
Environmental and Social Policy and Earning Persistence

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ABSTRACT

In recent years, the effect of disclosure on environmental and social information has been the subject of much research in an Anglo-Saxon context. The European field, and especially the French companies, have not been sufficiently discussed.

In this paper, we investigate the relationship between social and environmental disclosure and earning persistence (as a proxy of earning quality). We use the content analysis method with annual reports as a measure of social and environmental disclosure; the empirical validation is applied to the companies listed in the SBF 250 French stock market index over the 2005–2010 period. To measure earning persistence we opt for a regression of a time-series model on panel data. The findings show that French companies are characterized by a high level of social and environmental reporting; this situation may affect positively the quality of earnings such as more persistent earnings. This means that companies with a higher level of social and environmental commitment are more likely to take benefits and to communicate more persistent earnings and be desirable to investors. Copyright © 2012 John Wiley & Sons, Ltd and ERP Environment

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Introduction

EARNING QUALITY IS AN IMPORTANT FEATURE OF APPRAISING A FIRM'S FINANCIAL HEALTH, YET FINANCIAL statement users often overlook it. Earning quality refers to the ability of reported earnings to reflect the company's true earnings, as well as the convenience of reported earnings to predict future earnings. Earning quality also refers to the stability, persistence and lack of variability in reported earnings.

Prior literature shows that earning persistence is associated with many factors: Francis *et al.* (2004) talk about innate determinants (firm age, firm size, competition, . . .) and discretionary determinants (risk aversion, ownership dispersion, auditor quality, . . .).

The determinants cited above follow from financial motives (litigation costs, proprietary costs, disclosure costs, transaction costs, information asymmetry, . . .). However, there are other stimuli to earning quality that are omitted by the literature; they arise from non financial aspects such as environment and society.

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We predict that good environmental and social firms are more likely to report earning quality desirable by investors than other firms. By engaging in citizenship activities,¹ firms have enhanced brand image and reputation. Stakeholders are often drawn to brands and companies with good reputation in societal responsibility related concerns (Laksmana and Yang, 2009). Socially responsible firms are less likely to have negative rare events than their counterparts (Porter and Kramer, 2006; Cohen, 2009).

Thus, we expect that businesses which communicate more information on their activities' effect on the environment and community have more stable earning growth and less downside volatility, and therefore more desirable earning qualities than other companies (Laksmana and Yang, 2009).

This study contributes to the accounting and managerial literature in several ways. First, we are not aware of any prior studies that directly examine the association between social and environmental disclosure and earning quality. Our study adds to the existing literature by providing empirical evidence that corporate social responsibility (CSR) reporting is positively associated with desirable earning persistence. We provide evidence supporting the notion that good corporate citizens invest in a valuable asset, firm reputation, to gain stable operating environment and earning growth, which result in quality reported earnings. Furthermore, we use a new measure of social and environmental disclosure (SED) assessing a company's impact on multiple stakeholder groups. Whereas prior studies address only one or two areas of social responsibility, such as workplace quality, environmental performance or customer satisfaction, our measure of SED allows us to capture companies' overall social involvement. The remainder of the paper is organized as follows: the second section discusses the main concepts by a recent literature review; in the third section we develop the hypothesis. In the fourth section, we present the sample selection, variable description and descriptive statistics and we conduct an econometric analysis of our models. Finally, we present the empirical results and a discussion of our findings.

Prior Literature

Environmental and Social Disclosure

Research into corporate social and environmental disclosure can be understood through two principal categories. The first proposes the question of how social and environmental disclosure can be seen as reflecting and liberating the responsibilities and subsequent accountabilities of the firm. This work has taken a social and environmental point of view and has been motivated by democratic preoccupations about rights to information and the ways in which organizational behavior might be scrutinized by the community (Gray *et al.*, 1988; Lehman, 1999, 2001).

The second branch of research into social and environmental disclosure is more managerialist in orientation and tends to explore how the firm uses such disclosure to manage its stakeholders and how such disclosure might be employed to guaranty the legitimacy of either the individual corporation or, more broadly, corporate capitalism itself (Gray *et al.*, 1995; Deegan, 2002).

So, firms have an opportunity to demonstrate their responsibility by communicating information about the impact of their activities on the environment and society in general (Hong and Andersen, 2011).

Al-Tuwaijri *et al.* (2004) find a significant positive correlation between environmental reporting and environmental performance, suggesting that environmental disclosures reflect environmental performance; Gelb and Strawser (2001) find that good CSR performance and good disclosure are positively related. These studies suggest that CSR reports published by firms reflect their true social actions, or what is known as CSR performance.

Earning Persistence

Many studies evaluate earning persistence as a proxy of earning quality because of the maintained postulation that more persistent earnings are more decision useful for equity evaluation (Dechow, Ge and Schrand, 2010).

¹Corporate citizenship can be defined as the extent to which businesses assume the economic, legal, ethical, and discretionary responsibilities imposed on them by their stakeholders.' (Maignan and Ferrell, 2001).

SED and PERSISTENCE

Earnings that reflect a constant growth trend are seen as attractive (Wild, 1992). Thus, in financial statement analysis unusual, non-operating or non-recurring items reported on the income statement require more attention than others in terms of quality of earnings, as these items have a negative effect on the constancy of earnings.

Persistence is the extent to which current period earnings are reflective of future periods as well as the current period. In the accounting literature, a component of current period earnings (for example, an upswing in sales revenue) is persistent if it is sustainable in future periods.

The term 'persistence' is widely used interchangeably with sustainable earnings in the literature. Penman and Zhang (2002) state 'reported earnings before extraordinary items that are readily identified on the income statements, is of good quality if it is a good indicator of future earnings'. Thus, high quality of earnings is 'sustainable earnings' as often referred to in financial analysis. Green (1999) argues that 'quality of earnings depends on the proportion of earnings derived from recurring sources'.

Schipper and Vincent (2003) argue that earning persistence should be examined by taking into account that it is a function of accounting standards/implementations and the reporting entity's business model and operating environment.

Theoretical Frameworks and Hypothesis Development

Much of the debate on corporate citizenship has focused on whether socially responsible activities consume resources without adequate return (Waddock and Smith, 2000; Dowling, 2001; Matten *et al.*, 2003).

Prior research has tended to show a positive association between corporate social responsibility and financial performance (Prior *et al.*, 2008; Fifka, 2011; Melo and Garrido-Morgado, 2012). However, because management can exercise discretion over accounting numbers, a company could be more or less profitable than its earnings lead investors to believe.

Ideally, corporate and social disclosure should provide transparency and accountability to all stakeholders, so it could be assumed that available social and environmental disclosure will have relevance to the users given corporate stakeholders' engagement process.

To study the relationship between communication on CSR and earning persistence, we consider that instrumental theory (as a branch of stakeholder theory; Donaldson and Preston, 1995), legitimacy theory and signaling theory can explain this relation.

First, for instrumental theory, information disclosure reduces informational asymmetries between the firm and its stakeholders. It authorizes the organizations to propagate value-relevant information to all stakeholders. According to this theory, companies are encouraged by self-interest to engage in beneficent activities (to the community) and they take advantage of these activities as strategic tools to maximize shareholder value and augment profits. More particularly, societal (social and environmental) reporting has generally been observed as a preventative step to mitigate adverse governmental pressures in the future (Gargouri *et al.*, 2010; Hong and Andersen, 2011).

In addition, the literature looks at the relationship between social and environmental disclosure and earning persistence by referring to legitimacy theory. Legitimacy theory has its roots in the idea of a social contract between the corporation and society (Patten, 1991). A company's serenity depends on its ability to deliver desirable ends, to distribute economic, social or political benefits to the groups from which it derives its.

According to Guthrie and Parker (1989), legitimacy theory itself is grounded in a notion that an organization operates in society via a 'social contract' such that it gains approval to carry out various socially desirable activities in return for endorsement of its rewards and ultimate survival. Fundamentally, the 'social contract' is considered to be an implied contract between an organization and the society, whereby the society grants the organization permission to operate in compliance with societal expectations about the conduct of the organization.

While it would be unrealistic to ignore the presence of this behavior, relying upon self-interest and expectations of wealth-maximization as the main or sole motivation for corporate environmental reporting has been criticized, as social and political factors also impact upon the corporation (Gray *et al.*, 1995). By social and environmental disclosure, the manager pursues different ways to obtain approving coverage from the media, legitimacy from the community, favorable regulation and less inspection from investors and other stakeholders (Ruf *et al.*, 2001; Prior *et al.*, 2008).

Finally, for signaling theory, Gray (2005) argues that a company making corporate environmental disclosure as one of its CSR activities is predominantly concerned with signaling the quality of its management. Additionally, social and environmental disclosure is signaling to investors and other powerful and economic stakeholders that the company is actively taking part in CSR practices and that its market value is in a good position. Good social and environmental performance helps a company to gain a reputation for reliability from capital markets and debt markets. In the same framework, we note the importance of signaling theory in determination of earning quality; for example, accounting accruals can reduce the ambiguity in changes in cash flows from operations as a signal about the firm's wealth creation and profitability in a given period. Good earning quality allows certain risks for the company's future perspectives; for example, outsiders will take disciplinary action against managers if earning management is substantially detected. From a manager's point of view, social and environmental disclosure is a signal that keeps aware shareholders from concerns on which managers might be questioned.

Many studies have examined the reaction of market value after environmental accidents; Blacconiere and Patten (1994) examine the market response for a sample of 47 US chemical firms following the 1984 Bhopal chemical leak. Using a content analysis method, authors show that firms with more extensive environmental disclosure in their 10-K reports prior to the accident suffered less negative market reactions than companies with less extensive financial report environmental disclosure.

Moreover, the action of societal information disclosure is signaling to investors and other powerful and economic stakeholders that the company is actively taking part in CSR practices and that its market value is in a good position (Patten and Nance, 1998; Cormier *et al.*, 2011).

Yip *et al.* (2011) find, in two US industries (divergent in terms of political visibility), a negative relationship between CSR disclosure and earning management in the oil and gas industry and a positive relationship in the food industry. They identify the motivation of ethical concern in this finding.

Finally, Gargouri *et al.* (2010) and Scholtens and Kang (2012) reveal the role of ethics patterns and corporate social responsibility in controlling earning management.

The studies cited above display how corporate policies in environmental and social matters may affect earning quality (such as earning management, accruals quality, income smoothing, . . .); in our research we intend to examine whether the social and environmental disclosure is related to earning persistence (as a proxy of earning quality). Thus, we expect that businesses that communicate more information about the effect of their activities on the environment and community have more stable earning growth and less downside volatility, and therefore more desirable earning qualities, than other companies.

We argue that firms with a high level of social and environmental commitment are more likely to take advantage in order to inflate reported earnings than those with a lower level of social and environmental commitment.

Based on this we hypothesize the following.

Hypothesis: *Environmental and social disclosure is positively associated with earning persistence.*

The relation between social and environmental disclosure and earning persistence need to be further explained: for this, we have added some control variables. In fact, Lev (1983) and Baginski *et al.* (1999) do not find a significant relation between size and earning persistence. Peng (2011) argues that the effect of firm size on the earning quality is not clear enough. In contrast, Cheng (unpublished dissertation) shows that market share as a measure of firm size is positively associated with earning persistence.

As other controlling variables, we also introduce debt level, audit quality, sale volatility and industry sensitivity, which may affect the relation between environmental and social disclosure and earning persistence.

We motivate our choice for audit quality by the importance accorded by literature to Big 4² auditors. In addition, some studies (Francis and Wang, 2008; Francis and Yu, 2009) argue that Big 4 auditors are more sensitive to the legal liability changes and adjust their behavior to the changes consequently, but non-Big 4 auditors are less inclined to the legal liability. In the same line, Dechow *et al.* (2010) argue that audit quality has an implication for the credibility of financial statements.

²The Big 5 became the Big 4 after the demise of Arthur Andersen in 2002. The Big 4 are PricewaterhouseCoopers; Deloitte Touche Tohmatsu; Ernst and Young; KPMG.

SED and PERSISTENCE

Variable	Type	Code	Measure
Earning persistence	dependent	PERST	negative slope from regression model of Francis <i>et al.</i> (2004)
Environmental and social disclosure	explanatory	SED	content analysis of social and environmental items
Firm size	control	SIZE	natural logarithm of total assets
Audit quality	control	AUDIT_Q	dummy: coded 1 in case of company audited by Big 4 auditor, and 0 otherwise
Sales variation	control	SALES	$[(sales_t - sales_{t-1})/sales_{t-1}]$
Debt level	control	DEBTS	debts divided by total assets
Industry sensitivity	control	INDT	dummy: coded 1 in case of sensitive industry, and 0 in case of non sensitive industry

Table 1. Variable description

On the other hand, Ghosh and Moon (2010) use debt level in examining the relation between financing and earning quality. They affirm that earning quality first increases and then declines with increasing debt levels. However, Valipour and Moradbeygi (2011) find a significant and positive relationship between debts and earning quality.

Related to sales variability, Lev (1983) demonstrates that companies with high sales enjoy more constant earnings. For US firms, Chambers and Payne (2011) argue that sales volatility affect positively accrual persistence.

Finally, we are interested in the effect of industry sensitivity³ on social and environmental disclosure and earning persistence; the role of this variable is presented in many studies (Patten, 1992; Brammer and Pavelin, 2008; Melo and Garrido-Morgado, 2012; . . .). We shall choose a multi-industry sample, because this is appropriate to reinforce the external validity of findings (Maignan and Ferrell, 2001).

All variables are illustrated in Table 1.

Empirical Validation

Sample Selection and Data

France is ranked fourth for the publication rate of an environmental report (or sustainable development report) by its largest companies (Capron, 2003, p. 4). It was one of the first countries convinced of the importance of implementing an environmental measure within the organization (Capron and Gray, 2000). Cormier and Magnan (2003, p.43) talked about pressures exerted on French companies, by the market, with the purpose of disclosing more and good information about the effects of their activities. At this time, the current economic crisis has strengthened even more discussion on this theme of communication on social responsibility. France's commitment to CSR is characterized by its full participation in many international negotiations. This commitment is stated in terms of legislation, including the Law on New Economic Regulations and Law No 2010-788 of 12 July 2010 related to a national commitment to the environment. Also, we note the promotion of responsible investment by various devices and improving transparency with a label policy. Finally, initiatives by private actors demonstrate the collaboration of French society in corporate social responsibility.

Our data are gathered from Worldscope (for earnings per share information) and DataStream (for other variables). Our study focuses on a final sample⁴ of 128 non-financial companies as part of the SBF 250 index between 2005 and 2010.

We used web sites of companies and web sites such as www.euronext.com and www.amf-france.com to download all annual reports and special reports (sustainable development reports, environmental reports, . . .) of our company sample.

³The industry classification is based on the standard industrial classification (SIC) codes from the Worldscope data base. Worldscope assigns SIC codes based on contribution of business segments to net sales or revenues, in descending order of importance.

⁴The number of companies was 250; the elimination of some companies was for these reasons: financial companies- date of the financial year end different from 31 December- firms missing the data necessary to measure some variables.

A. Descriptive statistics for EPS					
	Obs.	Mean	Std dev.	Min.	Max.
EPS _t	767	2.498	5.181	-55.01	37.75
EPS _{t-1}	640	2.438	5.229	-55.01	37.75
B. Regression of time-series model					
	Coeff.	Std err.	t	P > t	
EPS	0.579	0.215	2.69	0.007	
Constant	1.080	0.712	1.52	0.129	
Adj. R ² 31.10%					

Table 2. Descriptive statistics for earnings per share and regression of time-series regression model

Variables Description

Dependent Variable

Following previous studies (Lev, 1983; Ali and Zarowin, 1992; Francis *et al.*, 2004; Laksmana and Yang, 2009; Gaio, 2010), we measure earning persistence (PERST) as the negative slope coefficient estimate, α_{1i} , from an autoregressive model of order one⁵ (AR1) for annual earnings per share:

$$EPS_{i,t} = \alpha_{i,0} + \alpha_{1,i} EPS_{i,t-1} + \varepsilon_{i,t} \tag{1}$$

For each firm *i* and year *t*, EPS is net income before extraordinary items divided by the weighted average number of outstanding shares.

Larger (smaller) values of PERST correspond to less (more) persistent earnings. Persistent earnings are viewed as higher quality earnings because they are sustainable (Francis *et al.*, 2004; Laksmana and Yang, 2009).

From an accounting perspective, earning is an extremely important measure of periodic financial performance. We take the view that the degree to which current reported earnings persist into the next period is an important measure of earning quality.

In relation to annual earnings, Sloan (1996) shows that in US companies in the period 1962–1991 the α value in the model regression is approximately 0.84. That is, if a company earns \$US 1 of earnings in year *t*, then \$US 0.84 would be expected to persist into the next year.

The lower persistence of the accrual component of earnings indicates that the amount of accruals in current earnings is inversely related to the persistence of earnings in the future and is an inverse measure of earning quality.

The majority of the earning persistence literature employed a time-series regression (Lev, 1983; Kormendi and Lipe, 1987; Peng, 2011) such as the auto-regressive, integrated moving average (ARIMA) model to estimate a measure of earning persistence. However, in order for a time-series model to have effective power there should be a relatively long history of earnings (e.g., many studies utilize a time series of 20 successive years of earnings data, for example Fama and French, 2000).

We present in Table 2 the measurement of the variable PERST and related statistics.

Explanatory Variable

For measuring environmental and social disclosure, a review of past research shows several techniques. The majority of studies, in the field, have used the content analysis method based on indexing and weighting scales (Wiseman, 1982; Patten, 1991, 1992; Patten and Nance, 1998).

According to Wiseman (1982), the simplest structure of content analysis techniques notes whether or not a particular event is brought up in a document (annual report for example).

Previous studies assessed environmental disclosures mainly from annual reports and other regulatory filings such as 10-Ks, and many of those studies rely on a Wiseman (1982) based content analysis index to measure the

⁵We use an autoregressive model with order one rather than the higher order specification suggested by Baginski *et al.* (1999) because we wish to estimate firm-specific persistence measure for a broad sample of firms.

SED and PERSISTENCE

extent of environmental disclosure. The Wiseman index focuses on the financial consequences of corporate environmental activities and puts more weight on quantitative disclosures. Using this measure, poor environmental performers may actually have higher disclosure cores than good performers because they have greater exposures and must discuss any material financial information in their regulatory filings such as annual reports and 10-Ks.

After the emergence of new normalization attempts on international and French levels, such as the French law for New Economics Regulations of 2002, the Global Reporting Initiative (Clarkson *et al.*, 2011), the Global Compact and the ISO 26000, we opt for a scale composed from 58 items (see the appendix). This scale encompasses both environmental and social aspects. Index items are empirically verified by Ben Rhouma (2008), Aerts *et al.* (2008) and recently by Cormier *et al.* (2011).

The rating is based on a score from zero to three; three points are awarded for an item described in monetary or quantitative terms, two when an item is described specifically, one for an item discussed in general and zero for no information about the item.

We consider that the use of a coding scale to qualify a firm's SED is appropriate for two reasons. First, it allows for some incorporation of different sorts of information into a single figure that is comparable across firms in terms of importance. Second, while other disclosure studies rely on word counts to measure environmental disclosure (e.g. Neu *et al.*, 1998; Williams and Ho Wern Pei, 1999), a qualitative scale allows for the researcher's judgment to be used in rating the value or quality of the disclosures made by a firm. While this process is more subjective, it guarantees that irrelevant or redundant generalities are not regarded as strategic social and environmental disclosure (Aerts *et al.*, 2008).

Research Design

Descriptive Statistics for Variables

Table 3 summarizes the descriptive statistics of our variables; panel A presents descriptive statistics for continuous variables and panel B shows descriptive statistics for the dummy variables.

The mean of our variable of interest (PERST) is -0.763 , this value is close to that found in studies by Francis *et al.* (2004) (-0.482) and Laksmana and Yang (2009) (-0.671). According to Francis *et al.* (2004), larger values of PERST (i.e. less negative) signify less persistent earnings (less 'desirable' attribute).

Concerning the explanatory variable (SED), items of measurement are subdivided into two categories: they represent two dimensions, social disclosure (SOCDISC) and environmental disclosure (ENVDISC).

A. Descriptive statistics for continuous variables					
Variable	Obs.	Mean	Std dev.	Min.	Max.
PERST	640	-0.763	0.917	-1.241	-0.398
SED	759	73.875	39.571	5	155
SOC_DISC	761	36.347	14.498	0	61
ENV_DISC	761	37.482	29.053	0	94
DEBTS	738	0.007	0.178	-0.052	4.838
SIZE	760	7.413	1.934	2.721	12.083
SALES	764	1.074	1.323	0.007	24.254
B. Descriptive statistics for dummy variables (AUDIT_Q and INDT)					
	Frequency/companies	Frequency/observations	Percent	Cumulative percent	
Big 4, 0	33	196	25.65	25.65	
Non-Big 4, 1	95	568	74.35	100	
Total	128	764	100	-	
Sensitive industries, 1	86	515	67.100	67.100	
Non sensitive industries, 0	42	253	32.900	100	
Total	128	768	100	-	

Table 3. Descriptive statistics for all variables

A. Heteroskedasticity test for model 2			
Test	Statistic	df	$p > \text{Chi}^2$
White's test	35.11	19	0.000
B. Heteroskedasticity test for model 3			
Test	Statistic	df	$p > \text{Chi}^2$
White's test	27.18	19	0.008
C. Heteroskedasticity test for model 4			
Test	Statistic	df	$p > \text{Chi}^2$
White's test	23.28	19	0.006

Table 4. Multicollinearity test for the three models

We note that the SED mean is 73.875, compared with a maximum value possible that can be obtained of 174.⁶ Despite the mandatory requirement of environmental and social disclosure for French listed companies, the disclosure level is very low. However, this average has increased compared with what was found in studies before the advent of the French law about the new economic regulations of 2002; the thesis of Ben Rhouma (2008) shows three means of social and environmental disclosure of 2001, 2002 and 2003: she obtains respectively 21.7, 44.98 and 58.95.

We shall conduct three panel regressions, the first uses SED (composite score) as an explanatory variable (model 2). For the remaining two regressions we utilize the two dimensions of SED, social disclosure (model 3) and environmental disclosure (model 4).

$$\text{PERST}_{i,t} = \beta_0 + \beta_{1i,t} \text{SED} + \beta_{2i,t} \text{SALES} + \beta_{3i,t} \text{DEBTS} + \beta_{4i,t} \text{AUDIT}_Q + \beta_{5i,t} \text{SIZE} + \beta_{6i,t} \text{INDT} + \varepsilon_{i,t} \quad (2)$$

$$\text{PERST}_{i,t} = \rho_0 + \rho_{1i,t} \text{SOC}_{\text{DISC}} + \rho_{2i,t} \text{SALES} + \rho_{3i,t} \text{DEBTS} + \rho_{4i,t} \text{AUDIT}_Q + \rho_{5i,t} \text{SIZE} + \rho_{6i,t} \text{INDT} + \delta_{i,t} \quad (3)$$

$$\text{PERST}_{i,t} = \gamma_0 + \gamma_{1i,t} \text{ENV}_{\text{DISC}} + \gamma_{2i,t} \text{SALES} + \gamma_{3i,t} \text{DEBTS} + \gamma_{4i,t} \text{AUDIT}_Q + \gamma_{5i,t} \text{SIZE} + \gamma_{6i,t} \text{INDT} + \mu_{i,t} \quad (4)$$

Model Specification, Multicollinearity and Heteroskedasticity

Multicollinearity is a situation where two or more of the independent variables are highly correlated; therefore, it has damaging effects on the regression analysis results. Since the model employs more than one independent variable, it is of importance to check the existence of multicollinearity.

The high value of the variance inflation factor (VIF) is generally seen as indicative of severe multicollinearity. By referring to panels A–C of Table 4, we conclude that the VIF values of most of our variables are less than 2 and tolerance values are greater than 0.3. This indicates that multicollinearity is kept to acceptable levels in the three models.

Relating to the heteroskedasticity, Table 5 shows that our models suffer from a heteroskedasticity problem (a large chi-square would indicate that heteroskedasticity was present; we have respectively for the three models $p > \text{chi}^2 = 0.000$, $p > \text{chi}^2 = 0.008$ and $p > \text{chi}^2 = 0.006$). In order to correct the situation we estimate the three models by the White (1980) test: the purpose is the control of heteroskedasticity in the error terms.

Empirical Results

For the three models, the explanatory power is significantly lower (16.93%, 22.17%, 18.33%), but compared with similar studies this level is eligible: for example, in the study of Francis *et al.* (2004) the adjusted R^2 did not exceed 20% in all models; in addition, Peng (2011) found values of adjusted R^2 ranging between 5% and 17%.

A negative coefficient estimate of SED indicates that it is positively correlated with desirable earning persistence (this hypothesis has been adopted in many studies in the field such as Francis *et al.*, 2004, and Laksmana and Yang, 2009). Regarding the output of STATA in panel A of Table 6, we conclude from the regression results that the relation between SED and PERST is significant and positive (at the 5% level).

The same signs are obtained for DEBTS and INDT. In fact, the two variables are positively correlated (at the 1% level) with the variable of interest.

For the other variables and in the first model, SALES, SIZE and AUDIT_Q have a positive and not significant effect on PERST; this signifies that the variability of sales, firms' size and audit quality do not influence the persistence of earnings.

⁶174 is calculated as the maximum value accorded to an item multiplied by the total number of items, i.e. $3 \times 58 = 174$.

SED and PERSISTENCE

A. Multicollinearity test (variance inflation factor) for model 2		
Variables	VIF	Tolerance
SED	1.62	0.619
SIZE	1.49	0.671
INDT	1.34	0.746
SALES	1.11	0.987
AUDIT_Q	1.01	0.901
DEBTS	1.00	0.997
B. Multicollinearity test (variance inflation factor) for model 3		
Variables	VIF	Tolerance
SOC_DISC	1.32	0.757
SIZE	1.15	0.870
INDT	1.11	0.900
SALES	1.09	0.917
AUDIT_Q	1.01	0.990
DEBTS	1.00	0.996
C. Multicollinearity test (variance inflation factor) for model 4		
Variables	VIF	Tolerance
ENV_DISC	1.57	0.637
SIZE	1.48	0.675
INDT	1.36	0.735
SALES	1.11	0.900
AUDIT_Q	1.06	0.943
DEBTS	1.00	0.998

Table 5. Heteroskedasticity test for the three models

After studying the effect of the composite score of social and environmental disclosure, we show the results of relationship between earning persistence and the two dimensions of the explanatory variable (SED).

For the first dimension, panel B of Table 6 presents a significant (at 1%) and positive effect of social disclosure (SOC_DISC) on earning persistence. In the same model 2, we remark that SALES and AUDIT_Q have no significant effect on the variable of interest. However, and contradictory to the first model, other control variables (DEBTS and SIZE) have a significant and negative link with earning persistence.

Finally, for the second dimension of the explanatory variable, panel C of Table 6 shows that relationship between environmental disclosure (ENV_DISC) and earning persistence (PERST) is significant (at the 5% level) and positive.

In the third model, SIZE, DEBTS and INDT have a significant and positive effect on earning persistence.

Discussion of Results

By studying the relationship of social and environmental disclosure (SED) and its two dimensions (SOC_DISC and ENV_DISC) with earning persistence (PERST), we have obtained a significant effect of the three variables on the variable of interest (successively 5%, 1% and 5%). This means that companies with a higher level of social and environmental commitment are more likely to take benefits and to communicate more persistent earnings and be desirable by investors. This finding is in alignment with results obtained by Laksmana and Yang (2009): they found, in a sample of US companies, that Best Corporate Citizens (BCCs) have more desirable earnings attributes than non-BCCs. Explicitly, BCCs' earnings are more predictable and persistent than non-BCCs'. In addition, Hong and Andersen (2011) obtain a positive relationship between social aspects of corporate activities and the quality of earnings proxied by earning management; their findings demonstrate that firms engaged in ethics and social activities have less incentive to manage their results.

With regard to the contribution of debt level (DEBTS) in the studied relation, this variable has a positive and significant effect in the first and the third model and a reverse sign in the second model; in other words, debt level affects positively the social and environmental disclosure (SED: composite score) and the environmental reporting (ENV_DISC: as a second dimension). Thus, Francis *et al.* (2004) use models of Dechow and Dichev (2002) and Jones (1991), from which they found that the firms with lower earning quality have lower debt ratings. In the same

A. Relation between earning persistence and SED (composite score): model 2

Variables	Coeff.	Std err.	t	P > t	[95% conf. interval]
SED	-0.039	0.033	-2.59	0.029**	-0.015 0.071
SALES	-0.018	0.028	-1.05	0.227	-0.072 0.109
DEBTS	-0.122	0.139	-3.78	0.000*	-0.150 -0.095
INDT	-0.753	1.007	-2.88	0.001*	-1.006 1.189
SIZE	-0.194	0.077	-0.98	0.138	-0.164 -0.042
AUDIT_Q	-0.113	0.075	-0.11	0.661	-0.109 0.111
Constant	0.071	0.385	-2.98	0.001	-0.640 -0.307

Obs. 613 Adj-R² = 16.93% F(125, 482) = 9.766 Prob. > F = 0.003

B. Relation between earning persistence and social disclosure: model 3

Variables	Coeff.	Std err.	t	P > t	[95% conf. interval]
SOC_DISC	-0.017	0.007	-2.52	0.009*	-0.030 -0.003
SALES	0.094	0.059	1.58	0.114	-0.023 0.211
DEBTS	0.372	0.149	2.50	0.013**	0.079 0.665
INDT	-1.344	0.256	-1.99	0.004*	-0.166 0.178
SIZE	-0.108	0.663	-1.02	0.129	-0.067 0.119
AUDIT_Q	-0.552	0.223	-1.11	0.104	-0.419 0.122
Constant	0.175	0.033	-2.56	0.003	-0.551 -0.081

Obs. 614 Adj-R² = 22.17% F(125, 483) = 11.610 Prob. > F = 0.000

C. Relation between earning persistence and environmental disclosure: model 4

Variables	Coeff.	Std err.	t	P > t	[95% conf. interval]
ENV_DISC	-0.118	0.096	-1.98	0.048**	-0.119 -0.000
SALES	0.055	0.032	1.34	0.112	-0.606 0.101
DEBTS	0.091	0.941	2.44	0.004*	0.716 1.234
INDT	-0.055	0.128	2.01	0.009*	-0.123 0.095
SIZE	0.559	0.908	2.77	0.002*	0.803 1.095
AUDIT_Q	-0.105	0.111	-1.24	0.101	-0.037 0.146
Constant	-2.908	1.133	-2.90	0.001	-0.386 0.007

Obs. 614 Adj-R² = 18.33% F(125, 483) = 4.113 Prob. > F = 0.000

Table 6. The hypothesis test: regression results

*, **significance at 1% and 5% respectively.

vein, Ben Othman and Zeghal (2006) give evidence, in a French context, that debt is positively associated with income-increasing earning management when firms want to diminish the probability of debt covenant violations and improve the firm's bargaining power during debt negotiation.

Our results also show a positive effect of firm size in the studied relationship: these findings affirm that small firms engage in more social and environmental strategy than large or medium-sized firms in order to report more stable earnings. A logical justification is that it is easier for large firms to report positive earnings than positive change in earnings, while small firms may not have the same capacity as large firms in reporting positive earnings (Burgstahler and Dichev, 1997). We note that the positive effect of firm size exists only in the third model; this finding is in alignment with many other studies (Al-Tuwaijiri *et al.*, 2004; Brammer and Pavelin, 2008; Cormier *et al.*, 2011; Cong and Freedman, 2011). This assertion comes from the importance accorded by corporations to environmental problems; we expect that things will change and the new ISO 26000 standard⁷ will affect the trends of French companies in terms of social and environmental concerns.

Concerning the role of audit quality in determining the effect of social and environmental disclosure on earning persistence, the empirical results show a positive link. In this sense, it is believed to be an important responsibility of auditors to recommend their client companies to practice socially responsible accounting (Choi, 1998).

Our company sample is diversified; the effect of industry sensitivity in our field, such as CSR role in determining the quality of earnings, is crucial. The results of the effect of INDT as a control variable, in the three models, show a

⁷This is an international standard on 'societal responsibility' published in late 2010. It was approved by the French Association for Standardization (AFNOR).

SED and PERSISTENCE

positive and significant effect; i.e., companies disclose more social and environmental information when they experience a loss or when regulatory challenges are intense (Neu *et al.*, 1998). That is, the expectation is that firms with higher visibility and operating in industries that are more sensitive to environmental laws and regulations will tend to disclose more extensive environmental information (Patten, 1992, 2002; Deegan, 2002). On the other hand, Patten (1991) used size as well as industry as proxies for public pressure, assuming that larger companies and those in environmentally sensitive industries are more exposed to public pressure, and detected a positive correlation too.

Finally, we explain the role of sales variability in our studied relation: we have no significant effect; our results seem strange compared with previous studies. Moreover, sales variability is not as prone to the criticisms often applied to return on investment measures that such measures can be manipulated by accountants (Ruf *et al.*, 2001). Remember that the contradictory results are found in an Anglo-Saxon context, which is different to the French context. However, this mixed result may be a subject of further research.

Conclusion

Our paper contributes to the literature by studying the use of both the same sample (French companies) and the same time-frame (the period 2005–2010). We draw results based on a sample consisting of non-financial French companies listed in the Paris stock exchange from the SBF 250 index. For this reason, conclusions concern only French organizations without generalizing to the international context.

In general, our paper attempts to extend empirical and theoretical knowledge and to add to current literature on earning quality: we chose an important proxy for this quality, which is studied by many researchers (Baginski *et al.*, 1999; Francis *et al.*, 2004).

This work looks into the relationship between the level of environmental and social disclosure and earning persistence. A score of disclosure was calculated for each company; we used a content analysis of annual reports. The results of analysis affirm that French firms listed in the SBF 250 index have a high level of social and environmental information disclosure, which affects positively the quality of earnings. Our findings are in alignment with those obtained by Cormier and Magnan (2003) and Ben Rhouma (2008) in the French context.

This statement reflects the socially responsible behavior of the French firms in our sample; these companies benefit from higher customer and employee loyalty and are less likely to have unanticipated and unhelpful events (Laksmana and Yang, 2009); therefore, they are more likely to have persistent earnings and be desirable by investors than others.

Among the limitations of this study is the short period of investigation; it is possible to undertake our problem over a longer time period. A comparison between two periods, before and after International Financial Reporting Standards (IFRS) adoption, could be made.

Always within the limits, there is an imbalance in the number of items that make up the two dimensions of disclosure: we have a number higher for the environmental disclosure than for social disclosure, and consequently our results were partially biased. For this, current items could be updated or revised by referencing to new French acts or regulations in the social and environmental field; the new items may be confirmed by qualitative research.

Finally, although our study finds a positive link between social and environmental disclosure and earning persistence, we do not formally look into the mechanism behind this positive association. Future extension of this study may examine why good socially and environmentally responsible firms report more desirable and persistent earnings than their counterparts.

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SED and PERSISTENCE

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Appendix

Social and environmental disclosure index

Environmental items

Expenditures and risks

- Investments
- Operation costs
- Future investments
- Future operating costs
- Financing for investments

Social items

Labor practices and decent work

- Absenteeism and reasons
 - Employment opportunities
 - Labor rights/job creation
 - Rehiring, accompanying, social communication
 - Equity programs
-

Social and environmental disclosure index

- . Environmental debts
 - . Risk provisions
 - . Risk litigation
 - . Provision for future expenditures
 - Law and regulation conformity*
 - . Litigation, actual and potential
 - . Fines
 - . Orders to conform
 - . Corrective action
 - . Incidents
 - . Future legislation and regulations

 - Pollution abatement*
 - . Emission of pollutant discharges. Waste management
 - . Installation and process controls
 - . Compliance status of facilities
 - . Noise and odors
 - Sustainable development*
 - . Natural resource conservation
 - . Recycling
 - . Life cycle information
 - Land remediation and contamination*
 - . Sites
 - . Efforts of remediation
 - . Potential liability – remediation
 - . Implicit liability
 - . Spills (number, nature, efforts of reduction)
 - Environmental management*
 - . Environmental policies or company concern for the environment
 - . Environmental management system
 - . Environmental auditing
 - . Goals and targets
 - . Awards
 - . Department, group, service affecting the environment
 - . ISO 14000
 - . Involvement of the firm in the development of environmental standards
 - . Involvement in environmental organizations (e.g. industry committees)
 - . Joint projects with other firms providing environmental management services

 - . Human capital development/training
 - . Accidents at work
 - . Health and safety programs
 - . Employee savings
 - Society*
 - . Regional development
 - . Gifts and sponsorships
 - . Business ethics/anti-corruption measures
 - . Strategic alliances
 - . Community involvement
 - . Dispositions of the International Labor Organization
 - . Relations with stakeholders (environmental groups, consumer associations, ...)
 - Consumer and product responsibility*
 - . Purchases of goods and services
 - . Product-related incidents
 - . Product development and environment
 - . Consumer health and safety/product safety
-