that of its stakeholders (Wong 1993). Second, one can also infer that this is a matter of relativism over time, wherein AC failed to adequately communicate the fulfillment of its stakeholders' values in its environmental disclosure, because it has not noticed the change in the values over time (Unerman 1996). Third, this absence of demonstration of correspondence between corporation actions and stakeholder values can arise from ethical relativism among the different stakeholder groups. Lewis and Unerman (1999: 524) argued that in the event of disagreement among stakeholder groups regarding specific moral codes, "the relative power of different stakeholder groups is likely to determine which detailed moral codes are addressed by a particular corporation's legitimation strategies." This suggests that AC's environmental disclosure was intended

to demonstrate the fulfilment of the values of other more powerful²⁸ stakeholders than those examined. For instance, the community and ENGOs might have been discarded as the target audience because they are deemed marginal publics by the corporation (Neu et al. 1998). Likewise, private communication could occur between the case firm and the governments and investors (Solomon and Solomon 2006), thereby reducing the need to target them in their public disclosure. Because the four stakeholder groups selected for the study are important to consider when evaluating environmental performance (Ilinitich et al. 1998; ISO 1999) and they have an interest in and influence on environmental reporting (Tilt 2007), it seems inadequate that the case firm's environmental reporting is not more tailored to meet their values. This inadequacy was recently recognized by the CEO of the company (AbitibiBowater in 2008):

“Over the years, we took positive actions for the environment, but we never mastered how to communicate them. And as soon as an organization or an individual questioned our practices, we had the reflex to brace ourselves. We communicated poorly. Today, we try to be more open, to integrate our actions in our message and not to be on the defensive.” (Translated from Munger 2008: 43)

This recent change in the firm's communication approach remains to be assessed.

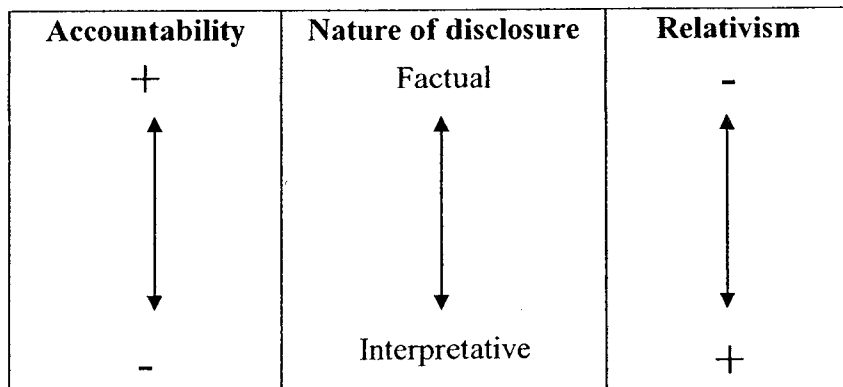
3.6.3. The relationship between the nature of environmental disclosure, accountability and ethical relativism

The varying levels of accountability found in different pieces of corporate environmental information seems to be tied to the strength of ethical relativism. Each pattern of disclosure shows some form of accountability, ranging from high (*uniformity*) to low

²⁸Stakeholder power can be defined as the extent of their control over the resources required by the corporation in its operations (Ullmann 1985).

(*opposition*). Each pattern of disclosure also demonstrates some form of ethical relativism, ranging from weak relativism (*uniformity*) to strong relativism (*opposition*). Accountability and ethical relativism appear to be opposing forces, with the more relativism there is surrounding an issue, the less accountable the corporation is to the stakeholders concerned with the issue. Interestingly, relativism is weaker for factual environmental issues (e.g. ISO certification, governance mechanisms) and stronger for environmental issues that are more prone to interpretation (e.g. logging practices, biodiversity conservation - see Section 3.6.1). It is argued that accountability is improved and relativism is lessened with the disclosures of factual information, as illustrated in Figure 6. Although this is an insightful first step, the investigation of a single case study limits the generalizability of this conclusion. Further research is warranted to support this argument and contribute to the improvement of corporate environmental reporting.

Figure 6: Relationship between the nature of environmental disclosure, accountability and ethical relativism



3.7. Conclusion

This paper examined the interactions between corporate and non-corporate environmental disclosure through the analysis of the informational dynamics of environmental

management. This analysis was accomplished through a longitudinal case study contrasting environmental information reported by the case firm with environmental information about the firm disclosed by four stakeholder groups or their representatives, namely governments, community, environmental non-governmental organizations and investors. Results suggest the existence of a gap between corporate and stakeholder environmental disclosures. This gap appears to be composed of different patterns associated with different levels of accountability. The *uniformity* pattern suggests high accountability with the absence of a gap on certain pieces of information. The *silo* pattern underlines how the case firm does not adequately assess and respond to some of its stakeholders' information needs, thereby creating a gap. This gap can be performance-neutral, as in the *silo* pattern, but can also be performance-biased, as in the *(ir)responsibility* and the *opposition* patterns. Greater accountability is shown in the performance-neutral gap than in the performance-bias gaps. Ethical relativism, advocating for the non-objective, non-absolute status of moral principles among individuals, stakeholders or societies, provides insights into the nuances in this gap by explaining that the differences between the environmental values of the case firm and those of its stakeholders create a gap in the information reported because different environmental values call for different environmental disclosures.

As mentioned at the beginning of the paper, developing an understanding of corporate environmental management and performance can be compared to looking through the different facets of a prism, through which it is difficult to get a sense of the overall environmental management and performance of a corporation. The present study may be

conceived as an attempt to link the facets of the prism into a more understandable whole. One facet argues that corporate environmental disclosure is used to cover poor environmental performance (Patten 2002) whereas another facet suggests the opposite (Al-Tuwaijri et al. 2004). The patterns found in the present study represent a first step in reconciling these two facets. With their different levels of correspondence between corporate and stakeholder disclosures, the patterns highlight nuances in the relationship between environmental disclosure and environmental performance. Some corporate pieces of information reflect environmental performance (as perceived by stakeholders) more closely than others. In addition, studying the concept of environmental information dynamics is relevant to the facets of the prism suggesting that stakeholders influence environmental disclosure (Roberts 1992) or the reverse relationship (Milne and Patten 2002). The concept of informational dynamics adopted here does not portray the relations between corporate disclosures and stakeholders as straightforward or unidirectional, but instead suggests that both firms and stakeholders release environmental information as part of a continuous process of bidirectional influence, whose success varies. This study provides a fuller portrayal of corporate environmental performance and management by tracing the relations between four facets of this prism.

Different limitations of the study need to be acknowledged. While focusing on a single firm creates an in-depth understanding of the dynamics surrounding the case firm's environmental reporting, it confines the generalizability of the results and precludes any attempt to position AC's information dynamics vis-à-vis the dynamics of its peers. Also, even though significant care has been taken during data collection, it is impossible to

ensure the exhaustiveness of the data, especially for the stakeholder perspectives. Finally, some stakeholder perspectives (for example, clients or employees) were excluded from the study due to lack of available data. Including these perspectives would have enriched the examination of the dynamics of environmental reporting. These limitations do not prevent the study from contributing to the environmental accounting literature by offering insights into the accountability of corporate environmental disclosure using a stakeholder perspective. This perspective, coupled with ethical relativism, extends the literature by breaking down the nature of the gap between corporate and non-corporate environmental disclosure into diverse patterns and by adding nuances to the extent to which an organization is accountable to its stakeholders.

CHAPTER 4: DISCUSSION AND INTEGRATION

The scope of environmental accounting is broader than that of conventional (financial and managerial) accounting (Gray 2002). It follows that the range of conventional accounting information users is narrower than the range of environmental accounting information users (Dillard 2007). Although investors and creditors are the main users of financial accounting information (CICA 2009) and directors and managers are the main users of managerial accounting information, they represent only a subset of stakeholders concerned with environmental accounting information; customers, suppliers, employees, unions, NGOs and the community are also interested in this information (Tilt 2007). Taking environmental stakeholders into account in the development of environmental accounting (Gray et al. 1997; Unerman 2007) is as legitimate and necessary as considering financial and managerial information users in the development of conventional accounting (CICA 2009). This is why the global objective of this dissertation is to understand the role of stakeholders in environmental accounting. It answers the call for more research on stakeholder involvement in external sustainability reporting (Tilt 2007) and extends the topic to include involvement in internal accounting matters.

Two important issues related to the objective must be highlighted. First, because of their multifaceted nature, environmental issues are more complicated to tackle as a unified whole. Second, 'stakeholders' is a broad umbrella term for many different parties that have different interests and pursue different objectives (Freeman 1984; Donaldson and Preston 1995). These issues make the achievement of the global dissertation objective an ambitious and complex task that I judged would be best undertaken by breaking down the

global objective into narrower sub-objectives. As a result, I decided to investigate the role of stakeholders in environmental accounting from three angles:

- 1) The impact of stakeholder-motivated environmental governance on environmental capital expenditures (ECE);
- 2) The influence of stakeholders on the selection of internal environmental performance indicators (EPI);
- 3) The informational dynamics taking place between a firm and its stakeholders with respect to environmental management.

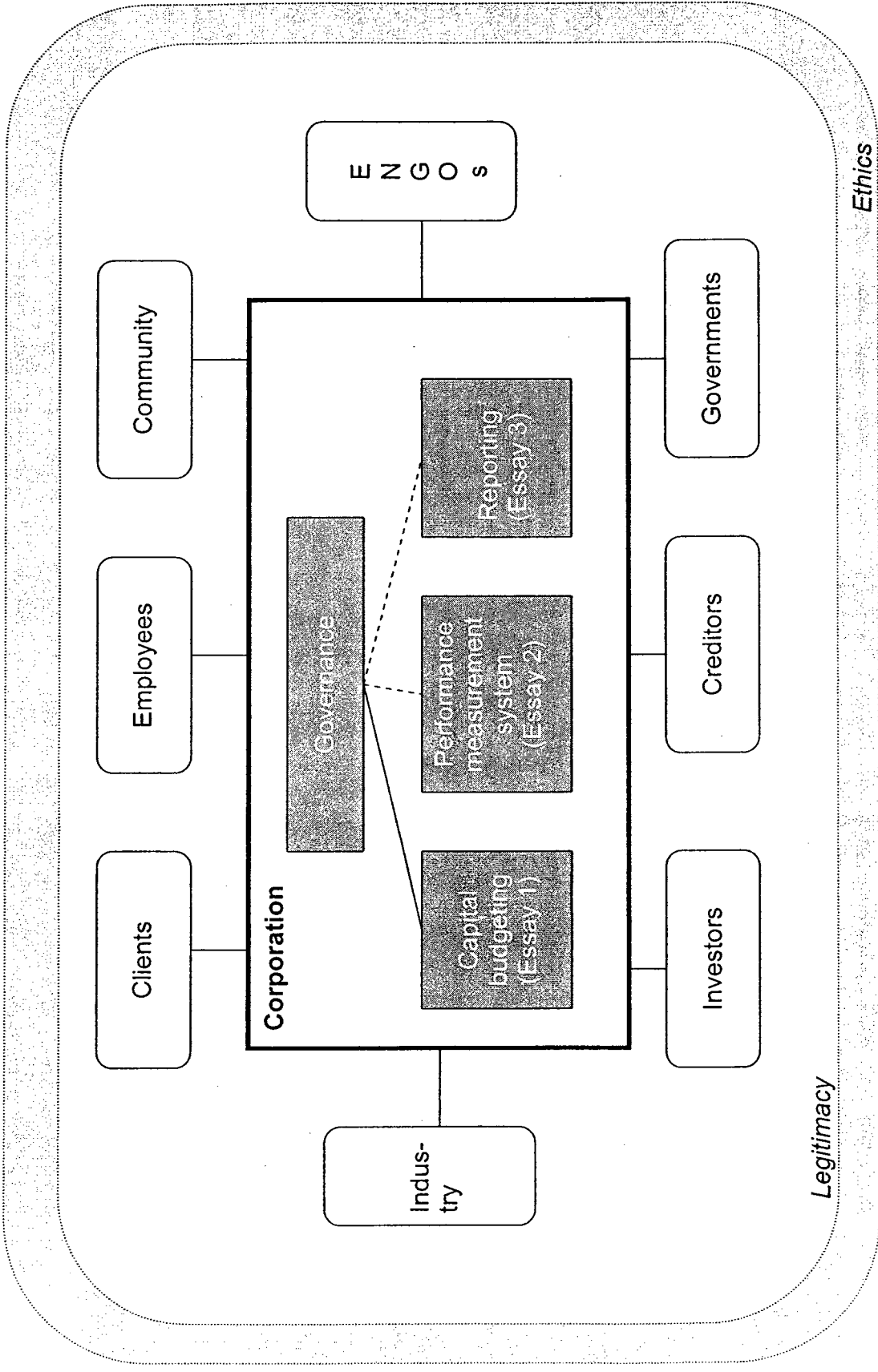
The investigation of these issues led me to employ three conceptual frameworks and two methodologies. These various research approaches constitute another means to handle the complexity of the global dissertation objective.

Figure 7 depicts the relationships investigated in the dissertation. Social accounting is the process an organizational entity uses to provide an account to a recipient (Gray et al. 1997). To do so, the organization uses a multiplicity of interrelated accounting systems, three of which are the focus of the dissertation: capital budgeting, performance measurement and external reporting (Epstein 1996). Corporate governance oversees these three systems (Epstein and Birchard 2000), but the dissertation concentrates on its role vis-à-vis the first system (this is why governance is linked to capital budgeting by a full line and to the other two systems by dotted lines). Multiple stakeholder groups surround the organization (Freeman 1984). For the sake of clarity, only the stakeholder groups investigated in the dissertation are represented in the figure, although other groups may exist. The stakeholders examined interact with the organization in such a way that,

to diverse degrees, they are both influenced by the organization and influence the organizational systems (depicted by the lines relating them to the corporation) (Clarkson 1995; Donaldson and Preston 1995). The stakeholders' influence on the three selected environmental accounting systems is the focal point of the dissertation. It is studied in light of stakeholder, legitimacy and ethical perspectives (depicted by the three colors surrounding the corporation in the figure).

I chose to study the capital budgeting process of environmental investment in the first essay to directly examine a financial environmental decision that also bears strategic and regulatory importance (Buysse and Verbeke 2003; Clarkson et al. 2004; Johnston 2005). ECE are studied in light of environmental governance to give predominance to directors' impact on environmental issues (e.g. Kassinis and Vafeas 2002). Stakeholders are considered through the examination of the theoretical motivation underlying environmental governance (Brennan and Solomon 2008; Collier 2008). Results provide support for the stakeholder- and ethics-based argument that better environmentally governed corporations invest more in environmental capital expenditures. Complementary analyses show that the influence of environmental governance is broader for firms with an environmental board committee and more limited for firms pursuing a reactive environmental strategy.

Figure 7: Relationships investigated in the dissertation



The analysis of internal EPI accomplished in the second essay is envisioned as a means to study performance measures that are specific, strategic, numerous and that support decision-making and performance evaluation (Chenhall 2003; Kaplan and Norton 2004; Henri and Journeault 2009). The stakeholders' influence on EPI is investigated through the perceptions managers mentioned in their interviews. Findings suggest that stakeholders influence the choice of internal EPI in four ways, which are aggregated in a continuum ranging from narrow indirect influence to broad bidirectional influence that encompasses benchmarking. The firm's environmental impacts on specific stakeholders and its needs for legitimization are conceptualized as drivers of the continuum.

Finally, I decided to contrast corporate environmental disclosure with stakeholder-released environmental information to obtain a fuller portrayal of environmental performance (Adams 2004; Dey 2007). In this third essay, stakeholders are directly examined, their disclosure is studied as a part of the informational dynamics of environmental management. Results suggest the existence of a gap between corporate and stakeholder environmental disclosures. This gap is composed of different patterns ranging from uniformity (the absence of a gap) in disclosures to performance-neutral and performance-biased gaps. Ethical relativism, underlining the differences between the environmental values of the case firm and those of its stakeholders, explains the nuances in the reporting gap by advocating that different environmental values are met with different environmental disclosures (Wong 1993; Lewis and Unerman 1999).

Several aspects of the dissertation are summarized in Table 14. Overall, the dissertation examines three interrelated environmental accounting issues. The specific research questions led to the selection of three conceptual frameworks and two methodologies. A different stakeholder standpoint was adopted for each essay. Combining theories (Gray et al. 1995) and methodologies (Cooper and Morgan 2008) enriches our understanding of a phenomenon. As Parker (2005: 849) summarized, “pluralism in theoretical lenses and methodologies applied to common research problems can yield incremental and accumulating insights that are enriched by both commonality and difference.” The various facets of the dissertation are an important catalyst in the fulfilment of the global dissertation objective because the nuances they provide deepen our understanding of firm-stakeholder interaction with respect to environmental accounting. Combining the results of the three essays lead to the conclusion that stakeholders influence environmental accounting, but the form and extent of their influence vary depending on the nature of the stakeholder group and the environmental issue at stake, with some influences being more successful than others. The influences stakeholders have on firms, together with their nuances, are explained by stakeholder accountability, organizational legitimacy and ethical relativism.

Table 14: Overview of the approach adopted in each doctoral essay

ESSAY	ACCOUNTING ISSUE	CONCEPTUAL FRAMEWORK	METHODOLOGY	STAKEHOLDER STANDPOINT
1	Capital budgeting	Stakeholder- and ethics-based governance	Large sample research	Theoretical motivation underlying environmental governance
2	Performance measurement	Stakeholder theory Legitimacy theory	Case study – interviews	Managers' perceptions of stakeholders' influence
3	Voluntary external reporting	Ethical relativism	Case study – document analysis	Stakeholders' information releases

As a whole, the dissertation contributes to the literature in different ways. First, environmental performance is complex to measure and assess owing to its multifaceted nature (Ilinitich et al. 1998). Because it explores different aspects related to environmental performance, the dissertation helps show how corporations shape their overall environmental performance. Environmental investments, environmental performance measurement and external reporting are all important elements in the construction of an environmental performance approach (Clarkson et al. 2004; Henri and Journeault 2009; Clarkson et al. 2008). Second, the dissertation contributes to accounting research by studying issues that are still under-researched, although they have received significant attention from practitioners (Conference Board of Canada 2008, GRI 2006). Indeed, environmental governance mechanisms, internal EPI and the informational dynamics of environmental reporting are three themes that are just beginning to emerge in the literature (e.g. Berrone and Gomez-Mejia 2009; Henri and Journeault 2009; Georgakopoulos and Thomson 2008). As such, the dissertation broadens the governance

literature by examining environmental performance oversight at the board level. Similarly, it widens the scope of management accounting research by focusing on a non-financial (environmental) performance measurement issue. Likewise, it opens new research areas in the voluntary reporting literature by taking into account the dynamics corporations are involved in for purposes of environmental disclosure. Finally, the dissertation contributes to knowledge on stakeholders' role in and impact on business management (Donaldson and Preston 1995; Mitchell et al. 1997). Specifically, it improves our understanding of stakeholder-firm interaction with respect to environmental accounting issues. Most research until now aimed at demonstrating the existence of stakeholder influence over social and environmental issues (e.g. Roberts 1992; Cormier et al. 2004; Kassinis and Vafeas 2006). The processes and approaches adopted by stakeholders to exert their influence were not usually given sufficient attention (Tilt 2007). The dissertation aims to be a significant step in tackling this issue, as it highlights the different forms and levels of stakeholder influence on different environmental issues. These in turn can be used as a means to pressure organizations towards greater accountability and/or sustainability.

In this respect, the dissertation has implications for regulators, boards and managers as well as stakeholders. The environmental accounting issues studied in the dissertation are mostly voluntary in nature.²⁹ As such, the findings will be of interest to regulators and standard setters searching for the best way to shape policies and regulations for greater environmental protection in terms of investments, measurement and reporting (e.g.

²⁹Some environmental performance indicators and environmental capital expenditures are required by regulation and hence are mandatory.

McFarland 2008). In addition, stakeholder engagement and dialogue is attracting increasing attention and is thought to be an important element of sustainability (Network on Business Sustainability 2009). Because the dissertation sheds light on stakeholders' influence on some environmental decisions, the findings will be helpful for boards and managers aiming to better understand the social ties of their corporation to preserve its legitimacy or to improve its environmental performance. The findings will also be important for stakeholders themselves, because they can employ the results to identify situations in which they succeed or fail in their attempt to affect corporations and thus adapt their approach consequently.

CONCLUSION

The purpose of the dissertation is to study stakeholders' role in environmental accounting. The first essay focuses on resource allocation and specifically examines the role of corporate governance in the intensity of environmental capital expenditures. Results from statistical analyses of 197 firm-year observations from environmentally sensitive industries show that governance mechanisms dedicated to stakeholder accountability and environmental protection increase the intensity of environmental investments. The second essay concentrates on environmental performance measurement by investigating the selection of internal performance indicators, specifically the role stakeholders play in the management of these performance measures. The case study of a multinational corporation in the natural resources sector suggests that stakeholder influences on internal environmental performance metrics are organized along a continuum ranging from narrow unidirectional influence to broad interactive influence necessitating environmental benchmarking. The third essay shifts attention to voluntary environmental reporting by contrasting corporate and stakeholder environmental disclosures in a three-year single case study. Results from the analysis of the informational dynamics of environmental management suggest that different patterns arise between the perspectives, ranging from uniformity to performance-neutral and performance-biased gaps between the case firm's and stakeholders' disclosures. As a whole, the dissertation enhances the knowledge of firm-stakeholder interactions related to environmental accounting by presenting a nuanced portrayal of stakeholder influences.

This dissertation contributes to three important streams of accounting research, namely budgeting, strategic performance measurement systems and voluntary disclosure. The

first essay adds to the knowledge on budgeting through its analysis of governance factors driving the intensity of capital resource allocation related to the environment. Similarly, the second essay studies the functioning of an environmental performance measurement system, thereby extending the literature on strategic performance measurement systems. By focusing on voluntary environmental disclosure, the third essay develops the broad stream of accounting research that analyzes various kinds of voluntary disclosure.

Limitations need to be acknowledged for the dissertation. Limitations specific to each essay are identified in their respective chapter; I will thus specify the limitations affecting the dissertation in its entirety. First, breaking down the global objective of the dissertation into three essays implies that some issues were deliberately left out of the analysis in order to concentrate on aspects relevant to the essays. Second, throughout the research process, the role of stakeholders was sometimes examined indirectly (see Table 14). Although studying influences indirectly adds another level of analysis to the dissertation, the channel through which it was examined needs to be kept in mind in the interpretation and usage of the results. Similarly, other methodological decisions made in the production of this dissertation constrain the generalizability of the results. In fact, these limitations point towards future research opportunities, to which I now turn.

An examination of Figure 7 (see Chapter 4) suggests many fruitful areas for future research. Given the influence of corporate governance on capital budgeting, it would be interesting to study whether environmental governance mechanisms also affect performance measurement and external reporting. The domain of environmental

governance is still emerging, and investigating these research questions would contribute to the development of the field. It would also be relevant to study the stakeholders' role in other environmental accounting systems, such as internal auditing and performance evaluation. Stakeholder influence on investment decisions and performance indicators found in the first two essays suggest that stakeholders might impact other internal organizational systems with their environmental concerns. Finally, the relationships between capital budgeting, performance measurement and external reporting, together with stakeholders' influence over their interaction, are also worthy of investigation. This analysis would consider the organization as a whole instead of as a combination of multiple elements, and would enrich our understanding of environmental accounting by jointly exploring managerial and financial accounting issues. Investigating these research opportunities would follow up the work accomplished in this dissertation, which shed light on multiple forms and levels of stakeholder influence on environmental accounting.

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APPENDICES

Appendix 1: KLD environmental rating criteria

Strengths

- Beneficial Products & Services
- Pollution Prevention
- Recycling
- Alternative Fuels
- Communications
- Environment Management Systems
- Other Strengths

Weaknesses

- Hazardous Waste
- Regulatory Problems
- Ozone Depleting Chemicals
- Substantial Emissions
- Agricultural Chemicals
- Climate Change
- Other Concerns

Appendix 2: Regulation Acts covered by the CEPD database

- Atomic Energy Act
- Clean Air Act
- Clean Water Act
- Endangered Species Act
- Insecticide, Fungicide and Rodenticide Act
- Mining Safety and Health Act
- Safe Drinking Water Act
- Toxic Substances Control Act

The CEPD also provides information on the Resource Conservation and Recovery Act (RCRA). This information was left out of the variables *environmental violations* and *environmental fines* following the recommendations of the database builders. Indeed, the Risk Metrics Group mentions that: “[The RCRA] programs requires a company to assess, and if necessary clean up, contamination at active industrial sites as a condition of retaining its RCRA permit to treat, store or dispose of hazardous waste (...). Because it largely represents an obligation to clean up sites that were contaminated at some past date when waste disposal standards were less restrictive, however, waste cleanup responsibility should not be interpreted as evidence that a company violated any environmental law or that current management is not addressing environmental issues in a responsible manner.” (RMG 2001: 12).

Appendix 3: Interview guide

Interview with _____

Position:

Date:

Time:

Place:

_____ agreed to be recorded.

This interview is part of a research project studying environmental performance indicators and the dynamic surrounding the development and usage of these performance metrics. Your experience and knowledge with environmental performance management at Company X are extremely valuable for our research. In addition to internal environmental performance indicators, the interview will cover Company X's environmental approach and stakeholders

For the interview to be pleasant, I strongly encourage you to let me know any issue you may have with respect to the questions asked or with the interview itself. Do you have any questions or comments before we start?

PART ONE: MANAGER'S EXPERIENCE

The first questions relate to your role as a manager with environmental responsibilities at Company X. These questions aim to deepen our understanding of your position within the environmental management process.

1. What were your responsibilities as (title of the interviewee) at Company X?
2. What were your main daily tasks with respect to these responsibilities?

PART TWO: ENVIRONMENTAL STRATEGY

Before directly discussing internal environmental performance indicators, we are interested in the approach your company employs to manage environmental issues. This will help us position internal environmental performance indicators within your strategy and as such this approach will be the focus of our next set of questions.

3. Globally, what is the approach of Company X with respect to environmental management?
4. I now would like to detail this environmental approach with you. How does this approach is translated into
 - a. Strategic planning?
 - b. Development of production processes?
 - c. Management systems?

PART THREE: INTERNAL ENVIRONMENTAL PERFORMANCE INDICATORS

The next set of questions gets into the core of our research and tackles internal measures of environmental performance.

When I examined your corporate documents, I noted the use of different categories of internal performance indicators, such as:

- Energy
- Waste
- Water

5. In addition to the type of manufacturing activities, what motivates the usage of internal indicators related to
 - a. Energy?
 - b. Waste?
 - c. Water?

Themes to cover with this question

- *Internal/external influences*
- *Regulation*
- *Environmental strategy*
- *Other*

6. In the same line of thought, how are developed the internal environmental performance indicators that you monitor?
 - a. What sources of information influence this development?
7. Now, I would like you to think about an internal environmental performance indicator that was recently added to the set of monitored indicators. What is this indicator?
 - a. What motivated the addition of this indicator to the set of indicators you monitor?
 - b. What other factors could explain the withdrawal of an indicator from the set of indicators you monitor?
8. Similarly, now I would like you to think about an internal environmental performance indicator that was recently withdrawn from the set of monitored indicators. What is this indicator?
 - a. What motivated the abandonment of this indicator?
 - b. What other factors can explain the addition of an indicator to the set of indicators you monitor?

PART FOUR: STAKEHOLDERS

In order to deepen our analysis of the dynamics surrounding internal environmental performance measurement, we would like to better understand the potential role of specific actors related to the organization. The next set of questions cover this theme.

Among the different actors or groups -closely or loosely- surrounding Company X, we identified:

- Clients
- Competitors/Industry
- Employees
- Investors
- Creditors
- Governments
- Community in general

We will now turn to these groups one at the time by the means of similar questions.

9. What is {(1) clients; (2) employees; (3) governments; (4) investors; (5) creditors; (6) community in general; (7) industry/competitors} 's influence (if they do have an influence) over
 - a. Company X's environmental approach?
 - b. The internal environmental performance indicators monitored?
10. [If necessary, given the response in #10] What do you think are the reasons behind this influence?

PART FIVE: CONCLUSION

11. This concludes the points I wanted to discuss with you. Your collaboration has been extremely valuable to our research. Would you like to add other points that would help us better understand the dynamics surrounding the internal measures of environmental performance?
12. Before we end the interview, do you allow me to contact you if I need to complete some information you provided? Sincere thank you for your collaboration and your time. I am extremely grateful.
13. Before I leave, would you please fill out this document? It is intended to collect some of your demographic information.
14. End of the interview with _____ . Time _____ .

Appendix 4: Coding scheme

Coding scheme from Cormier and Magnan (2003) and Aerts et al. (2008) extended to consider aspects related to the forest and paper products industry. The categories added are identified by an asterisk (*).

EXPENDITURES AND RISKS

- ◆ INVESTMENTS
- ◆ OPERATING COSTS
- ◆ FUTURE INVESTMENTS
- ◆ FUTURE OPERATING COSTS
- ◆ FINANCING FOR INVESTMENTS
- ◆ PROVISIONS FOR FUTURE EXPENDITURES
- ◆ ENVIRONMENTAL DEBTS
- ◆ RISKS

LAWS AND REGULATION CONFORMITY

- ◆ LITIGATIONS (ACTUAL AND POTENTIAL)
- ◆ FINES
- ◆ ORDERS TO CONFORM
- ◆ CORRECTIVE ACTIONS
- ◆ INCIDENTS
- ◆ FUTURE LEGISLATION AND REGULATION
- ◆ COMPLIANCE WITH FOREST LEGISLATION AND REGULATION*

POLLUTION ABATEMENT

- ◆ EMISSION OF POLLUTANTS
- ◆ DISCHARGES
- ◆ WASTE MANAGEMENT
- ◆ INSTALLATION AND PROCESS CONTROLS
- ◆ COMPLIANCE STATUS OF FACILITIES
- ◆ NOISE AND ODOURS

LAND CONTAMINATION AND REMEDIATION

- ◆ SITES
- ◆ EFFORTS OF REMEDIATION

SUSTAINABLE DEVELOPMENT

- ◆ CONSERVATION OF NATURAL RESOURCES (IN GENERAL) SPECIFIC ASPECTS OF CONSERVATION:
 - WATER CONSUMPTION*
 - BIODIVERSITY*
 - FOREST MANAGEMENT*
 - LOGGING PRACTICES*
 - FOREST MANAGEMENT CERTIFICATION*
 - FOREST RENEWAL*
- ◆ RECYCLING
- ◆ LIFE-CYCLE ANALYSIS INFORMATION
- ◆ ENVIRONMENTALLY FRIENDLY PRODUCTS*

ENVIRONMENTAL MANAGEMENT

- ◆ ENVIRONMENTAL POLICY
- ◆ ENVIRONMENTAL MANAGEMENT SYSTEM
- ◆ ENVIRONMENTAL AUDITING
- ◆ GOALS AND TARGETS
- ◆ AWARDS
- ◆ RANKINGS*
- ◆ ENVIRONMENTAL MANAGER / GOVERNANCE
- ◆ ISO 14000
- ◆ INVOLVEMENT IN THE DEVELOPMENT OF ENVIRONMENTAL STANDARDS
- ◆ INVOLVEMENT IN ENVIRONMENTAL

(PRESENT AND FUTURE)

- ◆ SPILLS:
 - NUMBER
 - NATURE
 - EFFORTS TO REDUCE
- ◆ COST POTENTIAL LIABILITY
- ◆ LIABILITY

ORGANIZATIONS

- ◆ RESEARCH AND JOINT PROJECTS ON ENVIRONMENTAL MANAGEMENT

ENERGY

- ◆ EFFORTS TO REDUCE ENERGY CONSUMPTION*
- ◆ ALTERNATIVE ENERGY SOURCES*
- TRADITIONAL ENERGY SOURCES*

Appendix 5: Example of matrix employed in data analysis

LAWS AND REGULATION CONFORMITY (YEAR)	PERSPECTIVES				
	ABITIBI	GOVERNMENTS	COMMUNITY	ENGOS	INVESTORS
LITIGATIONS					
FINES					
ORDERS TO CONFORM		The information disclosed by each perspective is noted in each subcategory cell.			
CORRECTIVE ACTIONS					
INCIDENTS					
FUTURE REGULATION					
COMPLIANCE FOREST REGULATION					

Appendix 6: Data sources cited or quoted in chapter 3

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