



## Corporate social responsibility commitment and environmental disclosures quality: study of the French context

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### ARTICLE HISTORY:

**Received:** 02-Jul-2019

**Accepted:** 10-Oct-2019

**Online available:** 01-Nov-2019

### Keywords:

Legitimation strategy,  
CSR commitment,  
Environmental reporting,  
faithfulness,  
Mandatory and voluntary  
disclosures

### ABSTRACT

The aim of this study is to examine the effect of firms' corporate social responsibility commitment (CSR) on the quality of their environmental reporting. The proactive approach of the legitimacy theory is retained to formulate our expectations. We develop a multidimensional content analysis index used to apprehend environmental disclosure faithfulness dimensions. The variance analysis is applied to these indicators classified according to the variables of CSR commitment for a sample of French industrial firms listed in the SBF120 index. The study confirms the proactive approach of legitimacy. It provides empirical evidence in the French context that firms use environmental reporting for accountability with a substantial legitimation strategy. Indeed, most CSR committed sampled firms disclose in their annual reports more comprehensive mandatory environmental information and more abundant and precise voluntary information than others. They also tend to introduce more statements to justify the credibility of their disclosures than less committed firms.

### Contribution/ Originality

The proactive approach of legitimacy, not enough considered in prior research, has been highlighted. Moreover, this study permit to explore an aspect of environmental information quality few studied, particularly in the very specific French context: faithfulness of environmental information. For that, a content analysis index was developed by drawing inspiration on the IASB definition proposed in the financial reporting conceptual framework.

DOI: 10.18488/journal.1007/2019.9.11/1007.11.305.320

ISSN (P): 2306-983X, ISSN (E): 2224-4425



**How to cite:** Zouhaira Khelil-Rhouma and Mounira Hamed-Sidhom (2019). Corporate social responsibility commitment and environmental disclosures quality: study of the French context. Asian Journal of Empirical Research, 9(11), 305-320.

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## 1. INTRODUCTION

Environmental information can be used by firms to build a responsible social image, strengthen reputation, and preserve legitimacy (Carroll, 1979; Henriques and Sadosky, 1999; Martinet and Reynaud, 2004). This image can either reflect practices and performances reality, or not. So, information can contribute to manage stakeholders' perceptions.

Several studies have been undertaken in various countries to examine the association between environmental performance and the extent of environmental disclosures. The results are often inconclusive. Some argue that environmental disclosures do not reflect their corresponding performance (Magness, 2006; Neu *et al.*, 1998). Information does not provide a complete picture reflecting the reality of practice, and some researchers recommended regulating this field of information, or stressed the importance of verification by an independent party (Braam *et al.*, 2016; Cho *et al.*, 2013; Clarkson *et al.*, 2011; Cormier and Magnan, 2013; Gillet, 2010; Luo and Tang, 2014). However, studies of mandatory environmental reporting show significant variations in the content of disclosures and levels of compliance (Boyer-Allirol, 2015; Chauvey and Giordano-Spring, 2007; Criado-Jiménez *et al.*, 2008; Damak, 2010; Déjean and Martinez, 2009).

Our aim is to study the effect of firms' CSR commitment level on the quality of environmental disclosures made in their annual reports. The legitimacy proactive approach was used to consider the quality of environmental information disclosed by companies in their annual reports.

The European context and particularly the French experience offer an interesting field of research. France was one of the first EU countries to regulate extrafinancial reporting. From 2002, French listed companies are required to disclose environmental information in their annual reports (article 116 of the NRE law, 2001). France has tightened the requirements for this type of information by adopting the Grenelle II law in 2010. It has specified the required information elements. It made the verification of information presence by an independent and accredited third party compulsory. So this context is perfectly suited to studying the proactive posture of reporting legitimization strategies. In particular, we examined the impact of firms' activism on the faithfulness of environmental information disclosed in annual reports for a sample of industrial companies belonging to the SBF120 indexation.

This research makes several contributions to environmental accounting literature. Firstly it goes hand in hand with several other studies in considering the possible posture that companies can implement to maintain or strengthen their legitimacy through their environmental reporting. We highlight the proactive approach of legitimacy not considered enough in past research. Moreover, we consider an aspect of environmental information quality few studied, particularly in the French context. While the relevance of this information has in general been confirmed by previous research (Cahan *et al.*, 2015; Cormier and Magnan, 2013; Dhaliwal *et al.*, 2011; Lu *et al.*, 2016), its reliability is still questioned (Braam *et al.*, 2016; Bouten *et al.*, 2011; Clarkson *et al.*, 2011; Luo and Tang, 2014). Thus we propose a content analysis index to apprehend environmental information faithfulness by drawing inspiration on the IASB<sup>1</sup> definition proposed in the financial reporting conceptual framework. Finally, this study offers an analysis of the mandatory disclosure practices for a sample of listed companies, the firsts affected by the French transparency regulation. The findings can help identify areas for improvement for companies and also regulators.

This article is structured into four sections: the first one presents the conceptual framework and empirical literature taken as basis for our research. In the second section we formulate the study hypotheses. Then the results section with an overview on descriptive data followed by the impact analysis. Finally, we discuss the results and highlight the main findings of the study.

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<sup>1</sup> International Accounting Standard Board

## 2. LITERATURE REVIEW

### 2.1. Environmental disclosures and legitimation strategies

The relationship between firm's environmental orientation and environmental information disclosure strategies has been studied in the earlier literature (Berthelot *et al.*, 2003; Fifka, 2013). The theoretical foundations of these studies are diverse. Two main perspectives have been identified as underlying the majority of research on the subject (Braam *et al.*, 2016; Clarkson *et al.*, 2011; Cormier and Magnan, 2013): the perspective of the economic theories of information, and that of socio-political theories.

We believe that companies are building their environmental reporting strategy in line with their activism in this area, and more particularly according to their orientation's visibility. Therefore, we retain in our work indicators reflecting the external recognition of companies' environmental commitment. The vision of socio-political approaches to information disclosure provides a theoretical basis for this proposal.

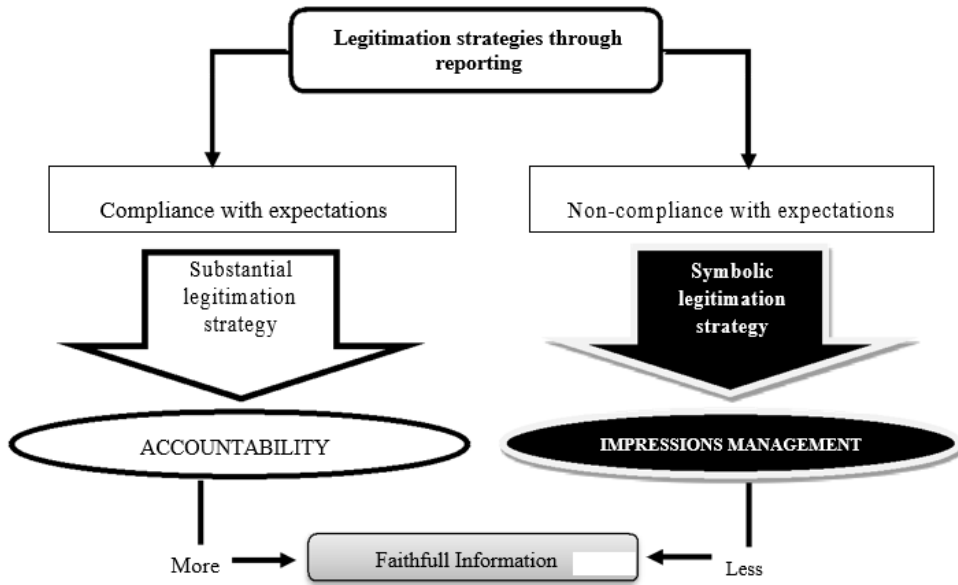
Researching, maintaining and defending legitimacy with certain or several stakeholders, or the Society in general, is the guiding thread of this perspective's reasoning. Companies' legitimacy is threatened when their actions and attitudes are not in line with the Society's value system or that of influential stakeholders (Harsky, 2012; Patten, 1992). One of the methods for companies to restore or strengthen their lost or threatened legitimacy is to use communication through various media, including voluntary disclosure in annual or independent reports (Deegan, 2002; Gray *et al.*, 1995; Hooghiemstra, 2000; Lindblom, 1994). Savage *et al.* (2000) consider that environmental information was voluntarily disclosed by companies within a legitimation strategy framework, through the alignment with recognized social norms and values. So firms seek to enhance their legitimacy or to limit the gaps in legitimacy after the diffusion of bad news in the media.

Information disclosures are more easily used to manage the image than to make real changes in performance processes or values (Dowling and Pfeffer, 1975). Thus, firm's voluntary reporting strategy depends on whether or not their actions are in line with stakeholders' expectations.

In this sense, Capron and Quairel-Lanoizelée (2004) emphasize the dichotomy of CSR strategies implemented by firms, and classify legitimation strategies in substantial and symbolic one's as made by Savage *et al.* (2000). Thus, within the substantial strategies' framework, companies integrate CSR at the strategic level. This will be manifested by fundamental change in firms' actions in response to stakeholders' expectations.

On the other hand, symbolic strategies are more a matter of communication in order to improve company's image and reputation. They are like ecological aesthetic operations referred to as green-washing. The distinction between substantial and symbolic legitimation strategies is based on the adequacy of descriptions to reality, which implies disclosure of more faithful information.

The figure 1 illustrates this perspective and summarizes the conceptual framework chosen as basis for our study.



**Figure 1: Conceptual framework**

**2.2. Legitimacy proactive approach to study environmental disclosures**

The identification of this type of strategy is based specifically on the sincerity of the disclosed information and more generally on its higher quality. Indeed, as stated by Adams (2004), disclosures of social and environmental information fulfill the task of accountability if they make it possible to demonstrate that the firm takes its responsibilities in these fields. In other words, societal reporting makes it possible to be accountable if it provides evidence of the firm's concrete CSR commitment. In this sense many researchers recommend that companies present more complete reporting to get closer to accountability (Adams, 2004; Van Staden and Hooks, 2007; Bouten *et al.*, 2011). According to them companies should provide information on their objectives and intentions, on implemented initiatives and actions, and on the achievements and performances obtained in each CSR field. Furthermore, Gray (2006) believes that in an accountability approach, social relations should enable stakeholders to have objective information. Indeed, they should be able to make a reliable estimation of social and environmental performance of the disclosing organizations.

As a result more active companies that want to leverage their CSR commitment through a proactive communications strategy have to be more transparent by disclosing more honest information. We will examine some empirical studies on this topic in what follows.

**2.3. Empirical studies with a proactive legitimacy approach**

Empirical studies on environmental performance and information voluntary disclosure relationship have mainly tested the legitimacy reactive approach (Al-Tuwaijri *et al.*, 2004; Braam *et al.*, 2016; Brammer and Pavelin, 2006; Cho and Patten, 2007; Clarkson *et al.*, 2008). Few have considered the proactive approach (Braam *et al.*, 2016; Dawkins and Fraas, 2011; Van Staden and Hooks, 2007). The last approach involves anticipation and upstream action aimed at maintaining and strengthening the legitimacy within a preventive perspective. However, the reactive approach seeks to limit the consequences of the loss or a potential threat on legitimacy (Clark, 2008; Dowling and Pfeffer, 1975; Lindblom, 1994; Oliver, 1991, 1997; Sethi, 1975).

The Van Staden and Hooks (2007) study are one of those. Indeed, researchers use the legitimacy proactive approach to base their expectation of a positive association between environmental commitment and disclosures. They evaluate the quality and extent of reporting for a sample of 32

New Zealand firms, classified by an independent organization according to their level of environmental commitment. Then they confront for each firm their assessment of environmental reporting with the independent assessment of environmental responsiveness. They found positive correlations between the independent ranking and their ranking based on the quality and extent of the disclosures. According to them, this suggests that firm's environmental disclosures reflect their environmental commitment, which confirms their proposition developed on the basis of the legitimacy theory.

In a perspective close to [Van Staden and Hooks \(2007\)](#) study, [Dawkins and Fraas \(2011\)](#) tested the strategy of active reporting versus that of defensive reporting. Indeed, drawing on the conceptual framework of [Wartick and Cochrane \(1985\)](#), concerning stakeholders' expectations meeting strategies, they put in place two competing hypotheses.

The first provides for a positive association between environmental performance and environmental disclosures, in line with firms' implementation of an accommodation strategy to meet stakeholder expectations. As part of this approach, companies recognize external stakeholders and therefore integrate non-financial aspects, such as voluntary disclosures, into their strategic choices ([Oliver, 1991](#)). Consequently, companies with good environmental performance have reasons to inform their stakeholders about their policies and activities in this field, hence they provide through reporting a more faithful representation of their actual practices.

The other hypothesis formulates an opposite relationship as implied by the defensive approach of stakeholders' pressure. This position implies a minimum conformity with stakeholders' expectations. In this context, companies that position themselves in a defensive posture will avoid providing their detractors "the stick to beating them", and will therefore be cautious about voluntary disclosures. The latter will be non-existent or limited ([O'Dwyer, 2003](#); [Solomon and Lewis, 2002](#)).

Also disclosures can be symbolic in order to safeguard the legitimacy and limit the impact of all disparities with stakeholders' expectations. So, this type of reporting can be used to explain poor performance ([Brown and Deegan, 1998](#)).

The empirical evidence of [Dawkins and Fraas \(2011\)](#), on a sample of 344 UK companies, validates the active approach of voluntary disclosures. So it confirms that environmental reporting is used to give an account to stakeholders, resulting in greater faithfulness of disclosed information.

### 3. STUDY HYPOTHESES

More CSR committed firms seem to be more inclined to develop substantial strategies of legitimation. Then, they should report more closely to accountability than those who have chosen to exploit a symbolic posture. Thus, it is quite conceivable to expect the most committed companies to disclose more faithful information than less committed ones. In our study, we consider quality of information by estimating its faithfulness through three dimensions inspired from international accounting conceptual framework: completeness, neutrality and errors freedom. So, we propose testing the following hypotheses:

H<sub>1</sub>- Higher CSR committed firms disclose more complete environmental information in their annual reports than those less committed.

H<sub>2</sub>- Higher CSR committed firms disclose more neutral environmental information in their annual reports than those less committed.

H<sub>3</sub>- Higher CSR committed firms disclose more accurate environmental information in their annual reports than those less committed.

For that we consider a sample of companies with a strong propensity to be positioned in a legitimation proactive approach. This is the case for French listed firms, which are legally required

to publish social and environmental information in their annual report since 2002. In addition, they are required to have the presence of this information verified by an independent and accredited third party from 2012. This limits the number of firms that opt for the lack of disclosure, and increases the number of those that will try to exploit the manoeuver margins they have in this reporting field. Environmental reporting can therefore consist of both voluntary and mandatory information. The last type of reporting is not excluded from legitimization processes. On the contrary, it acquires an aura of credibility which was lacking before this obligation, which gives it, in our opinion, a greater legitimacy potential.

#### 4. STUDY DESIGN AND METHODOLOGY

In order to study environmental reporting on the part of issuers of information, we apply content analysis to the main media for this type of information. This method is dominant in this field of research, and is very fertile in teaching according to many authors (Parker, 2005; Guthrie and Abeysekera, 2006; Beck *et al.*, 2010; Hooks and Van Staden, 2011). In our work, we opt for a thematic content analysis approach with a priori categories system delimitation, based on the requirements for environmental information in the decree implementing the Grenelle II law (no 2012-557 of 24 April 2012). We have developed a multidimensional analysis index to trace both quantitative and qualitative environmental reporting aspects. It uses to determine proxies giving an assessment of environmental information faithfulness dimensions. The communication media analyzed are mainly limited to annual reports, filed as reference documents by firms in the AMF<sup>2</sup> website.

We apply variance analysis to faithfulness environmental reporting indicators classified according to the variables categories used in our work to assess CSR commitment. So we can verify the alignment between environmental reporting strategies and firm's CSR commitment.

##### 4.1. Environmental reporting quality variables

To define this qualitative characteristic of information and identify the estimation criteria applied in our content analysis index, we take as a basis the definition proposed in the IASB's accounting conceptual framework. According to this framework, information is useful if, in addition to being relevant, it gives a true picture of what it is supposed to represent. To be as faithful as possible, the description must have three main characteristics: it must be complete, neutral and free of errors or omissions. We try to appreciate each of these aspects through the data collected by the application of our content analysis index. Finally, six variables were retained to give an idea on these different dimensions of environmental reporting quality, as resumed in the table below:

**Table 1: Environmental disclosure faithfulness' variables**

COMPLETENESS	NEUTRALITY	ACCURACY
Coverage of Mandatory Thematics (CMT): Number of items filled in by each company divided by number of items required by law (based on Grenelle II application decree).	Items were introduced in our index in order to capture environmental information disclosed by firms in addition to those required by law. They are referred to as voluntary information or disclosure, and they are used to apprehend the neutrality dimension through:	Justification of Disclosures' Credibility (JDC): Specific statements to reassure Readers about environmental disclosures credibility that are in our index: <i>- The assurance level for the Verification of mandatory environmental information by an independent third-party;</i>

<sup>2</sup> Autorité des Marchés Financiers (French stock exchanges authority)



<p>Mandatory Disclosures Quantity (MDQ): Number of sentences of mandatory environmental information disclosed.</p>	<p>Voluntary Disclosure Quantity (VDQ): Number of sentences of voluntary environmental information disclosed.</p>	<p>- <i>The definition of an internal reference system for data collection, indicators' calculation and control, described in the report or which is easy to access;</i></p>
<p>Mandatory Disclosures Precision (MDP): An average score, weighted by the quantity of the disclosures, based on the form of information with the following scale: (1): for descriptive information without numerical data; (2): for information with numerical data, without any comparison; (3): for information with numerical data compared over time with respect to objectives, to regulatory or sectorial standards, or to a benchmark.</p>	<p>Voluntary Disclosure Precision (VDP): The level of precision of voluntary disclosures is assessed using the same units of measurement as for mandatory disclosures (precision score).</p>	<p>- <i>The application of a recognized reference system such as that of the Global Reporting Initiative (GRI);</i> - <i>The existence of an internal control Verification procedure, and mention of the control body in charge;</i> - <i>Awarded or ranked among the best reporters, as evaluated by a recognized external organization.</i> The measure corresponds to the total of scores assigned to those items whose presence was verified in firms' environmental reporting.</p>

For [Bagnoli and Watts \(2007\)](#), information disseminated voluntarily by managers provides additional information to mandatory disclosures. It can be a way of mitigating the effect of bad news contained in mandatory information, as it can be used to dissociate itself from competing firms with a surplus of transparency. By their nature, they are object to significant discretionary intervention. Hence, a strong presence of that information is indicative of a lower environmental disclosures' neutrality ([Hopwood, 2009](#); [Neu et al., 1998](#)). But, the increase in their level of precision signals more transparency and seems to reveal the implementation of substantial legitimation strategies by concerned firms.

#### 4.2. Corporate social responsibility commitment variables

We propose assessing firms' conformity with stakeholders' expectations by indicators reflecting their CSR activism as evidenced by bodies institutionally recognized on a national and international level. We retain two categorical variables: the company's integration into one or more sustainability indexes (in particular ASPI, FTSE4Good and DJSI, that are based on a "best in class" approach and a direction for continuous improvement), and the environmental management system certification (EMS certification) according to the ISO 14001 or the European EMAS standard. The last indicator is advanced in the literature as a reflection of the active management of environmental issues by the concerned company ([Andrews et al., 2003](#), [Janicot, 2007](#), [Da Silva Monteiro and Aibar-Guzman, 2010](#)). These variables were combined to obtain a third one used to proxy firms CSR commitment.

**Table 2: CSR commitment' variables**

SUSTAINABILITY INDEXATION (SID)	EMS CERTIFICATION	CSR COMMITMENT
Score (2) for companies selected in more than one sustainability index;	Score (2) when it concerns 50% or more of the company's production units (or of its subsidiaries);	Score (2) for firms both retained in societal indexes and having their SME certified on a large perimeter;
Score (1) for companies integrated in a single index;	Score (1) for the non-systematic certification procedure, which concern less than 50% of units;	Score (1) for firms indexed or certified on a large perimeter;
Score (0) otherwise.	Score (0) otherwise.	Score (0) otherwise.

**4.3. Sample and study period**

We consider reporting behavior following the most recent regulatory developments in France, so we have collected annual reports from 2012 (year of Grenelle 2 law application), to 2015 (latest year of data availability at the study data collecting period).

In addition, our interest relates to environmental information disclosed in the annual reports of listed firms. Actually, they were the first to be affected by the obligation of transparency on the environmental aspects in the annual reports in 2002. Moreover, they are once again the first to apply, since 2012, the obligation of verifying the presence and sincerity of information by an independent third party. They benefit from a significant experience in this area, which should be supported by a certain consistency of reporting practices. Differences can more easily be attributed to the choices and motivation of companies. In particular, we retain firms included in the SBF 120<sup>3</sup> index, which is closely monitored by investors. Moreover, they are generally included in the evaluation fields of societal ratings agencies for their indexes compilation. This greater attention should lead companies to place more emphasis on the consideration of regulatory requirements and to delineate a disclosure policy in this area.

Finally, only industrial firms were included in the sample. This choice is motivated mainly by two reasons. First, because of their polluting nature, these companies are subject to greater vigilance, which increases their interest in environmental management and disclosures (Cormier *et al.*, 2005; Barbu *et al.*, 2014). In addition, these companies have more incentives to be environmentally committed, because they are more subject to environmental risks and costs.

Annual reports were selected and collected on the website of the financial markets authority (AMF) or those of the firms if the document is not available. We have collected 159 annual reports for a final sample of 40 French listed industrial companies<sup>4</sup>. The list of selected companies is available in the appendix.

**5. FINDINGS**

**5.1. Descriptive statistics**

Table 3 below presents descriptive statistics for environmental reporting quality proxies proposed in our work.

<sup>3</sup> Euronext Paris equity index comprising the CAC 40 (40 largest caps) and 80 additional values (most active) selected on the first and second markets

<sup>4</sup> One of the sample firms has merged during the last year of the study period, so the corresponding annual report has been eliminated.



**Table 3: Environmental reporting faithfulness proxies descriptive statistics**

	<b>N</b>	<b>Median</b>	<b>Mean</b>	<b>Std dev</b>	<b>Min</b>	<b>Max</b>
CMT	159	0.852	0.812	0.112	0.330	1
MDQ	159	496	556.420	355.180	94	2066
MDP	159	1.782	1.783	0.275	1.260	2.510
VDQ	159	82	101.252	87.467	2	442
VDP	159	1.135	1.202	0.199	1	1.850
JDC	159	4	3.950	1.418	0	7

CMT: Coverage of Mandatory Thematics (number of items filled in divided by the number of items required by law); MDQ: Mandatory disclosure Quantity (number of sentences of information disclosed in response to law); MDP: Mandatory disclosure Precision (score of mandatory information precision); VDQ: Voluntary disclosure Quantity (number of sentences of information voluntarily disclosed); VDP: Voluntary disclosure Precision (score of voluntary information precision); JDC: Justification of disclosure Credibility (sum of scores assigned to items disclosed by firms to reassure on the credibility of environmental reporting)

The companies in the sample mostly disclose abundant mandatory information (MDQ: more than 500 sentences on average, equivalent to about 20 pages<sup>5</sup>). Similarly, the thematic coverage rate is, on average, fairly high (mean CMT: more than 80%). In addition, the mean of the precision scores for mandatory disclosures (MDP) reflects a significant amount of numerical information for the majority of companies. Thus, environmental reporting appears to be fairly complete for the majority of companies, with rather detailed and precise responses to regulatory requirements.

The quantity of voluntary environmental disclosures (VDQ) is on average limited compared to mandatory environmental information's. However, there is considerable variation between firms. Moreover, the level of precision of these additional environmental disclosures is on the whole fairly low. Indeed, voluntary information is in most literal, which questions the neutrality of the environmental reporting of the sample firms<sup>7</sup>.

Finally, the mean score of justification for the credibility of the reporting (JDC) is close to that of the scale developed for our analysis. Observations are distributed in a balanced way from one side of this scale to the other.

We present descriptive statistics for CSR activism indicators in Table 4 below.

**Table 4: CSR activism indicators' frequencies**

	<b>EMS</b>		<b>SID</b>		<b>CSR</b>	
	<b>Freq.</b>	<b>Percent</b>	<b>Freq.</b>	<b>Percent</b>	<b>Freq.</b>	<b>Percent</b>
0	8	5.03	65	40.88	28	17.61
1	52	32.70	20	12.58	69	43.40
2	99	62.26	74	46.54	62	38.99
Total	159	100	159	100	159	100

SID: Sustainability Indexation (0: not indexed, 1: retained in a single index, 2: retained in several index); EMS: Environmental Management System Certification (0: not certified, 1: certified on a limited perimeter, 2: certified on a large perimeter); CSR: CSR commitment (0: neither indexed nor certified on a large perimeter, 1: indexed or certified on a large perimeter, 2: indexed and certified on a large perimeter)

Almost all companies use the certification of environmental management systems at their production sites. The vast majority of them reach a large scope of certification (more than 50% of their sites). We proceed to the dichotomization of the certification variable which takes the value 1 for firms certified on a large perimeter (62.3% of the data), and 0 otherwise.

<sup>5</sup> Estimated by applying the following formula: number of pages = (number of sentences x 2) / 50, with reference to a standard margin page, single spaced, character 12, and an average of two lines per sentence

In terms of integration in social indexes, 46.5% of the companies in the sample are included in several indexes, 12.5% belong to a single index and the rest (about 41%) aren't integrated in any index.

Finally, the global variable proposed to assess the level of firms' CSR commitment presents an acceptable distribution of observations.

**5.2. Empirical findings: effect of CSR commitment variables on environmental disclosures quality indicators**

We present in Table 5 the averages of environmental reporting quality proxies according to the categories of CSR activism variables, retained to reflect their conformity with the social expectations.

**Table 5: Average of environmental reporting quality indicators by CSR activism categorical variables**

(Average)	EMS		SID			CSR		
	0	1	0	1	2	0	1	2
CMT	0.764	0.841	0.806	0.839	0.809	0.776	0.793	0.848
MDQ	451.667	619.909	447.738	577.150	646.284	405.357	485.551	703.516
MDP	1.802	1.772	1.816	1.830	1.742	1.776	1.836	1.728
VDQ	91.033	107.444	86.985	112.600	110.716	101.500	78.725	126.209
VDP	1.211	1.196	1.145	1.211	1.249	1.162	1.188	1.234
JDC	3.883	3.990	3.277	3.700	4.608	3.464	3.652	4.500
Frequencies	60	99	65	20	74	28	69	62

EMS: Environmental Management System Certification (0: not certified, 1: certified on a limited perimeter, 2: certified on a large perimeter); SID: Sustainability Indexation (0: not indexed, 1: retained in a single index, 2: retained in several index); CSR: CSR commitment (0: neither indexed nor certified on a large perimeter, 1: indexed or certified on a large perimeter, 2: indexed and certified on a large perimeter); CMT: Coverage of Mandatory Thematics; MDQ: Mandatory Disclosure Quantity; MDP: Mandatory Disclosure Precision; VDQ: Voluntary Disclosure Quantity; VDP: Voluntary Disclosure Precision; JDC: Justification of Disclosure Credibility.

Differences in the averages of environmental reporting quality indicators can be observed between classes of observations based on the modalities of CSR commitment level's variables. Our data seem to be adapted for the variance analysis. In order to select the appropriate test, we check the normality of the dependent variables distribution.

Normality is checked for the variable justification of the reporting credibility, as well as for the quantity variables of the mandatory reporting and level of precision of the mandatory disclosures transformed by the base ten logarithms. The analysis of the one-factor variance is applied for these variables. The Kruskal-Wallis analysis is applied for the rest of the variables whose normality is rejected even after the transformation process, namely for coverage of mandatory thematics, and voluntary disclosures quantity and precision. Table 6 presents the Fisher F statistics for ANOVA and Chi-2 for the Kruskal-Wallis analysis (on the ranks of non-normal variables), with their significance (p-value).

**Table 6: Comparison tests (One-way ANOVA / Kruskal-Wallis rank test)**

	EMS		SID		CSR	
	F/Chi <sup>2</sup>	F/Chi <sup>2</sup>	F/Chi <sup>2</sup>	Sig.	F/Chi <sup>2</sup>	Sig.
CMT-Rk	15.669**	15.669**	3.060	0.2165	10.831**	0.0044
MDQ-Log	7.020**	7.020**	7.220**	0.0010	10.270**	0.0001
MDP-Log	0.180	0.180	1.630	0.1985	2.380	0.0962
VDQ-Rk	1.178	1.178	6.518*	0.0384	17.838**	0.0001

VDP-Rk	0.101	0.101	11.586**	0.0030	6.217*	0.0447
JDC	0.210	0.210	19.200**	0.0000	8.580**	0.0003

EMS: Environmental Management System Certification; SID: Sustainability Indexation; CSR: CSR commitment; CMT-Rk: Coverage of Mandatory Thematics ranks; MDQ-Log: Base ten logarithm of Mandatory Disclosure Quantity; MDP-Log: Base ten logarithm of Mandatory Disclosure Precision; VDQ-Rk: Voluntary Disclosure Quantity ranks; VDP-Rk: Voluntary Disclosure Precision rank; JDC: Justification of Disclosure credibility.

\*, \*\*: significant at 5% and 1% respectively

The analysis of the variance shows significant differences in the means of several environmental information faithfulness indicators’ for the modalities of the variables retained to reflect firms CSR commitment.

Indeed, there are significant variations in mandatory reporting quantity, in voluntary disclosures quantity and precision as well as in justification of environmental reporting credibility for sustainability indexation variable. Likewise, for the global variable of CSR commitment all environmental information faithfulness indicators variations’ are significant except for mandatory disclosure precision. However, observation groups obtained on the basis of the scope of ISO 14001 certification show significant variations only in the ranks of the coverage level of mandatory thematic by environmental disclosures, and in mandatory environmental information quantity.

It is important to note that the indicator for mandatory disclosures of precision does not show significant variations for all environmental commitment variables. This may be indicative of regulatory isomorphism (DiMaggio and Powell, 1983), leading to reporting practices’ homogenization through the introduction of numerical data.

Apart from the certification variable which includes two modalities, the results don't allow us to identify where the differences in means are located and to pronounce on hypotheses validation. For this purpose, it is necessary to apply the multiple comparison post-hoc tests for environmental reporting faithfulness indicators for which significant differences were noted (Table 7):

**Table 7: Multiple comparison tests (Post hoc tests: Scheffe / pairwise Kruskal-wallis rank test)**

Categorical Variables Dependent Variables	F/Chi <sup>2</sup> (sig.)	SID		CSR	
		0	1	0	1
CMT-Rk	1			0.672 (0.412)	
	2			8.449** (0.003)	6.808** (0.009)
MDQ- Log	1	0.135 (0.118)		0.0851 (0.315)	
	2	0.159** (0.001)	0.025 (0.927)	0.233** (0.000)	0.148** (0.004)
VDQ- Rk	1	1.264 (0.261)		(-) 4.219* (0.040)	
	2	6.674** (0.009)	0.053 (0.817)	3.084 (0.079)	16.494** (0.0001)
VDP-Rk	1	0.731 (0.391)		0.094 (0.759)	
	2	11.764** (0.0006)	1.533 (0.215)	4.767* (0.029)	4.208* (0.040)
VDP-Rk	1	0.423 (0.435)		0.187 (0.826)	
	2	1.331** (0.000)	0.908* (0.021)	1.035** (0.004)	0.847** (0.002)

SID: Sustainability Indexation (0: not indexed, 1: retained in a single index, 2: retained in several index); CSR: CSR commitment (0: neither indexed nor certified on a large perimeter, 1: indexed or certified on a large perimeter, 2: indexed and certified on a large perimeter); CTM-Rk: Coverage of Thematic Mandatory ranks; MDQ-Log: Base ten logarithm of Mandatory Disclosure Quantity; VDQ-Rk: Voluntary Disclosure Quantity ranks; VDP-Rk: Voluntary Disclosure Precision rank; JDC: Justification of Disclosure Credibility.  
\*, \*\*: significant respectively at 5% and 1%

The first hypothesis is confirmed approximately for all our environmental commitment variables. So, high CSR committed firms of the studied sample tend to disclose more complete environmental information in their annual reports than less committed ones. That for the quantity of mandatory information disclosed, and the number of items required by law treated in the disclosures. Particularly, this result is valid for the global CSR commitment variable, and the specific variable concerning EMS certification. For the sustainability indexation specific variable, as we can see in table 3 and 5, findings evidenced that companies selected in several sustainability indexes disclose on average larger quantity of mandatory environmental information than those not indexed at all. The results concerning the coverage of mandatory thematic by environmental disclosures are not significant for this last variable.

Regarding the second hypothesis which deals with the neutrality of environmental disclosures in annual reports, the results are not as consistent. Indeed, firms selected in several sustainability indexes disclose on average larger quantity of voluntary environmental information than those not indexed at all. Their voluntary disclosures are also more precise. However, we notice a contradictory result for the global variable of CSR commitment, concerning the voluntary disclosures quantity. In particular, there are significantly larger voluntary disclosures for firms that are less committed than those that are indexed or certified over an extended scope. On the other hand, the most committed firms also have significantly higher volumes of voluntary disclosures than the latter. This is indicative of a discretionary intervention which questions the neutrality dimension of environmental information disclosed in annual reports of sampled firms. Indeed, least committed firms can be using voluntary disclosures to mask some inadequacies in their performance and give stakeholders the impression to be in line with their expectations. This is a sign of the implementation of symbolic legitimization strategy as identified by [Capron and Quarel Lanoizelée \(2004\)](#) based on the work of [Savage et al \(2000\)](#). On the other hand, the most committed ones seek to distinguish themselves from others through a surplus of transparency. That seems to indicate that these forms are probably using their environmental reporting in a substantial strategy of legitimization.

Finally, our third hypothesis that relates to environmental information accuracy is globally confirmed. Indeed, findings evidenced that firms selected in several indexes, and also those which are moreover certified on a larger perimeter (the most engaged according to our global CSR commitment variable) introduce more declarations to justify the credibility of their environmental disclosures than others. So, also in this case the results tend to comfort the implementation of substantial legitimization strategies by the most committed firms of our study sample.

Our empirical evidence is in line with the previous studies findings on the use of environmental information as part of proactive legitimization strategies ([Dawkins and Fraas, 2011](#); [Van Staden and Hooks, 2007](#)).

## 6. DISCUSSION AND CONCLUSION

This article reports on a study relating to the effect of firms' CSR commitment to the truthfulness of their environmental reporting using a sample of French industrial companies belonging to the SBF120 stock index. We focused on proactive legitimization strategies that can be used by firms through this type of disclosure in their annual reports. According to this approach firms in line with social expectations will seek to differentiate themselves from others and demonstrate alignment with

commonly accepted values and principles through accountability reporting. The accountable nature of reporting is characterized by more truthful disclosure.

Empirical findings highlight the positive effect of firms' level of commitment on several truthfulness dimensions of their environmental disclosures. In particular companies that are considered leaders based on several CSR rating agencies are those exploiting more environmental disclosures to demonstrate compliance with social expectations. For instance, they use more detailed and precise voluntary disclosures in addition to mandatory disclosures. This is in line with [Bagnoli and Watts's \(2007\)](#) suggestion that voluntary disclosures constitute a supply of information to complete mandatory disclosures. It can be a way of mitigating the effect of bad news contained in mandatory information, as it can be used to differentiate from competitors with more transparency.

In addition, we note a positive effect of the level of commitment on the quantity and coverage of mandatory disclosures, providing more complete information for these firms. As stressed by [Campbell et al. \(2006\)](#), companies more committed at a societal level should have more activities to describe, which explains the abundance of information.

Finally, the level of justification of the credibility of disclosures is higher for environmental reporting of firms obtaining institutional recognition for their activism. This is true especially for firms integrated into sustainability indices by major rating agencies, as well as for indexed firms and those whose environmental management system is certified on a large perimeter.

However, we found that the level of precision of mandatory environmental disclosures does not appear to be affected by the level of CSR commitment. This may be indicative of an isomorphism of societal behavior ([Di Maggio and Powell, 1983](#)). Less committed firms will seek to provide more quantitative information to give greater objectivity to their disclosures, taking the reporting of more active companies as a model. Thus, as stressed by [Criado-Jiménez et al. \(2008\)](#), mandatory environmental disclosures will either meet the requirements to demonstrate adequacy to stakeholder expectations (accountability), or conceal noncompliance through disclosures that give the impression of meeting the requirements (impression management).

Overall our results seem to validate the theoretical proposition of the existence of proactive legitimation strategy by environmental reporting. Especially, our study documents the alignment between compliance with social expectations for corporate social and environmental responsibility, and the accountability nature of environmental reporting through more faithful disclosures. Thus, like [Van Staden and Hooks \(2007\)](#) and [Dawkins and Fraas \(2011\)](#), our study provides an additional empirical evidence to the proactive approach of legitimation through environmental disclosures in annual reports, for the French context. Our sampled firms, which have been acknowledged in line with social expectations according to institutionally influential bodies, stand out by more comprehensive mandatory environmental reporting, more abundant and precise voluntary environmental disclosures, and higher levels of justification for the credibility of environmental disclosures.

**Funding:** This study received no specific financial support.

**Competing Interests:** The authors declared that they have no conflict of interests.

**Contributors/Acknowledgement:** All authors participated equally in designing and estimation of current research.

Views and opinions expressed in this study are the views and opinions of the authors, Asian Journal of Empirical Research shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.

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