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Ali Dardour et Jocelyn Husser

Volume 20, numéro hors-série, 2016

URI : <https://id.erudit.org/iderudit/1063708ar>
DOI : <https://doi.org/10.7202/1063708ar>

[Aller au sommaire du numéro](#)

Éditeur(s)

HEC Montréal
Université Paris Dauphine

ISSN

1206-1697 (imprimé)
1918-9222 (numérique)

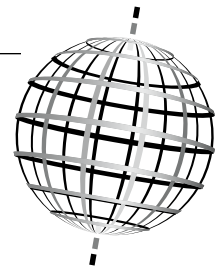
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Citer cet article

Dardour, A. & Husser, J. (2016). Does It Pay to Disclose CSR Information? Evidence from French Companies. *Management international / International Management / Gestión Internacional*, 20, 94–108.
<https://doi.org/10.7202/1063708ar>

Résumé de l'article

Cet article examine l'effet de la divulgation des informations relatives à la responsabilité sociale et environnementale sur la rémunération des dirigeants à partir d'une étude empirique d'un échantillon de sociétés françaises cotées à l'indice SBF 120 de 2007 à 2011. Il porte essentiellement sur la rémunération incitative à court terme et la rémunération incitative totale. Ces deux composantes ne sont pas corrélées au score total de divulgation d'informations RSE (comprenant les facteurs environnementaux, sociaux et de gouvernance). L'étude révèle que seul le score de divulgation d'informations environnementales est corrélé à la rémunération incitative (à court terme et totale) des dirigeants. Les scores de divulgation d'informations sociales et de gouvernance n'ont pas d'effet sur la rémunération des dirigeants.



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ALI DARDOUR

KEDGE Business School, France
Univ. Bordeaux, IRGO, EA4190

JOCELYN HUSSER

Aix Marseille Université, CERGAM,
AMGSM-IAE Aix en Provence

ABSTRACT

This article looks at how company disclosure of corporate social responsibility (CSR) information affects executive compensation through an empirical study of a sample of French companies listed on the SBF 120 index from 2007 to 2011. The focus is on short-term incentive compensation and total incentive compensation. These two components are not correlated with the total CSR disclosure score (comprising environmental, social, and governance factors). The study reveals that only the environmental disclosure score is correlated with (short term and total) executive incentive compensation. Social and governance disclosure do not have any effect on executive incentive compensation.

Keywords: Corporate social responsibility; environmental, social, and governance (ESG) disclosure; incentive compensation; financial performance

RÉSUMÉ

Cet article examine l'effet de la divulgation des informations relatives à la responsabilité sociale et environnementale sur la rémunération des dirigeants à partir d'une étude empirique d'un échantillon de sociétés françaises cotées à l'indice SBF 120 de 2007 à 2011. Il porte essentiellement sur la rémunération incitative à court terme et la rémunération incitative totale. Ces deux composantes ne sont pas corrélées au score total de divulgation d'informations RSE (comprenant les facteurs environnementaux, sociaux et de gouvernance). L'étude révèle que seul le score de divulgation d'informations environnementales est corrélé à la rémunération incitative (à court terme et totale) des dirigeants. Les scores de divulgation d'informations sociales et de gouvernance n'ont pas d'effet sur la rémunération des dirigeants.

Mots clés : responsabilité sociale des entreprises; divulgation d'informations environnementales, sociales et de gouvernance (ESG); rémunération incitative; performance financière.

RESUMEN

Este artículo examina el efecto de la divulgación de informaciones relativas a la responsabilidad social y ambiental sobre la remuneración de los directivos a partir de un estudio empírico de una muestra de empresas francesas cotizadas en el índice SBF en el período 2007-2011. Se centra en la remuneración incitativa de corto plazo y la remuneración incitativa total. Estos dos elementos no están correlacionados a la puntuación total de divulgación de informaciones RSE (incluyendo factores ambientales, sociales y de gobernanza). El estudio muestra que sólo la puntuación de divulgación de informaciones ambientales está correlacionada a la remuneración incitativa (de corto plazo y total) de los directivos. Las puntuaciones de divulgación de informaciones sociales y de gobernanza no afectan la remuneración de los directivos.

Palabras clave: responsabilidad social corporativa; divulgación de informaciones ambientales, sociales y de gobernanza (ESG); remuneración incitativa; rendimiento financiero.

Socially responsible decision-making systems are a key aspect of modern managerial communications. In 2001, a French law concerning new economic regulations (NER) came into force that requires listed companies to account for the social and environment consequences of their activities. Corporate activity reports must incorporate (and comment on) all decisions a company makes as well as the positive and negative impacts of its activities that affect some or all of its stakeholders. Although this law constrained publicly listed companies in France, the level of disclosure in those areas started low but grew significantly after 2007, with a significant increase in voluntary disclosure of corporate social responsibility (CSR) and sustainable development (Husser and Evraert-Bardinet, 2014).

The end result is that today's executives have to open their governance frameworks up to stakeholders. According to Baron (2010), CSR is motivated by the moral duty to undertake activities that are good for society. Moreover, the definition of CSR is linked to the meaning of Responsibility that is to say to the concept of Accountability according to Capron and Quairel-Lanoizelée (2015). More broadly, Hill *et al.* (2007) have defined CSR as the economic, legal, moral, and philanthropic activities that a firm undertakes to improve living conditions for its main stakeholders. Indeed, the European Commission defines CSR as "the voluntary integration of social, environmental and economic concerns of the whole society in the management and strategy of the company, in their business operations and their

relations with stakeholders” (Livre vert, 2001). In 2011, this very commission redefined CSR as “the firms’ impacts-on-society’s accountability” (European Commission, 2011). Such activities are implemented above and beyond any regulatory requirements and/or pressures coming from civil society. Yet emphasis on CSR might also be driven by the desire to maximize company profits or serve executives’ personal interests (instrumental initiatives). In this case, CSR becomes a vector for conveying a positive brand image or reputation as well as reducing uncertainty to make the company more attractive to stakeholders. All this explains why CSR has become so central to most executives’ social, economic, and societal concerns. At the same time, the individual and nominative compensation awarded to directors in French companies of all sizes has risen continuously since the 2001 NRE law first required listed companies to publish such information (Dardour, 2011; Broye and Moulin, 2014; Capron and Quairel-Lanoizelée, 2015).

Justification for higher executive remuneration has tended to be grounded in economic and also ethical arguments. A number of research studies have examined the impact of executive compensation on companies’ commitment to CSR policies (Deckop *et al.*, 2006; McGuire *et al.*, 2003). Our study will try to reverse this causality, investigating the idea that the disclosure of stakeholder-friendly CSR policies might in fact reduce uncertainty about how companies are being managed, leading in turn to reduced funding costs and higher executive pay (Botosan, 2006; Richardson and Welker, 2001). The question here then becomes to what extent the CSR policy information disclosure affects executive compensation.

This article’s first section offers a review of the literature and delineates the main research hypotheses. The following section will then focus on methodology. The third section presents the main empirical findings and discusses them. The article then ends with a conclusion.

Literature Review And Hypotheses

Two theoretical perspectives predominate when explaining the different interactions between CSR and executive compensation. The first is based on agency theory (Jensen and Meckling, 1976), with CSR information being used as a control mechanism in the principal-agent model. Social reporting can be construed as providing the kind of assurance that reduces agency costs and increases user confidence in the precision of the information that a company is providing (El Akremi *et al.*, 2015; Simnett *et al.*, 2009). Social reporting helps to reduce informational asymmetry by encouraging transparency (Kolk and Perego, 2010) and freeing shareholders from having to search individually for reliable information. Barnea and Rubin (2010) argue that insiders try to overinvest in CSR activities for their private benefit. More precisely, CEOs can improve their good reputation through CSR disclosure. They have an interest in improving their bargaining position, market value, and career prospects by developing a good reputation as responsible managers. If CEOs tend to invest in CSR then we would expect a positive relation between CSR disclosure and CEO compensation. This intimates a positive association between the willingness to disclose CSR information and executive compensation, as suggested by Milbourn (2003). More precisely, Milbourn (2003) showed

a positive relation between CEO reputation and stock-based compensation after using many control variables, such as firm characteristics and industry effects.

The second perspective is rooted in stakeholder theory (Clarkson, 1995; Freeman, 1984). The idea here is that sustainability reporting involves actors being accountable for the effects of their activities on stakeholders (Capron and Quairel, 2009; Capron and Quairel-Lanoizelée, 2015). What this suggests is that investing in activities of this nature helps to resolve conflict between executives and a firm’s internal and external stakeholders. Disclosing social and environmental information (above and beyond usual reporting) encourages executives to share with stakeholders the outcomes of their decisions and actions. Sustainability reporting is key at this level with the goal of producing sustainable “balanced scorecards” (Naro and Noguera, 2008). These are situations in which executives use CSR activities and social dialogue to hand control to various risk-takers in an attempt to increase their legitimacy and build a positive reputation (Cardebat and Cassagnard, 2011) while managing their company’s risks efficiently (Godfrey, 2005). Ultimately, this helps to improve a firm’s long-term economic viability. In this kind of conflict resolution hypothesis, a positive relationship can be expected between CSR information disclosure and executive compensation (Cai *et al.*, 2011), if only because executives working in responsible companies will want higher pay than their counterparts in less responsible companies. A company involved in irresponsible actions may have serious problems with its stakeholders. One example is the way the announcement that customers intend to boycott certain products can cause a fall in shareholder value. Because CSR activities imply good employee relations, supplier commitment, customer satisfaction, good environmental practices, and diversity of workforce, companies benefit from a better resolution of conflicts between direct and indirect stakeholders (Dardour *et al.*, 2015; El Akremi *et al.*, 2015; Harjoto and Jo, 2011). Under stakeholder conflict resolution, we expect the relation between total CSR disclosure and CEO compensation to be negative. CEOs of socially responsible firms will take relatively lower pay than those of socially irresponsible firms to mitigate potential conflict of interests among managers and other direct and indirect stakeholders (Cai *et al.*, 2011). The assumption in this kind of context is that information disclosure will affect negatively executive compensation.

The ambiguities of the two theories — agency theory and stakeholder theory — do not enable determining the relation (positive or negative) between CSR global disclosure and executive compensation. According to agency theory, CSR disclosure can be interpreted as a decrease or increase of agency costs (a drop of control cost for the principal and an increase of commitment cost for the agent). Similarly, according to stakeholder theory, the allocation of overcompensation can be observed in irresponsible companies and in companies with good CSR practices. The assumption is that information disclosure will affect executive compensation, which justifies Hypothesis 1:

Hypothesis 1: The global ESG disclosure score has a significant effect on executive incentive compensation.

Studies of how environmental information disclosure affects companies’ financial performance and executive remuneration clearly fit into the so-called cost of information approach in the

sense that expected future economic advantages will depend on which information is being voluntarily published (André *et al.*, 2011; Déjean and Martinez, 2009). Perceptions that a firm is negligent or environmentally irresponsible can cause a number of interventions, including attempts at regulation by stakeholders. Over the long run, this can also build a negative reputation and make the firm less attractive. These kinds of implied costs affect company share values, hence, executive compensation. For Cormier and Magnan (2007), improvements in environmental information (risks incurred and resources implemented) enhance investor understanding of risk and reduce information asymmetry and the cost of information while sustaining a firm's financial performance. The relationship between a firm's performance and compensation can be established along endogenous lines. Executive compensation will then be structured in a way that maximizes the firm's value, which is the ultimate objective. Berrone and Gómez Mejía (2009) think that good environmental disclosure increases executive compensation, hence, we established a second hypothesis based on a positive relationship between the environmental information disclosure and executive compensation:

Hypothesis 2: The environmental disclosure score correlates positively with executive incentive compensation.

A first series of studies (Botosan and Plumlee, 2002; Dhaliwal *et al.*, 2011; Richardson and Welker, 2001) focused on the positive link among social performance, information disclosure about social activities, and cost of capital. A second current of thought regarding the link between social disclosure and financial performances (Brammer and Millington, 2008; Husser and Evraert-Bardinet, 2014; Margolis and Walsh, 2003; Margolis *et al.*, 2007) attested to the existence of a moderate influence of social disclosure on the long term run. In this case, it is very much in executives' interest to disclose CSR data to reduce information asymmetry (Cormier *et al.*, 2011) and legitimize executive incentive compensation. The theoretical justification for spending on social activities then would be based on the improvement of a firm's productivity by getting staff to work better or harder, guaranteeing better financial performance. Disclosing information on social activity investments might then be connected to higher executive compensation. Preston and O'Bannon (1997) asserted that social dimension is an action lever that executives use to improve a company's financial performance and increase their own compensation.

In short, executives in companies that have good relations with stakeholders (notably employees) should receive higher compensation than ones in companies in which relations are less good. Empirical studies have shown that long-term compensation (shares and options) correlates with social activities (Ben Ali, 2014; Deckop *et al.*, 2006; McGuire *et al.*, 2003), leading to the hypothesis of a positive relationship between social activity information disclosure and executive incentive compensation in listed companies:

Hypothesis 3: The social score disclosure correlates positively with executive incentive compensation.

The information that a company discloses about governance practices translates its attempt to satisfy stakeholder demands for transparency about finances, the protection of shareholder and creditor rights, board operations, and equity structures. Recent studies have shown a possibility of tying corporate

governance to CSR through shareholding structures and the presence of external directors on the board (Barnea and Rubin, 2010; Hollandts *et al.*, 2011). This kind of disclosure enables stakeholders to gain a better understanding of executive governance and control and obtain information about how a firm is being managed and how it engages with society (Capron, 2011; Husser *et al.*, 2012). Disclosing detailed information to all relevant parties appears to be more useful than isolated measures relating to governance mechanisms, such as a board size, composition, and/or executive compensation (Ben Barka and Dardour, 2015; Hermalin and Weisbach, 2012). Governance, such as information disclosure in this area, is a variable mediating the relationship between executives and financial performance. Chhaochharia and Grinstein (2009) conducted a study in the United States and showed that independent directors can influence the remuneration committee decision in a positive way. They can make unbiased judgments regarding the CEO's performance, his or her continuation or eviction, and therefore propose an adapted remuneration in alignment with CSR disclosure. This results in a hypothesis of a relationship between corporate governance data disclosure and executive incentive compensation in listed companies:

Hypothesis 4: The governance disclosure score correlates positively with executive incentive compensation.

Methodology

The methodology used in this study consists of estimating a multivariate regression in which the explained variable is the level of executive incentive compensation from 2007 to 2011. The explanatory variables are the different CSR disclosure scores and control variables. The latter refer to the firm characteristics, types of major shareholders, CEO characteristics, and governance measures. These control variables were taken from the literature on executive compensation.

SAMPLE

CEO compensation is collected from the annual proxy statements published on firm websites and from IODS (Insead Oee Data Service) corporate governance data. The financial data were collected from the Bloomberg database. The CSR disclosure scores used here are the ones published by Bloomberg, as per Global Reporting Initiative (GRI) guidelines. The scores were obtained from companies' voluntary responses to a survey organized by Bloomberg containing environmental, social, and governance dimensions. All three dimensions were marked using, respectively, 11, 16, and 11 different criteria. Each was scored between 0.1 and 100 points. The proprietary Bloomberg CSR disclosure scores are based on the extent of a company's ESG disclosure. The score ranges from 0.1 for companies that disclose a minimum amount of ESG data to 100 for those that disclose every data point collected by Bloomberg. Scores integrated the specificities associated with each of the different sectors of activity to avoid any bias. Appendix 1 shows the scoring grid. Our sample includes all companies that belonged to the SBF 120 index at least once between 2007 and 2011. The initial sample was made up of 153 companies, but the research removed 64 companies because of missing data (principally ESG scores). The final sample includes 89 companies.

Multivariate Tests

MODEL

We used panel data analysis to test our hypotheses. Such analysis is adequate for data sets that include multiple-time observations of a given sample. To reduce the risk of biased estimators from possible heteroskedasticity and serial correlation, we used a random effects generalized least squares (GLS) estimator. Random effects have an advantage over fixed effects in that time-constant variables can be included in the analysis. To test our hypotheses, we model CEO incentive compensation as a function of overall ESG disclosure scores: environmental disclosure (ENVD) scores, social disclosure (SOCD) scores, and governance disclosure (GOVD) scores, and control variables. The full model is as follows:

$$\begin{aligned} \ln(\text{CEO incentive compensation})_{it} &= \alpha_{it} + \beta_1 (\text{ESG scores})_{it} + \beta_2 (\text{Firm characteristics})_{it} \\ &+ \beta_3 (\text{Governance measures})_{it} + \beta_4 (\text{CEO characteristics})_{it} + \sum_{t=1}^5 \beta_t \text{Industry}_{it} \\ &+ \sum_{t=1}^{2007-2011} \beta_t \text{Year}_{it} + \varepsilon_{it} \end{aligned}$$

We regressed two models including CSR disclosure scores and variables that control for firm characteristics, governance structure, and CEO characteristics. The vector of CSR is composed of four continuous variables: ESG score, ENVD, SOCD, and GOVD. All scores are attributed by the Bloomberg database.

First, we measured firm performance by ROA (return on assets: earnings before interest and tax, divided by total assets). The firm size is measured by the firm's natural log of total assets. Second, we used three measures of governance structure: CEO duality, board size, and board independence. CEO duality is a dummy variable that equals one if the CEO also serves as chairman of the board and zero otherwise. Board independence is the proportion of independent directors on the board. Board size is the number of director seats on the board. CEO age and CEO tenure are included to capture CEO characteristics.

According to Li *et al.* (2007) CEO age has a significant positive association with CEO compensation. Moreover, Dechow and Sloan (1991) and Gibbons and Murphy (1992) indicate that older CEOs have a bias toward short-term projects whose payoffs are due before their retirement. Therefore, Ryan and Wiggins (2001) suggest that incentive compensation schemes should restore CEO preferences for long-term value-creating investments.

CEO tenure, measured as the number of years the CEO has held this position in the firm, was added because it has been suggested that as executive years of service increase, they might be better able to alter the firm's governance mechanisms in their own favor and expand their influence over the determination processes of their own compensation (Bebchuck and Fried, 2004; Westphal, 1998). Additionally, CEO tenure may occur because of consistent performance, which also warrants a higher compensation (Li *et al.*, 2007). Therefore, the current research expects a positive relation between CEO tenure and CEO compensation.

Previous studies document that board size is associated with higher CEO compensation (Core *et al.*, 1999; Yermack, 1996). This study expects a positive association between board size and CEO compensation.

Finally, in all regressions, we included the dummy variables *years* and *industries*.

MEASURES

For *CEO compensation*, we use two measures. *CEO short-term incentive compensation* captures bonuses awarded to the CEO in a given year. *CEO total incentive compensation* includes CEO short-term compensation and long-term incentives, which are primarily composed of the potential value of stock options and performance shares valued at the grant date. Because different

factors may influence *CEO short-term compensation* and *CEO total incentive compensation*, we undertake tests of our hypotheses for both compensation measures. We estimate the value of CEO stock option awards using the Black-Sholes valuation model for 2007. Since 2008, companies publish the value of long-term incentives. *ESG disclosure score* is measured by the Bloomberg Agency and ranked between 0 and 100 points. This was adjusted to include only the 91 Euronext SBF 120 companies that agreed to answer the questionnaire.

CONTROLS

In line with prior studies (Conyon and He, 2012; Gregory-Smith, 2012), we include an accounting performance measure (ROA) as a control. In addition we use an ownership structure measure. Ownership is considered widely held when no shareholder holds more than 20% of the voting rights. It is concentrated when the largest shareholder owns at least 20% of the voting rights. The 10% threshold is low in the French context. Indeed, Dardour and Husser (2014) show that the share of voting rights of the largest shareholder of listed companies in the SBF 120 is on average 36%. It is for this reason that we have chosen to raise this threshold to 20%. For concentrated ownership companies, we have identified three categories: ownership controlled by the family or the founder, ownership controlled by the French State, and ownership controlled by other types of institutional shareholders than the state. We include four indicator variables *family ownership*, *state ownership*, *institutional investors*, and *widely held companies* as a reference category. According to the literature, firm size is paramount to explain the level of CEO compensation (Gabaix *et al.*, 2014; Tosi *et al.*, 2000). Agency costs are higher in large firms because the control processes are complex (Elsilä *et al.*, 2013). The positive relation between firm size and CEO compensation level is the most consistent result in previous empirical studies (Elsilä *et al.*, 2013; Tosi *et al.*, 1998).

According to Murphy (1999), large firms are more complex and therefore require the most talented executives on the CEO market. These companies also have greater financial resources than small firms. They are therefore able to offer higher pay levels (Finkelstein and Hambrick, 1990).

We include *firm size* (measured as the natural log of total assets) to control for the possibility of a relationship between compensation and firm size. Our study uses a series of five dummy variables to control the *industry's* effect on CEO compensation. The international classification ICB is adopted to differentiate several activities (services, industries, technology, utilities, and financial companies). In addition, we include *CEO tenure*, measured as the number of year since the CEO's appointment. We include *CEO age* and *board size*, which represent important dimensions (Gallego and Larrain, 2012; Ozkan, 2011). Finally, we consider an indicator variable *CEO duality*, which takes a value of one if the CEO is also the chair and zero otherwise.

Results

The following sections present the results of the descriptive and multivariate analyses.

DESCRIPTIVE STATISTICS

The summary statistics for the data used in our tests of hypotheses are presented in Table 1. Companies show a wide variety of size, performance, and ownership held by the major shareholder. ROA average is 4.76%. The major shareholder average is about 31.30% with a standard deviation of 21.93%.

Table 1 shows that the board average size is close to 13 members. Half of the sample has more than 46% independent members. In Table 1 the governance disclosure score was, on average, higher than the social disclosure score. The environmental disclosure score was the lowest (31%). Euronext SBF 120 companies tended to disclose less environmental than social or governance scores. The low environmental score can be explained by the nature of the parameters that contribute to this score. It appears that obtaining some points on certain variables is difficult to achieve. The Bloomberg grid (Appendix 1) underlines the most salient examples: "number of ISO 14001 certified sites," "investment in sustainability projects," and "CO₂ emissions." By contrast, the components of the two other scores are more available especially for governance score. The average ESG score was 40.13 versus a maximum of 73.96. The standard deviation was high for environmental and social disclosure scores and lower for governance scores.

TABLE 1
Descriptive statistics

Variables	N	Mean	S.D	p25	p50	p75
1. CEO bonus (log)	419	13.49	0.70	13.17	13.59	13.90
2. CEO incentive compensation (log)	316	14.08	0.85	13.54	14.17	14.65
3. ENVD (100 points)	455	31.00	15.75	16.27	31.00	42.85
4. SOCD (100 points)	455	41.78	16.04	29.82	43.85	54.38
5. GOVD (100 points)	455	54.13	10.43	48.21	55.35	62.50
6. Board size	441	12.80	3.62	10.00	13.00	15.00
7. Board independence	434	50.00	20.41	33.33	46.15	64.70
8. Major shareholder	440	31.30	21.93	10.96	27.52	47.35
9. ROA	450	4.76	5.90	1.73	4.51	6.99
10. CEO age	441	55.28	6.10	51.00	55.00	60.00
11. CEO tenure	441	6.12	7.24	2.00	4.00	8.00
12. Firm size	451	16.39	1.79	15.24	16.44	17.23
13. Beta	444	0.93	0.21	0.79	0.89	1.08
					0	1
14. CEO duality					0.570	0.430
15. Family ownership					0.705	0.295
16. State ownership					0.846	0.154
17. Institutional investors					0.635	0.364
18. Widely held ownership					0.813	0.187

NOTES: Sample period: 2007–2011. The mean, standard deviation, and inter-quartile range (p25 to p75) are reported. CEO incentive compensation is bonus plus Black-Scholes value of stock option grants and performance share grants. CEO tenure is executive time in office (years); CEO age is age (years); CEO duality is an indicator variable equal to one if the CEO is the chair of the board and zero otherwise; board size is the number of board members; board independence is the number of independent directors divided by board size; major shareholder is the percentage of largest shareholder voting rights.

TABLE 2
Components of executive compensation 2007–2011

Variables	Obs	Mean	Std. Dev.	p25	p50	p75
Equity compensation	325	941.846	1.593.954	0	510.000	1.301.764
Stock options	439	554.315	1.488.976	0	0	588.000
Performance shares	326	499.089	1.089.265	0	0	619.911
Cash compensation	451	1.647.979	868.497	1.000.000	1.515.915	2.200.000
Base salary	451	792.837	336.486	562.000	800.000	974.900
Annual bonus	449	833.772	610.373	480.000	763.729	1.049.543
Total compensation*	451	2.548.306	2.196.986	1.200.000	2.103.809	3.204.989

*Components are in euros.

Table 2 shows that CEOs received on average €1.64 million in *short-term compensation* (€0.792 million in salary and €0.833 million in bonus). The average CEO *total compensation* is €2.54 million. The high dispersion of *total compensation* is mainly because of structural issues (inter-firm standard deviation is about €1.78 million).

Table 3 presents the correlation matrix, which confirms the lack of serious problem correlation between variables. The environmental score is positively correlated only with the annual bonus (0.11*).

MULTIVARIATE ANALYSIS

Tables 4 and 5 show our results for regression when *CEO compensation* (either annual bonus or overall incentive compensation) is the dependent variable and the entire set of controls and hypotheses variables are included as independent variables. Table 4 does not provide any significant relationship between overall ESG score and CEO incentive compensation. Hypothesis 1 is not confirmed. In other terms, the global ESG disclosure score doesn't have any significant positive effect on executive incentive compensation.

Table 5 relates environmental scores, social scores, and governance scores with CEO incentive compensation. We find support for Hypothesis 2 because the level of environmental disclosure score exhibits a positive and significant relationship with CEO total incentive compensation ($\beta = 0.008$; $z\text{-stat} = 3.10$; $p < 0.01$) and with annual bonus ($\beta = 0.004$; $z\text{-stat} = 2.11$; $p < 0.05$). In other terms, environmental disclosure scores correlate positively with executive incentive compensation.

By contrast, Hypothesis 3, which predicted a relationship between CEO incentive compensation and social disclosure scores, is not confirmed. Our results do not show evidence for such a relationship. Moreover, our results do not offer any support for Hypothesis 4 because the coefficient of the variable *GOVD* is insignificant.

With regard to our control variables, our results shows that *ROA* is positive and significant in all regressions, underlining the importance of accounting measures of performance in CEO incentive compensation. *Firm size* is also positive and significant in each of the regressions (Broye and Moulin, 2010). Besides,

our results show a positive relationship between the proportion of independent directors and CSR disclosure. These results corroborate the work of Khan *et al.* (2013) who found a positive and significant relationship between board independence and CSR disclosure. According to agency theory, independent directors are perceived as a tool for monitoring management behaviors (Rosenstein and Wyatt, 1990), resulting in more disclosure of CSR information. Thus, they can use compensation policies as a way to encourage CEOs to improve the quality of their CSR disclosure.

Our study reveals that board size does not appear to weaken the control of directors over CEOs as far as CEO compensation is concerned. CEOs do not take advantage of large, thus potentially less vigilant, boards to extract significantly higher compensations. Moreover, *CEO tenure*, *CEO duality*, and *CEO age* are not significant. Our results show a strong negative relationship between *state ownership* and CEO incentive compensation in the French context. State-controlled firms attribute less incentive compensation than widely held ones. By contrast, CEOs of family firms and institutionally controlled firms receive more incentive compensation than CEOs of widely held companies. Table 6 was designed to test the reverse correlation between CEO compensation and environmental disclosure scores. It underlines the positive and significant impact of CEO total incentive and short-term incentive compensation on environmental disclosure scores.

ADDITIONAL ANALYSES AND ROBUSTNESS CHECKS

The results reported in Table 6 may be altered by endogeneity, omitted variables, and reverse-causality problems. They are among the main econometric problems encountered in studies on CSR and CEO compensation (Devers *et al.*, 2007; Hermalin and Weisbach, 2012). For robustness tests and to address the endogeneity problem, we ran the same regressions using the system generalized method of moments (SGMM) estimators developed by Arellano and Bover (1995) and Blundell and Bond (1998). The lagged levels of explanatory variables are used as instruments. According to Table 7, the models seem well fitted with statistically significant test statistics for second-order autocorrelation in the first difference (S1) and statistically insignificant test statistics in the second difference (S2). Likewise,

TABLE 3
Correlation matrix

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
[1] IC	1																	
[2] ST_IC	0.70*	1																
[3] ENVD	0.08	0.11*	1															
[4] SOCD	-0.09	-0.03	0.59	1														
[5] GOVD	-0.02	0.06	0.53*	0.53*	1													
[6] Board size	0.03	0.16*	0.05*	-0.00	0.14*	1												
[7] Board independence	0.29*	0.27*	0.19*	0.16*	0.15*	-0.22*	1											
[8] CEO duality	0.03	-0.01	0.07	0.07	-0.03*	0.12*	-0.09*	1										
[9] CEO tenure	0.08	0.12*	-0.05	-0.09	-0.05	-0.12	-0.11*	0.29*	1									
[10] CEO age	-0.01	0.13*	-0.05	-0.00	-0.00	0.21*	-0.13*	0.08	0.28*	1								
[11] Family ownership	0.15*	0.17*	-0.13*	-0.24*	-0.16*	-0.14*	-0.19*	0.03	0.32*	-0.03	1							
[12] State ownership	-0.36*	-0.18*	0.08	0.19*	0.07	-0.48*	-0.29*	0.07	-0.10*	0.15*	0.27*	1						
[13] Institutional investors	0.05	-0.03	0.00	-0.02	0.02	-0.09*	0.00	-0.06	-0.15*	-0.02	0.48*	-0.32*	1					
[14] Major shareholder	-0.15*	-0.18*	-0.10*	-0.15*	-0.05	0.06	-0.57*	0.09*	0.17*	0.10*	0.33*	0.15*	0.02	1				
[15] ROA	0.26*	0.00	-0.07	-0.12*	-0.10*	0.08	0.06	-0.00	0.09*	0.04	0.12*	-0.14*	0.02	0.18*	1			
[16] TSR	-0.03	-0.04	-0.08	-0.03	-0.08	-0.06	-0.05	0.02	0.03	-0.03	0.11*	-0.06	-0.05	0.09	0.09*	1		
[17] Firm size	0.07	0.35*	0.08	0.16*	0.13*	0.57*	0.04	-0.05	-0.12*	0.01	-0.19*	-0.22*	0.01	-0.11*	-0.21*	-0.10*	1	
[18] Beta	0.06	0.23*	0.04	0.06	0.05	0.16*	0.21*	-0.00	-0.07	-0.06	0.09*	0.08	-0.00	-0.24*	-0.32*	-0.05	0.40*	1

*Significant at less than 5%.

TABLE 4
The influence of ESG disclosure score on CEO compensation

	Log CEO total incentive compensation (1)		Log CEO short-term incentive compensation (2)	
	β	Z-stat	β	Z-stat
Intercept	11.972***	14.13	8.756***	7.34
ESG score	0.002	0.57	0.003	1.24
Board independence	0.012***	3.34	0.008***	3.49
Beta	-0.116	-0.56	0.276	1.59
Family ownership	0.318	1.50	0.235*	1.64
Institutional investors	0.190	1.30	0.036	0.55
State ownership	-0.603**	-2.42	-0.103	-0.47
Board size	0.067***	2.59	0.012	0.71
CEO duality	-0.026	-0.26	-0.043	-0.53
CEO age	-0.007	-0.93	0.006	0.80
CEO tenure	0.002	0.24	0.002	0.31
ROA	0.029**	2.56	0.011**	2.10
Total assets (log)	0.077*	1.88	0.191***	4.46
Industry and year effects	Yes		Yes	
Observations	303		389	
Chi-squared	245.10***		332.31***	
R-squared	0.388		0.398	

NOTES: Results are based on GLS random effect regressions with controls for heteroskedasticity and autocorrelation. Year dummies and industry dummies are included. The dependent variables are the CEO total compensation or the CEO short-term compensation. The sample consists of an unbalanced panel of corporate governance data from all firms listed on the SBF 120 index between 2007 and 2011. P-values are not reported. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 5
The influence of ESG disclosure score on CEO compensation

	Log CEO total incentive compensation (1)		Log CEO short-term incentive compensation (2)	
	β	Z-stat	β	Z-stat
Intercept	11.875***	13.08	8.624***	7.37
ENVD	0.008***	3.18	0.004**	2.11
SOCD	-0.005	-1.24	-0.002	-0.93
GOVD	0.000	0.10	0.003	1.15
Board independence	0.012***	3.40	0.008***	3.49
Beta	-0.117	-0.56	0.283*	1.64
Family ownership	0.345*	1.74	0.248*	1.77
Institutional investors	0.240*	1.73	0.060	0.81
State ownership	-0.591**	-2.40	-0.094	-0.43
Board size	0.073***	2.85	0.016	0.88
CEO duality	-0.008	-0.78	-0.041	-0.54
CEO age	-0.006	-0.08	0.007	0.89
CEO tenure	0.001	0.17	0.001	0.17
ROA	0.030***	2.63	0.011**	2.10
Total assets (log)	0.074*	1.90	0.191***	4.46
Industry and year effects	Yes		Yes	
Observations	303		389	
Chi-squared	505.69***		429.33***	0.17
R-squared	0.4251		0.4186	2.10

NOTES: Results are based on GLS random effect regressions with controls for heteroskedasticity and autocorrelation. Year dummies and industry dummies are included. The dependent variables are the CEO total compensation or the CEO short-term compensation. The sample consists of an unbalanced panel of corporate governance data from all firms listed on the SBF 120 index between 2007 and 2011. P-values are not reported. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6
The influence of CEO compensation on environmental disclosure scores

	ENV disclosure score (1)		ENV disclosure score (2)	
	β	Z-stat	β	Z-stat
Intercept	-19.693	-0.91	-3.081	-0.15
Short-term incentive compensation			3.109**	2.32
Total incentive compensation	2.928***	3.00		
Board independence	0.044	0.61	0.043	0.77
Beta	-1.799	-0.37	-4.335	-1.05
Family ownership	-8.178*	-2.18	-8.010**	-2.18
Institutional investors	3.738	-2.17	-5.882**	-2.17
State ownership	-8.440**	-2.38	-0.093	-0.02
Board size	-0.919*	-1.84	-0.486	-1.25
CEO duality	2.187	1.22	3.044	2.09
CEO age	-0.190	-0.96	-0.276*	-1.72
CEO tenure	-0.166	-0.69	-0.033	-0.18
ROA	-0.099	-0.80	-0.037	-0.41
Total assets (log)	1.273	1.45	0.469	0.53
Industry and year effects	Yes		Yes	
Observations	303		389	
Chi-squared	84.77***		103.61***	
R-squared	0.1710		0.1559	

NOTES: Results are based on GLS random effect regressions with controls for heteroskedasticity and autocorrelation. Year dummies and industry dummies are included. The dependent variables are the CEO total compensation or the CEO short-term compensation. The sample consists of an unbalanced panel of corporate governance data from all firms listed on the SBF 120 index between 2007 and 2011. P-values are not reported. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

we confirm the validity of the instruments using the Sargan over-identification test, which indicates in all models that instruments are valid in their estimations. The interpretation of the coefficients on environmental scores in Table 7 remains qualitatively the same as in Table 6 ($\beta = 0.06$; $p < .001$; $\beta = .004$, $p < .05$; $\beta = .008$; $p < .05$; $\beta = .003$; $p < .05$). Overall, the SGMM estimates support that, even after controlling for endogeneity, environmental scores have a positive and significant impact on CEO incentive compensation.

Discussion

The findings from these panel data-based regressions have confirmed Hypothesis 2, that is, environmental information disclosure has a positive and significant influence on CEO incentive compensation. It has also a positive influence on short-term incentive compensation because executive bonuses are largely linked to the achievement of specific accounting and financial objectives. These findings converge with the conclusions reached by Cai *et al.* (2011), whose research looked at how CSR score disclosure affects executive compensation levels in the US context. They also converge with the results found by Dardour and Husser (2014) in the French context. Sustainable development environments are now valued by financial markets (Cormier *et al.*, 2011). The total incentive compensation is indeed linked to the value of stock options and free shares, that is to say the stock market value, in the long term. Stakeholders exert joint influence on managers' decisions concerning environmental disclosure. This encourages executives to avoid

more environmental risks and consider the financial impacts of site decommissioning to be more important. Investors are sensitive to environmental disclosure scores. Indeed, companies that address information asymmetry between executives and stakeholders are decreasingly uncertain about environmental risks (pollution, processing costs, and dismantling costs). Less uncertainty leads to a better evaluation of stock market performance (Dhaliwal *et al.*, 2011; Elsilä *et al.*, 2013).

These findings should be considered in the light of studies by Cormier and Magnan (2007) and Cormier *et al.* (2011), who discussed a positive relationship between environmental reporting and firm performance. Otherwise, Berrone and Gómez Mejía (2009) also found a positive connection between environmental performance and executive compensation. A board of directors can make long-term performance the main factor in executive compensation, obtaining this through individuals' knowledge of environment information (given the risk of significant financial losses whenever environmental risks are neglected). Our study's environmental risk findings also converge with research by Jin (2002), who concluded that this is what causes the negative relationship between risk and incentive compensation. Our findings also enhance general understanding of one aspect of this particular risk: executives that disclose more environmental information reduce investor uncertainty, thus lessening some of their company's specific risk. They can then expect to receive long-term compensation in return for this. The positive relationship we have discovered between environmental disclosure and short-term incentive compensation might be explained by the fact that

TABLE 7
CEO compensation and environmental score: Dynamic panel data estimates

	Log CEO total incentive compensation (1)		Log CEO short-term incentive compensation (2)	
	β	Z-stat	β	Z-stat
Intercept	0.027*	1.76	0.008	1.16
Lagged annual bonus			-0.010	-0.29
Lagged total incentive compensation	-0.008**	-0.16		
ENVD	0.008**	2.22	0.003**	2.12
Board independence	0.015***	13.08	0.014***	8.18
Beta	0.068	0.54	0.001	0.45
Family ownership	0.434***	6.49	0.470***	8.24
Institutional investors	0.234***	2.64	0.156*	1.85
State ownership	-0.583***	-4.76	-0.160**	-2.40
Board size	0.071***	8.10	0.025	1.42
CEO age	-0.005	-1.02	0.016***	6.51
CEO tenure	-0.166	-0.69	0.001	0.45
ROA	0.061***	6.10	0.021***	2.64
Total assets (log)	0.042**	2.34	0.160***	8.13
Industry and year effects	Yes		Yes	
Observations	235		349	
Sargan test	221.65		330.13	
	[0.43]		[0.53]	
S1	-1.816		-2.165	
	[0.06]*		[0.03]**	
S2	-0.215		-1.077	
	[0.82]		[0.28]	
No. of instruments	232		346	

NOTES: The dependent variables are the log of CEO total incentive compensation in models (1) and CEO short-term incentive compensation. The sample consists of an unbalanced panel of corporate governance data from all firms listed on the SBF 120 index between 2007 and 2011. S1 and S2 are t-statistics for first- and second-order serial correlation. Sargan is a test of the over-identifying restrictions under the null that the instruments are valid. The right-hand-side variables are treated as endogenous using lags back from t-2 as instruments. P-values are not reported. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

this kind of disclosure involves immediate environmental outlays. This can be a problem for executives whose annual bonus primarily depends on their achieving quantifiable short-term economic objectives, such as earnings per share or EBITDA—all of which may be negatively influenced by such short-term spending.

Otherwise, social information disclosure has no significant impact on the different components of executive incentive compensation. This means that Hypothesis 3 has not been confirmed. This result corroborates research by Richardson and Welker (2001) and Dardour and Husser (2014), who found that whenever TSR is high, investors are less likely to penalize companies because of an absence of social information. Markets wait for social action to be effective before valuing this by lowering capital costs and/or superior financial performance (Richardson and Welker, 2001). Social disclosure therefore has little effect whenever executive incentive compensation is linked to financial performance and less risk. These findings supplement the discovery by Cai *et al.* (2011) of a negative relationship between social responsibility and total executive compensation. Incentive compensation offers another vision at this level, given this study's demonstration that social disclosure has no impact on compensation's

variable portion. The reason is that the social dimension does not have a negative impact on the part of compensation that is incentive related, raising a number of managerial implications. Executives have no incentive to raise or lower disclosure in the hopes of adding to their incentive compensation. The absence of any connection between social disclosure and incentive compensation harkens back to studies by Margolis and Walsh (2003), who concluded that a weak connection exists between the transparency of social information and corporate performance. Social progress-related elements of disclosure, employee motivation, and gender equality are not determinants in companies' financial performance or executive incentive compensation. Along these lines, Orlitzky *et al.* (2003) offered additional explanations with a meta-analysis concluding a lack of correlation between social information disclosure and stock market financial performance, hence, executive incentive compensation.

From a shareholder perspective, corporate governance is composed of a series of mechanisms that help to attenuate agency problems between executives and shareholders. Incentive compensation awards are one such mechanism, notably longer term arrangements, because they help to link

an executive's personal wealth to changes in a company's share price, leading to greater shareholder wealth (Schleifer and Vishny, 1997). Recent studies have shown that awarding compensation in the form of shares might also indicate that a company is poorly governed (Ben Ali, 2014; Cho *et al.*, 2014; Guay *et al.*, 2003; Hollandts *et al.*, 2011). The managerial power approach predicts that firms characterized by defective governance will allow their executives to extract excessive compensation in the form of performance-related share awards or stock options. Our study has shown that the disclosure of good governance practice has no relation with short-term and total incentive compensation. In addition, the period under study (2007–2011) was characterized by an economic crisis that made it harder for companies to justify their executives' annual bonuses. By disclosing more information on governance practice, companies are shining a light on the criteria dictating annual bonus awards. What this shows is how public opinion can affect the level and structure of executive compensation. If board directors want to protect their reputation and image, compensation policies must take such opinions into account. Hermalin and Weisbach (2012) have shown that companies tend to react to unfavorable public opinion by changing the structure of the compensation they offer without modifying its general level. This study therefore confirms the findings of Hermalin and Weisbach (2012) from an informational angle. Disclosing more or less governance information has no impact on total executive incentive compensation.

Conclusion

The main contribution of this article is the analysis of the three dimensions (environmental, social, and governance) of CSR disclosure scores and their impact on the key components of CEO compensation during a five-year period. Our findings indicate that the total CSR disclosure score is not a relevant factor in explaining executive incentive compensation. Total disclosure score does not affect CEO incentive compensation. From the three factors that explain the total CSR score, the one that does best at accounting for compensation is the environment dimension, after controlling for various firm and board characteristics. The social disclosure dimension has no impact on incentive compensation. These findings corroborate previous studies that discovered that only one of these dimensions is found in most sustainability reports (Cormier *et al.*, 2011; Dardour and Husser, 2014), which usually study the cost of capital, company financial performance, and/or executive compensation.

Our conclusion also offers certain managerial perspectives. Environmental aspects appear to be directly related to executive incentive compensation. National legislation already has framed environmental sustainability for a number of years. What is new is the way that the financial markets also have started valuing environmental sustainability. Incentive compensation is linked to the value of stock options and free shares. Stakeholders (governments, shareholders, corporate boards) are converging in the way they influence executives' environmental disclosure decisions. In turn, this gives executives reason to improve their understanding of environmental risks, for instance, by giving

greater thought to the financial impact of site decommissioning costs. CO₂ emission-related communications and strategic management are also areas in which today's executives are looking to acquire competencies.

Social dimension disclosures, however, do not have any effect on executive incentive compensation. This finding relaunches a debate started by Margolis and Walsh (2003) regarding social performance, its disclosure, and its impact on financial performance (implicitly concerning executive incentive compensation). The social disclosure criteria that CSR mobilizations clearly are not a sufficient reflection, in and of themselves, of companies' social performances. Financial markets struggle to apprehend how this links to financial performance, hence, the effects on long-term incentive compensation. As a result, debate in this area continues to be framed in the same terms that Margolis and Walsh (2003) used for the very foundations of social performance and its ties to financial performance and executive incentive compensation. It is up to the chief executive and/or the board of directors to come up with (and share with stakeholders) which social performance criteria are relevant in a particular context.

The improvement of social performance measurement should be considered for future research. It could help reduce the gap between environmental and social performance measurements. As a matter of fact, environmental performance is currently better measured and therefore more easily objectified in terms of CEO compensation.

Our article should conclude with some recognition of its limitations as well as suggestions for future research. Limitations included problems with sampling and other kinds of errors capable of introducing a bias. We also faced reliability and validity issues, which tend to be more commonplace in surveys. Other problems arose because of the longitudinal nature of a study conducted during a period of economic crisis on a specific sample of French companies. It might be worth doing similar research at a time of economic growth, based on US and Asian companies, in order to establish comparisons and generalizations. Every measurement presents a certain number of limitations relating to its mode of production and construction (Igalens and Gond, 2005).

The Bloomberg database also triggered some issues because it does not include an exhaustive list of items for the three dimensions. The main weakness is in governance scores. Indeed, employee-owner board representation and board-level employee representation are not considered. The governance disclosure score derived from the Bloomberg database could also be amended by other disclosure criteria, such as board member level of experience or qualification. The Bloomberg database limits reflect the conclusions of Damak-Ayadi (2010), who stressed that French companies particularly communicate about topics related to the impact of their activities on the natural environment and human resources and yet neglect the governance dimension. Despite these limitations, our findings contribute to the literature on CSR by providing some empirical evidence on the causal effect of CSR disclosure on executive compensation.

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APPENDIX 1 Bloomberg Criteria for Rating the Environmental, Social, and Governance Information Disclosure		
Dimension	Rating criteria	Disclosure mark
Environmental	CO2 emissions (thousand metric tons)	
	Greenhouse gas emissions (thousand metric tons)	
	Energy consumption (thousand megawatts/hour)	
	Water consumption (thousand cubic meters)	
	Hazardous waste (thousand metric tons)	
	Total waste (thousand metric tons)	
	Recycled waste (thousand metric tons)	
	Paper consumed (thousand metric tons)	
	Paper recycled (thousand metric tons)	
	Number of ISO 14001 certified sites	
	Investment in sustainability projects (in € million)	
Social	Number of employees	
	% staff turnover	
	% unionized employees	
	Average employee age	
	% female employees	
	% female managers	
	% employees from ethnic minorities	
	% disabled employees	
	% managers from ethnic minorities	
	Industrial accidents	
	Time lost because of accidents (number of hours)	
	Deaths among contract workers (number)	
	Deaths among full-time staff members (number)	
	Spending on work council activities (in € per employee)	
	Budget for ongoing employee training (in € per employee)	
	Socially responsible investments (in € million)	
Governance	Board size (number of directors)	
	% independent directors (as share of board total)	
	% women directors (as share of board total)	
	Average age of directors	
	Age limit for directors	
	Years of service on the board	
	Number of annual board meetings	
	Number of annual audit committee meetings	
	Attendance at board meetings	
	Gift and sponsorship policies (in € million)	
	Possibility of CEO having dual roles (combining managing director and board chair functions).	