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NORMATIVITY IN ENVIRONMENTAL REPORTING: A COMPARISON OF THREE REGIMES

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Normativity in environmental reporting – A comparison of three regimes

Abstract

Normativity is assessed as we evaluate and compare the environmental reporting practices of a sample of French and Canadian companies through the lens of institutional and substantive legitimacy. More specifically, we examine how French and Canadian firms changed their reporting practices in reaction to the promulgation of laws and regulations in their respective countries, i.e. the NER and Grenelle II Acts in France, and National Instrument 51-102 and CSA Staff Notice NR 51-333, issued by the Canadian Securities Administrators. The firms' voluntary disclosures according to GRI guidelines are also investigated. The findings reveal that the French parliamentary regime is more successful than the Canadian stock exchange regulation in triggering environmental reporting, and that the GRI combined with local regimes prompts environmental disclosures. Notwithstanding the improvements in environmental reporting under all three regimes, a very low level of substantive disclosure is noted in both countries.

Key Words: Canada; Environmental reporting; France; Institutional legitimacy; Normativity; Substantive legitimacy.

Résumé

Nous évaluons et comparons les pratiques de divulgation environnementales d'un échantillon d'entreprises françaises et canadiennes à travers la lentille de la légitimité institutionnelle et substantive: ce faisant, nous déterminons la normativité de trois régimes de divulgations environnementales. Plus précisément, nous examinons comment les entreprises françaises et canadiennes ont modifié leurs pratiques de divulgation en réaction à l'adoption de lois et réglementations dans leurs pays respectifs, c'est-à-dire les lois sur les Nouvelles Régulations Économiques (NRE) et Grenelle II en France, et l'Instruction générale relative au Règlement 51-102 sur les obligations d'information continue et la note du personnel NR 51-333, émises par les Autorités canadiennes en valeurs mobilières. Les divulgations volontaires en vertu des directives de la Global Reporting Initiative (GRI) sont également étudiées. Les résultats révèlent que le régime parlementaire français a plus de succès que les réglementations de la bourse canadienne pour amener les entreprises à faire des divulgations environnementales, et que le GRI combiné avec les régimes locaux suscite la divulgation environnementale. Toutefois, nonobstant les améliorations au niveau de la divulgation environnementale sous les trois régimes, un faible niveau de divulgation substantive est constaté dans les deux pays.

Mots clés : Canada, divulgation environnementale, France, légitimité institutionnelle, légitimité substantive, normativité.

1. Introduction

Corporate environmental scandals such as the BP oil spill in the Gulf of Mexico, the rampant pollution created by the fashion industry in China, and the devastating Montreal, Main & Atlantic Railway train explosion in Lac-Mégantic, Québec, Canada, are among the numerous events that continue to draw attention to corporate environmental responsibility. Democratic principles suggest that people are entitled to information about corporate activities that can potentially affect them (Gray, 2013). Similarly, financial (Devinney, 2009; Li & McConomy, 1999) and non-financial (Deegan, 2013) stakeholders such as governments, regulators, suppliers, creditors, customers, employees, communities, non-governmental organizations (NGOs), investors, and society in general (CGA Canada 2005; Desjardins and Willis, 2011) rightfully want to know more about organizational activities that impact on the environment. Corporate environmental disclosure can help stakeholders assess whether an organization operates in an acceptable or legitimate manner with respect to environmental matters, thus fulfilling its ‘social contract’ (Patten 1992; Shoker & Sethi, 1974). However, a significant question remains: What kind of regime is most successful in getting organizations to discharge their accountability responsibilities? In other words, what type of environmental reporting regime leads to normativity, i.e. when actors come to see rules as binding (Bebbington, Kirk, & Larrinaga, 2012)?

Bebbington et al. (2012) demonstrate that while formal environmental reporting laws enacted by the State do not necessarily lead to normativity, informal reporting regimes developed by non-governmental organizations can achieve that purpose. For example, they found that power

companies in Spain have not necessarily complied with state legislation on environmental reporting, whereas their UK counterparts implemented voluntary disclosure based on award criteria developed by the Association of Chartered Certified Accountants. The authors argue that formal legislation must be perceived by actors as appropriate and legitimate in order to be successfully implemented. These same qualities can also institutionalize informal guidelines. Deegan and Shelly (2014) demonstrate that corporations and industry associations tend to favour an anti-regulation approach, while environmental NGOs, consumer associations, employee groups and individuals prefer a form of government intervention that stimulates environmental reporting. Identifying the most successful type of regime remains an empirical question. Bebbington et al.'s (2012) paper opens the door to research that compares environmental reporting regimes and their ability to lead to normativity. Although environmental disclosure is essentially a voluntary activity wherever it is practiced, some countries have opted to officially regulate it while others have decided to rely on market mechanisms, such as stock exchange disclosure requirements, to trigger this form of reporting.

France is one of the nations that opted for official parliamentary legislation. In 2001, the French Parliament promulgated the New Economic Regulations (NER) Act, which came into effect in 2002 (Chelli, Durocher, & Richard, 2014). The regulations included article 116 on environmental disclosure, later to be replaced by the Grenelle II Act in 2010 (applicable in 2012), a national commitment to the environment that includes provisions for environmental disclosure (ORÉE, 2013). Both laws carry no penalties for non-compliance. The French situation provides a unique opportunity to assess the success of a legislative regime that prescribes more extensive environmental disclosure but does not penalize non-compliance.

Canada, for its part, relies on market mechanisms. Although Canadian environmental reporting remains mainly a voluntary process, the Canadian Securities Administrators (CSA) has issued a few mandatory environmental disclosure requirements (ACCA, 2013). In 2004, the CSA released National Instrument 51-102 *Continuous Disclosure Obligations*, which includes a few broadly stated environmental disclosure requirements for financial impacts, liabilities, environmental policies, and risks. In late 2010, it issued CSA Staff Notice NR 51-333 *Environmental Reporting Guidance*, providing additional guidance on how to report items listed in NI 51-102. These requirements essentially entail lenient penalties for non-compliance. The Canadian situation thus provides a useful scenario for assessing the success of a stock exchange regime that stipulates environmental disclosure but is lenient in its penalties.

The Global Reporting Initiative (GRI), a private, non-governmental organization located in Amsterdam, is a global sustainability leader that promotes the use of sustainability reporting as a way to enhance organizations' sustainability practices and help them engage in sustainable development. Since the late 1990s, the GRI has developed and disseminated voluntary environmental reporting guidelines (e.g. GRI, 2013) to enhance the quality, comparability, thoroughness, and usefulness of sustainability reporting (Willis, 2003). The well-diffused nature of the GRI guidelines provides a basis for assessing additional corporate voluntary disclosures reported over and above those required by legislation or securities commission regulations.

The objective of this paper is to make a comparative assessment of the normativity of three environmental reporting regimes – the French legislation, the Canadian security commission

regulations, and the GRI reporting guidelines. Although Bebbington et al. (2012) examined the processes through which formal law and informal reporting regimes (un)successfully lead to normativity, our study examines the end result – i.e., corporate reporting practices – to infer normativity in regard to the three above-mentioned regimes.

To examine corporate reporting practices, we draw on legitimacy theory, as others have done before us. Unlike most previous research, however, we interpret our findings in light of institutional and substantive legitimacy rather than from a strategic legitimacy perspective. An institutional view is useful for interpreting disclosures provided in response to formal law and informal reporting regimes. Furthermore, considering that corporate environmental reporting is sometimes self-laudatory (Boiral, 2013; Mobus, 2005), a substantive view of legitimacy (Haji & Mohd Ghazali, 2012; Hrasky, 2012) is suitable for analyzing disclosures about corporate initiatives that have a positive environmental impact.

Our findings show that environmental reporting by French companies significantly improved after the promulgation of the NER and Grenelle II Acts and that by 2013, their level of compliance was fairly high (81.3% of required items). Environmental reporting also significantly improved in Canada after the issuance of NI 51-102, but not after NR 51-333. Compliance with Canadian regulation is low (highest mean percentage of required items = 25.0% in 2011). When comparing disclosures in relation to the required items under the French and Canadian regimes, it is clear that the French regime is more effective in leading to normativity. French and Canadian firms also provided additional voluntary disclosures in relation to the GRI guidelines, with the French firms showing greater conformity to their legislative regime than to the GRI guidelines

(81.3% vs. 58.3% in 2013). The reverse is noted in Canada where the GRI guidelines seem to lead to greater normativity (31.6% vs. 22.3% in 2013). However, partial conformity to the GRI guidelines acts in conjunction with the local regime in both countries to improve environmental reporting. Furthermore, although the French regime leads to more comprehensive and substantive disclosures than the Canadian regulations the highest percentage of substantive disclosure in France in 2012, 4.2%, was nonetheless very low.

This paper makes a three-fold contribution to the literature on corporate environmental disclosure. First, it innovates by combining the concept of normativity and legitimacy theory to examine environmental reporting. Second, it pursues the debate on normativity initiated by Bebbington et al. (2012) by comparing three different regimes. Third, it innovatively adopts an institutional and a substantive view of legitimacy to make sense of environmental reporting practices. It thus adds to the growing body of research on the response of corporations to environmental reporting legislation (Bebbington & Thy, 1999; Bebbington et al., 2012; Chelli et al., 2014; Larrigana, Carrasco, Correa, Llena, & Moneva, 2002).

This research also has practical implications. Comparing environmental reporting practices under these three regimes can provide useful insights into the most effective way to trigger environmental reporting. Improvement in environmental reporting is crucial for shareholders' investment decisions and market efficiency (de Villiers & van Staden, 2012), non-governmental organizations' assessment of corporate environmental performance (Reid & Toffel, 2009), and government policy decisions (Reid & Toffel, 2009).

The rest of the paper is organized as follows. The next section presents the study's theoretical framing based on normativity and legitimacy. It is followed by a section that briefly discusses the French laws, Canadian stock exchange regulations, and the GRI guidelines. The following section presents the methodology and results, and is followed by a further discussion of our results, our conclusion, and areas for future research.

2. Theoretical framing

In their seminal paper, Bebbington et al. (2012) define normativity as the ways in which actors come to see rules as binding in the context of corporate reporting. Their concept is useful for making sense of corporate environmental reporting regimes because it can help explain how a community of corporate managers ends up conforming to a set of rules. The authors disagree with the environmental reporting literature's suggestion that state legislation with enforcing mechanisms can correct deficient environmental reporting practices (e.g. Deegan & Rankin, 1996, 1997; Gray, Owen, & Adams, 1996; Mobus, 2005; Owen, Gray, & Bebbington, 1997). In their view, normativity is not necessarily under government monopoly. It is now produced by various agencies and actors. Bebbington et al. (2012) use regime theory, arguing that it "allows for multiple sources of normativity associated with practices that are not necessarily mandated and enforced by a hierarchical state" (p. 79). Regime theory states that regimes relate to implicit or explicit norms and decision-making procedures in a given area. Norms, which refer to converging expectations about recognized patterns of behaviour or practice, differ from legal rules, which are "found, defined and labelled" (p. 79). One basic tenet of normativity is that it can stem from law or less formal systems of rules.

France's NER Act and its subsequent Grenelle II Act, and the securities commission regulations in Canada, are examples of legal rules to which Bebbington et al. (2012) refer. Although these laws and regulations carry few or no penalties for non-compliance, they are nonetheless binding systems of rules to which corporate managers are expected to conform. The GRI voluntary reporting guidelines (e.g. GRI, 2011, 2013), for their part, are an example of a non-law system of rules, in the words of Bebbington et al. (2012). It is an internationally recognized system (Bebbington et al., 2012) that sets forth one of the strictest set of voluntary reporting guidelines in the world (Boiral, 2013). By 2008, more than 1,500 companies had voluntarily adopted this set of guidelines (Waddock, 2008).

Bebbington et al. (2012) contend that a study of normativity production can highlight why some regimes "exert a pull towards compliance, while others do not" (p. 80). Our aim is to compare the normativity of three regimes not by investigating their respective processes, but by examining corporate response to their promulgation.

This paper draws on legitimacy theory to analyze a set of Canadian and French firms' responses to these three environmental reporting regimes. These regimes are the French NER and Grenelle II acts of parliament, the Canadian securities commission environmental reporting regulations, and the GRI voluntary reporting framework. Previous research that used legitimacy theory to examine environmental reporting practices adopted a mainly strategic view of legitimacy to explain voluntary environmental disclosures (e.g. Chen & Roberts, 2010; Moerman & Van der Laan, 2005; Tilling & Tilt, 2010). In these studies, legitimacy is considered to be a strategic resource (Dowling & Pfeffer, 1975; Pfeffer & Salancik, 1978) that managers try to extract from

their environment to ensure organizational survival. Strategic legitimacy does not necessarily relate to the organization's actual behaviour, but rather is associated with society's collective perception about organizational behaviour (Deegan, 2014). Legitimacy theory is a systems-based theory that helps researchers understand the role of corporate communications in the relationship between organizations, stakeholders, and society (Gray et al., 1996). Organizations have the right to exist only if society views their activities as legitimate and if their conduct meets societal expectations – in other words, if they fulfill their social contract (Deegan, 2014; Gray et al., 1996; Shoker & Sethi, 1974).

Corporate communications play a central role in stakeholders' perceptions of corporate legitimacy (Deegan, 2014); for instance, changes in social awareness lead companies to use environmental disclosure as a legitimation tool to maintain societal support (Aerts & Cormier, 2009; Branco, Eugénio, & Ribeiro, 2008; Brown & Deegan, 1998; Deegan & Gordon, 1996; Deegan, Rankin, & Tobin, 2002; de Villiers & van Staden, 2006; Islam & Deegan, 2010; Neu, Warsame, & Pedwell, 1998). Similarly, companies that operate in sensitive environmental sectors (Campbell, Craven, & Shrives, 2003; Deegan & Gordon, 1996; Moerman & Van der Laan, 2005), organizations with poor environmental performance (Cho & Patten, 2007; Cho, Roberts, & Patten, 2010; Cho, Freedman, & Patton, 2012; Deegan & Ranking, 1996; Patten, 2002), and companies subject to specific environmental regulation (Buhr, 1998; Tilling & Tilt, 2010) tend to provide more environmental information to manage their legitimacy. Corporate crises subsequent to environmental incidents also lead the companies directly involved (Cho, 2009), as well as others in the same industry (Deegan, Rankin, & Voght, 2000; Patten, 1992), to use environmental disclosure to manage their legitimacy.

Many authors recognize that there are two major views of legitimacy – a strategic view, as discussed above, and an institutional view (e.g. Ashford & Gibbs, 1990; Chen & Roberts, 2010; Deegan, 2014; Gray et al., 1996; Suchman, 1995). Whereas the former adopts the viewpoint of managers looking “outward” for societal support, the latter takes the perspective of society looking “in”, such as when external institutions shape and infuse organizations (Suchman, 1995).

As Chen and Roberts (2010, p. 655) stated:

From a societal perspective, institutional legitimacy is used to investigate what/which institutional structures and activities as a whole [...] have gained social acceptance. These established structures, activities, and procedures are used as the base line to evaluate whether the legitimacy-seeking organization adheres to these expectations, like legitimated institutions.

Institutional theorists contend that organizational dynamics are the result of social norms and beliefs to which managers comply to ensure organizational legitimacy and survival (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). Isomorphic processes – coercive, mimetic and normative – influence managers to adopt organizational arrangements that conform to recognized institutional patterns (DiMaggio & Powell, 1983) that represent socially constructed systems of values, norms, beliefs, and definitions (Suchman, 1995). For instance, organizations tend to imitate their peers in the same industry when developing their environmental reporting practices (Aerts, Cormier, & Magnan, 2006).

Regulations on environmental disclosure is another type of institutional pattern – a coercive pattern – that constitute a socially constructed system of values and beliefs (Chelli et al., 2014) setting out the explicit terms of the social contract (Gray et al., 1996; Shoker & Sethi, 1974).

Institutional theorists rely on the notion of regulative legitimacy (Baum & Oliver, 1991; Meyer & Scott, 1983; Ruef & Scott, 1998; Scott, 1995) which is obtained by compliance or consistency with regulations (Zimmerman & Zeitz, 2002). Considering that it may be difficult for managers to meet the information needs of all stakeholders (Williamson & Lynch-Wood, 2008), managers could perceive legislation on environmental reporting as a well-balanced representation of stakeholders' variable and subjective needs (Chelli et al., 2014). Conformity to legislation is an incentive for providing environmental disclosure (Deegan, 2002) and signals adherence to established institutional logics (Meyer & Rowan, 1977). Institutional legitimacy, particularly regulative legitimacy, is secured when corporations comply with legislation.

Bebbington et al.'s (2012) thesis about the normativity of non-law systems of rules offers innovative insights about institutional dynamics in the context of environmental reporting. On this basis, corporate managers may come to see the GRI guidelines just as binding as parliamentary legislation or securities commission regulations that carry no penalties or lenient sanctions for non-conformity. The authors argue that the legitimacy of a system of rules has a strong impact on its resulting normativity. Given the legitimacy of the GRI guidelines (Brown, de Jong, & Lessidrenska, 2009; Waddock, 2008), conformity to their content might be an incentive for providing environmental disclosure and signaling adherence to established institutional logics (Meyer & Rowan, 1977). As Waddock (2008, p. 93) points out:

GRI, now the global benchmark for standardized [environmental, social and governance]/nonfinancial reporting, is meant to be comparable to generally accepted accounting principles for financial reporting.

Although many studies have used part of the GRI guidelines to measure the extent of environmental disclosures (e.g., Clarkson, Li, Richardson, & Vasvari, 2008), very few have examined the guidelines' normativity per se. Furthermore, only a handful of studies examined corporate conformity to legislative environmental requirements. Partial compliance has been documented in Spain (Bebbington et al., 2012; Criado-Jiménez, Fernández-Chulián, Husillos-Carqués, & Larrinaga-González, 2008; Larrigana et al., 2002; Llena, Moneva, & Hernandez, 2007) and the U.S. (Alciatore & Dee, 2006). It is worth noting that these studies examined environmental reporting under mandatory *accounting* regimes, and interpret their findings in light of strategic legitimacy theory by showing, for instance, that managers tend to focus on positive rather than on negative mandatory requirements (Llena et al., 2007). Bebbington and Thy (1999) is one of the scant studies providing insights on environmental reporting under a non-accounting regulation regime. Examining reporting practices under the Danish Environmental Protection Act, they found that 90% of firms provided, as required, a "green account" to local and government authorities. The fact that companies could be fined if they failed to comply with the legislation (International Institute for Industrial Environmental Economics, 2002) might explain the high compliance rate. Chelli et al. (2014) also examined a non-accounting regulation regime. Using an institutional view of legitimacy, they documented that French firms increased the quality and quantity of environmental reporting over the 2001-2011 period, following the promulgation of the NER Act. Their results contradict Delbard (2008), who suggested debatable improvements. Albertini (2014) also documented improved environmental reporting by French companies subject to the NER Act during 2005-2010. Going one step further than Albertini (2014) and Chelli et al. (2014), we examine French companies' reactions not only to the promulgation of NER, but also Grenelle II. We also look at Canadian companies' reaction to the

promulgation of securities commission regulations to compare the normativity of both regimes. Under the institutional view of legitimacy, French corporations would be prompted to conform to NER and Grenelle II upon their promulgation even though they include no penalties for non-compliance. Canadian corporations would also be driven to conform to securities exchange regulations NI 51-102/NR 51-333 upon their enactment despite their soft penalties for non-conformity. An institutional view of legitimacy also predicts that French and Canadian firms would comply with the GRI guidelines.

Although parliamentary legislation (Chelli et al., 2014), market mechanisms (ACCA, 2013), and non-law regimes (GRI, 2011; 2013) can lead to more extensive environmental disclosures, it remains unclear whether they actually lead to substantive environmental outcomes (Unerman & Chapman, 2014). Legitimation efforts can be substantive and/or symbolic (Ashforth & Gibbs, 1990). Kim, Bach and Clelland (2007) suggest that there are two approaches to corporate communications: a behavioural management approach, corresponding to a substantive approach, and a symbolic management approach. Milne & Patten (2002) also distinguish substantive from symbolic approaches to legitimation. A variety of corporate strategies can be used to gain, maintain, or repair legitimacy (Dowling & Pfeffer, 1975; Lindblom, 1994; Suchman, 1995). Managers can substantively change organizational methods and outputs (substantive) or symbolically change perceptions about these methods and outputs (Cahan & van Staden, 2009). Indeed, managers may undertake and describe activities that are merely window dressing or “greenwashing” to look good in the public eye on issues of sustainability but without making significant changes to their actual practices (Waddock, 2008). In this respect, managers interviewed by O’Donovan (2002) mentioned that their disclosure decisions were motivated by

intentions to foster favourable perceptions of the organization. Several instances of symbolic disclosures are documented in the literature. Boiral (2013) compared sustainability issues raised in the press and those covered in sustainability reports of 23 companies in the energy and mining sectors and concluded that these reports can be viewed “as simulacra that camouflage real sustainable-development problems, presenting an idealized version of company situations” (p. 1061). Driscoll (2006) demonstrated that Canadian forest companies use a hybrid mix of substantive and symbolic strategies to manage their legitimacy. Hrasky (2012) found that firms in carbon-intensive sectors provided a greater level of substantive disclosures than those in less intensive sectors, the latter relying more heavily on symbolic disclosure. Several authors have discussed self-laudatory and symbolic environmental disclosure practices (e.g., Deegan & Gordon, 1996; Deegan & Rankin, 1996; Mobus, 2005; Rodrigue, Magnan, & Cho, 2013).

Substantive legitimacy results when managers describe corporate initiatives that actually lead to specific positive environmental impacts (Haji & Mohd Ghazali, 2012; Hrasky, 2012). Although many authors recognize the potentially symbolic nature of environmental disclosure, scarcely any actually make this distinction in their study of environmental reporting. One exception is Hrasky (2012), who made this distinction in relation to a specific environmental issue, carbon footprint disclosures.

Our study thus contributes to the literature by incorporating a substantive view of legitimacy in its assessment of overall corporate environmental disclosure. It assesses not only the overall change in environmental disclosure in response to parliamentary legislations, stock exchange

regulations, and the GRI guidelines, but also the general extent to which these reporting regimes lead to substantive environmental disclosures in each country.

In sum, we combine the concept of normativity and institutional and substantive legitimacy theory to analyze and contrast the environmental reporting practices of a sample of French and Canadian firms and to assess which regime is more effective in leading to normativity. Specifically, we address the following research questions and sub-questions:

RQ1: Did environmental reporting by French companies improve after promulgation of the NER and Grenelle II Acts? Did French companies comply with these laws? Do they provide additional voluntary disclosures aligned with the GRI guidelines?

RQ2: Did environmental reporting by Canadian companies improve after promulgation of CSA National Instrument 51-102 and CSA Staff Notice NR 51-333? Did these companies comply with the regulations? Do they provide additional voluntary disclosures aligned with the GRI guidelines?

RQ3: What type of regime is more effective in leading to normativity?

RQ4: Which regime leads to greater substantive disclosures?

Before addressing our methodology, we present the background behind the promulgation of the French laws, the Canadian regulations, and the GRI guidelines.

3. The French laws, the Canadian regulations, and the GRI guidelines

In France, article 116 of the New Economic Regulations (NER), a law enacted in 2001, made it mandatory for all publicly listed companies to report on corporate social responsibility indicators, including about 25 relating to the environment. The purpose of these regulations was to compel French companies to inform their stakeholders about the social and environmental consequences of their activities, to enable comparisons between companies, and to lead French companies to

adopt a more proactive approach to sustainable development even though the law did not mandate specific constraints in terms of standards or pollution thresholds (Albertini, 2014; Delbard, 2008). As Chelli et al. (2014) explain, article 116 was published in an era of strong international emphasis on improving environmental and social information, as reflected in the first GRI reporting guidelines (GRI, 1997), the revised Organization for Economic Co-operation and Development (OECD) guidelines for multinationals (OECD, 2000), and the European Union's sustainable development strategy (CEC, 2001). Typical of French-style "soft law", the NER Act does not clearly state specific sanctions for non-compliance (Delbord, 2008).

Article 225 of Grenelle II, a law adopted in 2010, significantly improved on NER by extending the reporting requirement to some non-publicly listed companies whose total revenues and number of employees exceeded predetermined thresholds. It modified and extended the list of information items to be reported and required the information to be audited by an independent party. Article 225 was to be implemented for fiscal years beginning after 31 December 2011 by firms reporting revenues of more than one billion euros and employing a labour force of more than 5,000 employees. This legislation reflected the political will for integration in corporate reporting by requiring the inclusion of non-financial (environmental) information in the financial report (ORÉE, 2013). Like the NER, Grenelle II does not carry penalties for non-compliance.

In Canada, securities commissions require publicly traded companies to disclose environmental information as part of their continuous disclosure requirements. It is worth noting that there is no Canadian national securities regulator. Each of the 10 provinces and three territories assume their own responsibility for securities regulation. However, there is an umbrella organization called

Canadian Securities Administrators (CSA) that works to improve, coordinate, and harmonize regulation of Canadian capital markets (CSA, 2009).

In 2004, the CSA developed and issued National Instrument 51-102 *Continuous Disclosure Obligations* (CSA, 2004), which is particularly relevant to environmental matters. It sets out rules and policies for financial statements, management discussion and analysis (“MD&A”), annual information forms (“AIFs”), material change reporting, information circulars, and other continuous disclosure-related matters (Pearson, 2006). Some of these provisions broadly relate to disclosure of environmental information such as environmental policies, risk factors (including environmental risk), and impact of environmental protection requirements. As time passed, investors and other stakeholders expressed concerns about the adequacy of the disclosures, such as reporting material information on environmental matters in voluntary reports but not in securities regulatory filings, the fact that the information provided was not always complete and comparable among issuers, use of boilerplate disclosure that provides non-significant information, and the fact that the information is not integrated into financial reporting (CSA, 2010). In response to these concerns, CSA Staff Notice NR 51-333 *Environmental Reporting Guidance* was published in late 2010 to provide additional guidance on how to report items listed in NI 51-102 (CSA, 2010).

In the Canadian context, non-compliance measures range from simple proactive letters requiring changes in the next filing to requests for re-filing certain continuous disclosure documents. Cases of critical deficiencies can lead to inclusion in the ‘default list’, release of a cease trade order, or

application of enforcement mechanisms. Given the broad nature of disclosure requirements, it is reasonable to think that cases of severe deficiencies would be very uncommon.

The GRI is the most influential institution in terms of environmental reporting worldwide (Brown et al. 2009; Milne & Gray, 2013; Etzion & Ferraro, 2010). Since the early 2000s, the GRI guidelines have been widely considered the best developed international framework for sustainability reporting (Brown et al., 2009). The guidelines were developed and have been updated based on input from thousands of experts in business, NGOs, and other types of organizations around the world (Waddock, 2008). In 2013, about 80% of the 5,000 companies that reported on sustainability used the GRI's framework. Although government departments and market authorities in 23 countries refer to the GRI guidelines in their policy and regulatory instruments (GRI, 2014), corporate use of the guidelines is totally voluntary.

4. Methodology

To meet our goal of examining the impact of parliamentary legislation and stock exchange regulations on environmental reporting practices, our data collection centered on a three-year window surrounding the promulgation of the acts/regulations, ending with the most recent fiscal year prior to data collection (2013). For French firms, the data were collected for 2001-2003 (NER effective in 2002) and 2010-2013 (Grenelle II effective in 2012 but published and debated in 2010). For Canadian firms, the data were collected for 2003-2005 (NI 51-102 effective in 2004) and 2010-2013 (Staff Notice NR 51-333 effective in 2011). A total of seven years of data was thus collected for each firm. Since our data collection involved detailed content analysis, cost

constraints mandated limiting our sample to 40 firms. We were thus left with a total of 280 firm-years.

Our sample includes 20 French firms from various industry sectors listed on the SBF 120 stock market index. We identified 20 Canadian firms active in the same industry segments to ensure that their sustainability concerns were similar to those of the French firms. Most of the Canadian firms were listed on the S&P/TSX Composite Index. This approach enabled us to include the largest firms from both countries, including some in environmentally sensitive sectors. Table 1 presents our sampled companies.

Table 1
Sample of French and Canadian Firms

French Firms	Canadian Firms	Industry Sector	Environmental Sensitivity ¹
Air France	WestJet Airlines Ltd	Airline	Higher
Air Liquide	Methanex	Industrial Gases/Chemicals	Higher
Alcatel	Blackberry Limited	Telecommunication equipment	Lower
Eurotunnel	Bombardier Inc.	Transportation	Higher
Cap Gemini	CGI Group Inc.	Technology	Lower
Danone	Saputo Inc.	Food producer	Lower
Dexia	Bank of Montreal	Bank	Lower
EDF	ATCO Group	Utility	Higher
Eiffage	SNC Lavalin Group	Construction	Higher
Eramet	Semafo Inc.	Industrial metals and mining	Higher
France Telecom	Telus Corporation	Telecommunications	Lower
Groupe Casino	Loblaw Companies Limited	Food retailer	Lower
Lafarge	International Forest Products Limited	Manufacturer of building materials	Higher
Lagardère	Quebecor Inc.	Media	Lower
LVMH	Gildan Activewear Inc.	Luxury goods	Lower
Michelin	Westport Innovations Inc.	Automobiles and parts	Lower
Nexans	Martinrea International Inc.	Electrical components and equipment	Higher
Sanofi	Nuvo Research Inc.	Pharmaceutical	Lower
Suez	Just Energy Group Inc.	Gas, water and multiutilities	Higher
Total	Suncor Energy Inc.	Oil and gas	Higher

¹ Mainly based on North American Industry Classification System (NAICS) codes of environmentally sensitive industries. Available at <http://www.partneresi.com/resources/naics-codes-effective-06-01-12.pdf> (accessed 5 May 2015).

The first step in our content analysis was to determine which documents to analyze (Krippendorff, 2013). Our first data source, annual reports, are appropriate for investigating environmental reporting for a variety of reasons (Unerman, 2000): they lend a considerable degree of credibility to their content, are the sole source of information for a number of stakeholders, and are widely distributed. Second, we used stand-alone sustainability reports (Unerman, 2000) given their widespread use as a source of information on corporate environmental impacts and performance. Lastly, we used the Annual Information Form (AIF) that Canadian firms prepare in response to securities commissions' requirements. All these documents were publicly available on the companies' websites. In the end, we examined 579 documents.

Although recent studies (e.g. Moerman & Van der Laan, 2005) looked at environmental information posted on corporate websites (other than the annual report, sustainability reports, and AIFs), we concentrated on the three above-mentioned sources for several reasons. Given the historical nature of our study, it was impossible to access the entire website content of the sampled companies for previous years. This omission should not have a significant impact because the information required under the NER Act must be disclosed in "management reports" (Chelli et al., 2014); arguably, the annual and/or sustainability reports. Environmental (non-financial) information required under Grenelle II should be disclosed in the document that contains the corporation's financial information (ORÉE, 2013); also usually the annual report. For Canadian firms, information was collected from the AIF – a document specifically demanded by the CSA. In fact, the Canadian regulations require companies to include their environmental

information in either the Management Discussion & Analysis (MD&A) section of the annual report or in the AIF.

To assess the scope of corporate environmental reporting in these sources, we developed a scoring grid comprised of all items required by NER and Grenelle II, the Canadian securities regulations, and the GRI reporting guidelines. We used Version 3.1 of the GRI framework (GRI, 2011) because Version 4 (GRI, 2013) pertained only to the preparation of reports published after 31 December 2015. Although the GRI guidelines were amended again after the first version was updated in 1999 (Clarkson et al., 2008), we used version 3.1 for the sake of consistency and comparability in the data collection and analysis. Note that the GRI guidelines include general and specific standard environmental disclosure items, some similar to those required by NER and Grenelle II and Canadian stock exchange regulations. Our grid, which consists of 83 items, is far more comprehensive than other analyses in the rest of the literature, which examined as little as only a few items (e.g., O'Dwyer, 2003) or no more than 50 or so items (e.g. Clarkson et al., 2008 and Du, Jian, Zeng, & Du, 2014, used a 45-item grid). The maximum disclosure score for the 83 items is 90 since some items are worth 0-1, others 0-2, and yet others 0-3, depending on item type. The 0-1 dichotomy indicates the presence or absence of the item. The 0-2 grading corresponds to the absence (0), qualitative explanation (1) or quantitative details (2) of a specific item. The 0-3 grading pertains to items that include three subcomponents. Appendix I presents our scoring grid.

We use content analysis as the data generation method. Content analysis is a method of codifying the text of a document into various groups or categories based on selected criteria to permit

further analysis (Milne and Adler, 1999). Our aim is not so much to assess the quantity of the reporting but rather to investigate the disclosure of specific items. Whereas previous studies using legitimacy theory mainly counted the number of pages, sentences or words to measure the overall extent of environmental reporting (e.g. Deegan et al., 2002; Neu et al., 1998) or the extent to which information on a limited number of themes was disclosed (e.g., Branco et al., 2008; Islam & Deegan, 2010; O'Dwyer, 2003; van Staden & Hooks, 2007), our detailed scoring grid was used to infer the normativity of each regime through an exhaustive content analysis of annual reports, sustainability reports, and AIFs.

Care was taken to ensure that the coding was reliable and consistent (Milne & Adler, 1999). In a first step, two coauthors simultaneously coded the same annual and sustainability reports of a French company. Discrepancies were resolved and the scoring grid refined after thorough discussions. This exercise was repeated for a number of reports until the coding became consistent and discrepancies were reduced to a minimum (less than 10%). One of the coauthors involved in the first step completed the coding for the entire French sample while the other implemented the same pretesting approach with the third author and two accounting students until the same level of consistency was reached. The two students then completed the coding for the Canadian sample under the authors' close scrutiny. Frequent discussions took place to resolve any coding issues.

To answer RQ1, we assess whether a significant change occurred in the average NER and Grenelle II scores (see scoring grid – Appendix I) following promulgation and then determine the percentage of items required that were actually disclosed. We identified changes in the average

GRI score (see scoring grid – Appendix I) for the period under study and the percentage of GRI items actually disclosed by the firms.

The same approach was used to answer RQ2 in relation to the Canadian regulations score (see scoring grid – Appendix I). To answer RQ3, we compare the NER/Grenelle II, Canadian regulations, and GRI percentage scores and their changes.

For RQ4, we measure the number of words related to substantive environmental disclosures, i.e. all text segments in the documents that both 1) describe initiatives and 2) set out their positive environmental impacts (Hrasky, 2012). An example of substantive disclosure is found in the Telus 2012 Corporate Sustainability Report (p. 132):

In 2012, our team continued implementing energy efficient programs to reduce absolute energy consumption and GHG emissions. We implemented more than 100 energy reduction initiatives, resulting in an annualized elimination of 42.7 GWh of energy waste. This reduction is the equivalent of carbon sequestered annually by 435,000 seedling trees or removing 3,500 cars off the road. We achieved this result through the following energy reduction initiatives:

- Retired old network and IT equipment
- Installed intelligent cooling solutions in major network buildings
- Optimized equipment room air conditioning through control and equipment set-point adjustments
- Consolidating office buildings through our Work Styles program.

We then compute a substantive disclosure indicator consisting of the total number of words related to substantive disclosure divided by the total number of words in the reports (for annual

reports and AIFs, we considered only the sections that related to sustainability issues).¹ We then compare the average substantive disclosure indicator for the Canadian and French firms.

Although the Canadian companies publish their reports in French, English or both, the indicators were computed on the basis of the French reports. To compare word counts for the French and English reports, we obtained the word count of the English and French versions of the sustainability reports of three Canadian companies over five different periods and computed a mean conversion ratio (1.22 x number of English words = number of French words).

Finally, non-parametric tests were conducted to assess whether variables such as governance, size, profitability, and leverage (Othman & Ameer 2009) affect the disclosure practices of Canadian and French firms. Company data were required to be presented on the same basis, i.e. the Canadian dollar. Since some Canadian companies presented their financial statements in US dollars and French companies presented them in euros, we used the end of year conversion rate for balance sheet data and the mean conversion rate for income statement data.

5. Results

5.1 Sample characteristics

In terms of size, the French firms were larger than the Canadian companies (mean = C\$86.857 million vs. C\$38.581 million)², but this difference is not statistically significant (see Appendix

¹ We used the number of words in the full sustainability report since some categories such as strategy and analysis, and keys impacts, risks and opportunities, might be dealt with in various sections of the report rather than in a dedicated section on environmental issues.

² Although we obtained seven years of data for the firms in each country, only the descriptive data for 2013 is presented for expediency (see Appendix II).

II). In addition, there is no statistically significant difference between debt to assets ratios or return on assets (ROA). Most French firms (16/20), vs. half of the Canadian firms (11/20), prepared a separate sustainability report. Thirteen French firms and seven Canadian firms used the GRI guidelines.

5.2 Analysis of results

This section addresses each research question in turn.

5.2.1 French parliamentary regime (RQ1)

Our first question and sub-questions ask whether environmental reporting by French companies improved after the promulgation of NER and Grenelle II (henceforth GRE2), whether the companies complied with the law, and whether they disclosed additional information as suggested by GRI guidelines. Table 2 presents the mean scores of French companies in relation to NER and GRE2 requirements. NER and GRE2 require disclosure of 24 and 27 information items respectively (see Appendix I). Table 2 also presents the mean percentage of items disclosed in relation to the requirements of each regulation.

Table 2
Environmental Reporting - French Firms

Year ^a	Mean NER Score (Std dev.)	Mean GRE2 Score (Std dev.)	Mean % Items Required ^b	p ^c	Mean GRI Score (Std dev.)	Mean % Items Required ^b	p ^c	Mean GRI Score excluding NER/GRE2 Items
2001	3.00 (4.39)		12.5		6.15 (8.43)	10.1		3.55
2002	6.60 (4.56)		27.5	0.003	12.95 (9.34)	21.2	0.002	6.85
2003	8.15 (4.15)		34.0	0.024	16.40 (9.43)	26.9	0.009	9.00
2010	13.15 (4.69)	14.85 (5.22)	54.8 (NER) 55.0 (GRE2)		27.70 (10.53)	45.4	0.001	16.05
2011		17.00 (4.58)	63.0	0.004^d	30.74 (11.60)	50.4	0.006^e	17.63
2012		20.53 (3.88)	76.0	0.000	35.26 (9.63)	57.8	0.000	20.26
2013		21.95 (2.74)	81.3	0.092	35.58 (8.67)	58.3	0.697	19.89

^a N = 20 firms for 2001 to 2003 and 2010; N = 19 firms for 2011 to 2013 since Dexia was in financial difficulty and discontinued all environmental reporting in 2011.

^b Percentages of 24 items for NER, 27 items for GRE2, and 61 items for GRI.

^c Wilcoxon signed rank test comparing the scores for the current and preceding years, e.g. 2002 with 2001.

^d Score comparison between 2011 and 2010 for 19 firms (Mean GRE2 score in 2010 = 14.95)

^e Score comparison between 2011 and 2010 for 19 firms (Mean GRI score in 2010 = 27.79).

Overall, environmental reporting progressed substantially from 2001 to 2013. Indeed, from a mean score of 3, representing 12.5% of items required under NER in 2001, French firms obtained a score of 21.95 in 2013 and covered 81.3% of items required under GRE2.

Table 2 shows that in response to NER, environmental disclosures improved considerably from 2001 to 2002. Significant improvement also noted between 2002 and 2003 shows that this impact was long-lasting. Although French firms greatly enhanced their environmental disclosure practices following the introduction of NER, they reported only an average of 34% of the items legally required in 2003. This figure increased to 54.8% in 2010, the year of the promulgation of GRE2, subsequently reaching 75.2% in 2013 (not tabulated).

Similarly, GRE2 had a significant and positive effect on environmental disclosure. Firms had already begun incorporating GRE2 items in 2011, resulting in a mean score of 17, as compared to 14.85 for 2010. The mean score also significantly improved to 20.53 in 2012, the year GRE2 came into effect, but increased more moderately to 21.95 in 2013. French firms' disclosure percentage for required GRE2 items increased from 55% in 2010 to 81.3% in 2013.

In response to RQ1, we observe that the sample firms significantly increased their level of compliance with legislation over the years. In terms of normativity, we can conclude that the French parliamentary regime was generally successful in improving the environmental reporting practices of French firms.

Table 3 presents statistical information on items that differ between NER and GRE2. When NER came into effect in 2002, it contained six disclosure items not covered by GRE2 (see Appendix I). However, they were not disclosed significantly more in 2002 than in 2001. A significant rise in disclosure occurred in 2003, but the mean score for these items (1.35) was low. A jump in disclosure appeared in 2010, reflected in a mean score of 2.30, after which the items continued to

be disclosed to about the same degree afterwards although no longer required. Conversely, GRE2 featured nine items not required by NER (see Appendix I). These items were disclosed to some extent as far back as 2001 (mean = 0.65). Significant increases in the subsequent years were noted until 2011 (mean = 4.68), after which another significant increase occurred in 2012 (mean = 6.16) when GRE2 came into effect. This was not followed by any significant increase in 2013. This analysis indicates that French firms disclose information even when not legally required to do so. We next examine the level of additional disclosure in relation to the GRI guidelines.

Table 3
Items Differing Between NER and GRE2 - French Firms

Year ^a	Items in NER not required by GRE2 ^b Mean (Std dev.)	p ^c	Items in GRE2 not required by NER ^d Mean (Std dev.)	p ^c
2001	0.55 (0.95)		0.65 (0.81)	
2002	1.05 (1.31)	0.102	1.50 (1.61)	0.007
2003	1.35 (1.14)	0.034	2.10 (1.86)	0.054
2010	2.30 (5.35)	0.002	4.00 (1.92)	0.006
2011	2.47 (1.54)	0.405	4.68 (1.15)	0.019
2012	2.53 (1.39)	0.666	6.16 (1.43)	0.001
2013	2.53 (1.78)	0.874	6.42 (1.12)	0.201

^a N = 20 firms for 2001 to 2003 and 2010; N = 19 firms for 2011 to 2013 since Dexia was in financial difficulty and discontinued all environmental reporting in 2011.

^b Number of items in NER not required by GRE2 = 6.

^c Wilcoxon signed rank test comparing the scores for the current and preceding year, e.g. 2002 with 2001.

^d Number of items in GRE2 not required by NER = 9.

^e Comparison between 2011 and 2010 for 19 firms (Mean score in 2010 = 2.32).

^f Comparison between 2011 and 2010 for 19 firms (Mean score in 2010 = 3.95).

Using GRI guidelines as a benchmark, we note that environmental reporting by French firms increased steadily and significantly between 2001 and 2012 (Table 2), with the mean GRI score increasing from 6.15 to 35.26 for this period for 10.1% to 57.8% of the items suggested by GRI. In 2013, environmental disclosure seems to have plateaued compared to 2012, with disclosure of GRI items at 58.3%. In terms of normativity, the GRI regime can thus be considered somewhat effective.

However, the average French disclosure scores for items contained in the GRI but not required by legislation, increased from 3.55 in 2001 to 19.89 in 2013 (Table 2). From an institutional legitimacy perspective, the GRI guidelines were somewhat successful in prompting French firms to provide additional disclosure.

Institutional and strategic pressures alike can affect environmental reporting practices (Chelli et al., 2014; Suchman, 1995). Given that firms in environmentally sensitive industries have been shown to strategically use environmental reporting to manage their legitimacy (Moerman & Van der Laan, 2005), they could feel compelled to disclose additional environmental information in response to legislation and internationally recognized voluntary regimes. Half of the sampled firms operate in highly environmentally sensitive industries (Table 1). Mann-Whitney tests indicate no significant differences (at $p \leq 0.05$) for NER, GRE2 and GRI scores according to the environmental sensitivity of the industry. This suggests that institutional legitimacy theory offers a better explanation than strategic legitimacy theory of firms' disclosure practices in the context of our study.

5.2.2 Canadian securities commission regulations (RQ2)

Our second question and sub-questions ask whether environmental reporting by Canadian companies improved after promulgation of CSA NI 51-102 and CSA Staff Notice NR 51-333, whether the companies complied with the regulations, and whether they provided additional voluntary disclosures in accordance with GRI guidelines. Table 4 presents the mean scores of Canadian companies pertaining to the securities commission regulations requirements. Recall that NR 51-333 asks for additional clarification about items already required by NI 51-102. In total, 24 information items are required under these regulations (see Appendix I). Table 4 presents the mean percentage of items disclosed in relation to the requirements.

Table 4
Environmental Reporting - Canadian Firms

Year ^a	Mean Canada Score (Std dev.)	Mean % Items Required ^b	p ^c	Mean GRI Score (Std dev.)	Mean % Items Required ^b	p ^c	Mean GRI Score excluding Canada Items
2003	3.35 (2.25)	14.5		8.85 (7.29)	14.5		6.95
2004	4.80 (3.62)	20.0	0.015	13.65 (11.35)	22.4	0.003	11.40
2005	4.45 (2.50)	18.5	0.676	12.40 (9.29)	20.3	0.916	10.05
2010	5.95 (2.44)	24.8	0.026	19.45 (10.45)	31.9	0.000	16.25
2011	6.00 (2.22)	25.0	0.714	21.75 (11.39)	35.7	0.060	18.45
2012	5.80 (2.04)	24.2	0.667	23.20 (10.64)	38.0	0.437	19.85
2013	5.35 (2.16)	22.3	0.102	19.25 (11.96)	31.6	0.029	16.35

^a N = 20 firms.

^b Percentages of 24 items for Canada score and 61 items for GRI.

^c Wilcoxon signed rank test comparing the scores for the current and preceding years, e.g. 2002 with 2001.

Canadian firms significantly increased their disclosures between 2003 and 2004 after enactment of NI 51-102 but posted a negligible decline in 2005. Although environmental disclosures significantly increased between 2005 and 2010, the mean score (hereafter “Canada score”) indicates a mere 1.5 increase. Staff Notice NR 51-333, effective in 2011, did not appear to have had any effect given that the mean scores do not vary significantly from 2010 onward. Compliance with Canadian regulation is low, with 25.0% being the highest mean disclosure percentage for required items, noted for 2011.

In regard to RQ2, although the firms significantly increased their level of environmental disclosure after the first Canadian regulation was promulgated, the release of the second regulation did not trigger significant additional disclosures. In terms of normativity, the low level of overall disclosure leads us to conclude that the Canadian market-based regime was unsuccessful in improving environmental reporting practices.

Using GRI guidelines as a benchmark, we conclude that environmental reporting by Canadian firms increased significantly in 2004, similarly to Canada scores (Table 4). Significant and marginally significant increases were also noted in 2010 and 2011 respectively. The highest mean score, 23.30, was reached in 2012. 2013 saw a significant decrease in disclosure of GRI items as well as a non-significant decrease in Canada scores. Note that in 2003, the percentage of GRI item disclosures was identical to the percentage of disclosures based on Canadian regulations (14.5%). However, the former increased more substantially over the years, reaching 31.6% in 2013, compared to 22.3% for the latter.

Furthermore, Canadian firms' average scores for disclosure of GRI items excluding Canadian ruling items increased from 6.95 in 2003 up to 19.85 in 2012 and 16.35 in 2013 (Table 4). From an institutional legitimacy perspective, the GRI guidelines were successful in impelling Canadian firms to disclose additional information. In fact, for each year under study, the score increase for GRI items exceeded the increase prompted by Canadian regulations requirements. Although the GRI guidelines generate more normativity than the securities commissions' regulations, the normativity level remains quite low.

Mann-Whitney tests indicate no significant difference (at $p \leq 0.05$) between Canada and GRI scores according to the environmental sensitivity of the industry in question. As was noted for French firms, institutional legitimacy theory offers a better explanation of Canadian firms' disclosure practices (although normativity is much lower) than strategic legitimacy does.

5.2.3 Comparative Normativity (RQ3)

To answer our third research question about which regime is better at generating normativity, we compare statistics for the three regimes. Table 5 compares the mean percentage of items disclosed in accordance with the Canadian and French laws. The highly significant differences obtained for all years, with scores in favour of France, clearly indicate that the French regime is more effective at producing normativity. For instance, France achieved 81.3% compliance in 2013 versus only 22.3% in Canada.

Table 5
Normativity

Year ^a	Mean % Items Required France	Mean % Items Required Canada	p ^c	Mean % GRI Items France	Mean % GRI Items Canada	p ^c
2001	12.5			10.1		
2002	27.5			21.2		
2003	34.0	14.5	0.000	26.9	14.5	0.007
2004		20.0			22.4	
2005		18.5			20.3	
2010	55.0	24.8	0.000	45.4	31.9	0.017
2011	63.0	25.0	0.000	50.4	35.7	0.020
2012	76.0	24.2	0.000	57.8	38.0	0.001
2013	81.3	22.3	0.000	58.3	31.6	0.000

^a For France, N = 20 firms for 2001 to 2003 and 2010; N = 19 firms for 2011 to 2013 since Dexia was in financial difficulty and discontinued all environmental reporting in 2011. For Canada, N = 20 firms.

^b Percentages of 24 items for NER (2001-2003), 27 items for GRE2 (2010-2013), 24 items for Canada (2003-2013), and 61 items for GRI (2001-2013).

^c ANOVAs comparing % items by country.

According to Table 5, conformity to GRI guidelines is significantly higher in France. A comparison of GRI with the local regime in Canada shows that GRI guidelines lead to better normativity than the local regime in Canada. The reverse holds true for France, where the local regime has a greater normative effect than the GRI guidelines (See Figure 1). However, in both countries, companies disclose a fair amount of information in addition to those required by legislation. Mean scores of 6.95 to 19.85 (Table 4) and 3.55 to 20.26 (Table 2) are obtained for Canada and France respectively for disclosure in regard to GRI, over and above Canadian, and NER and GRE2 items. The highest marginal impacts, 19.85 for Canada and 20.26 for France, were both noted for fiscal 2012. GRI guidelines had a similar marginal impact on environmental

disclosure in both countries in 2010-2013. The normative effect of the GRI guidelines thus combines with effects from local regimes to trigger environmental disclosure (See Figure 2).

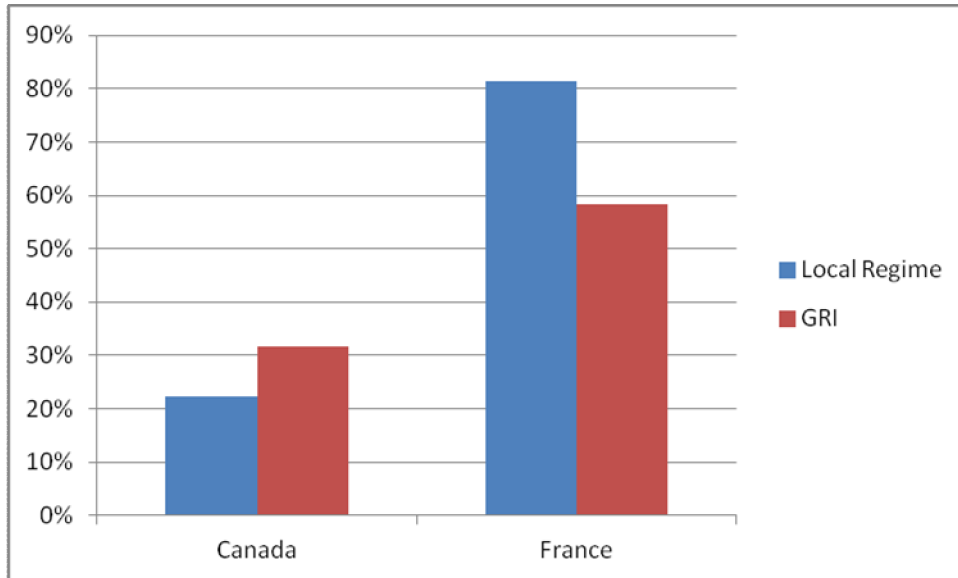


Figure 1 – Normativity Level by Country – Year 2013

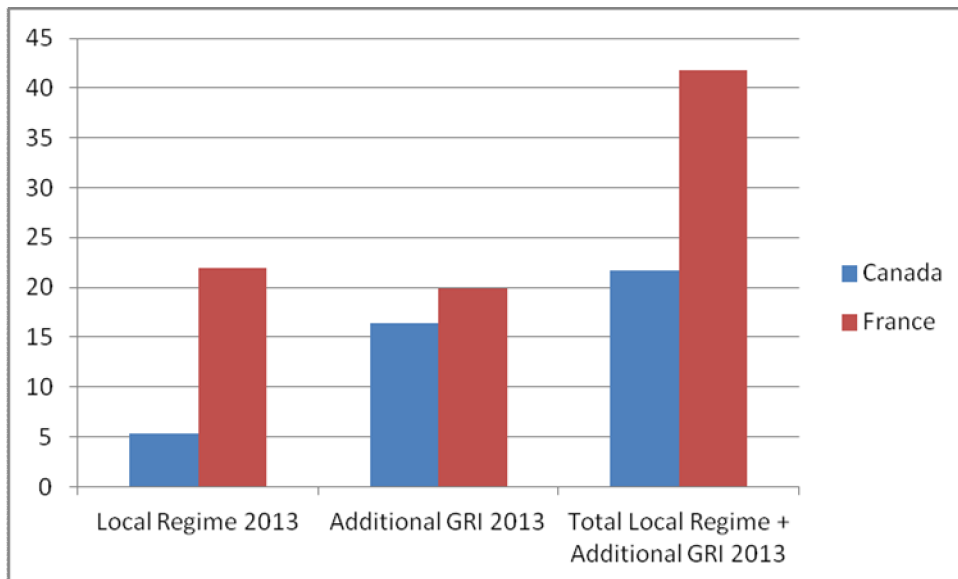


Figure 2 – Local Regimes, Additional GRI Items and Total Mean Scores – Year 2013

A comparison of the mean results for French and Canadian firms' disclosure of GRI items by section for 2013 reveals that French firms provide significantly more information than Canadian firms in most of the disclosure categories (Table 6). French firms disclose more information on organizational profile and awards, governance, stakeholder engagement, management approach to material environmental aspects, and several other environmental performance indicators (materials, energy, water, biodiversity, emissions, effluents and waste, and products and services). These differences may be explained by GRE2's greater requirements, compared to Canada's, for organizational profile, assurance and awards, stakeholder engagement, materials, energy, water, biodiversity, and emissions, effluents and waste. There is no significant difference for disclosures about strategy and analysis, key impacts, risks and opportunities, commitments to external initiatives, compliance, transport, and protection costs. As Appendix I and Table 6 show, when GRE2 alone contains a specific GRI disclosure category, French firms disclose significantly more information than Canadian firms in seven out of eight categories. When a disclosure category appears in none or both of GRE2 and the Canadian regulations, French firms disclose significantly more information than Canadian firms on about half of the seven categories.

Table 6
GRI Items Disclosed by Category in 2013 - Comparison of French and Canadian Firms

	Number of Items in Category	French Firms ^a Mean Score (Std dev.)	Canadian Firms ^a Mean Score (Std dev.)	p ^b
Strategy and analysis	4	1.37 (1.21)	0.80 (0.89)	0.103
Key impacts, risks, and opportunities	5	2.16 (1.21)	2.00 (1.17)	0.682
Organizational profile, assurance, and awards	2	1.79 (0.42)	0.95 (0.89)	0.001
Governance	4	2.89 (0.81)	1.80 (1.24)	0.002
Commitments to external initiatives	3	1.89 (1.05)	1.30 (1.22)	0.112
Stakeholder engagement	4	2.42 (1.07)	1.60 (1.23)	0.033
Management approach for material environmental aspects	3	2.79 (0.54)	1.70 (1.03)	0.000
Environmental performance indicators:				
Materials	3	1.37 (1.01)	0.55 (0.83)	0.009
Energy	5	3.58 (1.35)	1.55 (1.47)	0.000
Water	4	1.89 (1.20)	0.80 (1.06)	0.004
Biodiversity	5	1.63 (1.42)	0.65 (0.88)	0.015
Emissions, effluents, and waste	13	8.21 (2.10)	3.35 (2.80)	0.000
Products and services	2	1.42 (0.51)	0.65 (0.59)	0.000
Compliance	2	0.84 (0.60)	1.15 (0.67)	0.141
Transport	1	0.16 (0.38)	0.15 (0.37)	0.947
Protection costs and investments by type	1	0	0	-
Total	61	35.58 (8.67)	19.25 (11.96)	0.000

^a For France, N = 19 firms. For Canada, N = 20 firms.

^b ANOVAs comparing mean items by country.

In response to our third research question, we conclude that the French regime is more effective at producing normativity than the Canadian regime and that in Canada, the GRI guidelines lead to better normativity than the securities commissions' regulations. Overall, the combination of the GRI guidelines' normative effects and those of both local regimes impel firms to disclose more environmental information.

5.2.4 Substantive disclosures by Canadian and French firms (RQ4)

Our fourth research question asks which regime produces a greater number of substantive disclosures, i.e. descriptions of corporate initiatives that actually lead to specific positive environmental impacts. Table 7 presents mean data on total disclosure (total item scores and number of words), substantive disclosures (number of words), and percentage of substantive disclosures by French and Canadian firms. French firms' total environmental and substantive disclosure is significantly greater than that of Canadian firms. For example, in 2013, mean total disclosure of French firms was 55,539 words compared to 15,673 words for Canadian firms, and mean substantive disclosure was 1,902 and 190 words respectively. The percentage of substantive disclosure is significantly greater for French firms than for Canadian firms in 2003 and in 2011-2013. It therefore appears that the French regime leads not only to more total disclosure than Canadian regulations, but also to greater substantive disclosure. However, the highest percentage of substantive disclosure in France, 4.2% in 2012, is still quite low. This finding suggests that environmental reporting tends to be more symbolic than substantive. French and Canadian firms thus place greater importance on institutional rather than substantive legitimacy.

Table 7
Total and Substantive Disclosure

Year ^a	Total Item Score France ^b	Total Item Score Canada ^b	p	Total Disclosure France ^c	Total Disclosure Canada ^c	p	Substantive Disclosure France ^c	Substantive Disclosure Canada ^c	p	% Substantive Disclosure France	% Substantive Disclosure Canada	p
2001	7.20 (9.27)			6,255 (12,025)			119 (304)			9.3 (28.6)		
2002	14.85 (10.83)			11,390 (15,895)			170 (377)			1.0 (1.3)		
2003	18.85 (11.04)	11.40 (8.87)	0.024	19,933 (24,176)	3,701 (7,200)	0.009	367 (395)	36 (82)	0.001	3.0 (4.3)	0.9 (1.9)	0.066
2004		18.95 (16.75)			8,333 (13,911)			56 (148)			0.5 (1.6)	
2005		16.70 (12.53)			5,663 (9,863)			55 (153)			0.8 (2.7)	
2010	32.35 (12.38)	24.55 (12.50)	0.055	47,217 (37,372)	12,990 (16,418)	0.001	1,293 (809)	179 (372)	0.000	2.8 (1.6)	2.0 (4.6)	0.478
2011	36.74 (13.45)	27.55 (13.78)	0.042	54,631 (40,530)	18,003 (20,749)	0.002	1,810 (1,274)	207 (413)	0.000	3.8 (2.4)	1.0 (2.5)	0.001
2012	42.84 (11.58)	28.55 (12.24)	0.001	47,302 (26,804)	18,666 (19,541)	0.001	1,833 (1,325)	232 (563)	0.000	4.2 (2.6)	1.1 (2.1)	0.000
2013	44.21 (10.08)	24.50 (13.52)	0.000	55,539 (26,703)	15,673 (21,154)	0.000	1,902 (1,412)	190 (407)	0.000	3.4 (2.5)	1.4 (2.5)	0.018

^a For France, N = 20 firms for 2001 to 2003 and 2010; N = 19 firms for 2011 to 2013 since Dexia was in financial difficulty and discontinued all environmental reporting in 2011. For Canada, N = 20 firms.

^b Total item score corresponds to the mean number of items (Std dev.) disclosed according to the 90 items in the coding grid.

^c Total disclosure corresponds to the mean number of words (Std dev.) related to sustainability disclosure in the annual report and the annual information form, and all the words in the sustainability report. Substantive disclosures corresponds to the mean number of words (Std dev.) related to substantive environmental disclosures.

5.2.5 Additional analyses

Non-parametric tests assessed whether variables such as governance, size, profitability, and leverage (Othman & Ameer 2009) affect the disclosure practices of Canadian and French firms.³ For these firms, no systematic relationships were found between NER, GRE2, Canada, or GRI scores and indebtedness (debts to assets), profitability (ROA), duality, percentage of independent board members, and percentage of women administrators (Spearman correlations or Mann-Whitney tests). NER, GRE2, Canada, and GRI scores are unaffected by the industry's environmental sensitivity. Larger (Spearman correlations, $p \leq 0.05$ for 2001 to 2010), cross-listed (Mann-Whitney tests, $p \leq 0.05$ for all years) French firms have higher GRI scores, but no systematic relationships were noted between these variables and NER and GRE2 scores. For Canadian firms, size is positively related to GRI scores for five out of seven years (Spearman correlations, $p \leq 0.05$), but not to Canada scores. Further, Canadian firms' Canada and GRI scores are not affected by cross-listed status.

French firms that publish a sustainability report have higher NER, GRE2, and GRI scores (Mann-Whitney tests), but the increase becomes less significant in 2012 and 2013. Canadian firms that publish a sustainability report have higher GRI scores in all years ($p \leq 0.01$) and higher Canada scores in 2004, 2005, 2011 (at $p \leq 0.10$), and 2013 (at $p \leq 0.05$). Use of the GRI guidelines has a significant positive effect on NER and GRE2 scores, except in 2013,⁴ but no effect on Canada scores.

³ For expediency, the results of all the tests that analyzed scores according to various characteristics are not tabulated.

⁴ No French firms used the GRI guidelines in 2001.

In a regression of size, cross-listed status, publication of a sustainability report, and country (Canada = 1) on GRI scores for 2003 and 2010 to 2013, the last two variables are consistently significant (at $p \leq 0.05$ or 0.10) and exert positive and negative influences, respectively.

6. Discussion, conclusions and areas for future research

The research shows that the French parliamentary regime, specifically the NER and Grenelle II Acts, resulted in greater normativity than the Canadian market-based regime, which uses stock exchange regulations to trigger environmental reporting. Therefore, when non-compliance carries few or no penalties, legislation by central government appears to be more successful than legislation by government agencies in generating corporate environmental reporting.

Our study inferred normativity by examining the end results of each regime in terms of corporate compliance. It did not investigate the processes that may or may not generate normativity. However, the various levels of normativity achieved under each regime might have been consistent with the level of debate about environmental reporting that occurred in each country. Stronger debate could possibly lead to greater legitimacy (Suchman, 1995), and greater legitimacy to greater normativity (Bebbington et al., 2012). Although the environmental content of article 116 of the NER was adopted without much discussion (Chelli et al., 2014), Grenelle legislation was altogether a different matter, generating extensive debate during the “Grenelle de l’Environnement”, a large multi-stakeholder forum on sustainability and public policies in France (Wolniak, 2013). Civil society and business representatives debated long and hard before the bill was passed and incorporated into the French Commercial Code in July 2010 (Wolniak, 2013).

This larger debate about Grenelle II arguably explains why compliance rose after GRE2 to 81.3% in 2013, compared to compliance with NER in 2003, at 34.0%.

Environmental reporting in Canada is regulated by securities commissions, and although comments are solicited before new rules are issued, the debate is far less involved. Prior to the publication of NI 51-102 – *Continuous Disclosure Obligations* by the Canadian Securities Administrators, the Ontario Securities Commission had received only 34 and 27 letters of comments respectively after the first and second requests for comments (OSC, 2014). It is worth noting that NI 51-102 made only broad references to environmental issues. Some provincial securities commissions reacted to registrants' poor levels of disclosure. The OSC consulted certain stakeholders as part of a sustainability reporting initiative and concluded that the current disclosure requirements were consistent with those of other countries and only needed to be more thoroughly delineated (OSC, 2009). As a result, Staff Notice NR 51-333 was published in 2010 to provide additional guidance on the items to be disclosed under NI 51-102. The fact remains that debate was far less heated in Canada, possibly explaining why the Canadian regime resulted in lower levels of normativity than the French laws.

Our study challenges accountants' perspective whereby market mechanisms, such as stock exchange disclosure requirements, are more effective than laws in increasing the quantity of environmental reporting (ACCA, 2013). This position, adopted by the Association of Chartered Certified Accountants (ACCA), is based on the argument that laws mainly require companies to meet a minimum standard, while market mechanisms give companies the latitude to stand apart by exceeding established standards. Our study shows that Canadian firms do not meet even

minimum standards. To pursue the matter further, or even challenge our findings, future research could compare normativity levels of parliamentary and market-based regimes in other countries.

Cultural factors could also explain why French firms tend to comply with legislation/regulations better than Canadian firms. As Delbard (2008) pointed out, France's uncertainty avoidance score is one of the highest in the world. In fact, Reay, Beatty, Dick and Miller (2013) report that France's score is 86 while Canada's is 48 (mean of 68 for 45 countries). As suggested by Hofstede (1984), a high uncertainty avoidance score indicates a society that strives to reduce uncertainty through regulation. Future research could examine the role of cultural factors in helping various regimes lead to normativity in environmental reporting.

Our findings build on Bebbington et al. (2012), who suggested that non-law regimes can lead to normativity. We found that non-law regimes can act in combination with regulations to trigger environmental reporting. Our analysis shows that Canadian firms more than doubled their environmental disclosures by conforming to some aspects of the GRI framework. French firms also increased their level of disclosure by incorporating certain features of the GRI framework into their disclosures in addition to information required by legislation. The marginal impact of GRI disclosure is significant for both countries. This suggests that a multiple-regime approach can be productive in improving corporate environmental reporting practices. Normativity can never be absolute under any single regime, and the solution might lie in compounding institutional pressures.

We contribute to environmental reporting research by demonstrating that institutional legitimacy theory can help interpret issues in the field. Although previous research relied on a strategic legitimacy interpretation, an institutional view can explain why firms make environmental disclosures. Laws, as well as the GRI's well-respected guidelines – both of which represent the expectations of various audiences in terms of environmental reporting – have prompted French firms to increase their environmental disclosures over time. Contrary to predictions from a strategic legitimacy standpoint, firms that operate in environmentally sensitive sectors do not disclose significantly more information than others. Future research could challenge or confirm our findings by replicating our study using a larger sample of French firms or firms in other countries that use parliamentary legislation to mandate disclosure.

In Canada, since disclosure trends did not differ whether firms operated in environmentally sensitive sectors, strategic legitimacy fails to explain their environmental reporting practices. However, institutional legitimacy theory partially explains these practices given that securities exchange regulations, in combination with the GRI guidelines, were shown to contribute to a significant increase in environmental disclosure; in the end, however, environmental disclosure levels still remain fairly low.

Although French and Canadian firms significantly increased their environmental disclosures in response to institutional pressures, the level of substantive disclosure remains very low. In this type of disclosure, firms explain how their environmental reporting initiatives positively affect environmental issues. This suggests that French legislation, Canadian stock exchange regulations, and the GRI voluntary framework tend to foster descriptions rather than tangible impacts. The

very low substantive disclosure score that we obtained supports the body of critical research that has suggested that the prevailing institutionalized patterns “are insufficient conditions for organizations contributing to the sustaining of the Earth’s ecology” (Milne & Gray, 2013, p. 13). Substantive environmental disclosure could be a productive area for future investigation, and specifically for investigating the following questions: How could legislation be improved to trigger substantive disclosure? Which country is most successful in triggering substantive disclosures? What are the characteristics of firms that provide more substantive disclosures?

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APPENDIX I: Scoring Grid

Item	GRI	NER	GRE2	Cda	Item	Value
STRATEGY AND ANALYSIS						
1	1.1				CEO statement about relevance of sustainability	0-1
2	1.1				Effect of broader trends (macroeconomic, political)	0-1
3	1.1				Views on performance vs. targets	0-1
4	1.1				Main challenges/targets for next year	0-1
KEY IMPACTS, RISKS, AND OPPORTUNITIES						
5	1.2			3	Risks and opportunities / Impacts on sustainability/effects on stakeholders	0-1
6	1.2				Approach (policies) to prioritizing/facing risks and opportunities	0-1
7		4b	9	7b	Specific risks the policies are designed to address	0-1
8	1.2				Processes in place to address performance and changes (perf. evaluation)	0-1
9				4	Risks categorized: litigation, physical, regulatory, reputation, bus. model	0-1
10				1	Impacts of env. trends/uncertainties on revenues, expend. and cash flows	0-2
11				2	Impact of env. trends/uncertainties on financial condition and liquidity	0-2
12				8	(Potential) Impact of policies (see 6 and 7) on operations (cost if quant. avail)	0-2
13	1.2				Table: Targets, performance, lessons learned for reporting period	0-1
14	1.2				Targets for next year related to risks and opportunities	0-1
ORGANIZATIONAL PROFILE, ASSURANCE, AND AWARDS						
15	3.13	1	6		Policy and current practice for seeking assurance (implicit when assurance report)	0-1
16			4-5		Assurance on environmental information and justification of exclusions	0-1
17	2.1				(Sustainability) awards (or inclusion in sustainability index)	0-1
GOVERNANCE, COMMITMENTS, AND ENGAGEMENT						
Governance						
18	4.1	2	7	5	Governance structure and any responsibility for environmental performance	0-1
19	4.5				Linkage between compensation and environmental performance	0-1
20	4.8				Internal statements, mission, values, codes of conduct, principles	0-1
21	4.9			6	Procedure for overseeing management of environ. performance	0-1

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Item	GRI	NER	GRE2	Cda	Item	Value
					and risk	
Commitments to external initiatives						
22	4.12				Adherence to externally developed environmental certification charters or principles	0-1
23	4.13				Membership in associations	0-1
24	Gen		1		Adoption of GRI (or other) reporting guidelines	0-1
Stakeholder engagement						
25	4.14				List of stakeholder groups engaged by the organization	0-1
26	4.15				Basis for identification and selection of stakeholders with whom to engage	0-1
27	4.16		3		Approaches to stakeholder engagement	0-1
28			2		Partnership with or sponsorship of individuals or organizations	0-1
29	4.17				Key topics and concerns that have been raised / organization response	0-1
MANAGEMENT APPROACH TO MATERIAL ENVIRONMENTAL ASPECTS						
30	5	4a	9	7A	Management approach for material environmental aspects (general)	0-1
31	5	3	8		Training on and awareness of environmental aspects	0-1
32	5				Procedures related to monitoring and corrective or preventive actions	0-1
ENVIRONMENTAL PERFORMANCE INDICATORS						
Materials						
33	Gen	19	24		Management approach to materials	0-1
34	EN1	18	23		Materials used by weight or volume	0-1
35	EN2				Percentage of materials used that are recycled input materials	0-1
Energy						
36	Gen	5	10		Management approach - energy (measures to improve energy efficiency)	0-1
37	EN3/4	6	11		Direct energy consumption by primary source (GRE2/NER: Energy consumption)	0-1
38	EN5				Energy saved due to conservation and efficiency improvements	0-1
39	EN6				Initiatives – energy-efficient products and services and energy savings	0-1
40	EN7				Initiatives to reduce energy consumption and reductions achieved	0-1
Water						
41	Gen				Management approach to water	0-1
42	EN8	7	12		Total water withdrawal by source (GRE2/NER: Water	0-1

APPENDIX I: Scoring Grid

Item	GRI	NER	GRE2	Cda	Item	Value
					consumption)	
43	EN9				Water sources (surface, ground, waste, municipal) significantly affected by water withdrawal	0-1
44	EN10				Percentage and total volume of water recycled and reused	0-1
45			13		Water supply according to local constraints	0-1
Biodiversity						
46	EN14	8	14		Management approach to biodiversity	0-1
47	EN11				Location and size of land adjacent or near protected or high diversity areas	0-1
48	EN12				Description of impacts on biodiversity in these areas	0-1
49	EN13				Habitats protected or restored	0-1
50	EN15				Number of IUCN Red List (or national list) species in habitats affected	0-1
Emissions, effluents and waste						
51	Gen	9	15		Measures to prevent, reduce and repair air discharges	0-1
52	Gen	12	18		Measures to prevent, reduce, and repair water discharges	0-1
53	Gen	13	19		Measures to prevent, reduce, and repair ground discharges	0-1
54	Gen	14	20		Measures to prevent, recycle, and eliminate waste	0-1
55	EN16/17	10	16		Total direct and indirect greenhouse gas emissions by weight	0-1
56	EN18				Initiatives to reduce greenhouse gas emissions and reductions achieved	0-1
57			17		Adaptation to climate change consequences	0-1
58	EN19				Emissions of ozone-depleting substances by weight	0-1
59	EN20	11			NOx, SOx, and other significant air emissions by type and weight	0-1
60		15			Air and ground emissions of substances that contribute to acidification, eutrophication, and photochemical pollution	0-1
61		16			Air and water emissions - toxic metals, carcinogenic and mutagenic substances	0-1
62	EN21				Total water discharge by quality and destination	0-1
63	EN22				Total weight of waste by type and disposal method	0-1
64	EN23				Total number and volume of significant spills	0-1
65	EN24				Weight of hazardous waste transported, imported, exported, or treated	0-1
66	EN25				Information on water bodies and habitats affected by water discharges	0-1
67		17	21		Consideration of noise pollution	0-1
68			22		Consideration of any other specific form of pollution	0-1

APPENDIX I: Scoring Grid

Item	GRI	NER	GRE2	Cda	Item	Value
69			25		Land use	0-1
Products and services						
70	EN26				Initiatives to mitigate environmental impacts of products and services	0-1
71	EN27				% of products sold and packaging materials reclaimed by category	0-1
Compliance						
72	Gen	20			Management approach to ensure compliance with legislation	0-1
73	EN28	21			Total fines and non-monetary sanctions	0-1
74		22	26	9	Amount of environmental liabilities	0-1
75				10	Disc. commitments, events and uncertainties (ARO) likely to affect business	0-1
76				11	Amount of Asset Retirement Obligation (ARO)	0-1
77				12a	Disc. ARO (remediation costs, legislation compliance costs, current and future impact of costs) (value of 1 per element)	0-3
78				12b	Disc. ARO (asset, five-year payments, ARO analysis as accounting estimate) (value of 1 per element)	0-3
Transport						
79	EN29				Environmental impact of transporting products, goods, and materials	0-1
Overall						
80	EN30	23		13	Environmental protection costs (expenditures) and investments by type	0-1
81				14	Anticipated trends in costs related to environ. requirements	0-1
82				15	Potential impact of these costs on financial and operational results	0-1
Other						
83			27		Consideration of environmental issues in purchasing policy	0-1
					Total overall score (max 90)	
					GRI total score (max 61)	
					GRE2 total score (max 27)	
					NER total score (max 24)	
					Canadian regulations total score (max 24)	

GRI : Items from version 3.1 of GRI guidelines

NER: Items required by the New Economic Regulations Act

GRE2: Items required by Grenelle II Act

Cda: Items required by Canadian regulations

APPENDIX II: Firm Characteristics for 2013

	Assets (\$ million)	Debt/ assets	ROA	Sustainability Report	Use of GRI	Duality	% Independent Administrators	% Women Administrators	Cross- listed
<u>French firms</u>									
Air France	37,257	.91	-.04	1	1	1	.43	.36	1
Air Liquide	36,776	.57	.09	1	1	0	.82	.18	0
Alcatel	32,089	.83	-.04	1	1	1	.91	.27	1
Cap Gemini	14,913	.56	.06	1	0	1	.67	.17	0
Casino	60,332	.63	.06	1	0	1	.43	.21	1
Danone	45,325	.65	.06	1	1	1	.62	.23	1
Dexia	326,713	.98	.00	0	0	0	.33	.11	1
EDF	376,342	.85	.03	1	1	1	.33	.28	0
Eiffage	40,120	.90	.04	0	0	1	.36	.27	0
Eramet	8,734	.49	-.06	0	1	1	.35	.18	0
Eurotunnel	10,673	.66	.04	1	1	1	.18	.36	1
France Télécom	125,788	.69	.06	1	1	1	.47	.20	1
Lafarge	54,333	.55	.03	1	1	1	.60	.20	0
Lagardère	12,211	.65	.17	1	1	0	1.00	.41	0
LVMH	81,590	.50	.10	1	0	1	.50	.22	1
Michelin	31,775	.53	.08	1	1	0	.88	.25	0
Nexans	8,003	.71	-.03	0	0	1	.57	.29	0
Sanofi	140,783	.41	.05	1	1	0	.69	.19	1
Suez	39,140	.74	.05	1	1	0	.24	.24	1
Total	254,251	.57	.11	1	0	1	.80	.33	1
<i>Mean (Std dev.) or N</i>	86,857 (108,003)	.67 (.16)	.04 (.06)	16	13	14	.56 (.24)	.25 (.08)	11
<u>Canadian firms</u>									
Atco	16,010	.62	.08	0	0	0	.80	.20	0
Bank of Montreal	537,299	.94	.02	1	1	0	.92	.31	1
Blackberry	13,540	.28	-.09	1	1	0	.83	.17	1
Bombardier	31,230	.92	.03	1	0	0	.67	.20	0

APPENDIX II: Firm Characteristics for 2013

	Assets (\$ million)	Debt/ assets	ROA	Sustainability Report	Use of GRI	Duality	% Independent Administrators	% Women Administrators	Cross- listed
CGI	10,879	.63	.07	0	0	0	.71	.14	1
Gildan	2,101	.16	.17	1	1	0	.89	.11	1
Int Forest Products	824	.37	.06	0	0	0	.88	.00	0
Just Energy Group	1,529	1.09	.45	0	0	0	.75	.13	0
Loblaw	20,759	.66	.06	1	0	1	.64	.14	0
Martinrea	1,925	.71	.05	0	0	0	.88	.00	0
Methanex	4,375	.54	.12	1	0	0	.82	.18	1
Nuvo	22	.45	-.45	0	0	1	.50	.10	1
Quebecor	9,016	.81	.03	0	0	0	.89	.33	0
Saputo	5,193	.56	.14	0	0	0	.82	.27	0
Semafo	604	.11	.01	1	0	0	.71	.00	1
SNC-Lavalin	11,772	.83	.02	1	1	0	.92	.25	0
Suncor	78,315	.47	.09	1	1	0	.93	.14	1
Telus	21,566	.63	.10	1	1	0	.92	.08	1
Westjet Airlines	4,143	.62	.10	0	0	0	.85	.08	0
Westport Innovations	523	.34	-.36	1	1	0	.89	.22	1
<i>Mean (Std dev.) or N</i>	38,581 (118,716)	.59 (.26)	.03 (.18)	11	7	2	.81 (.11)	.15 (.10)	10
p (ANOVA or Chi ²) country comparison	.19	.23	.85	.09	.06	.00	.00	.00	.75