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Environmental expenditure disclosure strategies in a regulated context

Stratégies de publication des dépenses environnementales dans un cadre réglementaire

Florence DEPOERS* and Tiphaine JÉRÔME**

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Abstract

Environmental expenditures (EE) are used to assess and monitor corporate environmental performance. Legislators are aware of the informative potential of this indicator, and listed firms are required to disclose their EE. Our research draws on legitimacy theory to identify and explain the strategic responses of a sample of French listed companies to the requirement to disclose this item. A content analysis identifies three different strategies: no response, a “facade” response, and a substantive response. Tests reveal several determinants of these strategies: environmental criticism, the existence of SRI shareholders, and the business sector. Our research contributes to both academic and regulatory debates on standardization of environmental disclosures, by revealing and explaining how firms behave in response to the law.

Résumé

Les dépenses environnementales (DE) d'une société constituent un outil d'évaluation et de suivi de sa performance environnementale. Le potentiel informatif de cet indicateur n'a pas échappé au législateur qui oblige les sociétés cotées à publier leurs DE. Notre recherche mobilise le courant de la légitimité pour identifier et expliquer les stratégies de réponse à cet item sur un échantillon de sociétés cotées françaises. Une analyse de contenu permet d'identifier trois stratégies : la non-réponse, la réponse de façade et la réponse substantielle. Les tests montrent plusieurs facteurs explicatifs associés à ces stratégies : la critique environnementale, l'actionnariat ISR et la sensibilité du secteur d'activité. Notre recherche contribue aux débats académiques et réglementaires sur la normalisation de l'information environnementale en révélant et expliquant les comportements des acteurs face à la loi.

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MOTS-CLÉS : DÉPENSES ENVIRONNEMENTALES – LÉGITIMITÉ – STRATÉGIE – PUBLICATION – LOI – VISIBILITE MEDIATIQUE- INESTISSEMENT SOCIALEMENT RESPONSABLE – RESPONSABILITE SOCIALE DE L'ENTREPRISE – INFORMATION ENVIRONNEMENTALE

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1. Introduction

Environmental expenditures (EE) are one of the range of indicators that can be published by listed firms to report the environmental impacts of their activities to investors and other interested parties. The information content of EE has been highlighted several times in the literature. Taking a financial perspective, disclosing EE provides information on two essential points. First, publication of the amount of EE shows the reality and scale of the financial efforts made by the firm for the environment. Second, explanation of EE reveals the nature of the efforts made, i.e. the environmental issues faced by the firm (waste management, carbon policy, etc) (de Villiers and van Staden 2010; Richard 2012). EE are thus part of the field of the firm's environmental performance monitoring and evaluation tools. As such, they are of interest to a number of different actors: the firm's stakeholders (for example, the State, environmental associations, etc.), and also investors, for whom EE are an important factor in economic decisions (Clarkson *et al.* 2004; Johnston 2005; Silva-Gao 2011).

The legislator has noted the informative potential of EE disclosure. Since 2001, France's law on New Economic Regulations (the NRE law) has required listed firms to disclose

“expenses incurred to prevent the environmental consequences of the firm’s activity”¹ in their management report. The objective of this law is to increase transparency and thus encourage firms to improve practices. The idea is that firms are likely to pay more attention to their EE when they must publish them. Delbard (2008) observes that to achieve its objective, the law compels “[...] companies to provide transparent and comprehensive information to all their stakeholders [...]” (p. 400) about their social and environmental impacts. To date, the response to EE disclosure requirements has not yet been explored in the literature.

So far, three studies have analyzed application of France’s NRE law by listed firms, but they concern the entire set of mandatory social and environmental disclosures. The earliest is by Damak-Ayadi (2010), who conducts a longitudinal descriptive study of the volume of social and environmental disclosures, identifying different types of disclosure: mandatory versus voluntary and quantitative versus narrative, for example. Another study, by Chauvey *et al.* (2015), examines changes in the volumes and quality of CSR (Corporate Social Responsibility) disclosures between 2004 and 2010 using a score based on five criteria: the relevance (choice of themes), comparability, verifiability, clarity and neutrality of the information disclosed. Finally, a study by Chelli *et al.* (2014) analyzes firms’ compliance rate with all disclosure items required by the NRE law over the period 2001-2011.

While the conclusions of these three studies shed light on firms’ overall response to the law, there is as yet no study specifically of EE disclosures. A focus on EE is justified by the item’s specific status as both environmental and accounting information, and its informative content, which has often been highlighted by the literature (see above). From a methodological point of view, focusing a study on a single item provides a finer-grained analysis of firms’ responses to the law than is possible with more general studies. This study aims to fill these two gaps in the research by addressing two questions: how do firms report their EE? What are the determinants of their responses in relation to the chosen theoretical framework?

The objective here is to identify and explain strategies for responding to the NRE law’s EE disclosure requirement. This research refers to legitimacy theory, which sets accounting in a sociopolitical framework and considers the dissemination of environmental information as a process that establishes and maintains organizational legitimacy. In the institutional approach to legitimacy, firms with legitimacy are firms that respect the laws of the organizational field

¹ In this article all English translations of laws and quotations originally in French are the authors’ own.

(Ruef and Scott 1998). But studies of compliance with the NRE law have never revealed more than partial compliance (Igalens 2004; Quairel 2004). Rather than finding automatic, unquestioning submission to the law, several authors emphasize that some firms deliberately react and resist. Firms' responses to the law are not binary, but heterogeneous. In particular, between the strategies of full compliance or not responding at all, intermediate strategies exist that enable firms to resist the law (Oliver 1991; Criado-Jiménez *et al.* 2008; Pedersen *et al.* 2013).

Initially, we draw on the work of Oliver (1991), Criado-Jiménez *et al.* (2008) and Pedersen *et al.* (2013) to posit the existence of different types of response to EE disclosure requirements, from making no response to making a substantive response. Intermediate response strategies are called "facade" responses. They oscillate between the firm's desire to gain legitimacy by responding to the law, and its desire to keep some control over its disclosure policies (Criado-Jiménez *et al.* 2008).

Next, we draw on the strategic approach to legitimacy to explain the various strategies for responding to the law. This approach considers disclosure of EE a voluntary decision by the manager. We hypothesize that certain firm characteristics, particularly the environmental criticism received, the fact of having shareholders committed to socially responsible investing (SRI), and the business sector, determine their response strategy to the law.

Our sample consists of the 60 largest listed companies on the Paris stock exchange (CAC Large 60) for the period 2009 to 2011, as reported in documents published in 2010, 2011 and 2012, giving a total of 180 observations. The study period covers the last three years of application of France's NRE law (which was amended in 2012 by a new law, the "Grenelle 2" environmental law). This period was a phase of maturity for the NRE law. This is a good time for studying its application as to assess the impact of the law, it is necessary that firms should have had several years of experience in non-financial reporting (Delbard 2008).

The empirical findings confirm the heterogeneity of response strategies. Some firms try to "escape" the NRE requirements, or ignore them. Overall, content analysis of corporate disclosures identified three types of response by CAC 60 firms: the substantive response, the "facade" response and the non-response. The substantive response means disclosing an explicit amount of EE. The facade response covers all tactics intended to maintain the firm's legitimacy, while not actually providing users with the regulatory information. Finally, the non-response means the firm says nothing.

Empirical tests highlight several factors that can explain firm behavior: environmental criticism, SRI shareholders, and the sensitivity of the business sector. More specifically, the results of tests linking the type of response with other variables of interest shed new light on managers' motivations. Firms that are criticized by environmental associations have a greater tendency to respond superficially to the EE disclosure requirement, while firms with the largest proportion of SRI shareholders may use either the substantive response or the facade response. Facade responses are preferred by firms in sensitive business sectors, as a way of keeping some margin for maneuver in their reporting while giving the impression of responding to the law. Overall, the various response types observed show that companies can strike a balance between the search for legitimacy and the risks and benefits associated with disclosure or non-disclosure of their EE.

This article makes three contributions to the literature. It is the first French study to show a sliding scale of responses to a requirement by the NRE law, based on a relevance criterion. Through its detailed analysis of the response strategies to a specific disclosure required by this law, this study extends the results found by Chelli *et al.* (2014), who showed that the NRE law led to an increase in environmental disclosures over the period 2001-2011. We show that certain firms simply give a "facade" response that actually deprives stakeholders of regulatory information. Firms thus use two strategies to achieve legitimacy: a facade response or a substantive response. This study also makes a more general contribution to the literature on environmental disclosures. We show that to study the decision to disclose an item of environmental information (required or otherwise), it is necessary to take into consideration the way the indicator reports on environmental aspects of the firm's business.

Second, this study provides new explanations for environmental disclosures. A link is established between criticism from environmental NGOs (Non-Governmental Organizations) and the behavior of listed firms. The influence of environmental NGOs on corporate practices is generally assumed, without being tested (Thijssens *et al.* 2015) and to the best of our knowledge it has never been tested in connection with EE disclosures. The introduction of SRI shareholders as an explanatory variable for environmental disclosures is also a first, as past studies on the topic have focused on ownership dispersion.

Third, this study has practical implications. By bringing in a "soft law", the lawmaker initiated new reporting practices but the results show that in one third of the cases observed, the

law only received a facade response from firms². The results can thus be of use to standard-setters by providing food for thought on the EE indicator, particularly the way it is enshrined in the law. The comparative study by Bebbington *et al.* (2012) reveals that the clarity of the law, i.e. setting clear, precise rules, is a necessary prerequisite for its application; but this is lacking in the French setting.

The rest of the article is organized as follows. The second section is devoted to analysis of the study's regulatory context. The third section presents the chosen theoretical framework and develops the hypotheses tested. The fourth section describes the methodological approach used. The results are presented in section 5. The discussion, the contributions of the article and avenues for further research are all in the conclusion.

2. Background to the study

In France, corporate environmental reporting obligations were introduced by the NRE law (law number 2001-420 of May 15, 2001) and its application decree of February 20, 2002³. Article 116 of this law requires all companies listed on a regulated market to publish information in their management report on how they are dealing with the social and environmental consequences of their activities. The law's application decree requires disclosure of the "*expenses incurred to prevent the consequences of the firm's activity for the environment (and the objectives set for subsidiaries outside France)*"⁴. The NRE law took effect for financial years beginning on or after January 1, 2002.

The reasoning behind article 116 was stated in a letter of February 14, 2001 from Dominique Voynet, France's Minister for local development and the environment, which stated: "*By standardizing social and environmental reporting in a regulated market, this move aims for transparency and information for all stakeholders (employees, public opinion,*

² Antheaume (2004) notes that at the time, actors in the business world made no objections to article 116 of the NRE law. There was no reaction to article 116 when it was initially introduced as an amendment to the law, because its opponents thought the application decree would never be promulgated.

³ Ten years after the first impetus given by the NRE law, French lawmakers enacted the "Grenelle 2" law, which, among other aims, intends to improve environmental transparency in companies. Concerning the financial item studied here, this new law is a step backwards, as it requires the board of directors or supervisory board of listed companies, in their management report (article R225-105-1 introduced by decree n°2012-557 of April 24, 2012), to state the "*resources devoted to prevention of environmental risks and pollution*" in presenting their general environmental policy. The shift in terminology, from "expenditures" to "resources", now means that firms are no longer obliged to report a monetary item.

⁴ This article discusses "environmental expenditures" as an item that does not include provisions. The decree treats the amount of environmental provisions as a separate item. The case of environmental provisions has been studied for France by Maurice (2012).

potential investors) for a better assessment of the sustainable development approach taken by each firm”.

By including EE reporting in the application decree, the law confirmed the role played by such expenditures in assessing and monitoring firms’ environmental performances, since they reflect positive action by the firm for the benefit of the environment (e.g. environmental investments, clean-up costs, environmental certification costs, research and development expenses, etc). Observation of these expenses over time makes it possible to monitor the environmental efforts made, and ensure that environmental concerns are incorporated into the firm’s policies⁵.

The law put new pressure on firms with the EE indicator, which enables any stakeholder to assess and monitor the corporate environmental performance. The transparency imposed by the law should thus translate into better corporate environmental practices. This concern is also found at European level, in a European Commission recommendation: “*An enhanced attention to financial aspects could contribute to achieving the goals of the programme (Fifth environmental action programme); ensuring that environmental expenditures and risks are taken into account could increase the company's awareness of environmental issues*” (2001).

There are two essential limitations to France’s NRE law. First, as Capron and Quairel (2012) note, the law and its application decree do not constitute a technical standard, since the content of the required EE disclosure is not specified⁶. It is more like a communication guidance framework, to be referred to when preparing the management report. The decree provides no explicit rule about the content of the expenditures, the reporting obligations or the reporting scope. In other words, the law leaves managers considerable leeway regarding the scope and nature of its EE disclosure. The information required by the NRE law can thus be considered as mandatory disclosures with unregulated content. Second, Chelli *et al.* (2014) note the absence of sanctions for non-compliance with the law, and the lack of control systems. This law is thus part of a French tradition of “soft law” (known in French as *lois d’orientation*).

There have been several assessments of implementation of the NRE law. For instance, audit firms have published annual studies and the French government commissioned a study by

⁵ For example, research and development expenses can be an indicator of the nature of the problems a firm seeks to plan ahead for, and the financial effort it is prepared to make to do so.

⁶ Conceptual and technical difficulties in calculating and interpreting the EE indicator are discussed in Richard (2012) and a publication by France’s order of chartered accountants (*Ordre des Experts-Comptables*) (2008).

three organizations (ORSE, EpE and Orée) in 2004. The French financial market regulator *Autorité des Marchés Financiers* (AMF) also released a report on social and environmental responsibility disclosures by listed firms. In the academic literature, the study by Damak-Ayadi (2010) on application of the NRE law by CAC 40 firms in the period 2002-2005 shows that firms are reluctant to disclose environmental information of a financial nature. Over the period, the average number of sentences responding to the EE disclosure requirement is 2.11 (tending to decrease over the four years). There is to date no detailed study of this financial item.

3. Theoretical framework and development of research hypotheses

3. 1. Environmental disclosures and organizational legitimacy

Legitimacy theory is currently one of the most frequently-used theories in research concerning the reporting of environmental information. This theory places the organizations in a sociopolitical framework, and considers that environmental reporting is a way for managers to establish and maintain their organizational legitimacy.

Legitimacy is defined by Suchman (1995, p. 574) as “*a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions*”. Legitimacy theory is based on acceptance of a tacit social contract between civil society and the organization (Brown and Deegan 1998). Acceptance of this contract requires convergence between the social values of the organization and the norms of acceptable behavior within the broader social system to which it belongs. When the two value systems coincide, then there is organizational legitimacy. However, if there is any disparity – real or potential – then the organizational legitimacy is under threat (Dowling and Pfeffer 1975). The fundamental hypothesis is therefore as follows: for successful continuing operation, firms must act within the boundaries of what society identifies as socially acceptable (O'Donovan 2002).

Suchman (1995) distinguishes two approaches to legitimacy: the institutional approach and the strategic approach. The first of these, the institutional approach, sees the firm as a set of fundamental beliefs. In this view, a manager's decisions are founded on the same belief system as his intended audience (Suchman 1995). This approach underlines how important it is for the organization to conform to social rules and values if it is to be considered legitimate. In other words, respect of the law is an essential component of the firm's legitimacy (Ruef and Scott 1998). Laws are presumed to stipulate the terms of the social contract by codifying the

values, norms and preoccupations of civil society. This approach therefore predicts compliance with the obligations of the NRE law, considered as a way for managers to establish and maintain their organizational legitimacy. To verify this, Chelli *et al.* (2014) study application of the NRE law between 2001 and 2011. They observe that this law is the source of the increase in social and environmental disclosures, and deduce that article 116 is an appropriate solution to collective concerns. Chauvey *et al.* (2015) take a more reserved view and show that while CSR disclosures increased in quality and volume between 2004 and 2010, the quality of the information remained low and few firms reported any negative information. Overall, researchers who have analyzed mandatory environmental disclosures, either in or outside France, have all found that the law is not fully applied (Freedman and Stagliano 1995; Larrinaga *et al.* 2002; Criado-Jiménez *et al.* 2008; Vormedal and Ruud 2009; Bebbington *et al.* 2012; Chelli *et al.* 2014).

To explain firms' behavior, researchers use the second approach to legitimacy identified by Suchman (1995) – the strategic approach. This second stream of research on organizational legitimacy is more broadly part of the resource dependence theory (Pfeffer and Salancik 1978). An organization must interact with its social environment to acquire the resources needed for its operation, and ultimately continue to exist. Access to vital resources guaranteeing the continued existence of the firm is a central concern in the strategic approach, while it is a byproduct in the institutional approach (Aerts and Cormier 2009). Research taking the strategic approach considers that legitimacy is a resource that can be controlled by the manager. In other words, managers make a range of operational or strategic choices (particularly their communication choices) to establish and maintain their organizational legitimacy and achieve the economic objectives set (Dowling and Pfeffer 1975; Ashforth and Gibbs 1990). Legitimacy is thus a resource that is drawn from the firm's environment and used by the manager to increase organizational efficiency.

3. 2. Research hypotheses

3. 2. 1. Identification of response strategies to the EE item

While the institutional approach suggests a certain passiveness in the way organizations follow the laws of the organizational field, Oliver (1991) stresses that organizations must be considered reactive, and this is facilitated by the vagueness of the NRE law (see above). Certain firms might simply ignore legal requirements. Others could try to reconcile two aspirations: gaining legitimacy by respecting the law, which is an attitude that results from the institutional logic,

but also resisting the law and ultimately developing responses that have symbolic value, in the strategic logic (Patten 2005; Alciatore and Callaway Dee 2006; Llana *et al.* 2007). The search for legitimacy does not necessarily induce a dichotomous approach (compliance vs. non-compliance). In line with the propositions of Oliver (1991) and Criado-Jiménez *et al.* (2008), we posit the existence of intermediate strategies, between straightforward compliance with the law (i.e. disclosure of EE) and non-compliance (silence). In other words, following Oliver (1991) and Criado-Jiménez *et al.* (2008), there appear to be three types of response strategies to the EE item disclosure required by the NRE law: the substantive response, the facade response and non-response.

3. 2. 2. Determinants of response strategies

In the strategic approach, firms draw the legitimacy needed for their continued existence from their environment. The response to the NRE law is no longer unquestioning and automatic, but the subject of a strategic approach. Only firms that consider it in their interest to disclose an amount of EE will develop a response to the law. The strategic approach can thus introduce contingency factors into analysis of the determinants of disclosure strategy. Three hypotheses can be formulated from this approach.

Hypothesis 1: environmental criticism

According to legitimacy theory, managers disclose environmental information to manage pressures from their environment. The higher these pressures, the more inclined managers are to communicate on their socially acceptable behavior, in order to appear legitimate (Hooghiemstra 2000; Aerts *et al.* 2008). Some of the pressures experienced by organizations originate in criticism from environmental associations. These associations are well-known and have high credibility in environmental matters (Bourg *et al.* 2006; Burchell and Cook 2013a). Action and criticism by environmental associations thus have widespread influence with environmental campaigners, but also with the general public, whose opinion they help to alert and shape (Ollitrault 2008; Dahan and Aykut 2012).

Environmental criticism of a firm by environmental associations expresses a breach of the social contract, with the potential to lead to sanctions from stakeholders wanting to review the terms of their contract with the firm. For example, customers may turn to more environmentally-friendly competitors. Pressure groups campaigning for protection of the environment are therefore a very real concern for managers (Cormier *et al.* 2004). According

to Joutsenvirta (2011), repeated pressure from environmental NGOs leads managers to search for legitimacy, which is a source of acceptance by society.

Under fire from NGO criticism, firms find themselves particularly exposed, and this should encourage managers to provide clear, detailed information on their EE. The objective is to respond to the criticism by sending a strong signal of commitment to environmental matters, in order to engage in dialogue with NGOs (Burchell and Cook 2013b, 2013a). The manager's objective may also be to deflect stakeholder attention away from the issues targeted by the criticism. These arguments lead us to hypothesize that criticized firms should prefer a substantive response, i.e. disclosing figures and explanations for the firm's EE. Our hypothesis is the following:

Hypothesis 1 (H1): Firms under criticism by environmental associations favor a substantive response strategy to EE disclosure requirements.

Hypothesis 2: socially responsible investor (SRI) shareholders

The firm's continued existence depends on its ability to deal with demands from various groups (Dowling and Pfeffer 1975; Pfeffer and Salancik 1978; Suchman 1995). These groups will assess the organization's efficiency, and consequently its legitimacy (Déjean and Oxibar 2003). Organizational legitimacy thus partly depends on the responses from actors who are members of the firm's environment.

Socially responsible investors thus make up an important group of actors for listed companies. First, firms may want to avoid cutting themselves off from this fast-expanding type of financing (Guay and Doh 2004; McLaren 2004; Arjaliès *et al.* 2013). Second and more importantly, investment by SRI funds in a firm's capital is an indication of its environmental respectability, as the firm has been "selected" by the fund⁷. The existence of SRI shareholders is thus a signal of legitimacy to other stakeholders. These two arguments lead us to consider SRI funds as important actors for firms (Neu *et al.* 1998; O'Donovan 2002). In the strategic perspective, the managers' objective is thus to attract socially responsible investors and secure contributions from them.

⁷ As Capron and Quairel-Lanoizelée (2010, p. 59) comment, "overall, the actual proportion of 'responsible' shareholders remains very low and they still have modest financial power; their presence in the media is much greater than their market share; they undeniably play a role in listed firms' communication policies and the awareness of the importance of non-financial criteria in performance assessment."

SRI funds assess and select possible firms for investment partly on the basis of the environmental information they publish. Cho *et al.* (2012) show the vital importance of disclosures to enhance firms' reputation. Hockerts and Moir (2004) and McLaren (2004) consider that SRI funds are demanding more and more information. As a result, to attract and retain such funds, managers should not only respond to the EE disclosure requirement, but, given the expertise and information demands of SRI funds, respond to it as relevantly as possible. According to Aerts and Cormier (2009), only disclosure of figures is likely to increase a firm's environmental legitimacy. Having SRI fund shareholders should therefore be an incentive for substantive responses to the NRE law. These arguments lead to the following hypothesis:

Hypothesis 2 (H2): The more SRI shareholders a firm has, the more firms favor a substantive response to EE disclosure requirements.

Hypothesis 3: sensitivity of the business sector

Firms belonging to environmentally sensitive sectors are under extensive public pressure simply by virtue of the nature of their activities. Sensitive sectors have negative connotations and are thus particularly exposed to criticism. Significant business sector effects have been highlighted by several authors in a voluntary environmental disclosure setting (Cowen *et al.* 1987; Patten 1991; Roberts 1992; Hackston and Milne 1996; Walden and Schwartz 1997; Bewley and Li 2000; Archel and Lizarraga 2001).

The search for legitimacy is intensified in sensitive sectors. It could therefore be expected that firms in such sectors will comply with the NRE law's disclosure requirements and report their EE. EE disclosure is considered as a favorable, tangible signal of the firm's environmental commitment, a kind of low-cost "insurance policy" against damage to its legitimacy (Germain and Trébuq 2004).

Yet firms could be reluctant to reveal too much information about their environmental policies through EE disclosures (for example drawing attention to previously unnoticed pollution). In some cases, disclosures could work against the firm, and have the opposite effect to what was intended. Bansal and Kistruck (2006) also consider that too much transparency could be prejudicial to the firm and become a trap, limiting the manager's room for maneuver. Gaa (2010) argues that certain information can legitimately remain confidential.

To avoid such potential prejudice (Verrecchia 1983), firms may provide simply a facade response to the EE disclosure requirement, seeking to send a minimum signal and complying

with the law in appearance only. For example, disclosures could focus on the nature of environmental efforts without reporting any actual amounts that could be used to assess the scale and reality of the financial efforts made. This leads to the following hypothesis:

Hypothesis 3 (H3): Firms that belong to sensitive business sectors favor a facade response strategy to EE disclosure requirements.

4. Methodological design

4. 1. Sample

This study concerns the 60 largest listed firms on the Paris stock exchange (CAC Large 60) over the period from 2009 to 2011 (as reported in the documents published in 2010, 2011 and 2012), or a total of 180 initial observations⁸. The choice of this study period is justified by a change in regulations: these three years were the last three years of application of the NRE law. Since financial years beginning on or after December 31, 2011, listed companies have been subject to the “Grenelle 2” environmental law requiring disclosure of resources, rather than expenditures. Studying the CAC 60 firms is justified by the size and visibility of this index. No business sector was left out of this study, as the NRE law does not exclude any sector since any firm can make efforts to protect the environment at its own level⁹. This argument is reinforced by a study by Déjean and Martinez (2009) which show that there is no significant difference in France between the volume and type of voluntary environmental disclosures by polluting and non-polluting firms.

4. 2. Methodology

4. 2. 1. Content analysis

To identify listed firms’ disclosure strategies, the content analysis methodology was chosen (Krippendorff 1980) and applied to the reports published by the sample firms. Content analysis is defined as “*a set of communication analysis techniques using systematic, objective descriptions of the content of messages, to obtain indicators for inference*” (Bardin 2003, p.43).

⁸ It was impossible to collect the documents for one firm for 2009. This reduced the initial sample size and resulted in tests concerning 179 observations.

⁹ All organizations can take positive action for the environment. One example is a bank that is included in environmental rating indexes, or an insurance company that has property and plant classified as generating high pollution.

To meet the objectives of our study, the content of disclosures was analyzed and classified, following the work of Oliver (1991) and Criado-Jiménez *et al.* (2008), into three categories: the substantive response, by opposition to the facade response, and non-response.

Two coding criteria were used to distinguish these three categories. The first was the presence or absence of EE disclosures in the firms' reports. When there is no mention of EE, the firm is classified in the "non-response" category. When the firm responds to the EE disclosure requirement, a second coding criterion was used to separate substantive responses from facade responses. This criterion did not come from the NRE law, which does not require publication of an amount of expenditures and does not state which items or types of expense should be included or excluded. Based on the research by Chauvey *et al.* (2015)¹⁰, we took our second coding criterion from a qualitative feature that makes disclosures useful for investors and stakeholders: clarity. Clarity can be defined as the quality of being easily intelligible, or being precise and well-defined. Clarity is the qualitative feature of disclosures that enables the different user groups to understand and use the information for their decision-making (Chauvey *et al.* 2015). In this study, an EE disclosure is considered to meet the clarity criterion when it includes an explicit figure for expenditures. This position is supported by two main arguments. First, academic studies analyzing the information content of EE always concern an explicit amount of expenditures (environmental investments, for example). Second, the study by de Villiers and van Staden (2010) shows investors' interest in environmental costs, as opposed to qualitative information. The clarity criterion makes it possible to distinguish between a substantive response, i.e. credible disclosures (Mercer 2004) that are comparable and hard to copy by firms that make no environmental efforts (Clarkson *et al.* 2008), and a facade response in which the objective of the disclosure is in fact to avoid giving out any information.

It is also important to highlight that our study only concerns *publication* strategies in response to the EE disclosure requirement; the categorization does not consider the *relevance* of the EE incurred and reported by the firm¹¹.

Using the resulting typology, an ordinal categorical variable *REPOSNE* was created for the type of response. The three modalities of this variable are as follows:

¹⁰ Chauvey *et al.* (2015) use five qualitative information features to measure CSR disclosure quality.

¹¹ The amount of expenditures (is it enough or not?) and their nature (are these the right expenses?) are not assessed, because that would involve judgment on our part.

$$REPOSNE_{it} = \begin{cases} 2 & \text{if firm } i \text{ adopts a substantive response strategy in year } t \\ 1 & \text{if firm } i \text{ adopts a facade response strategy in year } t \\ 0 & \text{if firm } i \text{ adopts a non-response strategy in year } t \end{cases}$$

4. 2. 2. Estimation method

We used a sequential logit regression to test the hypotheses. A sequential logit regression (also known as the Mare model (1981), the sequential response model (Maddala 1983) and nested dichotomies (Fox 1997), according to Buis (2007)), is based on a sequence of logit models (Simnett *et al.* 2009). This specification is appropriate to the framework used in this article because it can be used to assess the factors influencing the choice between non-response and response, and the factors influencing the choice between a facade response and a substantive response. The sequential logit regression used to estimate the coefficients associated with the independent variable takes the form of two logit regressions:

$$\log\left(\frac{\Pr(REPOSNE \geq 1)}{\Pr(REPOSNE = 0)}\right) = \alpha x \quad (1)$$

$$\log\left(\frac{\Pr(REPOSNE = 2)}{\Pr(REPOSNE = 1)}\right) = \beta x \quad (2)$$

where x is a vector of independent variables¹²

α and β represent the coefficient to be estimated.

This sequential model is equivalent to conducting two separate logit regressions on the appropriate subsamples (Powers and Xie 2000; Simnett *et al.* 2009). The total sample is thus not used for both regressions (1) and (2). Regression (1) is estimated on the total sample of firms, while regression (2) is estimated on a subsample of firms: firms that adopted a response strategy.

4. 2. 3. Description of the independent variables

All independent variables are collected from the Thomson Financials database, except for the *CRITIQU_ENV* variable (for environmental criticism), which is collected from several websites. Data are expressed in millions of euros.

Hypothesis H1 concerns the criticism of CAC 60 firms by environmental protection associations. To measure how far certain firms are targeted by criticism, we constructed a dichotomous variable called *CRITIQU_ENV*. This variable is based on one of the favorite

¹² For simplification, the constant is included in the parameters to be estimated.

channels for formal expression used by environmental associations, namely press releases. We analyzed the press releases issued by several environmental associations to raise public awareness. Libaert (2012) states that the main environmental NGOs in the English-speaking world are Friends of the Earth, Greenpeace and the World Wildlife Fund (WWF). Of their three websites, only the WWF site did not list press releases issued over the period of this study. In view of the content of our sample and this restriction, we replaced the WWF with the association France Nature Environnement (FNE), which is very active and influential in France¹³. From the websites of these three associations that represent the French environmental campaigning landscape¹⁴, we collected all press releases issued in 2009, 2010 and 2011 (a total of 1,764 press releases) to see which firms received the most criticism. The *CRITIQU_ENV* variable takes the value of one in a given year when a firm is referred to negatively by at least one of the three associations¹⁵, and zero otherwise.

Hypothesis H2 concerns the existence of SRI shareholders. The influence of these actors is measured through the *INVEST_ISR* variable. The list of socially responsible investors (SRI funds) was taken from the Novethic website. The Novethic research center has issued a label since 2009 to certain funds that take a SRI approach. This “enables investors to identify financial products whose SRI qualities have been verified by external organizations that are independent of the asset managers” (Novethic 2014). The methodology for assessing the funds did not change between 2009 and 2011, and therefore the classification criterion for the study period was stable. 92 funds were awarded the SRI label in 2009; 42 funds in 2010; and 156 funds in 2011. The ownership of the firms in the sample was then analyzed in order to identify firms with shareholders bearing Novethic’s SRI label. The sum of the shareholding percentages is multiplied by 100 to form the *INVEST_ISR* variable.

The third hypothesis concerns the firm’s business sector. A binary variable named *SECTEUR* was created. This variable is equal to one if the firm operates in an environmentally sensitive sector in the financial year concerned, and zero otherwise. Selection of environmentally sensitive industries is based on the classification developed by Cho and Patten

¹³ The FNE is a federation of over 3,000 different organization (Flahault and Robic 2007).

¹⁴ Other, smaller associations also exist in France: *Alliance pour la planète*, *Fondation Nicolas Hulot*, LPO (*Ligue Protectrice des Oiseaux*) and *Ligue ROC* (Boy et al. 2012).

¹⁵ A firm may be targeted by several press releases from one or more associations during a given year; and one press release can target several firms at once.

(2007). High-impact sectors are sectors with a SIC code starting by 13 (oil and gas), 26 (the paper industry), 28 (chemicals), 29 (oil refining) or 33 (metals).

Several control variables were added to the model to reflect potentially significant effects that are unrelated to the three variables of interest: size, ownership concentration, debt and performance.

The first control variable, size, generally has a significant positive effect on the propensity to disclose environmental information. Its inclusion is thus necessary to avoid any problem with omitted variables. A variable named *TAILLE* (size) was added to the model: it is equal to the logarithm of total assets measured at the end of the financial year concerned.

The role of ownership concentration on environmental disclosure practices has been highlighted several times in the literature. Cormier and Magnan (1999), for example, show that firms with dispersed ownership tend to disclose more environmental information in response to stakeholder demands. We posit that firms disclose EE less when ownership is more concentrated. The *CONCENT* variable is a dichotomous variable equal to one if the proportion of shares held by “insiders” is above 20%, and zero otherwise (Cormier and Magnan 2003). As defined by Thomson Financials, insiders are members of the management team and individuals who own at least 5% of the capital.

Warsame *et al.* (2002) and Alciatore and Callaway Dee (2006) show that the firms with the greatest debt disclose more environmental information, to deflect attention from poor debt management. We propose that firms respond more to the law as the level of debt increases. The *DETTE* variable is equal to the medium and long-term debt over total assets multiplied by 100 for the financial year concerned.

The link between economic performance and environmental information has been tested several times in the literature, with mixed results. Jaraite *et al.* (2014) show that the most profitable firms are more likely to incur EE. These expenditures are part of the firm’s strategy to improve corporate performance. Conversely, Neu *et al.* (1998) suggest that the least profitable firms will disclose more environmental information to legitimize their activity, and this is demonstrated by their tests. We propose to test the link between economic performance and EE disclosures, without predicting the direction of the relationship. The *RENT_ECO* variable measures the firm’s profitability for the financial year concerned (identical to the ROA measure used in several articles). It is equal to the net income divided by total assets, multiplied by 100.

Finally, two dichotomous variables are added in order to take time-related effects into consideration. The first of these variables takes the value of one if the year is 2010, and zero otherwise. The second takes the value of one if the year is 2011, and zero otherwise. For clarity, they are not included in the tables, but their presence is indicated by the expression “fixed year effects”.

All variables, their measures and their sources are summarized in Table 1 below.

Table 1: Dependent and independent variables

Variables		Description	Origin
Dependent	<i>REPONSE</i>	2 if substantive response 1 if facade response 0 if non-response	Corporate documents collected from the internet
	<i>CRITIQU_ENV</i>	1 if environmental criticism(s) received, 0 otherwise	Press releases from three environmental associations, collected from the internet
Independent	<i>INVEST_ISR</i>	Number of shares held by SRI funds/ Total number of shares *100	Thomson Financials
	<i>SECTEUR</i>	1 if the firm belongs to a sensitive sector, 0 otherwise	Thomson Financials
	<i>TAILLE</i>	Napierian logarithm of total assets	Thomson Financials
	<i>CONCENT</i>	1 if the percentage of shares held by “insiders” is higher than 20%, 0 otherwise	Thomson Financials
	<i>DETTE</i>	Medium and long-term total debt/total assets*100	Thomson Financials
	<i>RENT_ECO</i>	Net income/total assets*100	Thomson Financials

5. Results

This section presents the results of content analyses (firms’ response strategies) and empirical tests.

5. 1. Response strategies to the “environmental expenditures” disclosure requirement

The objective of the content analysis is to identify the response strategies to the NRE law’s EE disclosure requirement. The content analysis in this study comprises two steps: identification and definition of relevant categories, and determination of the data coding method (Gavard-Perret *et al.* 2012).

The first step results from research by Criado-Jiménez *et al.* (2008) who consider that firms can adopt different strategies in response to the law, including “dismissal” and “concealment”, and examine three response strategies: non-response, facade response and substantive response. These strategies are explained as follows. Non-response is when the firm simply ignores the law’s disclosure requirement and reports nothing. The substantive response consists of publishing an explicit amount of EE. The facade response covers all tactics intended to maintain the firm’s legitimacy while not in fact providing users with the regulatory information.

In the second step, the coding criteria are clearly determined. Coding is based on two criteria: the existence or non-existence of a response, which is a criterion related to the law, and the clarity of the response, which determines its relevance.

When no information is disclosed about EE, then the *REPOSNE* variable takes the value of 0 (non-response). When solely qualitative information on EE is disclosed, or when EE is reported without any specific amount, then the *REPOSNE* variable takes the value of 1 (facade response). Finally, when one or more figures for EE are disclosed and explained, then the *REPOSNE* variable takes the value of 2 (substantive response).

The combination of these two criteria brings out homogeneous, distinct categories of response, as suggested in our original proposition. The complete content of the publications was thus classified into three categories. The results of the content analysis in the following discussion will be illustrated by extracts from the corpus providing a concrete reflection of the differing content of the categories, and the way it is expressed.

5. 1. 1. Non-response

In this case, firms make no mention of EE. The disclosure requirement is simply ignored, reflecting a stance of defiance or rejection of institutional norms which Oliver (1991) designates as an active form of resistance. Mobus (2005) states that this situation is particularly common when the organization does not understand the consequences of non-response to the law.

5. 1. 2. Substantive response

In this case, firms comply with the obligation laid down in the law and disclose one or more amounts of EE. This category only comprises firms that state the nature of their expenses, for example by listing the items concerned. The following example comes from an industrial firm in the food sector (extract):

“In 2009, investments for protection of the environment amounted to approximately €38.1 million [...]. The three principal categories of investment are as follows:

- waste/water/air: 37% (improving waste collection, storage, selective processing, treatment of water, water purification plant)*
- eco-design: 11%*
- energy: 52% (cutting energy consumption, transition to renewable energies, etc)”*

Another example comes from a bank:

“Expenditures in 2009 to prevent environmental risks were as follows:

- removal of asbestos: €5,000 (encapsulation operations)*
- treatment of potentially polluting fluids: €18,000*
- replacing air conditioning equipment running on Freon gas: €300,000.”*

5. 1. 3. Facade response

The above discussion suggests that an “either-or” situation exists: either firms say nothing, or they disclose EE. The facade response is a third option for firms seeking to resist institutional rules (Oliver 1991). In this strategy, firms pretend to fulfill their EE disclosure requirement but

actually do not fulfill it. A facade response involves disclosing data that have no real information value for the user, or publishing excuses for not disclosing EE¹⁶.

In the first of these situations, firms disclose information that is incomplete, of low relevance, and has no real information value for the user. Certain firms, for instance, list a number of types of EE without giving out any financial figures. In other words, these firms develop a discourse on EE but provide no quantitative evidence or precise amounts for their commitment to the environment. The following example was observed: *“Expenses incurred to prevent the risks of our businesses for the environment: the costs incurred to protect the environment from the consequences of our business correspond to the general expenses of the Sustainable Development Department and its units in each country, and budgets allocated to specific projects and external consultants’ fees.”*

In the second situation, firms explain why they are not disclosing the amount of their EE¹⁷. Different arguments are presented depending on the circumstances. For example, one firm whose core business is environmental writes that *“the very nature of its activities mean that the group has a direct impact on the environment. As a result it is not very meaningful to distinguish between expenses that have a direct or indirect environmental impact”*. In other words, this firm considers there is no need for it to communicate about its own efforts in favor of the environment, since its business is limiting the environmental impact of its clients’ activities. It thus uses its core business to “get a free pass.”

Another argument used is that the firm cannot produce the information required because of the way its information system is organized. The firm uses technical constraints as an excuse for not disclosing its EE (even though the law has been in application for eight years). The following extracts illustrate the expressions used by firms to “get a free pass”. One bank stresses that EE is *“not separately identified in the entities’ operating budget”*. One manufacturer presents a combined amount of expenditure: *“in 2009, investments for the environment and safety remained high at a total €X million for the whole group [...]”*

¹⁶ This is what Criado-Jiménez *et al.* (2008) call the ritual disclosure of environmental information, i.e. disclosure by the firm of a single paragraph stating that *“its activities have no significant impacts on the environment”* which is there to justify the non-reporting of information.

¹⁷ Since introduction of the “Grenelle 2” law, article R. 225-105 of France’s commercial code has stipulated that among the information defined in article R. 225-105-1 of the same code, firms must indicate *“information which, in view of the nature of the firm’s activities or organization, cannot be presented or do not appear relevant, while supplying all necessary explanations.”* Consequently, when an item of information cannot be produced or does not appear relevant, the AMF recommends that firms should supply sufficiently detailed information appropriate to the firm’s specific situation.

One last argument noted concerns the relevance of information¹⁸, as illustrated in the following paragraph: “*The various expenses incurred to promote environmental protection are of secondary importance, being only of local scale and heterogeneous in nature. They are not therefore monitored at overall Group level.*” Significantly, these sentences follow a paragraph entitled “*Institutional commitments in favor of the environment*” that lists the actions undertaken by the firm in such matters.

5. 1. 4. Summary

Across the total 179 observations, almost half (89) make no mention of their EE. The other half of the sample (90 cases) provide some response. Of these, only 38 observations, or just over 20% of the total sample, adopt a substantive response strategy. 52 observations, or approximately 30% of the total sample, provide a facade response. The full-sample mean for the *REPNSE* variable (for all three modalities) is 1.715, the median is 2 and the standard deviation is 0.795.

5. 2. Descriptive statistics for the independent variables

Table 2 shows descriptive statistics for the seven independent variables through the following factors: the mean, the median, standard deviation and the extreme values (minimum and maximum). These are all calculated on a sample of 174 observations, used for the estimation of the sequential logit regression. Five observations are lost for two reasons. First, data for one firm were not available in Thomson Financials. Second, certain independent variables were missing.

¹⁸ Since the NRE law does not exclude any business sector from application of the EE disclosure requirement, all listed firms are considered to be concerned by environmental issues and should therefore disclose an amount of EE. This position was confirmed by the content analysis. For example, a firm in the banking sector was observed to have disclosed a figure for EE. A media firm wrote in 2011 that it was “*aware that its status as a media group by no means exempts it from robust environmental demands*”. It could still be argued that certain firms disclose nothing because they have nothing material (significant) to disclose, a situation that would undermine the classification established. We therefore followed the proposal made by Criado-Jiménez *et al.* (2008) and applied more detailed analysis to the case of firms that claim their information is non-significant, to see whether the firm’s classification in the “facade response” category is valid in the light of the information disclosed. Any contradiction between the firm’s discourse and the reference to the lack of significance validates its inclusion in this category. For example, a bank states in 2009 that “*the group’s activities, consisting of banking and financial services, have small direct consequences for the environment*” but then adds that “*as early as 2004 the group set ten orientations to reflect its environmental responsibility and take preventive action*”. The second sentence contradicts the lack of significance announced in the first, and justifies inclusion of this firm in the “facade response” category.

Table 2: Descriptive statistics for the independent variables

Variables	N	Mean	Median	Standard deviation	Min.	Max.
<i>CRITIQ_ENV</i>	174	0.155	0	0.363	0	1
<i>INVEST_ISR</i>	174	0.131	0.090	0.125	0	0.720
<i>SECTEUR</i>	174	0.155	0	0.363	0	1
<i>TAILLE</i>	174	10.123	10.09	1.651	6.846	14.532
<i>CONCENT</i>	174	0.546	1	0.499	0	1
<i>DETTE</i>	174	24.403	22.68	13.494	0.893	65.081
<i>RENT_ECO</i>	174	3.136	3.289	8.278	-90.154	26.299

All variables are described in Table 1.

From Table 2, we see that around 16% of observations (27 out of 174) in the sample are targeted for criticism in the study period by at least one of the three environmental associations. 171 different criticisms were issued, indicating that certain firms are the subject of several negative press releases in the same year, sometimes issued by several different associations. The highest number is for French electricity operator EDF, targeted 39 times in 2009 by Greenpeace and FNE. This situation requires and justifies the binary structure of the *CRITIQ_ENV* variable, to ensure that certain observations do not bias the analyses through disproportionate influence. Since the data are structured in a panel, it is also interesting to examine the number of separate firms targeted in the 1,764 press releases analyzed: there are 18 in all (out of the sample's total 59 firms). The 18 firms targeted come from a range of sectors, including retailers (e.g. Carrefour and Casino Guichard), banks and insurers (e.g. BNP Paribas and Axa) and industrial firms (e.g. ArcelorMittal and Lafarge). The mean value of the second variable of interest, *INVEST_ISR*, is 0.131%. It is observed to increase over time: the mean percentage of ownership by SRI funds rises from 0.121% in 2009 to 0.136% in 2011¹⁹. This trend is related to the growing influence of SRI in the French landscape (Hobeika *et al.* 2014) and the rising number of SRI funds awarded the Novethic label (see above). Ultimately, approximately 16% of firms in the final sample are considered to belong to a pollution-

¹⁹ There are three explanations for the very low level of these figures. First, despite steady growth, the volume of SRI remains very low (a mean of €78.1 billion across our analysis period (Novethic 2009, 2010, 2011)) compared to all assets managed by asset management companies (a mean of €2,824 billion across our analysis period (AMF 2015)). Second, the "equities" class only accounts for approximately 27% of the SRI funds managed (Novethic 2009, 2010, 2011). Third, not all SRI labelled investments in equities concern our sample alone. Also, our figures are consistent with the data supplied by Capron and Quairel-Lanoizelée (2010, p. 57) : "in France, growth is strong but the assets under management in SRI equity funds only account for 1% of total assets under management and their influence in terms of CSR, through their media presence and questions to firm managements, is much greater than the small percentage of assets managed through this approach."

generating sector²⁰. The distributions do not appear to have any aberrant values for any of the three variables of interest.

The control variables are also shown in Table 2. The *TAILLE* variable shows a mean value of 10, which corresponds to mean total assets of €133 billion²¹. Approximately half of the sample firms take the value of one for ownership concentration. The 20% threshold applied thus divides the sample into two groups of comparable size. The values presented in Table 2 concerning the *DETTE* variable correspond to modified data, as the upper tail of the distribution is winsorized at 1%, due to the initial presence of an extreme value (of 503.071). The winsorization procedure reduces the maximum value to 65.081. The values obtained after its application appear to be consistent with the data collected previously from samples of French firms (Mard and Marsat (2012), for example). The mean for the *RENT_ECO* variable is 3.136. This value and the other descriptive values are also compatible with the values reported for recent French samples (Marmousez 2012).

5. 3. Univariate tests and correlation matrix

5. 3. 1. Continuous variables

The normal distribution of the four independent continuous variables is determined using two numerical tests: the Shapiro-Wilk test (recommended for samples of a maximum 2,000 observations) and a skewness-kurtosis test. Both lead to the same conclusion for each of these variables: the null hypothesis of normality cannot be accepted at the 1% level. For this reason, a non-parametric Kruskal-Wallis test was selected. Based on the rankings attributed to the values, this test can be used to identify any differences in the response strategies adopted. Table 3 presents all the tests conducted.

²⁰ Although the values of the descriptive statistics for the *CRITIQ_ENV* and *SECTEUR* variables are similar, they do not correspond to the same observations, as shown by the low correlation coefficient between the two variables (see section 5. 3. 3. on this point).

²¹ This figure, which is different from the exponential of 10.123, results from raw data, as the mean logarithm is not the same as the logarithm of the mean.

Table 3: Univariate tests – continuous variables

Variables		No. of obs.	Mean	Median	Kruskal-Wallis test
<i>INVEST_ISR</i>	<i>REPONSE</i> = 2	38	0.167	0.160	z = 21.343***
	<i>REPONSE</i> = 1	52	0.165	0.145	
	<i>REPONSE</i> = 0	84	0.094	0.060	
<i>TAILLE</i>	<i>REPONSE</i> = 2	38	10.338	10.225	z = 17.152***
	<i>REPONSE</i> = 1	52	10.779	10.756	
	<i>REPONSE</i> = 0	84	9.620	9.748	
<i>DETTE</i>	<i>REPONSE</i> = 2	38	26.417	23.803	z = 2.425
	<i>REPONSE</i> = 1	52	24.001	23.020	
	<i>REPONSE</i> = 0	84	23.742	21.276	
<i>RENT_ECO</i>	<i>REPONSE</i> = 2	38	3.231	3.421	z = 14.817***
	<i>REPONSE</i> = 1	52	2.124	1.497	
	<i>REPONSE</i> = 0	84	3.719	4.286	

All variables are described in Table 1.

***, ** and * indicate results that are significant at 1%, 5% and 10% respectively (bilateral).

Three of the tests have results that are statistically significant at the 1% level: this means that the underlying distributions of the independent variables *INVEST_ISR*, *TAILLE* and *RENT_ECO* influence the modalities taken by the *REPONSE* variable. The percentage of SRI investors among the firm's shareholders has an important influence on the response to EE disclosure requirements (test statistic of 21.343, significant at 1%). This influence can be used to split the sample into two sub-groups: firms adopting a non-response strategy, and firms adopting a response strategy of either kind (substantive or facade response). For example, although the Kruskal-Wallis test does not specifically concern the mean, we note that the mean for the *INVEST_ISR* variable is relatively low in the first sub-group (0.094) but higher and quasi-identical for firms that choose one of the two response strategies (0.165 and 0.167). The *TAILLE* variable can also differentiate between non-response and response, as application of this criterion shows a clear difference between the means and medians. However, it does not appear to be able to separate the substantive response from the facade response. Finally, the *RENT_ECO* variable brings out a convex relationship, with lower profitability for firms that choose a facade response strategy²². Clearly, these initial observations require subsequent

²² Additional descriptive statistics (unreported) show that this convex relationship derives from the degree of ownership concentration. More specifically, crossing ROA and ownership concentration (the *RENT_ECO* and *CONCENT* variables, defined earlier), it is observed that the most efficient firms respond differently depending on their ownership: a substantive response in the case of diffuse ownership and non-response in the case of concentrated ownership.

confirmation from multivariate tests.

5. 3. 2. Discrete variables

For the three dichotomous independent variables (*CRITIQ_ENV*, *SECTEUR* and *CONCENT*), a Chi2 (χ^2) test is used. Table 4 presents the results of these tests and also brings out differences in the response strategy used.

Table 4: Univariate tests – discrete variables

N = 174	No. of obs.	<i>CRITIQ_ENV</i>		<i>SECTEUR</i>		<i>CONCENT</i>	
		<i>CRITIQ_ENV</i> = 0	<i>CRITIQ_ENV</i> = 1	<i>SECTEUR</i> = 0	<i>SECTEUR</i> = 1	<i>CONCENT</i> = 0	<i>CONCENT</i> = 1
<i>REPONSE</i> = 2	38	33	5	35	3	22	16
<i>REPONSE</i> = 1	52	35	17	40	12	31	21
<i>REPONSE</i> = 0	84	79	5	72	12	26	58
Pearson χ^2		z = 17.724***		z = 4.048		z = 13.706***	

All variables are described in Table 1.

***, ** and * indicate results that are significant at 1%, 5% and 10% respectively (bilateral).

Although the distribution of observations in our sample is quite different from the distribution that should theoretically be observed when there is no link between the *REPONSE* and *SECTEUR* variables, the test results are only statistically significant at the 10% level (p -value = 13.2%). Of the three tests performed, only those on the *CRITIQ_ENV* and *CONCENT* variables have statistically significant results at the 1% level. This suggests that these variables have an influence on the choice of an EE disclosure strategy. However, the direction of this influence is difficult to infer from the data presented in Table 4. Consequently, a correlation matrix is presented in the following section.

5. 3. 3. Correlation matrix

The Spearman and Pearson correlation coefficients between all variables (dependent and independent) are presented in Table 5. As previously, these are calculated on the sample of 174 observations included for estimation of the sequential logit regression.

Table 5: Correlation matrix

N = 174	<i>REPONSE</i>	<i>CRITIQ_ENV</i>	<i>INVEST_ISR</i>	<i>SECTEUR</i>	<i>TAILLE</i>	<i>CONCENT</i>	<i>DETTE</i>	<i>RENT_ECO</i>
<i>REPONSE</i>		0.173**	0.334***	-0.021	0.273***	-0.259***	0.111	-0,200***
<i>CRITIQ_ENV</i>	0.143*		-0.053	0.036	0.432***	0.008	-0.075	-0,216***
<i>INVEST_ISR</i>	0.259***	-0.107		-0.049	0.041	-0.381***	-0.027	-0,036
<i>SECTEUR</i>	-0.037	0.036	-0.006		-0.019	-0.151**	-0.112	0,116
<i>TAILLE</i>	0.222***	0.493***	-0.104	-0.039		-0.058	0.078	-0,438***
<i>CONCENT</i>	-0.245***	0.008	-0.334***	-0.151**	-0.063		0.110	-0,029
<i>DETTE</i>	0.071	-0.079	-0.017	-0.115	-0.035	0.118		-0,133*
<i>RENT_ECO</i>	-0.040	-0.060	0.011	0.060	-0.107	0.085	-0.209***	

All variables are described in Table 1.

Spearman (Pearson) correlations are presented above (below) the diagonal.

***, ** and * indicate results that are significant at 1%, 5% and 10% respectively.

Table 5 shows that two of the three variables of interest are significantly and positively correlated with the dependent variable *REPONSE: CRITIQ_ENV* and *INVEST_ISR*. These positive correlations support hypotheses H1 and H2 but remain low at 0.173 and 0.334 respectively (Spearman correlations). The business sector is negatively related to the level of response chosen by firms, in line with hypothesis H3, but the correlation is not significant. Concerning control variables, the results reveal that the variables *TAILLE* and *CONCENT* are significantly associated with the dependent variable for any type of correlation. The correlation values are moderate, at 0.222 and -0.225 respectively. The *DETTE* variable is never correlated with the *REPONSE* variable and the results do not converge for *RENT_ECO*. The values shown in Table 5 do not indicate any particular multicollinearity problem (the highest coefficient is 0.493). This observation is validated by the VIF (*Variance Inflation Factor*) calculated for each of the equations (1) and (2). The mean VIF is 1.24 and 1.30 respectively. The maximum levels are 1.37 (for the dichotomous variable relating to 2011) and 1.48 (for the *TAILLE* variable) respectively.

5. 4. Sequential logit regression

To test the series of three hypotheses developed in section 3, a sequential logit regression is estimated. This produces two sets of coefficients, reported in Table 6. Panel A presents the estimated coefficients α (regression (1)) associated with the response decision (response versus non-response). Panel B presents the estimated coefficients β (regression (2)) associated with the level of the response (substantive response versus facade response). The associated standard deviations are stated in parentheses under each coefficient. They are corrected to take account of heteroskedasticity using the Huber-White method.

The coefficients concern the logarithm of the odds ratio (see regressions (1) and (2) for a reminder of their form). An α or β coefficient of n indicates that a change of one unit in the independent variable causes a change of n in the logarithm of the odds ratio. A positive (and significant) estimated coefficient thus indicates an increase in the probability of a response (panel A) or a substantive response (panel B), while a negative coefficient reflects a decline in that probability²³.

²³ Interpretation of the results is easier in this form, since it is enough to focus on the sign of the estimated coefficients. A presentation after application of the exponential function is possible, but in that case individual transformed coefficients would have to be compared to 1.

Table 6: Analysis of the determinants of response strategies

	Panel A		Panel B
	Response (facade or substantive) versus non-response	Expected sign	Substantive response versus facade response
<i>CRITIQ_ENV</i>	1.429** (0.636)	H1 : +	-1.142** (0.628)
<i>INVEST_ISR</i>	5.479*** (1.638)	H2 : +	-1.303 (2.099)
<i>SECTEUR</i>	0.148 (0.443)	H3 : -	-1.411** (0.644)
<i>TAILLE</i>	0.367*** (0.138)		0.011 (0.161)
<i>CONCENT</i>	-0.986*** (0.378)		-0.144 (0.506)
<i>DETTE</i>	0.017 (0.013)		0.019 (0.021)
<i>RENT_ECO</i>	-0.003 (0.020)		0.156* (0.081)
Constant	-4.398*** (1.523)		-0.535 (2.106)
Fixed year effects	Yes		Yes
	N = 174		N = 90
Wald χ^2 (prob > χ^2) = 37.40 (0.000)			

All variables are described in Table 1.

The coefficients reported in Panel A are the α coefficients from regression (1).

The coefficients reported in Panel B are the β coefficients from regression (2).

Standard deviations for coefficients are presented in parentheses below the coefficients.

***, ** and * indicate results that are significant at 1%, 5% and 10% respectively (unilateral when a hypothesis is expressed, bilateral otherwise).

The overall significance of the model is satisfactory, since the value of the critical probability (*p-value*) associated with the Wald test of the model is 0.000 (the value of the t-statistic is 37.40). This indicates that the explanatory variables selected for this study can at least partially explain the decision to disclose information on the amount of EE in the French setting over the period concerned.

Panel A, Table 6 shows the explanatory factors for the choice between response and non-response. Concerning our variables of interest, the propensity to respond to the EE disclosure requirement is positively influenced by two factors: environmental criticism (coefficient of 1.429, significant at 5%) and the presence of SRI shareholders (coefficient of

5.479, significant at 1%). Environmental criticism directed at a firm thus encourages it to make an effort in EE disclosures. The same applies to socially responsible investors: the higher the percentage ownership by SRI shareholders, the greater the incentive for firms to respond to requirements. In contrast to the first two variables presented in Table 6, the *SECTEUR* variable is not associated with a significant coefficient. These preliminary results are then presented in more detail in panel B. Concerning the control variables, our results show the significant, positive impact of the *TAILLE*²⁴ variable (size). The relationship between firm size and the probability of complying with disclosure obligations, whatever the field of activity concerned, has been demonstrated several times (e.g. Owusu-Ansah 1998; Galani *et al.* 2011; Tasios and Bekiaris 2014). This study thus confirms this result for EE in the French setting. The results also show that ownership concentration is negatively associated with the choice of response (coefficient of -0.986, significant at 1%). When there are fewer shareholders, information needs are lower, and this reduces disclosures of amounts of EE. All in all, this study brings out two types of variable that explain the choice made by firms (response or non-response): variables related to visibility (*CRITIQ_ENV* and *TAILLE*) and variables related to the ownership structure (*INVEST_ISR* and *CONCENT*).

Panel B of Table 6 contains the data necessary to test hypotheses H1, H2 and H3. The first hypothesis predicts a positive association between the fact of being the target of environmental NGOs and the likelihood of giving a substantive response. The coefficient for the *CRITIQ_ENV* variable is significant at 5% but, contrary to expectations, negative. While initially criticism drives firms to respond, we note that they subsequently tend to simply supply a facade response rather than a substantive response. Hypothesis H2 suggested that having SRI shareholders has an influence on the likelihood of choosing a substantive response over a facade response. This hypothesis is not empirically corroborated, because the coefficient for the *INVEST_ISR* variable is not statistically significant²⁵. This variable thus has a positive influence on the response, but does not then encourage firms to move towards a substantive response. This result, which was unexpected, is discussed further in the next section. Hypothesis H3

²⁴ This variable is closely correlated with the variables *CRITIQ_ENV* and *RENT_ECO*. To test the sensitivity of multivariate results to the size variable *TAILLE*, we conduct two additional estimates (not reported here). A first test consists of withdrawing the size variable *TAILLE* from regressions (1) and (2). A second test consists of regressing the size variable *TAILLE* on the variables *CRITIQ_ENV* and *RENT_ECO* and using the residuals of this first regression instead of the *TAILLE* variable in regressions (1) and (2). The results show that the significance and the sign of coefficients in Table 6 are not substantially affected by these two procedures.

²⁵ The estimations of regressions (1) and (2), particularly the sign and significance of the coefficients for the *INVEST_ISR* variable, are unaffected by its replacement by a binary variable coded 1 if the percentage is strictly greater than 0% and coded 0 if the percentage is zero.

expected to see strategic use of the facade response by firms in the most environmentally sensitive sectors. The empirical results support this (coefficient of -1.411, significant at 5%). The intermediate strategy is chosen when firms operate in a sector considered by stakeholders to be a generator of pollution. While the business itself does not clearly divide non-responders from responders, it can separate facade responses from substantive responses. This result is based on division of the observations into two groups. The *SECTEUR* variable is constructed from the classification established by Cho and Patten (2007), who identify five major sectors but emphasize in a footnote that two other sectors could be added: metal mining (SIC code 10) and electric, gas and sanitary services (SIC code 49). In the sample for this study, only three firms and thus 9 observations have a SIC code of 49. These observations are included in the pollution-generating sectors before a second estimation of regressions (1) and (2) with this new distribution. The results (not reported here) are similar to Table 6. In particular, the negative influence of the sector variable persists, which supports the results concerning hypothesis H3. Finally, only one of the control variables turns out to be positively related to the choice of a substantive response: the profitability variable *RENT_ECO*. This variable was not significant in the previous stage (in other words, the ROA criterion could not discriminate between non-responses and facade or substantive responses). This criterion becomes relevant for explaining the type of response (substantive versus facade).

6. Discussion and conclusion

Many authors have referred to legitimacy theory to explain disclosures of environmental information (Maurice 2012). The originality of this study is that it starts from mandatory disclosures and thus the institutional approach to legitimacy, to reveal new actor behaviors explained by the strategic approach to legitimacy. This study uses the institutional and strategic approaches to legitimacy as the two sides of a single coin (Mobus 2005).

The first contribution of this study is that it shows a sliding scale of responses to the law, particularly in revealing the existence of facade responses, which have never been studied to date (in the French setting). In our study, close to half of the sample firms respond to the EE disclosure requirement, while the other half make no mention of EE. Among the respondents, the majority opts for a facade response, and around 20% of the study sample firms adopt a substantive response to EE disclosure requirements. The rates of compliance with the NRE law noted in the literature are thus artificially high, if we consider the way the information is communicated (the AMF, for example, observes a 50% compliance rate for EE disclosure

(2010)). Ultimately, this study shows that to respond to the law, managers make the following trade-off: they either respond symbolically to the EE disclosure requirement, or they provide genuinely informative content, disclosing data that is useful for understanding and grasping environmental expenditures.

Another contribution of this study is that it sheds light on the circumstances in which the different strategies are applied, which to our knowledge is a first in the empirical literature. The study conducted by Criado-Jiménez *et al.* (2008) simply identifies the strategies introduced, without seeking the underlying reasons. The tests reveal strategic use of the obligation to disclose EE. In other words, making a disclosure mandatory does not eliminate its strategic nature (Larrinaga *et al.* 2002; Mobus 2005; Criado-Jiménez *et al.* 2008). Three key explanatory variables are identified in our study: environmental criticism, SRI shareholders and the business sector.

Hypothesis H1 argues that environmental criticism explains the substantive responses. The results of our tests show that the firms targeted by NGO press releases seek legitimacy through compliance with the law, but contrary to requirements, only provide a facade response. One possible explanation is the nature of the EE item. It could be argued that environmental expenditures cannot solve all the environmental issues faced by firms. In other words, these expenses are not necessarily a direct possible response to criticism from NGOs. The case of the banks illustrates this explanation. Some banks are accused of being “climate killers” because they provide financing for firms that are high issuers of CO₂. In this type of configuration, a symbolic response to the item may be considered enough when the aim is to show that the firm is fulfilling its legal obligations as part of the social contract. Another possible explanation relates to the potential risks of disclosing expenditures. The firms targeted by NGOs attract more attention from NGOs, but also from other stakeholders and may therefore be less inclined to reveal “new” environmental issues through EE disclosures. This would lead to a facade response, i.e. a minimum signal that suggests expenses without giving too much away.

Another unexpected result concerned SRI funds (hypothesis H2). The purpose of these funds is to invest in firms selected for their environmental and social characteristics, particularly based on the information disclosed by firms. The amount and nature of EE should be a focus for their attention, since the informative content of EE has been demonstrated in the literature several times (Clarkson *et al.* 2004; Johnston 2005; Silva-Gao 2011). But contrary to our predictions, the fact of having SRI shareholders does not improve firms’ application of the law. There are two possible explanations for this. The first is doubts about the benefits of disclosing

EE (firms and/or investors do not believe there is any benefit, or only see it as a symbolic move that is useful for appealing to the general public). The second is that investors may be satisfied with a “low-content” response, because they can use other, better sources of information (direct contacts and visits to the firm, for example) to assess the nature of the firm’s efforts.

The third hypothesis concerns the business sector. This variable has been validated several times in the empirical literature. Deegan and Gordon (1996), Gray *et al.* (2001), Freedman and Jaggi (2005) and Barbu *et al.* (2014) find that firms in sensitive sectors disclose more environmental information than other firms. The tests conducted in their studies use lists of mandatory and voluntary disclosure items. This approach is renewed and fine-tuned for the study presented here, as the results show that sensitive business sectors make more use of facade responses. These sectors are in an ambiguous position, caught between two types of demand. Through the nature of their activities and their environmental impacts, these firms seek an appearance of legitimacy in the organizational field, while taking cover from the dangers of excessive transparency (Adams *et al.* 1995). For some firms, a substantive response would lead to the revelation of their environmental strategies or inappropriate policies, leaving them open to criticism and protests that could weaken their position (Larrinaga *et al.* 2002). In short, a substantive response could be counterproductive in sensitive business sectors. The compromise implicitly allowed by the lawmaker thus enables firms to reconcile both the institutional and the strategic view. The results on hypothesis H2 concerning SRI funds suggest that the facade response is an acceptable response, since in these sectors, it is in the firm’s interest to avoid disclosing too much environmental information (a position that is easily understood by investors) (Dye 1985). The facade response thus becomes legitimate (Gaa 2010).

The test of economic performance as a control variable supplies interesting results, as ROA is found to be an explanatory factor for substantive responses. In other words, when a response is given, an explicit figure for EE is disclosed by the most economically effective firms. This substantive response can be analyzed as a tangible signal of the firm’s environmental commitment that is difficult for less profitable firms to copy. It conveys the idea that the EE incurred are a vector for value creation.

By analyzing the effects of regulation on the information reported by firms (and more specifically, disclosure of one particular item), this study contributes to the debate on regulation of environmental reporting (Costa 2014). Supporters of regulation argue that the market (non-regulation) does not bring out disclosure of relevant, neutral information; opponents of regulation disagree. The empirical findings of this study on EE disclosures reveal the limitations

of regulation. For one thing, the response rate is relatively low (nearly 50%), and for another, many firms get round their obligations by presenting facade responses. These observations corroborate the findings of Larrinaga *et al.* (2002) who analyzed the impact of a new environmental disclosure standard on Spanish firms' disclosure behavior. They found that around 80% of the firms in their sample disclosed no environmental information, even though they were required to do so by the new standard. Barbu *et al.* (2014) reach similar conclusions. They conduct an international study showing that convergence and comparability in environmental accounting information cannot be guaranteed by regulations alone. They stress the influence of market conditions and the necessary establishment of coercive measures to ensure compliance with existing standards. Bebbington *et al.* (2012) show that a mandatory law (in their research, Spanish law) can be less well applied than a voluntary standard (a UK standard in their comparative study) when certain conditions are not fulfilled (such as clarity in the rule, or coherence with the values of previous standards). Overall, these studies provide explanations for non-compliance with the law. Some of these explanations are applicable in the French setting (see the limitations of the NRE law discussed above). But the main contribution of this study is that it sheds light on managers' motivations, and the intermediate strategies that are a compromise with the obligation to disclose EE.

This study opens up new perspectives for research, along three avenues.

The first avenue concerns the determinants of EE disclosures. This study considers that organizations operate in a social context that influences managers' choices. Its starting point is a disclosure requirement contained in the NRE law. But other institutional pressures could also play a role in EE disclosures, for instance the influence of statutory auditors. It would be interesting to analyze these other effects. The "Grenelle 2" law also marks a step back by the legislator, which would be interesting to examine.

The second avenue for research concerns the EE indicator itself. In a sustainable development perspective, it would be interesting to analyze the connection between the expenditure indicators disclosed and the indicators used internally in the environmental management accounting system. In particular, which expenditure indicators are used internally? How are the internal indicators selected for external publication? Have the requirements of the NRE law encouraged the emergence of internal indicators for expenditure?

Finally, this study could be extended to other types of regulated information. Concerning carbon emissions for example, Depoers *et al.* (2016) show that listed firms report different volumes of greenhouse gas emissions in different reporting channels (annual report

versus Carbon Disclosure Project). It would be interesting to explore these results further, analyzing the narrative information supplied along with disclosure of these emissions. In particular, can a sliding scale (“facade” versus “substantive”) be detected in this narrative information, based on the extent of the difference between the emissions figures reported in the two channels?

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