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Environmental Audit and Environmental Disclosure Quality

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Abstract

In this study we explore the association between environmental audit and the quality of environmental disclosure as measured by voluntary and timely disclosure. Relying on a multiple theory framework and using a sample of 81 French non-financial companies listed on the SBF 120 index covering the six-year period from 2012 to 2017, we found a positive and statistically significant relationship between the level of voluntary disclosure of environmental information and the environmental audit committee, the environmental auditor's BIG 4, debt levels, firm size, earnings management, and the industry. In addition, findings indicate that the environmental audit committee, CSR committee, the environmental auditor's BIG 4, earnings management, firm size, and the industry have an impact on the timely disclosure of environmental information. However, the regression of the results showed that there is no relationship between CSR committee and the level of the voluntary disclosure of environmental disclosure.

Keywords: environmental audit; voluntary disclosure; timely disclosure; environmental information.

JEL classification: M42.

1. INTRODUCTION

In recent years, the study of the disclosure of environmental information has attracted the interest of many researchers and practitioners and is becoming increasingly important in view of the evolution of the economy that has changed the nature of information disclosed by the company and requested by its partners. In addition, the quality of environmental disclosure is perceived as a key value for business growth (Ong *et al.*, 2016; Y. Li *et al.*, 2018; Naseem *et al.*, 2019), which can be defined by voluntary and timely disclosure. Indeed, managers are encouraged to provide better quality environmental disclosures in an effort to build a favorable environmental reputation to strengthen the company's overall

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reputation and help the public and investors make the right investment decisions (Morales-Raya *et al.*, 2018; Asmeri *et al.*, 2017; M. Li *et al.*, 2018). In this context, the desire to increase the reliability of environmental reporting and to reinforce the credibility of the environmental information communicated to all stakeholders has led companies to verify this information (Ballou *et al.*, 2018; Gillet-Monjarret and Riviere-Giordano, 2017). Therefore, environmental auditing appears in its most prevailing form, as it consists in checking either the robustness of the reporting system and the accuracy of the information in relation to specific facts or the relevance and completeness of the information according to the objectives of the company or those of the stakeholders (Ballou *et al.*, 2018; Braam and Peeters, 2018; Capron and Quairel-Lanoizelée, 2007; Zhang and Liao, 2015). In the international context, the increase in environmental reporting is accompanied by an increase in reports including an insurance report established by a third party (Ballou *et al.*, 2018; Dilla *et al.*, 2019; O'Dwyer and Owen, 2005). However, environmental auditing has become widespread in France and it has become mandatory as a result of the regulatory obligations associated with Article 225 of the Grenelle II law for all listed companies and is gradually extending to companies with a turnover of more than € 100 million and more than 500 employees (M. Li *et al.*, 2018; KPMG, 2015).

Shedding light on the motives behind environmental audit and environmental disclosure quality necessitates the recourse to several currents in the world of accountancy, namely the agency theory, the signaling theory and the legitimacy theory.

This study is based on multi-theoretical framework because environmental disclosure is a complex and multidimensional phenomenon that cannot be explained by a single theory (Gray and Handley, 2015).

For the study's basic sample group, we selected French publicly listed companies in the SBF 120 index for the period 2012–2017. Our choice of the French context is characterized by a widely implemented regulatory framework of environmental disclosure. France has given increased importance to the disclosure of environmental information and their verification by an independent third party. At first, the NRE Act (Nouvelles Regulations Economiques) was launched in 2001, which requires listed companies to integrate social and environmental information into their annual reports. Then the Grenelle Act II of 2012 was set up to address the gaps in the first law for listed companies and call for more credibility and transparency of the quality of disclosed information as it requires third-party verification. The empirical studies in relation to the conceptual link between environmental audit and environmental disclosure quality are limited. To our knowledge, this is the first study to investigate the association between environmental audit and timely environmental disclosure in the French context.

This article is organized as follows: after the introduction, and in the 2nd Section, we will present a review of previous studies, and develop hypotheses to be tested. The 3rd Section will describe the research methodology, data and models. In the 4th Section we will provide and discuss the results verifying the effect of environmental auditing on the quality of disclosure of environmental information. Finally, in the 5th Section, we will present the limits of our study and directions for future research.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Theoretical framework

Highlighting the motivations for voluntary and timely disclosure of the environmental disclosure quality requires recourse to several streams of accounting literature namely, the agency theory, the signal theory and the legitimacy theory.

Inspired by the agency theory formalized by Jensen and Meckling (1976), the voluntary disclosure of environmental information is explained by the reduction of information asymmetry resulting from conflicts of interest between various actors (Ponte and Bednarova, 2015). However, timely disclosure allows the problem of information asymmetry to be mitigated and limits the risk of expropriation by company managers.

On the other hand, the signaling theory developed by Spence (1973), considers that as a result of the problem of information asymmetry, companies signal certain information to the investors to show that they are better than other companies in the market. Besides, timeliness disclosure is a signal of good communication quality and so managers who timely disclose their annual reports to different decision makers give a better image and reputation of their companies (Ussahawanitchakit, 2011).

From the perspective of the legitimacy theory, the latter is perceived as a possible reason for the recent upsurge in environmental disclosure as corporate entities strive to be greenish in their operations (Braam *et al.*, 2016; Odoemelam and Okafor, 2018; Prasad *et al.*, 2017).

We conclude that the agency theory, the signaling theory and the legitimacy theory are seen as trinity complemented theory.

2.2 Literature review and hypotheses development

The environmental audit function is useful for improving the quality of disclosure of information, which influences the perceptions of a company regarding its accountability, thus increasing stakeholder's trust and corporate reputation (Braam *et al.*, 2016). Three factors of environmental audit were analyzed in this study: the environmental audit committee, CSR committee and the size of the environmental audit firm.

2.2.1 The Environmental Audit Committee

The Audit Committee represents an ultimate monitor of the corporate reporting process (Pérez-Cornejo *et al.*, 2019; Madi *et al.*, 2014). In addition, being the only governance body for which a specific requirement of competence is required, and thus of the major environmental concerns, expansionary attention by the audit committee on climate change and regulations related to sustainable development will be fundamental (Peters and Romi, 2014). In this context, some boards will be invited to integrate additional environmental expertise into the audit committee in order to better control management in terms of environmental actions and performance, in order to focus on the quality of information and evaluate environmental reporting systems to obtain reassurance of the information (Ernst and Young, 2010; Peters and Romi, 2014, 2012; Rodrigue *et al.*, 2013). Peters and Romi (2014) found that the disclosure of greenhouse gases (GHG) and the quality of disclosure are positively associated with the presence of environmental committees in the US context.

They have concluded that only the appropriate expertise of the members of the environmental audit committee is associated with greater transparency of GHGs, since it allows the committee to be better equipped to effectively evaluate the possibilities and innovative strategies of the environment, including the participation and disclosure of information on GHGs, while larger committees tend to be associated with low transparency of disclosure. Ernst and Young (2010) adds that climate change and regulations related to sustainability are increasingly complex, so an overview of the audit committee and additional oversight by the audit committee can be beneficial. KPMG (2016), in its guide to good practices of the audit committees of listed property companies, states that audit committees must ensure that the AMF's recommendations are taken into account as far as environmental responsibility is concerned. Thus, the audit committee also approves of the timely disclosure of the information. To our knowledge, no environmental disclosure study has addressed the time of disclosure of this type of information. However, in the context of financial information, Schmidt and Wilkins (2012) find that companies with several financial experts in the audit committee quickly disclose their financial statements, and this is in the case of when such financial expertise is available. In addition, these authors found that the auditor and the expertise of the audit committee are associated with the timely disclosure of the financial statements. In the light of the foregoing, we can assume that:

***H1**: There is a positive relationship between the existence of the Environmental Audit Committee and the quality of environmental disclosure*.

2.2.2 The CSR Committee

The disclosure of environmental information in a voluntary and transparent manner is of fundamental importance to CSR practitioners (Mnif Sellami *et al.*, 2019; Clarkson *et al.*, 2013). In previous studies, it has been noted that several factors may influence the disclosure of environmental information and its verification by an independent third party organization, while mentioning the existence of the CSR committee (Gillet-Monjarret and Martinez, 2012; Gupta and Agrawal, 2014; Mahmood *et al.*, 2018; Mnif Sellami *et al.*, 2019; Ramesh and Mendes, 2015; Rupley *et al.*, 2012). As an essential component of governance, CSR Committee has become unavoidable, since it serves to improve the quality of environmental reporting and credibility through environmental auditing that has part of the answer to strengthening the credibility of this reporting (Riviere-Giordano, 2007). Mnif Sellami *et al.* (2019) demonstrate that the presence of a CSR committee within the management board has an effect on the demand for sustainability assurance. Mahmood *et al.* (2018) show that there is a positive relationship between the presence of a CSR committee and the extent of reporting on environmental sustainability. Peters and Romi (2012) find a positive association between the voluntary disclosure of greenhouse gas emissions information and the existence of a CSR committee in a sample comprising all US firms in the FT500, composed of 500 of largest companies in the world on the basis of market capitalization. Likewise, the empirical study by Gillet-Monjarret and Martinez (2012), of French companies listed on SBF 120 over two years, led to a positive relationship between the existence of a CSR committee and the social and environmental audit. These authors add that the incentive of companies in the demonstration of a social and environmental audit is explained by the desire of these companies to improve the quality of their reporting. However, Rupley *et al.* (2012) found that the presence of a CSR committee at the board

level is not significantly associated with the quality of environmental disclosure. Also, Brown *et al.* (2010) examined the characteristics of companies involved in a range of categories of environmental information and found no significance between the quality of disclosure and the existence of a Social Responsibility Committee of the companies.In addition, this body must ensure timely and accurate, relevant and understandable information on significant aspects of the institution that will enhance its transparency vis-à-vis shareholders, the general public, employees, regulators, investors and other stakeholders. Thus, we propose the following hypothesis:

H2*: There is a positive relationship between the existence of the CSR committee and the quality of environmental disclosure.*

2.2.3 The size of the environmental audit firm:

Despite Arthur Andersen's scandal in 2002, the remaining international audit firms (Big 4) are still very well respected and valued in the market (Meniaoui *et al.*, 2016). However, in the environmental field, there is no monopoly in carrying out environmental audits; in other words, environmental auditors may not belong to international audit firms. However, with the emergence of the ISAE 3000 professional standard, accounting professionals are encouraged to carry out environmental, social and societal audit missions. In France, the vast majority of companies use auditors and experts in sustainable development of large audit firms called Big 4 to accomplish these tasks. Abba *et al.* (2018); Idowu and Caliyurt (2014); Welbeck *et al.* (2017) found that companies audited by Big 4 firms have an increasing tendency to disclose social and environmental information in relation to undertakings which are audited by non-Big 4 firms. Iatridis (2013), in a sample of Malaysian companies, considers that the companies audited by an international audit firm motivate their clients to disclose relevant and meaningful environmental information. Joshi *et al.* (2011) for their part, found that there is no relationship between the level of environmental disclosure and the size of the audit firm in the context of listed Indian industrial companies. Gillet (2010) found that there is no significant relationship between auditors belonging to major international audit firms (Big 4) and the establishment of societal audit in the French context. By drawing on the concept of earnings timeliness, Clatworthy and Peel (2013) confirmed that the presence of a large audit firm (BIG 4), further decreases the time of information disclosure. Similarly, Fauzi and Locke (2012) noted that large audit firms are more likely to reduce the period necessary for completing audit reports. Also, Daoud *et al.* (2014) propose that the period of the completion of annual reports is highly associated with the type of auditor.

Based on these studies, we assume:

H3*: There is a positive relationship between the auditor's membership in a Big 4 firm and the quality of environmental disclosure.*

2.3 The control variables

In order to measure the determinants of the quality of environmental disclosure, the characteristics of the company and the general context can be incorporated as control variables, namely: Company size, debt level, management of result as well as the business sector.

2.3.1 The size of the company

Several previous studies confirm a positive relationship between the level of environmental disclosure and the size of the company (Ben Rhouma, 2008; Cormier and Magnan, 1999, 2003; Iatridis, 2013; Mohamed and Faouzi, 2014; Shahab and Ye, 2018; Welbeck *et al.*, 2017). However, Kolk and Perego (2010) find no significant relationship between the level of environmental disclosure and the size of the firm. Regarding the time effect, the study conducted by Guidara *et al.* (2014) of a sample of companies in South Africa and Hong Kong shows that large companies are late disclosing their voluntary information to creditors.

2.3.2 Debt level

Abba *et al.* (2018) and Iatridis (2013) state that companies with a high debt level show a more intensive monitoring by the lenders of the behavior of the managers and this may lead to more effective environmental information. Cormier and Magnan (1999), Cormier and Magnan (2003) and Aerts *et al.* (2008) in their studies based on a sample of Canadian firms, found a negative relationship between debt level and environmental disclosure. Moreover, financial debt has been studied empirically by some researchers to assess whether it bears any relationship to timeliness disclosure (Al-Ajmi, 2008; Khasharmeh and Aljifri, 2010; Khoufi and Khoufi, 2018). Khasharmeh and Aljifri (2010) and Al-Ajmi (2008) showed that the level of debt is an influential factor on timely disclosure and concluded that timely disclosure determines the quality of disclosure.

2.3.3 Earnings management

The classical hypothesis which states that environmental disclosure is not related to performance management is rejected. Also, current studies provide the consistent results that companies engaged more in CSRD (corporate social responsibility disclosure) activities including environmental information are less likely to manage earnings (Almahrog *et al.*, 2018; Ben Amar and Chakroun, 2018; Chepurko *et al.*, 2018; Chih *et al.*, 2008; Cho and Chun, 2016; Faisal *et al.*, 2018; Mohamed and Faouzi, 2014). Almahrog *et al.* (2018); Ben Amar and Chakroun (2018); Chepurko *et al.* (2018); Faisal *et al.* (2018); Gras-Gil *et al.* (2016) show that companies with higher CSRD are more ethical and less likely to participate in the manipulation of accounts. While, Chih *et al.* (2008) find that good audit quality of financial information has an impact on environmental disclosures and slows societal accounting manipulations. However, Mohamed and Faouzi (2014) found a positive relationship between earnings management and societal reporting because companies that manage their results show high levels of societal reporting. Masoud and Talebbeydokhti (2015) found that in addition to voluntary disclosure, timely disclosure can have an effect on outcome management. Their study of companies listed on the Tehran Stock Exchange state that the speed of disclosure and the reliability of the information has no significant effect on the earnings management.

2.3.4 The industry

In many studies, environmental disclosure is dependent on the business sector because it occupies a prominent place in its disclosure strategy (Clarkson *et al.*, 2013; Mohamed and Faouzi, 2014; Peters and Romi, 2013; Welbeck *et al.*, 2017). Studies by Welbeck *et al.* (2017) in Ghana, by Peters and Romi (2013) in the US context and by Affes and Hentati-

Klila (2012) in the Canadian context argue that the industry presents a factor that positively affects the level of disclosure of environmental information. However, previous studies have not examined the role of the industry in the timeliness of disclosure of environmental information. In the context of financial reporting, however, there are some studies that have found that the industry can influence the timely or delayed the disclosure of business annual reports (Chen *et al.*, 2013; Leventis and Weetman, 2004; Owusu-Ansah, 2000; Rezaei and Shahroodi, 2015).

3. METHODOLOGY OF THE RESEARCH

3.1 Sample

Because our study focuses on French companies, the initial sample population consists initially of 120 listed companies making the SBF 120 index. It should be noted that companies belonging to the financial sector (banks, financial services, insurance companies, etc.) are supposed to be excluded from the beginning because they have a specific financial regime as well as different CSR policies. Also, companies that lack the necessary data for our analysis in the Datastream database are removed from our sample. In total, 81 companies were selected. This sample is meant to represent companies involved in the application of Article 116 of the NRE Act, section 225 of the Grenelle II law and for which there has been access to reference documents as well as to societal reports over six consecutive years, from 2012 to 2017. The year 2012 coincides with the first application of article 225 of the Grenelle II law by listed French companies. As a result, our overall sample includes 324 firm-year observations. Based on the sample assembled, we collected the data from the reference documents available on the Thomson Reuters Eikon database, including annual reports and sustainability reports. Thus, we collected the data from the Datastream database.

Table no. 1 – Sample selection

Sample	Number of firms
Initial sample	120
Financial firms	(18)
Firms with insufficient data	(21)
Final sample	81
Duration of study	6
Total	**486**

Moreover, the choice of companies constituting the index SBF 120 was useful because France has given more importance to the disclosure of non-financial information including environmental information and their verification by an independent third party, which was imposed by the French legislator in 2012 for listed companies. The impact of this regulation on the disclosure and verification of environmental information meets an expectation of the partners of companies including those investors, stakeholder likely to influence the company by causing it to produce and disclose environmental information useful for decision making. Furthermore, listed companies often exceed the legal obligations of publication by adopting an essentially voluntary environmental disclosure strategy. Table no. 2 shows the distribution of the companies that make up our sample among the different sectors of activity.

Table no. 2 – Sector Distribution by ICB Classification

Industries	Number of companies	Percentage
Industrial	22	27.16%
Consumer Services	17	20.98%
Consumer goods	12	14.81%
Oil, gas and basic materials	10	12.35%
Technology	9	11.11%
telecommunications	1	1.23%
Community Services	5	6.17%
Health	5	6.17%
Total	**81**	**100%**

Note: The ICB "Industry Classification Benchmark" nomenclature, which was launched in Jan. 2005 by FTSE Group and Dow Jones Indexes, went into service on 2 Jan. 2006 for all listed companies in Amsterdam, Brussels, Lisbon and France.

3.2 Measurement of variables

3.2.1 Measurement of Dependent Variable:

3.2.1.1 Voluntary Disclosure of Environmental Information

This variable is measured by a disclosure index. This is a technique used in a multitude of studies on the disclosure of environmental information (Clarkson *et al.*, 2013; Morales-Raya *et al.*, 2018; Odoemelam and Okafor, 2018; Ofoegbu *et al.*, 2018; Plumlee *et al.*, 2015; Rupley *et al.*, 2012; Singhania and Gandhi, 2015). In this study, we chose the environmental information disclosure index used by Clarkson *et al.* (2008) and supplemented by the GRI (Global Reporting Initiatives) indicators in its fourth version (G4) and some criteria inspired by Hooks and van Staden (2011).

The choice of this index is motivated by the fact that these authors have developed a more detailed concerning the information related to environmental disclosure and this is to achieve a better understanding of environmental disclosure. The list of information in our analysis grid consists of 65 items structured around 7 categories, namely: Governance structure and management systems, credibility, environmental performance indicators, environmental expenses, the declared vision and strategy, the environmental profile and environmental initiatives. In the checklist, each item scores 1 if it is disclosed and 0 if it is not disclosed.

The environmental disclosure index for each company is calculated as follows:

$$TD_j = \frac{\sum X_{ij}}{n_j}$$

where TD = the score of voluntary disclosure of environmental information

n_j = the number of items for j^{th} company is equal to 65.

X_{ij} = the number of items disclosed by the company.

3.2.1.2 Timeliness environmental disclosure

For financial information, timeliness disclosure is often represented by the number of days between the end of the year and the date of the publishing of the financial statements (Kachouri and Jarboui, 2017; Oladipupo and Okafor, 2013). Some studies like those of Guidara *et al.* (2014); Khoufi and Khoufi (2018); Owusu-Ansah and Leventis (2006) measure the timeliness of the disclosure by the difference between the closing date of the financial statement and the date of the auditor's signature. In our study, and in the context of extra-financial information and, more specifically, environmental information, we measured timeliness disclosure (T.PERIOD) by the difference between the year-end and the date of

the signing of one of the statutory auditors' reports, who is appointed as independent third party on social, environmental and societal information. This is because this is the day on which the auditor certifies the content of extra-financial statements and, therefore, the companies may publish their sustainability reports.

3.2.2 Measurement of independent variables and control variables

Table no. 3 – Measurement of variables

Studied variables	Symbol	Measures	Authors
Variables related to environmental audit			
The environmental audit committee	**EAC**	1 : existence of an environmental audit committee 0: otherwise	Peters and Romi (2014)
The CSR Committee	**CSRC**	1: existence of a CSR committee 0: otherwise	Mnif Sellami *et al.* (2019); Meniaoui *et al.* (2016)
The size of the environmental audit firm	**BIG4**	1: membership of the independent third party to a BIG 4 0: otherwise	Idowu and Caliyurt (2014); Meniaoui *et al.* (2016); Welbeck *et al.* (2017)
Control variables			
The size of the company	**SIZE**	The natural logarithm of total assets	Gillet (2010); Meniaoui *et al.* (2016); Mohamed and Faouzi (2014); Ofoegbu *et al.* (2018); Shahab and Ye (2018)
The level of debt	**DEBT**	Total debts / Total assets	Abba *et al.* (2018); Gillet (2010); Peters and Romi (2014)
Earnings management	**ACCRUALS**	Model Raman and Shahrur (2008): $TA_{it}/A_{it-1} = \boldsymbol{\alpha 1}\ (1/A_{it-1}) + \boldsymbol{\alpha 2}\ ((\Delta\ REV_{it} - \Delta\ REC_{it})/A_{it-1}) + \boldsymbol{\alpha 3}\ (PPE_{it}/A_{it-1}) + \boldsymbol{\alpha 4}\ ROA_{it} + \boldsymbol{\alpha 5}\ BMT_{it} + \varepsilon it$ With: i : means the company in the sample t : means fiscal year TA_{it}: represents total accruals that are approximated by the difference between net profit and operating cash flow. A_{it-1} : the total assets $_{t-1}$ $\Delta\ REV_{it}$: is the change in revenues from the preceding year ($REV_t - REV_{t-1}$) $\Delta\ REC_{it}$: is the change in net accounts receivables from the preceding year ($REV_t - REV_{t-1}$) PPE_{it} : stands for the gross value of property, plant and equipment. ROA_{it} : represents the return on assets of firm i in year t. BMT_{it} : is the book-to-market ratio of firm i in year t. εit : represents the error term which serves as our proxy for discretionary accruals in year t α1, α2, α3, α4 : are parameter to be estimated.	Kachouri and Jarboui (2017)
The industry	**INDUSTRY**	1: if the company belongs to a sensitive sector 0: otherwise	Gillet (2010); Mohamed and Faouzi (2014); Rupley *et al.* (2012); Welbeck *et al.* (2017)

3.2.3 Research model

The objective of our research is to study the effect of environmental audit on the quality of environmental disclosure in the case of listed French companies that make up the SBF 120. Hence the explanatory model of our work can be developed as follows:

Model:

$$\mathbf{VED} = \alpha + \beta 1\ \mathbf{EAC} + \beta 2\ \mathbf{CSRC} + \beta 3\ \mathbf{BIG\ 4} + \beta 4\ \mathbf{SIZE} + \beta 5\ \mathbf{DEBT} + \beta 6\ \mathbf{ACCRUALS} + \beta 7\ \mathbf{INDUSTRY} + \varepsilon i.$$

$$\mathbf{TED} = \alpha + \beta 1\ \mathbf{EAC} + \beta 2\ \mathbf{CSRC} + \beta 3\ \mathbf{BIG4} + \beta 4\ \mathbf{SIZE} + \beta 5\ \mathbf{DEBT} + \beta 6\ \mathbf{ACCRUALS} + \beta 7\ \mathbf{INDUSTRY} + \varepsilon i$$

where:

VED: represents the level of voluntary disclosure of environmental information

TED: represents the difference between the year-end and the date of the signing of one of the statutory auditors', who is appointed as independent third party on social, environmental and societal information.

EAC: represents the existence of an environmental audit committee

CSRC: represents the existence of a CSR Committee

BIG 4: represents the size of the environmental audit firm

SIZE: represents the size of the company

DEBT: represents the level of indebtedness of the company

ACCRUALS: represents the level of discretionary accruals

INDUSTRY: represents the business sector of the company

α: represents the model constant

β: represents the parameters of the model that we wish to estimate

εi: represents an unobservable random term

4. EMPIRICAL FINDINGS AND DISCUSSION

4.1 Descriptive analysis

Descriptive analysis of the dependent variable: The voluntary disclosure of environmental information and timely disclosure

Table no. 4 presents some characteristics of the voluntary and timeliness disclosure of environmental information (average, minimum, maximum ...).

With regard to voluntary disclosure, the results which were found show that the average score for voluntary disclosure of environmental information (VED) is 72.89%, with a minimum rate of 50% and a maximum rate of 90%, which means that practices of voluntary disclosure of environmental information have increased very significantly for French companies composing the SBF 120 index in recent years. In addition, the voluntary disclosure of environmental information tends to increase from one year to another, for example on 2012 the environmental voluntary disclosure of the companies making up our sample is on average 71.4% and on 2015 this average is about 73.7 %. This result can be explained by the influence of the law on the new economic regulations of 2001 with its guidelines that encourage companies to publish social and environmental reports as well as

the application of article 225 of the Grenelle II law and its implementing decree of April 24, 2012 which constitute the heart of the mechanism in the matter of transparency which made it possible to accelerate the environmental reporting by the companies. The result may be influenced also by the adoption of the GRI (Global Reporting Initiatives) founded in 1997 characterized by the use of guidelines for the preparation of reports of sustainable development that has increased exponentially. Recently, in June 2013 the GRI (Global Reporting Initiative) implemented a new G4 version which insists on information's reliable, relevant and standardized with which to assess opportunities and risks, and enable more informed decision making. So our result confirms those found by several studies including Affes and Hentati-Klila (2012); Morales-Raya *et al.* (2018); Odoemelam and Okafor (2018); Ofoegbu *et al.* (2018); Pavaloaia (2015) who consider that being aware of the voluntary disclosure of environmental information is a means of open dialogue with the world as long as it presents an attempt by leaders to influence the external perceptions of their business. With regard to the timeliness of environmental disclosure, the results show that the average number of days to disclose environmental disclosure is 72 days, with a minimum of 36 days and a maximum of 174 days after the end of the fiscal year. We can note that the timely disclosure of environmental information was almost stable between 2012 and 2017. Then there is not a big difference in the date of publication of environmental information in this period (on average 74 days in 2012 and 69 days in 2017). It should be noted that French regulations require listed companies to publish their annual report within 4 months (120 days) of the end of the fiscal year. However, the publication of environmental information follows the same publication schedule as the management report or the reference document, if applicable, and meets the same time constraints. So, the ultimate goal of timely disclosure of listed French companies is to satisfy the demand of the shareholders, particularly foreign investors (Khoufi and Khoufi, 2018).

Table no. 4 – Characteristics of the dependent variables

Variables	N	Minimum	Maximum	Mean/year	Mean	Std dev
VED	486	0.5	0.9	2012/0.714 2013/0.724 2014/0.730 2015/0.737 2016/0.731 2017/0.735	0 .728	0. 096
TED	486	36	174	2012/ 74.39 2013/71.88 2014/71.75 2015/69.34 2016/71.74 2017/69.32	71. 41	210930

Note: VED: Number of items voluntarily disclosed / total number of items. TED: The difference between the year-end and the date of the signing of one of the statutory auditors', who is appointed as independent third party on social, environmental and societal information.

4.1.1 Descriptive analysis of dichotomous independent variables

Table no. 5 below presents the descriptive statistics of the dichotomous independent variables (the modality frequencies 1 and the modality 0).

Based on a review of descriptive statistics for the EAC variable, we note that 70.58% of the companies in our sample have an environmental audit committee. This is because the existence of competent persons within the audit committee concerned with environmental issues is still a recent practice in France. As for the CSRC variable, we find that 87.86% of companies have this type of committee. This observation allows us to say that CSRC are more frequent in the companies of our sample, which reinforces the idea that this structure can influence the quality of disclosure of environmental information which can be an explanatory factor of the environmental audit. For the variable BIG 4, we note that 77.98% of the companies observed have an environmental auditor belonging to BIG 4. Furthermore, the sample is made up of many companies not belonging to sensitive sectors, i.e. 61.73%.

Table no. 5 – Characteristics of dichotomous independent variables

Variables	N	Modality	Frequency	Percentage
EAC	486	0	143	29.42%
		1	343	70.58%
CSRC	486	0	59	12.14%
		1	427	87.86%
BIG4	486	0	107	22.02%
		1	379	77.98%
INDUSTRY	486	0	300	61.73%
		1	186	38.27%

Note: **EAC**= 1 if there is an environmental audit committee and = 0 otherwise **CSRC**= 1 if there is CSR committee and = 0 otherwise. **BIG 4 =** 1 if the company is audited by Big 4 and = 0 otherwise. **INDUSTRY** = 1 if the company is part of a sensitive sector and = 0 otherwise.

4.1.2 Descriptive Analysis of Continuous Independent Variables

Table no. 6 summarizes descriptive statistics for continuous independent variables (mean, standard deviation, minimum and maximum).

The descriptive statistics show that control variables on average reveals that the firms in our sample are of different sizes (ln (total assets was 16.33) with a minimum of 13.82 and a maximum of 19.43. The average debt ratio of the companies in the sample is 24.48% with a minimum of 0% and a maximum of 59.8%. The average of the earnings management measured by the discretionary accruals is 0.045. The minimum value of the earnings management is 0 and the maximum value in absolute value is 0.446.

These results allow us to deduce that French companies representing the SBF 120 index on average have low earnings management.

Table no. 6 – Characteristics of continuous independent variables

Variables	N	Minimum	Maximum	Mean	Std.dev
DEBT(%)	486	0	59.8%	24.4%	0.131
SIZE	486	13.821	19.436	16.331	1.250
ACCRUALS	486	0	0.446	0.045	0.054

*Note: **DEBT**= (Total debts / total assets) * 100. **SIZE**= log (Total assets).**ACCRUALS**= discretionary accruals measured according to the model of Raman and Shahrur (2008).*

4.1.3 Analysis of correlations between independent variables

Examining the matrix of Pearson correlation coefficients between the different explanatory variables allows us to study the null hypothesis of no correlation between two explanatory variables. We must therefore set the limit value of this correlation coefficient to specify our models. We set this limit to 0.6. As shown in Table no. 7, the Pearson correlation coefficient matrix between the different explanatory variables shows no correlation greater than 0.6. This leads us to conclude the absence of multicollinearity problem. In the same table, the variance inflation factor (VIF), is less than two for each variable, indicating that multicollinearity is not a severe problem (Chatterjee *et al.*, 2000).

Table no. 7 – Pearson correlation matrix of explanatory variables / VIF

Variables	EAC	CSRC	BIG4	DEBT	SIZE	ACCRUALS	INDUTRY	VIF
EAC	1.000							**1.16**
CSRC	0.340**	1.000						**1.24**
BIG4	0.125	0.137	1.000					**1.10**
DEBT	0.146	0.089*	-0.069**	1.000				**1.17**
SIZE	0.109	0.282**	0.149	0.130	1.000			**1.22**
ACCRUALS	0.086	0.056**	0.032***	0.029***	-0.242	1.000		**1.10**
INDUSTRY	-0.104*	-0.135	-0.184*	-0.312	-0.124*	-0.026***	1.000	**1.17**

*Note: **EAC** : 1 if there is an environmental audit committee and = 0 otherwise; **CSRC** : 1 if there is CSR committee and = 0 otherwise; **BIG 4** : 1 if the company is audited by Big 4 and = 0 otherwise; **SIZE**: is calculated as a natural logarithm of total assets; **DEBT**: is calculated as the ratio of total debt to total assets; **ACCRUALS**: discretionary accruals measured according to the model of Raman and Shahrur (2008); **Industry**: 1 if the company is part of a sensitive sector and = 0 otherwise.*

, **, * denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.*

4.2 Results of Panel Data Tests

4.2.1 Direct effect testing

Table no. 8 below summarizes all the tests related to multiple linear regression and logistics.

The Fisher test is significant at the 1% threshold for both regressions, thus validating the significance of the individual fixed effects. In other words, the results of these tests make it possible to reject the hypothesis H0 and to accept the alternative hypothesis: presence of fixed individual effects.

The Lagrange multiplier test suggested by Breusch-Pagan is significant at the 1% threshold for both regressions thus validating the significance of random individual effects. In other words, the results of these tests make it possible to reject hypothesis H0 (absence of random individual effects) and to accept the alternative hypothesis: presence of random individual effects.

Estimating the Panel Data makes it possible to specify whether the observable individual effect for each company is fixed or random. We have also performed the Hausman tests to specify models or by the inclusion of fixed or random individual effects. This test is the standard test for specifying individual effects. The Hausman test is significant for both regressions and therefore, we apply the specification in fixed effects.

Several tests exist to detect heteroscedasticity, the most common of which are the Breusch-Pagan test and the White test. We opt for the Breusch-Pagan test because this test is more specific for verifying the homogeneity hypothesis than that of White (1980), which is more general in detecting forms of residue anomaly other than heteroskedasticity (Glele

Kakai *et al.*, 2006). The objective is to test the null hypothesis that all coefficients of squared residue regression are zero. Thus, we accept H0 if the calculated Chi-2 value is less than Chi-2 statistic. The Breusch-Pagan heteroscedasticity test is significant for both regressions, implying that these models are heteroscedastic. Thus and given the error structure, our regressions will be estimated by the Feasible Generalized Least Squares (FGLS) method.

Serial correlation in linear panel data models (random and fixed effects) can distort standard errors and reduces the efficiency of the results (Wooldridge, 2002). The hypothesis of the autocorrelation of errors is tested by the Wooldridge test. The p-value of the Fisher test is higher than the confidence level ($\alpha = 0.05$). H0 is accepted (no first-order autocorrelation). We can conclude the lack of intra-individual first-order autocorrelation for both empirical models.

Table no. 8 – Summary of test results on panel data

Model / TESTS	Dependent variable	
	VED	**TED**
Fixed individual effect test	223.5***	24.78***
Fisher's test	(0.0000)	(0.0000)
Individual random effect test	1019.28***	715.24***
CHI-2 test	(0.0000)	(0.0000)
Specification test	13.09***	13.60***
Hausman's test	(0.0000)	(0.0344)
Heteroscedasticity test	43.92***	43.92***
Breusch Pagan test	(0.0000)	(0.0000)
Wooldridge test	0.653	0.645
Fisher test	(0.4213)	(0.4242)

*Note: **VED:** Number of items voluntarily disclosed / total number of items. **TED:** The difference between the year-end and the date of the signing of one of the statutory auditors', who is appointed as independent third party on social, environmental and societal information.*

**** indicates a significance of 1%*

4.2.2 Regression analysis and discussion

Table no. 9 summarizes model results with voluntary disclosure of environmental information as a dependent variable of the first model, and timely disclosure as a dependent variable of the second model.

We note that the R^2 adjustment quality of the two models is satisfactory. Indeed, the probability of Khi-2 is significant at a level of 1%. Moreover, the explanatory power of the model 1 regression (VED) is 18.14% and for the model 2 regression (TED) is equal to 13.33%. The following table summarizes the results.

As shown in the table above, we found that the coefficient of the variable EAC is positive and very significant (at 1%) for the model with VED as the dependent variable. So, we can conclude that the extent of voluntary disclosure of environmental information is trustful of the companies having an environmental audit committee. Thus, the coefficient of this variable is negative but significant at 1% for model 2 with TED as the dependent variable. This confirms our first hypothesis H1.

Table no. 9 – Summary of results

	Model 1 : VED			Model 2 : TED		
	Coefficients	**z-statistic**	**P>|z|**	**Coefficients**	**z-statistic**	**P>|z|**
EAC	0.044***	9.02	0.000	-5.687***	-6.67	0.000
CSRC	0.002	0.33	0.742	-13.412***	-5.85	0.000
BIG 4	0.035***	7.37	0.000	-6.212***	-4.04	0.000
DEBT	0.063***	4.23	0.000	14.463***	3.08	0.002
SIZE	0.004**	3.05	0.002	-1.828***	-5.79	0.000
ACCRUALS	0.295***	11.10	0.000	-27.434***	-4.30	0.000
INDUSTRY	0.033***	8.76	0.000	-4.166***	-3.88	0.000
N	486			486		
R-Squared	0.1814			0.1333		
Wald Khi-2	443.87***			216.58***		
Prob > Chi-2	0.000			0.000		

*Note: **VED**: Number of items voluntarily disclosed / total number of items. **TED:** The difference between the year-end and the date of the signing of one of the statutory auditors', who is appointed as independent third party on social, environmental and societal information.**EAC** : 1 if there is an environmental audit committee and = 0 otherwise; **CSRC** : 1 if there is CSR committee and = 0 otherwise; **BIG 4** : 1 if the company is audited by Big 4 and = 0 otherwise; **SIZE**: is calculated as a natural logarithm of total assets; **DEBT**: is calculated as the ratio of total debt to total assets; **ACCRUALS**: discretionary accruals measured according to the model of Raman and Shahrur (2008); **INDUSTRY**: 1 if the company is part of a sensitive sector and = 0 otherwise.*

, **, * denote significant differences from zero at 0.10, 0.05 and 0.01 levels, respectively.*

This result corroborates the results found by Peters and Romi (2014, 2012) and Ernst and Young (2010). It can be explained by the fact that the appropriate expertise of the members of the environmental audit committee is associated with a greater transparency of environmental information and with the information related to sustainability as this committee presents a guarantor of the quality of internal control and reliability of environmental information. So, we can say that the introduction of an environmental audit committee within the company is a voluntary act that gives rise to a voluntary disclosure extent of the environmental information and therefore the agency problems inherent in bad circulation of information will be mitigated. Also, the presence of the environmental audit committee tends to accelerate timely disclosure of environmental information. This result is explained by the fact that companies with an environmental audit committee tend to disclose their environmental information in a timely and quick way. This is consistent with that of Schmidt and Wilkins (2012), in the context of financial information, who found that the auditor and the expertise of the audit committee are associated with the timely disclosure of the financial statements. As a result, the environmental expertise within the audit committee is a qualification demonstrating its competence making it possible subsequently to improve the quality of the disclosure of environmental information namely the voluntary disclosure and timely disclosure. Regarding the CSRC variable, we found that its coefficient in the model 1 is not significant. This result is in line with the results found by Rupley *et al.* (2012) in the US context who found that the presence of a CSR committee at the board level is not significantly associated with the voluntary disclosure of environmental information. Also, our result is in line with Brown *et al.* (2010) who examined the characteristics of companies involved in a range of environmental information categories and found no significance between the quality of the disclosure and the existence of a CSR Committee within the companies. However, the coefficient of this variable (CSRC) is negatively significant at 1% for the second model (TED). This leads us to explain that the existence of the CSR

Committee tends to accelerate the timely disclosure of environmental information. So companies with a CSR committee are more interested in disclosing their environmental information in a timely and quick way but are not interested in the voluntary disclosure of such information. Hence, the second hypothesis of our study is partially accepted. Here, the purpose of the establishment of the CSR committee within the company is to enhance their image and improve their reputation in the eyes of stakeholders who seek timely disclosure of environmental information which presents an important device in assessing the relevance of the information disclosed. The positive and statistically significant coefficient (1%) of the BIG 4 variable model shows that when companies are audited by the large BIG 4firm audits, the extent of voluntary disclosure of environmental information increases. This result corroborates the results of the studies conducted by Abba *et al.* (2018); Iatridis (2013); Idowu and Caliyurt (2014); Meniaoui *et al.* (2016); Welbeck *et al.* (2017), respectively in the context of Nigeria, Ghana, France and Canada, Turkey and Malaysia. In addition, the variable coefficient found for this Big 4 is negative and significant at 1% for model 2 (TED). Thus, audited companies by an international auditing firm "BIG4" are the first who have a tendency to disclose their environmental information which is in the CSR reports to different users. This finding is consistent with the findings of Daoud *et al.* (2014); Fauzi and Locke (2012); Khoufi and Khoufi (2018) noted that due to greater resources owned by large firms such as adequate qualified staff can reduce the time taken to complete the audit work. So, our third hypothesis H3 is thus confirmed. Such a finding signifies that auditors' influence on the quality of environmental information disclosure is therefore justified by their participation in the preparation and presentation of CSR reports according to professional standards.

It follows that the large "BIG 4" audit firms require better quality of disclosure to maintain their reputation and in this case the choice of the audit firm can be a signal on the value of the company and on the quality of her disclosure.

With respect to the control variables, starting with firm size, the results show a positive and statistically significant (at 5%) relationship between the level of the voluntary disclosure of environmental information and the size of the firm. This result is consistent with the result of Mohamed and Faouzi (2014); Shahab and Ye (2018); Welbeck *et al.* (2017). For model 2 (TED), we found that the coefficient of the firm size is negative and significant at 1%. This result does not corroborate the results found by Guidara *et al.* (2014) in the context of the financial information who found that large companies are late disclosing their voluntary information to creditors. This result can be also explained by the fact that the size of the firm encourages companies to set up practices that illustrate their environmentally responsible commitment. Being a visibility factor, larger companies are subject to greater attention from the public and are under greater public pressure to disclose quality information about their environmental responsibility. Concerning the relationship between the debt level and the voluntary disclosure of environmental information, we have found that there is a positive and significant at 1% effect on the voluntary disclosure of environmental information. This result is consistent with the result of Abba *et al.* (2018) and Clarkson *et al.* (2008) who found a positive and significant association between the level of debt and the voluntary disclosure of environmental information in the US context. However, this finding is not consistent with the findings of Zinsou (2013), Gillet (2010) and Simnett *et al.* (2009) who found a positive and insignificant correlation between environmental disclosure and debt. In addition, debt has been found to have a positive and significant effect

at 1% for Model 2 (TED), so there is a significant relationship between the level of debt and the time of disclosure of environmental information. However, the positive effect which is justified by the fact that highly leveraged companies are audited more carefully and with a longer audit time since creditors require high quality information. In this case, with a high debt level firm tend to delay the disclosure of environmental information on time. Besides, it has been found that the coefficient of the variable Accruals is positive and significant at 1%. This finding is consistent with the findings of several studies, i.e. Mohamed and Faouzi (2014) and Prior *et al.* (2008). This result can be explained by the fact that managers involved in result management are motivated to voluntarily disclose environmental information as long as it helps to build a positive image among stakeholders, and through this leaders favor their own interests and, in this case, the voluntary disclosure of environmental information has a rooting effect of those managers. Also, the results show that the coefficient of the variable Accruals is negative and significant at 1% with the timely disclosure of environmental information. This result does not support the result found by Masoud and Talebbeydokhti (2015) who conducted their study in the context of companies listed on the Tehran stock exchange and stated that the earnings management had no significant effect on disclosure on time. As a result, it can be said that firms with a high level of earnings management are more motivated to promote voluntary disclosure initiatives and a faster disclosure of environmental information. Finally, regarding the relationship between the industry and the voluntary disclosure of environmental information, the results showed a positive and significant relationship between the 1% level of voluntary disclosure of environmental information and the industry. This same result is confirmed by the work of Welbeck *et al.* (2017), Peters and Romi (2013) and Ben Rhouma (2008) and that respectively in the Ghanaian, American and French contexts, which declare that the sectors considered as pollutants or the industries with high environmental sensitivity positively and significantly affect the voluntary disclosure of environmental information. Regarding model 2, we found that the coefficient of the industry variable is negative and significant at 1%. This result indicates that companies operating in environmentally sensitive sectors tend to disclose their environmental information in a timely manner. As a conclusion, these results allow us to conclude that the industry significantly affects the quality of environmental information on the one hand for voluntary disclosure and on the other hand for disclosure on time.

5. CONCLUSION

The purpose of this article is to analyze the impact of the environmental audit on the quality of the disclosure of environmental information; measured by the voluntary and timely disclosure of a sample of French listed companies making-up the SBF 120 index. For this, a theoretical and empirical study was conducted.

The results of the empirical study of the impact of environmental auditing and the quality of the disclosure of environmental information, namely voluntary disclosure and timely disclosure, show that the existence of the environmental audit committee, the environmental auditor's BIG 4, the size of the firm, the level of debt, the earnings management and the industry are systematically significant determinants of the quality disclosure of environmental information. However, our findings failed to support the

predicted positive and significant relation between the CSR committee and voluntary environmental disclosure.

This present study contributes to the literature on the quality of disclosure of environmental information and environmental auditing. In this regard, it has a theoretical, managerial and practical implication. From a theoretical point of view, despite the plurality of research work on the voluntary disclosure of environmental information, our work, to our knowledge, is the first to have focused on the timely disclosure of environmental information. Thus, the dual contractual and institutional theoretical framework seems to us to be very relevant for this type of research.

From a managerial point of view, the study of the timely disclosure of environmental information allows professional accountants and stock market authorities and the users of environmental information to know the factors associated with late publication of environmental information, and this is in order to improve the efficiency of those producing the audit and the disclosure service. In addition, the study allows the French legislator to be more aware of all the factors that disrupt the timely disclosure of extra-financial information, specifically environmental information to better guide reforms and improve the functioning of the financial market, as the audited financial statements and sustainability report together with audit reports are the only reliable sources available to investors and other external users of accounting, the financial and non-financial information.

In practical terms, the originality of this study consists in taking into account a particular sustainable development component, namely the environmental component, as we have been witnessing over the past few year a considerable change in the disclosure of this type of information, since nowadays companies wish to be seen as citizens and environmentally responsible. Thus, for some companies, the quality of the disclosure of environmental information represents for some companies an important means available to managers to influence the external perceptions of their company and a strategic tool for managing its legitimacy.

Despite the mentioned contributions, like all research work, our research suffers from certain limitations. First, the number of companies in the sample is reduced, so the findings might not be generalized**.** Second, the method of measuring the timely disclosure of environmental information, where we used the date of the signature of the environment auditor as a measurement means, which could be seen as a biased measurement method, since the date of the disclosure of the sustainability reports is not necessarily the same date of the sinning of the auditor's report, is not a method which can be generalized. This study is only a starting point from the relationship between environmental auditing and the quality of the disclosure of environmental information measured by voluntary and timely disclosure. It would be interesting in future research to make a comparative study with other contexts dealing with this subject.

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