

Is It Good to Be a Green Multinational Bank?

Est-ce bien d'être une banque verte multinationale ?

¿Está bien ser un banco verde multinacional?

Issam Laguir, Rebecca Stekelorum, Lamia Laguir and Jamal Elbaz

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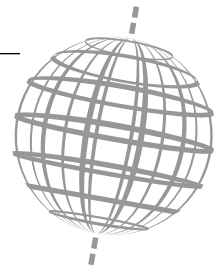
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Article abstract

This paper examines the influence of environmental corporate social responsibility (ECSR) on corporate financial performance (CFP) using data on French multinational banks from 2008 to 2011. Our results show that the relationship between ECSR and multinational bank CFP is positive and statistically significant. However, taking into account R&D activities allows an alternative perspective: the influence of ECSR on ROA decreases as banks' R&D activities increase. Thus, ECSR most strongly influences CFP in low-R&D intensity multinational banks.



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ISSAM LAGUIR

Montpellier Business School,
Montpellier, 34185, France

REBECCA STEKELORUM

ICN Business School, CEREFIGE,
54000 Nancy, France

LAMIA LAGUIR

Université Paris Descartes, Sorbonne
Paris Cité, CEDAG/Management
(EA 1516), Paris 75000, France

JAMAL ELBAZ

Ecole Supérieure de Technologie
(EST) d'Agadir, Ibn Zohr University,
Agadir 80030, Morocco

ABSTRACT

This paper examines the influence of environmental corporate social responsibility (ECSR) on corporate financial performance (CFP) using data on French multinational banks from 2008 to 2011. Our results show that the relationship between ECSR and multinational bank CFP is positive and statistically significant. However, taking into account R&D activities allows an alternative perspective: the influence of ECSR on ROA decreases as banks' R&D activities increase. Thus, ECSR most strongly influences CFP in low-R&D intensity multinational banks.

Keywords: Environmental corporate social responsibility, corporate financial performance, R&D activities, French multinational banks

RÉSUMÉ

Ce papier examine l'influence de la responsabilité environnementale de l'entreprise (environmental corporate social responsibility (ECSR)) sur la performance financière de l'entreprise (corporate financial performance (CFP)) en utilisant des données sur les banques françaises multinationales entre 2008 et 2011. Nos résultats montrent que la relation entre l'ECSR et la CFP des banques multinationales est positive et statistiquement significative. Cependant, la prise en compte des activités de R&D montre une autre perspective : l'influence de l'ECSR sur le ROA diminue à mesure que les activités de R&D des banques augmentent. Ainsi, l'ECSR influence le plus fortement la CFP dans les banques multinationales à faible intensité de R&D.

Mots-Clés : Responsabilité environnementale de l'entreprise, performance financière de l'entreprise, activités de R&D, banques multinationales françaises

RESUMEN

Este artículo analiza la influencia de la responsabilidad medioambiental de la empresa (environmental corporate social responsibility (ECSR)) en el desempeño financiero corporativo (corporate financial performance (CFP)) utilizando datos sobre bancos multinacionales franceses entre 2008 y 2011. Nuestros resultados muestran que la relación entre la ECSR y el CFP de los bancos multinacionales es positiva y estadísticamente significativa. Sin embargo, teniendo en cuenta las actividades de I&D muestra otra perspectiva: la influencia de la ECSR en el ROA disminuye a medida que aumentan las actividades de I&D de los bancos. Por lo tanto, la ECSR influye más fuertemente el CFP en bancos multinacionales con baja intensidad de I&D.

Palabras Clave: Responsabilidad medioambiental de la empresa, desempeño financiero corporativo, actividades de I&D, bancos multinacionales franceses

The relationship between corporate social responsibility (CSR) and corporate financial performance (CFP) has intrigued scholars for decades, and some have specifically focused on whether environmental corporate social responsibility (ECSR) positively or negatively affects CFP (e.g. Brulhart and Gherra, 2015; Margolis and Walsh, 2003; Orlitzky *et al.*, 2003). Given today's worldwide concerns for the environment, corporate managers, stockholders, and stakeholders would undoubtedly benefit from a deeper understanding of how ECSR and CFP are linked. Freeman (1984) notably remarked that corporations need to satisfy the needs of a broad range of stakeholders, even though their primary duty is to increase shareholder value. Carrol (1979) elaborated Freeman's (1984) approach and defined CSR (including ECSR) as a set of obligations toward society: economic (to maximize profit, to create value and quality products), legal

(to respect the laws and regulations), ethical (to act according to moral principles shared within the company) and philanthropic (to be charitable). The model of Carrol is considered to be the foundation of theoretical approaches.

Many stakeholders are increasingly concerned about how companies impact environmental spheres and therefore they may push these companies to redefine their responsibilities to the greater community. From this perspective, ECSR is a response to environmental issues through corporate strategies and methods of control, monitoring, evaluation and reporting, and many of these strategies and methods incorporate new approaches to financial performance (Laguir *et al.*, 2015). The studies to date have shown considerable discrepancies on how effective this response is. Some have shown that enhanced environmental investing will strengthen stakeholder relationships and thus

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decrease transaction costs (Jones, 1995) and improve market opportunities (Fombrun *et al.*, 2000; Kopel and Brand, 2012), allowing better financial performance (e.g., Becchetti *et al.*, 2008; Nollet *et al.*, 2016). However, Friedman (1970) believed that CSR (including ECSR) was an unjustified policy that managers adopt to foster their own interests at the expense of shareholders. For example, firms that voluntarily engage in more environmentally responsible activities will incur more costs and ultimately show lower financial performance. Theoretical and empirical studies have given support to both these positions (e.g., Margolis and Walsh, 2003; Orlitzky *et al.*, 2003), and Horvathova's (2010) meta-analysis of 37 studies revealed that the empirical evidence remains ambiguous as to the influence of ECSR on CFP. Indeed, almost half of the studies stated that ECSR positively affects CFP whereas the rest highlighted either a negative or an insignificant effect.

An optimized ECSR program is one way companies try to distinguish themselves (Klein and Dawar, 2004; Reinhardt, 1998). Innovation is another. Indeed, firms provide far more than just profits to their owners; they supply innovative products and, with them, economic growth and employment. From this perspective, profits, while important, are not paramount: the main goal of a business is to develop innovative new products – products that will generate growth and employment while also being economical and increasingly accessible to a wider range of the world's population. As R&D and innovation are likely to affect positively company value, the analysis of the relationship between ECSR and CFP should take into account firms' R&D efforts.

Financial institutions are just as concerned by ECSR issues as other corporations, since the banking sector as a whole is a critical factor in economic and sustainable development (Ferreira *et al.*, 2016; Levine, 2004; Scholtens, 2006). Multinational banks act as financial intermediaries, pricing and valuing financial assets, monitoring borrowers, managing financial risk and organizing payment systems: through all these activities, they have a powerful influence on economic growth (Scholtens, 2006). Moreover, because they use considerable social resources, they are required to provide feedback to the community more often than other industries. One way multinational banks accomplish this is through their annual reports, in which they usually include an ECSR section that details how they have given back to the community. Yet for all that, research on how ECSR impacts CFP in the banking industry has been sparse. Therefore, to address the dearth of empirical research on the ECSR-CFP relationship in banking, this study sought to respond to the following research question: *Does it pay to be an environmentally responsible multinational bank?* We explored this question by focusing on the subsidiary-level data of French multinational banks. Thus, our final sample entailed 191 observations covering 68 multinational-bank subsidiaries from 2008 to 2011. We used the environmental score from the VIGEO data as our proxy measure for the extent to which a multinational bank engages in environmental performance.

This study has several theoretical contributions. *First*, the paper uses instrumental stakeholder perspective and natural resource-based view as complementary frameworks to analyze

ECSR-CFP relationship. *Second*, scholars have identified drawbacks causing the lack of consensus in ECSR-CFP research, i.e., (i) measurement issues, (ii) omission of variables, and (iii) direction of causality (e.g., Endrikat *et al.*, 2014; Surroca *et al.*, 2010). This study deals with these important concerns offering thus unique theoretical insights. *Third*, the study responds to recent calls for more research on ECSR-CFP relationship in the banking industry (e.g., Mallin *et al.*, 2014; Wu and Shen, 2013). Moreover, this study has several practical implications. Indeed, it should be of value to investors by guiding them to construct portfolios that take into account the impact of environmental performance on the financial performance of these portfolios. Furthermore, the study should be of value to bankers looking to determine the conditions under which a bank's R&D activities can be exploited to enhance environmental and financial performances. Last, the study findings provide evidence of how multinational banks use environmental performance to align with salient stakeholder expectations, respond appropriately to their information needs, and ensure continued support from society

The remainder of the paper contains five sections: Section 2 examines ECSR ties with CFP in the banking industry. Section 3 explains our methodological design to ensure a cohesive empirical study. Section 4 presents our main results and examines endogeneity concerns. The final section concludes the paper.

Review of the relevant literature

Theoretical discussions of the ECSR-CFP relationship have evolved considerably in the last decades. From an agency theory perspective, environmental activities are assumed to withdraw financial resources from a firm and thus weaken its financial performance, as the financial benefits of environmental activities are deemed to be lower than their costs (Friedman, 1970; Preston and O'Bannon, 1997; Waddock and Graves, 1997). Thus, based on shareholder maximization logic, managers would be incited to overinvest in ECSR to improve their personal advantage (Barnea and Rubin, 2010). Indeed, this line of thought argues that environmental activities conflict with a firm's main objectives, as proactive environmental activities are considered philanthropy, incurring social costs and hampering profit maximization (King and Lenox, 2002). The agency theory perspective has been challenged by various researchers who hold that ECSR instead enhances firm CFP (e.g., Freeman, 1984). From the instrumental stakeholder theory perspective (Donaldson and Preston, 1995; Jones, 1995), for example, taking into account the full range of stakeholder interests is a legitimate and effective means for creating value. Indeed, meeting the expectations of salient stakeholders (e.g., expectations about environmental issues) may bring about improved CFP (Nollet *et al.*, 2016). Through effective ECSR, firms ensure stakeholder satisfaction and obtain sources of competitive advantage, such as trust, long-term connections with suppliers and customers, reputation, and an increased ability to adapt to key stakeholder requirements in general (Croizean *et al.*, 2016; Marais and Reynaud, 2008). Also, effective ECSR may improve investor relationships (Husser and Evraert-Bardinet, 2014), which reduces market risk (Busch and Hoffmann, 2011) and the cost of financial capital (Lankoski, 2008).

From a resource-based view (RBV), firms owning valuable and rare assets have a competitive advantage and will receive higher returns (Barney, 1991; Brulhart and Gherra, 2015; Grant, 1991). Indeed, from this perspective, the level of firms' endowment of resources leads to a differentiation in their performance level, particularly R&D resources, which are hard to create and/or promote, to reproduce, build up, and imitate (Barney, 1991). Taking into account the growing interest for ecological concerns, placing natural issues in the RBV logic should help in the definition of new competitive advantage sources. Accordingly, Hart (1995) built on the RBV and introduced the natural RBV by incorporating the natural environment into this framework, suggesting that firm competitive advantage is based on a relationship with the natural environment through three interconnected strategies: pollution prevention, product stewardship and sustainable development. These strategic abilities shape the basis for innovations that allow firms to improve environmental and financial performances (Porter and Van-der-Linde, 1995). Indeed, through pollution prevention innovations, firms attempt to improve internal efficiencies in operations, allowing thus operational costs reduction as well as enhanced competitiveness (De Stefano *et al.*, 2016). Furthermore, through product stewardship innovations, firms aim to encompass environmental issues into operations design decisions, focusing thus on reducing these operations' life cycle environmental impacts (Hart and Dowell, 2011). Last, through sustainable development innovations, firms use common resources, abilities, and knowledge to proactively set R&D activities that shape environmental initiatives and improve competitiveness (Kolk & Pinske, 2005).

Overall, from a NRBV view, an organization's capability to deal with natural environment issues prompts the creation of rare and inimitable organizational resources and skills, allowing competitive advantage and improving financial performance (Brulhart and Gherra, 2015; Chan, 2005; Hart and Dowell, 2011). Indeed, firms that develop environmental technologies and implement environmental strategies may encourage innovations that in turn improve production processes and lead to improved CFP (Hamdoun *et al.*, 2016; Sharma and Vredenburg, 1998; Surroca *et al.*, 2010). With regard to this notion, scholars have argued that models that take into account ECSR but neglect R&D intensity as a determinant of firm performance should be considered upwardly biased (e.g., Han *et al.*, 1998; Hull and Rothenberg, 2008; Wagner, 2010). It therefore might be informative to include R&D as a moderator in theoretical models showing mixed empirical support. Indeed, several scholars stated that R&D activities are likely to influence ECSR-CFP link (McWilliams & Siegel, 2000). R&D activities are considered as a kind of "technical" investment that aims to improve knowledge, allowing thus product and process innovation, and improving long-term CFP (McWilliams & Siegel, 2000). We, however, note that even if R&D intensity is not a perfect proxy of innovation, it has been widely adopted in empirical research as a measure for innovation (Camison-Zornoza *et al.*, 2004). Also, R&D activities are likely to be a precursor of ECSR as they offer firms innovative frameworks to environmental concerns (Surroca *et al.*, 2010). For instance, the implementation of "green" products needs R&D efforts (Etzion, 2007). Thus, R&D activities should have a

confounding impact on the ECSR-CFP relationship. Moreover, proactive ECSR has been observed to prompt organizational learning and improve human resources management, which in turn enhances employee motivation and commitment (Hart, 1995; Russo and Fouts, 1997; Waldman *et al.*, 2006; Weber, 2008). Not least, stakeholders develop esteem or disdain for an organization based on direct experience with its activities and/or the reputation-related information that comes to their attention. Firms thus need to develop environmental practices that both strengthen a positive reputation among their salient stakeholders and mitigate any risks to that reputation to ultimately gain competitive advantage (Sahut and Pasquini-Descomps, 2015; Turban and Greening, 1996). Extant literature suggests that instrumental stakeholder theory and the NRBV could be used as complementary frameworks to analyze ECSR-CFP relationship (Hart and Dowell, 2011; Surroca *et al.*, 2010). Thus, through fostering the integration of different stakeholders, firms develop organizational capabilities allowing competitive advantage (Hart and Dowell, 2011). Furthermore, firms strengthening their ties with salient stakeholders could get access and capitalize on R&D resources (Endrikat *et al.*, 2014). Building strong ties with stakeholders allow firms to mobilize ECSR in pursuit of new business opportunities (Hart and Dowell, 2011). Indeed, ECSR policies require firms to foster business models that both promote R&D initiatives and use them to enable new business opportunities. Accordingly, we suggest that combining instrumental stakeholder perspective with the NRBV offers a strong theoretical ground to support a significant ECSR-CFP relationship, and takes in consideration the influence of R&D on this relationship. Moreover, a firm's ECSR activities and its embeddedness in R&D policies vary depending on the industry (Quazi and O'Brien, 2000).

The European Commission (2001) stated that CSR is a multi-dimensional construct with industry-specific dimensions. Compared with other industries, multinational banks are more visible in society (Mandell *et al.*, 1981) and have superior product influence. Indeed, multinational banks are seen as crucial for firm activity and the broader economy as a whole (Scholtens, 2006, 2009). The multinational banks' funding power, reflected through their intermediating, financing and pricing activities, is critically important for the allocation of capital and contributions to social development and prosperity (Levine, 2004). Given this high visibility, multinational banks are more exposed to reputation risks than other organizations and more vulnerable to stakeholders' negative actions (Gambetta *et al.*, 2015). Bushman and Wittenberg-Moerman (2012) specifically noted that high-reputation multinational banks are associated with high profitability, the high credit quality of borrowers in the three years following loan initiation, and the high quality of the reported accounting numbers of their borrowers. Thus, multinational banks investing in ECSR would be likely to select and attract more creditworthy borrowers, which would in turn contribute to higher profit and better asset quality for the financial institutions. Also, as multinational banks use significant social resources, they are required to provide feedback to the community more often than other industries. They thus need to manage their environmental activities in order to distinguish themselves from competitors and keep stakeholders' trust and support (Flavián *et al.*, 2005).

Given the aforementioned literature, our study tests the following hypotheses:

H₁. The environmental corporate social responsibility of a multinational bank significantly influences its financial performance.

H₂. The relationship between environmental corporate social responsibility and financial performance depends on the level of R&D activities of a multinational bank.

Data and methodology

DATA

For our sample, we based on the VIGEO database for French multinational banks and used the 2008–2011 period as it was the most recent and complete financial period we had at the time this study was performed. VIGEO is the leading European agency in the evaluation of firms' environmental, social and governance (ESG) practices and performances. VIGEO methodology was considerably influenced by Carroll's model (Ernult and Ashta, 2008). Thus, the agency rates the extent to which firms and public organizations consider environmental, social, and corporate governance goals. Indeed, ESG issues are a source of business opportunities and risk components for companies defining and implementing their policies and strategies. Furthermore, we used DIANE financial database to get performance and firm-level operational data. Consequently, we account only for French bank groups with at least one subsidiary in a foreign country. We consider a subsidiary if at least 50 percent of its shares are owned by the respective parent bank. Our study thus examines subsidiary-level data of the main French banks that account for 85% of the net banking income in France. Our final sample entailed 191 observations covering 68 multinational-bank subsidiaries (MBS).

As noted earlier, ECSR, which is the first key independent variable in this study, was approximated using the VIGEO database. This latter uses 11 generic criteria to provide an environmental score (see Appendix A). However, for the banking sector, only 4 criteria are used: environmental strategy, development of green products and services, management of environmental impacts from energy use, and management of environmental impacts from transportation. One explanation is that banks' direct contribution to environment is low. Indeed, it is through their financing that they can influence ESG practices which means they should look at who they are financing. Each criterion is weighted using three factors: nature of stakeholders' rights, interests and expectations; vulnerability of stakeholders by sector; and risk categories for the company. Vigeo analyses then how banks integrate each criterion in their Managerial systems basing on 3 factors: leadership, implementation and results. The analysis is led by Vigeo itself through a questionnaire and not by the banks. The ratings model is based on the best practices recommended by international organizations such as the UN, ILO and OECD¹. Each of the criteria ratings ranges from 0 for less environmentally responsible banks to 100 for more environmentally responsible banks. The second key independent variable, research and development (R&D), was defined as research and development expenditures divided by total sales. Data for this variable was collected from the DIANE financial database.

We tested for the effects of ECSR on CFP. Thus, following prior research (e.g., Waddock and Graves, 1997; McWilliams and Siegel, 2000), we measured multinational bank financial performance using the return on assets (ROA). ROA is defined as net income divided by total assets. We used two other measures of financial performance to improve the robustness of our analysis: the earnings before interest and taxes ratio (EBITOS) and the earnings before interest, taxes, depreciation, and amortization ratio (EBITDAOS). EBITOS is defined as earnings before interest and taxes divided by total sales. EBITDAOS is defined as earnings before interest, taxes, depreciation, and amortization divided by total sales. Using three distinct yet conceptually related performance measures provides several benefits. It mitigates some of the deficiencies inherent in selecting one measure to the exclusion of the others and, because each variable might reveal a different aspect of performance, we can use variation in outcomes to inform our interpretation of the results.

We included several control variables from the CSR literature (e.g., Becchetti *et al.*, 2008, Belu and Manescu, 2013) in our analysis to test for other effects. The control variables were bank size (SIZE), leverage (LEV), and capital intensity (CINT). As for the R&D data, the data for these control variables were collected from the DIANE financial database. A bank's size is a potential factor in its financial performance. In order to control for any potential size effect, we included a measure of SIZE as the natural log of total assets. In addition, we controlled for a bank's debt burden using the LEV ratio. Scholars have pointed out that debt impacts the behavior of managers. On the one hand, debt imposes discipline upon managers and incentivizes them to make decisions that are in the best interest of the firm. On the other hand, because debt decreases managerial latitude, it can limit opportunities to explore new businesses, thereby negatively impacting financial performance. LEV is long-term debt divided by total assets. Last, CINT can impact financial performance as available assets can condition the activities a firm engages in. CINT is net property, plant and equipment divided by total assets.

METHODOLOGY

This section describes the method used to examine the effects of ECSR on CFP in the banking industry. More specifically, a panel regression model is employed, as follows:

$$\gamma_{it} = \alpha_0 + \beta_1 \text{ECSR}_{it} + \beta_2 \text{R\&D}_{it} + \beta_3 X_{it} + \epsilon_{it} \quad (1)$$

where γ_{it} is the corporate financial performance, which, depending on the specification, is either the ROA, EBITOS, or EBITDAOS. ECSR_{it} is the corporate environmental performance for firm i at time t . X_{it} is a vector that encompasses the control variables. α_0 represents the constant term. The ϵ_{it} term includes the idiosyncratic error terms μ_{it} as well as c_i , which check for the unobserved firm and time effects, such that $\epsilon_{it} = \mu_{it} + c_i$. For this study, we use time and firm random effects to deal with endogeneity issues. We present the results of the Hausman test, which allow differentiate between fixed and random effects to justify our choice. Consequently, Eq. (1) takes the following form:

1. Further information is available on: <http://www.vigeo-eiris.com/en/vigeo-eiris/methodology-quality-assurance/>

$$\gamma_{it} = \alpha_0 + \beta_1 \text{ECSR}_{it} + \beta_2 \text{R\&D}_{it} + \beta_3 X_{it} + \mu_{it} + c_i \quad (2)$$

for $i = 1; 2; \dots; K$. $E(\gamma_{it} | X_{it}, c_i) = 0$. $\text{Var}(\gamma_{it} | X_{it}, c_i) = \sigma_{\mu, it}^2$
for all $t = 1; 2; \dots; T$. $\text{Cov}(\gamma_{it}, \gamma_{is} | X_{it}, X_{is}, c_i) = 0 \forall s \neq t$

In this paper, we extend the relationship between ECSR and CFP of Eq. (1) in order to incorporate the hypothesized interaction effects. Eq. (1) takes the following form:

$$\gamma_{it} = \alpha_0 + \beta_1 \text{ECSR}_{it} + \beta_2 \text{R\&D}_{it} + \beta_3 \text{ECSR} \times \text{R\&D}_{it} + \beta_4 X_{it} + \varepsilon_{it} \quad (3)$$

Results

SUMMARY STATISTICS

Table 1 reports the descriptive statistics for our sample of multinational banks. The three measures of multinational bank financial performance provide somewhat different behaviors. Indeed, the multinational banks exhibited considerably higher ROA mean value compared with both EBITOS and EBITDAOS. Furthermore, ROA, EBITOS, and EBITDAOS were fairly volatile, as shown by their standard deviations. The average value of ECSR was relatively correct with a mean of 47.68 points. This means that for a given year, the multinational banks' score for environmental activities was for an average of 47%. The investment in R&D was, on average, 7% of sales. On average, capital expenditures represented 5% of the assets; the book leverage was 50%; and size was 4 points. Overall, multinational banks forming our sample present a good level of performance and have a reasonable capital structure.

TABLE 1
Descriptive statistics of the variables under investigation

Variable	Mean	SD	Min	Max
ROA	11.1551	26.8326	-46.9500	98.4600
EBITOS	1.9635	39.0994	-99.8400	98.2800
EBITDAOS	6.6921	37.1513	-98.2700	98.2800
ECSR	47.6858	4.4254	41.0000	60.0000
R&D	.0738	.1459	0.0000	.7400
SIZE	4.1681	1.0429	.4600	6.5600
LEV	.5083	.3039	0.0000	1.0000
CINT	.0503	.1330	0.0000	.8000

The sample period runs from 2008 to 2011.

In Table 2, we present the Pearson pairwise results, which suggest that our variables were not highly correlated. The highest correlations were observed among the financial performance indicators, although these correlations did not raise multi-collinearity concerns. Indeed, they were never put together in the regression analysis as they were proxies for our dependent variable. An interesting observation that can be seen in Table 2 is the positive correlation of ECSR with ROA. This is the first indication that higher scores may have led to better performance. Also, we observe that R&D was negatively correlated with ROA. Moreover, we calculated variance inflation factors (VIFs) when estimating our base regression model to test for signs of multi-collinearity among the explanatory variables. Our results confirmed that no VIFs exceeded 10 for any of our explanatory variables, so multi-collinearity was not problematic in our base regression model (Hair *et al.*, 2006).

PANEL REGRESSION ESTIMATIONS

Table 3 presents the panel regression results for the effects of ECSR on CFP. Specifications (1)–(3) show the random effects estimations between ECSR and the three CFP indicators (ROA, EBITOS and EBITDAOS). Indeed, the Hausman specification test indicated that we needed to use a random effects model instead of a fixed effects model for model 1 ($\chi^2 = 5.03$; $\text{Prob} > \chi^2 = 0.4125$), model 2 ($\chi^2 = 3.21$; $\text{Prob} > \chi^2 = 0.6675$), and model 3 ($\chi^2 = 4.27$; $\text{Prob} > \chi^2 = 0.5118$). As one can see from the χ^2 test, the random effects were weakly correlated with our regressors, supporting our choice of a random effects model.

For the three model specifications, we found that the regression coefficient for ECSR was positive and significantly associated with the financial performance indicators, providing support for H_1 . Indeed, model specification (1) shows that the coefficient relative to the ECSR was 1.495617, which means that a multinational bank engaging in ECSR incurred a 13% increase in the average ROA ($1.495617/11.15513$, where 11.15513 is the mean ROA for our sample). This result reveals that stakeholders such as investors, stockholders, and financial agencies took the long-run bank performance into account because ROA includes the value of assets. These findings support the prior literature suggesting that ECSR is a mean to meet key stakeholders' expectations (see, e.g., Buysse and Verbeke, 2003). Specifically, a multinational bank that sought to voluntarily manage environmental

TABLE 2
Pearson pairwise correlations of the variables under investigation

	ROA	EBITOS	EBITDAOS	ECSR	R&D	SIZE	LEV	CINT
ROA	1.0000							
EBITOS	0.6767*	1.0000						
EBITDAOS	0.6671*	0.9308*	1.0000					
ECSR	0.2306*	0.1336	0.1353	1.0000				
R&D	-0.2055*	-0.0749	-0.0852	-0.0663	1.0000			
SIZE	-0.1852*	-0.2948*	-0.2505*	0.1531*	0.1893*	1.0000		
LEV	-0.1445*	-0.0028	-0.0953	0.0407	0.1475*	0.0898	1.0000	
CINT	-0.1374	-0.1392	0.0791	-0.0791	0.0586	0.0709	0.0049	1.0000

The sample period runs from 2008 to 2011. *Significance at the .10 level; ** Significance at the .05 level; *** Significance at the .01 level.

activities obtained higher evaluations from stakeholders as they expected that multinational banks addressing environmental issues would proactively improve their corporate reputation and image in the future. Moreover, model specifications (2) and (3) show that the coefficients relative to ECSR were consecutively 1.527777 and 1.586962, which means that when a multinational bank implemented environmental activities, it prompted a 77% increase in the average EBITOS and a 23% increase in the average EBITDAOS. Unlike ROA, EBITOS and EBITDAOS do not include the assets value in their calculation. Therefore, our results show that markets, which reflect the evaluations of consumers and trading partners, were aware of the extent of multinational bank environmental activities and rewarded proactive ECSR.

Model specifications (4), (5) and (6) in Table 3 show the results for the moderating effect of R&D on the relationship between ECSR and CFP. The R&D activities had a significantly negative impact on ECSR-ROA relationship, which provides support for H₂. Thus, the effect of ECSR on CFP as measured by ROA decreased as R&D activities increased. Specifically, the influence of ECSR on CFP reduced by .360 (-4.88893*.073822) as R&D efforts increase, which represented 3.22% of the average ROA.

In terms of control variables, SIZE was negatively and significantly associated with ROA, EBITOS, and EBITDAOS. One explanation is that the bigger a bank is, the further it spends on ECSR and R&D to reach its growth purposes. Furthermore, LEV was negatively and significantly associated with ROA. Indeed, it seems that debt decreases managerial latitude limiting thus opportunities to explore new businesses, and thereby negatively impacting financial performance. Finally, CINT was negatively and significantly associated with ROA, EBITOS, but positively with EBITDAOS. As EBITDAOS does not take in consideration depreciation and amortization, we can limit our analysis to ROA and EBITOS and say that CINT negatively influences CFP because of accelerated depreciation Charges corresponding to asset lives.

SIMULTANEOUS EQUATION ESTIMATION

In this section, we further investigated the endogeneity that may exist in determining the relationship between ECSR and CFP and explored the possibility of reverse causality. In particular, we estimated a model using the three-stage least squares (3SLS) technique. The 3SLS estimator recognizes the endogeneity of both ECSR and CFP in a simultaneous equations framework and provides consistent estimates (Zellner and Theil, 1962). It is also a full-information estimation procedure, used to estimate all parameters simultaneously and deal with the correlation problem between the residuals of the two equations, giving more efficient estimates than those obtained with the two-stage least squares (2SLS). Thus, to explore possible reverse causality, identification of the system is provided by the use of specific variables for each equation. Specifically, following Jiraporn and Chintrakarn (2013), we identified financial performance indicators in the earliest year for each firm in the sample. Then, we replaced the financial performance in any given year with the financial performance in the earliest year. Likewise, we identified environmental performance in the earliest year for each firm in the sample. Then, we replaced the environmental performance in any given year with the environmental performance in the earliest year. The rationale is that financial performance in the earliest year could not have resulted from environmental performance in any subsequent years, making reverse causality unlikely. In the same way, environmental performance in the earliest year could not have resulted from financial performance in any subsequent years, making, once again, reverse causality unlikely. We then employed the 3SLS estimation, using the environmental performance and financial performance in the earliest year as our instrumental variables. We consider that these variables fill the fundamental conditions for valid instruments arguing that the disturbance is not autocorrelated (Kennedy, 2003). Thus, we used the Sargan (1964) mis-specification test to check the instrument validity, with the

TABLE 3
Panel regression estimations

	(1) ROA	(2) EBITOS	(3) EBITDAOS	(4) ROA	(5) EBITOS	(6) EBITDAOS
ECSR	1.495617 [.4645777]***	1.527777 [.6794982]**	1.586962 [.6511526]**	1.822102 [.5686617]***	1.678419 [.8173509]**	1.711769 [.7951839]**
R&D	-24.24488 [7.770754]***	-.1270867 [10.47923]	-3.953386 [10.50014]	204.5601 [94.23146]**	105.4447 [148.3185]	83.51304 [136.1734]
ECSR* R&D				-4.88893 [2.07093]**	-2.255777 [3.184003]	-1.868916 [2.905295]
SIZE	-4.6429 [1.754221]***	-11.83118 [2.485614]***	-9.895977 [2.399135]***	-4.49153 [1.742303]***	-11.76134 [2.496659]***	-9.838112 [2.404165]***
LEV	-10.45616 [4.568846]**	2.458625 [8.890156]	-9.330737 [8.956374]	-10.29719 [4.482945]**	2.531974 [8.87962]	-9.269968 [8.952872]
CINT	-19.51056 [5.000317]***	-30.33224 [12.87564]**	32.13001 [14.39908]**	-19.29341 [5.082485]***	-30.23205 [12.82324]**	32.21302 [14.54373]**
Constant	-32.72414 [21.98262]	-21.2883 [34.15345]***	-24.31825 [32.10506]	-48.90414 [26.54146]*	-28.75383 [40.61853]	-30.50346 [38.83811]
N	191	191	191	191	191	191
R ²	0.1478	0.1305	0.1129	0.1590	0.1316	0.1137

Robust standard errors in parentheses; *Significance at the .10 level; ** Significance at the .05 level; *** Significance at the .01 level.

null hypothesis of “No mis-specification”. Rejecting the null hypothesis means that the model is incorrectly specified and/or some of the instruments are invalid. Moreover, we computed the Breusch and Pagan (1980) test of independence to analyze if cross-equation disturbances are correlated and whether the equations need to be assessed simultaneously.

Overall, to investigate the interrelationship between environmental performance and financial performance, we consider the following system of simultaneous equations that deal with the potential endogeneity concerns in the estimation:

$$\gamma_{it} = \alpha_0 + \beta_1 \text{ECSR}_{it} + \beta_2 X_{it} + \varepsilon_i \quad (4)$$

$$\text{ECSR}_{it} = \delta_0 + \beta_1 \gamma_{it} + \beta_2 X_{it} + \omega_i \quad (5)$$

where, γ_{it} is the corporate financial performance, which, depending on the specification, is either the ROA, EBITOS, or EBITDAOS. ECSR_{it} is the corporate environmental performance indicator for firm i at time t . X_{it} is a vector which includes the control variables and instruments. α_0 and δ_0 represent the constant terms, and ε_i and ω_i are the error terms.

To account for a potential endogeneity between the ECSR and CFP we use Durbin-Wu-Hausman test. The results reject the null hypothesis of no endogeneity at the 1% level (12.7242 ($p = 0.0004$) for system 1, 7.55857 ($p = 0.0060$) for system 2, and 8.58941 ($p = 0.0034$) for system 3). Therefore, we estimate Eq. (4) and Eq. (5) conjointly using 3SLS regression.

Table 4 shows the 3SLS regression results as well as the Breusch–Pagan test and the Sargan test results. Panel A shows the results of the influence of CFP on ECSR as in Eq. (5) whereas Panel B presents the influence of ECSR on CFP as in Eq. (4). We find that the regression coefficients for CEP are positive and significantly associated with ROA. The 3SLS regression results provide additional support to the previous random-effects regressions results and strongly suggest that CFP is determined by ECSR and the opposite is not true.

The Breusch–Pagan test estimates reveal that cross-equation residuals were not independent rejecting thus the null hypothesis of independence errors. Thus, the equations need to be assessed simultaneously. Furthermore, the result of the Sargan mis-specification test reveals that we cannot reject the null hypothesis of “no mis-specification” at the recommended level of 5%, which means that our instruments are valid as they are orthogonal to the error terms.

Discussion

In this study, we investigate the link between ECSR and CFP, and analyze the impact of R&D activities on this relationship. Our findings show that ECSR has a positive impact on CFP which is consistent with the instrumental stakeholder theory (Donaldson and Preston, 1995; Jones, 1995) arguing that through effective ECSR, firms ensure stakeholder satisfaction, obtain sources of competitive advantage, and increase their capacity to adapt to

TABLE 4
Simultaneous equation estimations

Dependent variable	Panel A: ESCR equation			Panel B: Financial Performance equation		
	ESCR			ROA	EBITOS	EBITDAOS
	System 1	System 2	System 3	System 1	System 2	System 3
ROA	.222 (.3627)					
EBITOS		18.5164 (2492.528)				
EBITDAOS			2.1438 (32.858)			
ESCR				11.882 (6.311)*	67.586 (120.316)	51.7752 (74.935)
R&D	3.255 (10.599)	2.2560 (772.555)	9.4924 (194.259)	4.942 (31.045)	172.358 (341.654)	127.713 (222.674)
SIZE	1.568 (1.459)	183.586 (24610.58)	17.925 (263.132)	-11.858 (5.523)**	-55.089 (80.269)	-42.885 (50.842)
LEV	2.550 (3.358)	-178.704 (24155.43)	5.901 (80.776)	-15.888 (12.758)	-28.452 (88.431)	-32.987 (63.083)
CINT	1.941 (8.003)	424.985 (57555.88)	-86.193 (1282.927)	10.404 (33.497)	161.462 (383.637)	177.774 (248.785)
Constant	37.553 (11.240)***	-606.7013 (87644.31)	-30.145 (-30.145)	-467.863 (250.968)*	-2629.473 (4681.764)	-2013.414 (2918.986)
Sargan test (p.value)	.2667 (0.605)	2.770 (0.096)	2.193 (2.138)	.2667 (0.605)	2.770 (0.096)	2.193 (2.138)
Breusch–Pagan test of independence (p.value)	11.877 (0.000)	6.033 (0.014)	0.014 (0.008)	11.877 (0.000)	6.033 (0.014)	0.014 (0.008)

Standard errors in parentheses. * Significance at the .10 level; ** Significance at the .05 level; *** Significance at the .01 level.

key stakeholder requirements (Lankoski, 2008; Orlitzky *et al.*, 2003; Surroca *et al.*, 2010). Accordingly, stakeholders push companies to consider profit opportunities that have been undervalued (Hart and Dowell, 2011). Moreover, our results provide consistent support to the natural RBV (see, e.g., Chan, 2005; Hart and Dowell, 2011; Hart, 1995) stating that environmental activities can lead to competitive advantage and better financial performance. Also, our findings agree with those of Brammer and Pavelin (2004) and Surroca *et al.* (2010), stressing that high level of ECSR increases firm attractiveness and allows competitive advantage. Not least, our findings provide unique theoretical insights as we used instrumental stakeholder theory and the NRBV as complementary frameworks to understand ECSR-CFP relationship in banking industry.

Our study reveals that the impact of ECSR on ROA decreases as banks' R&D activities increase. One explanation is that evaluations a multinational bank obtained from stakeholders such as investors, stockholders, and financial agencies, tended to decrease as they perceived these activities as potential costs or penalties and expected that the multinational bank would likely fail to improve efficiency, limiting thus profit prospects in the future. Accordingly, the findings suggest that R&D effort is a moderator for a positive relationship between ECSR and CFP. Indeed, ECSR most strongly influences CFP in low-R&D intensity multinational banks. Thus, through focusing on ECSR, our findings extend those of Hull *et al.* (2008) who stated that innovation moderates the link between the firms' social efforts and their financial performance. Furthermore, the findings reveal that multinational bank R&D had no significant impact on either EBITOS or EBITDAOS. One explanation of these results is that consumers and trading partners did not pay attention to the R&D efforts that multinational banks provided to foster ECSR. It is possible that these stakeholders disregarded R&D efforts as long as the multinational bank operated by complying with laws and regulations and ensured that it was perceived as acting within the bounds and norms of the society it operated in. Banks are thus called to use interactive processes through exchanges with shareholders, consumers and trading partners. These processes can prompt environmental innovations that enhance efficiency of operations and improve reputation. They also enable banks to monitor essential and valuable changes with regard to environmental policy-making processes as well as other aspects of organizational strategy. Furthermore, through interactive processes, banks could identify R&D practices and ECSR opportunities that shareholders, consumers and trading partners are likely to consider as consistent with their core business activities, which then strengthens corporate credibility. Banks can also mobilize Interactive processes to promote shareholders', consumers' and trading partners' perceptions of their personal role in helping the cause in a ECSR context, which in turn serves to identify uncertainties that can hamper activities. Overall, this study underlines the importance of including R&D in further research of ECSR-CFP relationships, dealing thus with the omission of variables issue, an important concern in empirical research (e.g., McWilliams and Siegel, 2000; Surroca *et al.*, 2010). Thus, our study offers unique theoretical insights on the role of R&D in the ECSR-CFP linkages of multinational banks.

The study suggests that CFP is determined by ECSR and the opposite is not true providing thus further support to our complementary framework of instrumental stakeholder theory and the natural RBV. Indeed, it appears that multinational banks carrying out environmental policies selected and attracted more creditworthy borrowers, which contributed to higher profit and better asset quality for the financial institutions. However, it seems that an increase of CFP has no significant impact on ECSR of multinational banks. These findings offer unique theoretical insights suggesting that, in banking industry, the causality in only one way direction: from ECSR to CFP. Thus, the study brings answers to the direction of causality issues, one of the main drawbacks causing the lack of consensus in ECSR-CFP research (e.g. Surroca *et al.*, 2010; Orlitzky *et al.*, 2003).

Conclusion

This paper examines the relationship between financial and environmental performance using the data of French multinational banks from 2008 to 2011. Furthermore, we consider the moderating role that R&D plays in the relationship between ECSR and CFP. To the best of our knowledge, this is the first attempt to analyze the ECSR-CFP relationship using French multinational bank data. Our findings show that high ECSR was associated with high financial performance. Thus, our results support the instrumental stakeholder theory and the natural RBV arguing that through fostering their environmental performance, multinational banks managed salient stakeholders, met their expectations, and reacted to their "signals" with regard to environmental issues. Our findings also reveal that CFP is determined by ECSR and the opposite is not true. Thus, it appears that multinational banks carrying out environmental policies selected and attracted more creditworthy borrowers, which contributed to higher profit and better asset quality for the financial institutions. Yet our findings also reveal that the influence of ECSR on ROA decreases as banks' R&D activities increase. One explanation is that evaluations a multinational bank obtained from stakeholders such as investors, stockholders, and financial agencies, tended to decrease as they perceived these activities as potential costs or penalties and expected that the multinational bank would likely fail to improve efficiency, limiting thus profit prospects in the future. In other words, our results reveal that R&D is a moderator for a positive relationship between ECSR and CFP. Indeed, ECSR most strongly influences CFP in low-R&D intensity multinational banks. Moreover, the findings reveal that multinational bank R&D had no significant impact on either EBITOS or EBITDAOS. Thus, consumers and trading partners did not pay attention to the R&D efforts a multinational bank made. Indeed, these stakeholders seemed to disregard R&D efforts as long as the multinational banks complied with laws and regulations and acted within the bounds and norms of the society they operated in.

Our results offer new contributions to the literature, and this study, despite some limitations, suggests opportunities for future research directions. The ECSR-CFP relationship that we explored may change across countries because environmental activities are bound by cultural contingencies. In France, regulation is traditionally considered as a driver of change. Consequently, institutional pressures for ECSR emerge mostly from coercive considerations. Indeed, Economic regulation relies principally on

State-based mechanisms and coercive institutions, with law and regulation prevalent in shaping organization behaviors (Elbaz *et al.*, 2016; Krivogorsky and Grudnitski, 2010). Furthermore, the legal tradition of civil law and the welfare state model considerably impacted the vision of CSR in general (Delbard, 2008). We therefore encourage research in other countries to test this hypothesis. Furthermore, in this paper, we focused on R&D. Future research could easily extend the framework to explore the effects of multinational bank governance on ECSR.

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