



Full text document (pdf)

Citation for published version

María Consuelo Pucheta-Martínez, Inmaculada Bel-Oms & Lúcia Lima Rodrigues. Does Stakeholder Engagement Encourage Environmental Reporting? The Mediating Role of Firm Performance, *Business Strategy and the Environment*.

DOI

<https://doi.org/10.1002/bse.2555>

Link to record in RepositóriUM

<https://repositorium.sdum.uminho.pt>

Document Version

Author's Accepted Manuscript



Universidade do Minho
Escola de Economia e Gestão

NIPE

Centre for Research
in Economics and
Management

**DOES STAKEHOLDER ENGAGEMENT ENCOURAGE ENVIRONMENTAL
REPORTING? THE MEDIATING ROLE OF FIRM PERFORMANCE**

María Consuelo Pucheta-Martínez

Assistant Professor
University Jaume I
Department of Finance and Accounting
Campus del Riu Sec, S/n
12071-Castellón-
Spain

e-mail: pucheta@uji.es

Inmaculada Bel-Oms

Universidad de Valencia
Departamento de Finanzas Empresariales
Avda. Tarongers, s/n.
46022- Valencia
Spain

e-mail: Inmaculada.Bel@uv.es

Lúcia Lima Rodrigues

Professor
University of Minho
Department of Economics and Management
Gualtar Campus
4709-Braga-
Portugal

e-mail: lrodrigues@egg.uminho.pt

ACKNOWLEDGEMENTS

The authors acknowledge financial support from the Spanish Ministry of Economy, Industry and Competitiveness for the research project ECO 2017-82259-R and from the University Jaume I for the research project UJI-B2018-15. The authors also acknowledge financial support from the National Funds of the FCT – Portuguese Foundation for Science and Technology within the project UID/ECO/03182/2019.

DOES STAKEHOLDER ENGAGEMENT ENCOURAGE ENVIRONMENTAL REPORTING? THE MEDIATING ROLE OF FIRM PERFORMANCE

Abstract

Stakeholder engagement policies have become a relevant strategy in firms because they may signal to stakeholders the commitment of the firm to the stakeholder's needs and demands. In this research, we aim to examine whether firms with stakeholder engagement policies tend to disclose more environmental information. Additionally, we analyse the moderating role played by firm performance on the association between stakeholder engagement and environmental disclosure. As far as we know, previous research has not addressed these two questions. Our evidence shows that firms with stakeholder engagement policies are more likely to report environmental information, while firm performance negatively moderates the association between stakeholder engagement and environmental disclosure. These findings have implications for policy-makers, firms, stakeholders and other researchers.

1. INTRODUCTION

Stakeholder engagement (SE) is a relevant factor in the integrated reporting process of a firm because it shows whether companies are receptive to the legitimate demands, interests and needs of crucial stakeholders (Manetti & Bellucci, 2016). SE tells us whether firms engage with relevant stakeholders in their strategic and business decisions in order to achieve common outcomes. Firms have to interact with key stakeholders to survive in an increasingly challenging business environment and, therefore, a strong stakeholder engagement model is essential in their ability to understand and react to legitimate stakeholder concerns.

Authors including Bebbington et al. (2007) and Brown and Dillard (2014) argue that SE can be an influential instrument for dialogic communication and interactive and mutual learning while also promoting social change and transformative action. Furthermore, SE may be a milestone policy in environmental disclosure as it allows firms to cooperate with their stakeholders in a two-way dialogue, in which firms and stakeholders mutually learn from this collaboration and potentially amend their strategies, behaviours and expectations (Manetti & Bellucci, 2016; Manetti, Bellucci, & Bagnoli, 2016).

According to Dienes et al. (2016), the most analysed drivers of environmental disclosure are ownership structure, company size and media visibility. However, the role played by corporate governance mechanisms on environmental reporting has received less attention from earlier researchers, who have focused predominantly on factors such as board composition, capital structure or profitability. The evidence of an association between these mechanisms and the disclosure of environmental issues has been inconclusive. Analysis of the impact of SE on corporate disclosure has been also scarce. Kaur and Lodhia (2014) reported that SE is a determinant of sustainability reporting because it communicates issues, material concerns and the aspirations of crucial stakeholders. Herremans et al. (2016) found that SE strategy explains diversity in sustainability reporting. Chen (2018) also showed that the level of SE has a positive impact on the quality of sustainability reporting. Nevertheless, the effect of firms' SE policies on their environmental disclosure has not been addressed by past research, as far as we know.

Firm performance can be considered an indicator of the long-term survival of a company just as a strong SE process can. The interaction between SE and firm performance, however, and its effect on environmental reporting remains unclear. In this regard, does corporate performance moderate the association between SE and environmental disclosure? This paper aims to analyse whether SE encourages environmental reporting in a sample of international firms. Additionally, we examine the moderating role played by firm performance on the relationship between SE and environmental reporting.

Our findings show that SE is positively associated with environmental disclosure and, furthermore, that firm performance moderates negatively the positive effect of SE on the reporting of environmental information.

Through this empirical examination, our purpose is to contribute to the stakeholder theory and the empirical evidence relating to environmental disclosure by showing that SE policies are positively associated with environmental disclosure. SE is an important part of good business practice and may prove helpful in managing risks successfully and enhancing stakeholder benefits. SE brings shared value to society and business. The environmental information deficit may be improved by enhancing relationships with vital stakeholders, through the implementation of SE policies in firms. Previous research has focused on examining how SE policies affect corporate social responsibility (CSR) disclosure, sustainability reporting or voluntary disclosure, in general terms. However, to the best of our knowledge, this is the first paper to address the impact of SE strategies on environmental disclosure individually and to analyse the moderating role of the firm's performance on this association. In this regard, our evidence shows that the positive impact of SE policies on environmental disclosure is negatively moderated by firm performance. Thus, firms with good performance will tend to mitigate the reporting of environmental issues if they have also implemented SE policies. It is reasonable, therefore, to presume that the analysis of the relationship between SE strategies and environmental disclosure and the moderating role played by firm performance will make a positive contribution to existing literature and provide productive ground for further research.

The rest of the paper is organised as follows. In Section 2, we present the theoretical framework and the hypotheses, while Section 3 describes the methodology and variables used. In Section 4, we analyse and discuss the findings and, finally, Section 5 presents the conclusions, implications and limitations.

2. CONCEPTUAL FRAMEWORK AND HYPOTHESES

2.1 Conceptual Framework

We build our conceptual framework on stakeholder theory, which argues that organisations have to inform stakeholders of the effects of those operations that affect them (Freeman, 1984; Mitchell et al., 1997). Such communication between firms and stakeholders leads to a balance of benefits and interests. One method used by firms to achieve a dialogue with stakeholders is through the reporting process (Morsing & Schultz, 2006), a formalised means of communication to disclose the firm's performance in areas such as environmental or social actions (Kaur & Lodhia, 2018). A stakeholder approach also suggests that firms are more

likely to report information about environmental and social matters when their reputation and image face a legitimacy crisis, for instance, when stakeholders have a negative perception or opinion of a firm due to its behaviour. Firm managers will tend to report the information expected by the relevant stakeholders in order to gain or maintain their support. Previous research (e.g. Patten, 1992; Deegan et al., 2002) supports these ideas by showing that, when firms perceive that their legitimacy may be threatened, they are inclined to disclose more information on their corporate social responsibilities, such as environmental issues, thus influencing the decisions of those key stakeholders.

Conversely, some organisations may be willing to voluntarily disclose environmental or social information because they are interested in addressing and understanding stakeholders' interests and demands. Stakeholders' opinions and views can be gathered through engagement and ongoing stakeholder dialogue (Cooper & Owen, 2007). Through this consultation process, organisations, and particularly their managers, can address the expectations of stakeholders through stakeholder engagement policies.

Firms may pursue three strategies to engage stakeholders, according to Morsing and Schultz (2006): informing, responding and involving. When organisations inform stakeholders, they attempt to demonstrate their actions and operations in one-way communication. According to Herremans et al. (2016), the majority of firms use this form of SE in order to access vital resources at least cost.

Some firms, however, integrate the 'responding' form of SE into the reporting process. This two-way communication is asymmetrical, as firms transfer more information to stakeholders than vice versa, and may be face-to-face or not. Through this reporting process, organisations may gain opportunities to improve their market power or competitiveness, search for business opportunities or prevent damage (Van Huijstee & Glasbergen, 2008).

Finally, the 'involving' form of SE is also a two-way communication process based on an active dialogue between organisations and relevant stakeholders, involving symmetrical information both from firms to stakeholder and vice versa. In this SE, all key stakeholders are involved in joint decision-making or joint management of a project. These different SE strategies all involve the disclosure of information by organisations in order to meet stakeholders' expectations of being informed.

Gao and Zhang (2001) confirm that organisations can benefit from stakeholders and vice versa. Stakeholders may impact on firm's goals through their participation and activities, benefiting organisational performance in social and environmental areas, and leading us to think that the integration of SE in the decision-making process may result in increased organisational

performance. Stakeholders can, however, also be impacted by the goals of the firm, which give them the right to SE. This requires firms to disclose more information about the impact of their operations on the environment and society, in order to address stakeholders' demands and interests.

These arguments seem to support the notion that firms which implement SE policies will be more likely to report environmental information. According to Isenmann and Kim (2006), firms need to cooperate with their stakeholders when preparing sustainability reports in order to identify the environmental and social matters they perceive to be important. This cooperation can be reached by adopting SE strategies and, in this way, organisations may adopt strategies and policies in line with stakeholders' interests and expectations, avoiding ineffective actions and initiatives (Yau, 2012).

2.2 Hypotheses' development

2.2.1 Stakeholder engagement and environmental reporting

According to the Institute of Social and Ethical Accountability (ISEA, 1999, p. 91), SE can be defined as 'the process of seeking stakeholder views on their relationship with an organisation in a way that may realistically be expected to elicit them'. Andriof and Waddock (2002, p. 42), see SE as 'trust-based collaborations between individuals and/or social institutions with different objectives that can only be achieved together' and Gable and Shireman (2005, p.9) define it as 'a process of relationship management that seeks to enhance understanding and alignment between company and their stakeholders'. These definitions all support the notion that, in SE, two parties interact: the firms and their stakeholders. In this interaction, firms provide benefits to their stakeholders and vice versa. In this context, companies with active SE policies may voluntarily disclose information on social and environmental matters, and stakeholders receiving such information may provide a reciprocal benefit in the form of feedback, which may enhance the firms' legitimacy and reputation, encouraging them to maintain and improve their SE strategies.

Some authors (Manetti, 2011; Manetti & Toccafondi, 2012; Onkila et al., 2014; Prado-Lorenzo et al., 2009) show that SE policies may have an effect on sustainability disclosure. Bellucci et al. (2019) found that firms implementing two-way communication with their stakeholders report stakeholder perceptions, problems in engaging stakeholders and proposed actions for interacting with stakeholders, demonstrating that an effective SE is positively related to sustainability reporting. Dobbs and Van Staden (2016) show that voluntary reporting is determined by factors such as assurance, CSR committees and SE. Adams and Frost (2006)

report that firms which engage with stakeholders via their web pages disclose more social and environmental performance data. Hassan and Ibrahim (2012) reveal that firms with SE policies tend to disclose information on specific environmental activities, such as packaging, waste management, recycling, climate-change risk, climate-change activities and carbon footprint.

The majority of the existing literature shows the effect of SE on sustainability reporting, but little focuses on examining the relationship between the existence of SE policies and environmental reporting, as far as we know. Thus, we propose the following hypothesis:

H1: Stakeholder engagement policies are positively associated with environmental reporting.

2.2.2 The moderating role of firm performance

Previous studies have analysed the relationship between the characteristics of the board of directors and the value of the firm (e.g. Kiel & Nicholson, 2005; Westphal & Bednar, 2005; Jermias & Gani; 2014). The majority of these studies agree that it is vital that boards are effective in performing the functions entrusted to them since, in this way, they will create value in firms and, hence, lead to better performance (Aguilera, 2005). Some of these papers examine the role of the board of directors by linking the organisation with its environment, arguing that the board of directors plays an important role in attracting resources to improve firm performance, which may be possible due to the ties and contacts that the directors have with their surroundings (Hendry & Kiel, 2004; Hillman, Cannella & Paetzold, 2000).

Relationships between stakeholders and companies may trigger agency conflicts due to the information asymmetries between them (Jensen & Meckling, 1976) that are associated with an agency cost. The firm's performance may allow these costs to be reduced by enhancing environmental reporting. Omnamasivaya and Prasad (2016) and Alipour et al. (2019) found a positive relationship between environmental disclosure and corporate performance, due to the fact that a greater level of environmental disclosure may improve the firm's reputation and, as a consequence, its value. In contrast, Sarumpaet (2005) shows that environmental performance is not associated with financial performance, and Malarvizhi and Matta (2016) also report that there is no relationship between environmental disclosure and corporate performance. The lack of association between environmental reporting and firm performance could be due to the fact that companies report environmental information even when they are not performing well. As shown, it seems that the majority of existing research is focused on exploring the effect of environmental disclosure on firm performance, but there is less research into the inverse function. In this regard, Cormier and Magnan (1999) report that large companies with good

financial performance tend to disclose more environmental information. Marshall et al. (2009) show that firm performance is positively associated with the quality of voluntary environmental disclosure, and Matsumura et al. (2014) also demonstrate the positive impact of corporate performance on the voluntary disclosure of carbon emissions.

However, to the best of our knowledge, the moderating impact of a firm's performance on the relationship between SE and the disclosure of environmental information has not yet been analysed. Thus, the degree to which high levels of performance affect environmental disclosure when interacting with SE merits our attention. The coexistence of SE policies with higher performance is expected to impact positively on environmental reporting. Firms with SE strategies will be more likely to disclose environmental reporting in order to show a greater commitment to stakeholder interests and needs. Additionally, companies with better corporate performance may signal to society and stakeholders an orientation toward economic goals rather than toward social and environmental goals, which may be perceived negatively by stakeholders and society. Greater disclosure of environmental information may help to mitigate this negative perception.

Accordingly, it is reasonable to suggest that better performance will positively moderate the relationship between SE policies and environmental reporting. In view of the above, the following hypothesis is formulated:

H2: Firm performance moderates the relationship between stakeholder engagement policies and environmental disclosure.

3. EMPIRICAL DESIGN

3.1 Sample

Our initial unbalanced panel data sample is taken from a population of 32,962 firm-year observations for the period 2007–2018. From this initial sample, we removed financial entities and those firms for which not all relevant data were available. Financial entities were excluded due to the different accounting rules governing the preparation of their financial statements, which complicated the comparison of these financial statements with those of non-financial firms. Thus, the final sample is composed of 16,807 firm-year observations collected from Thomson Reuters. Our sample includes firms from 16 countries. Table 1 shows the percentage representation of each country in our sample: the countries with the highest representation are the United States, Canada and Japan with 40.01%, 12.80% and 12.67% respectively, and those with the lowest representation are Austria, Norway and New Zealand with 0.4%, 0.5% y 0.9% respectively.

Insert Table 1 here

The Thomson Reuters Business Classification (TRBC) is the industry classification used in this research. In Table 2, we present the nine industries considered: basic materials, consumer cyclicals, consumer non-cyclicals, energy, healthcare, industrials, technology, telecommunications services and utilities. The industries with the highest representation are industrials, consumer cyclicals and basic materials with 21.30%, 17.90% and 12.00% respectively. In contrast, telecommunications services and consumer non-cyclicals show the lowest representation with 4.60%, followed by utilities with 7.30%.

Insert Table 2 here

3.2 Dependent variable

Environmental reporting is our dependent variable and is defined as ENV_REPORT. This variable is calculated as the ratio between the aggregate of 58 items focused on environmental issues and the total number of items analysed, in line with Gallego-Álvarez et al. (2017). If the company discloses information on an item, this will take the value 1; if not, the value is 0. The 58 items analysed are categorised into three groups: resource use, emissions and innovation, as shown in Table 3.

Insert Table 3 here

3.3 Independent variables

Our independent variable is SE policies and is labelled STAKEHOL_ENGAG. It is measured as a dummy variable that takes the value 1 if the company explains how it engages with its stakeholders and complies with regulations, resolutions or proposals regarding SE; otherwise it takes 0 (Dal Maso et al., 2017). We are not examining the quality or levels of SE, but whether firms implement SE policies. Our moderating variable is firm performance, denoted by Q_TOBIN, calculated as the ratio between the market capitalisation of common stock plus the book-value liabilities divided by the book value of total assets (Pucheta-Martínez et al., 2018).

3.4 Control variables

We control other potential factors that may influence environmental reporting. The first control variable used is firm size, SIZE, calculated as the log of total assets, consistent with Alsaifi et al. (2020) and Kong et al. (2020). The second control variable employed is leverage, denoted by LEV and calculated as the ratio of debts over total assets (Dal Maso et al., 2017; Wei et al., 2020). Board size is a further control variable used, labelled as B_SIZE and measured as the total number of directors on the board (Tingbani et al., 2020). CSR_COMMITTEE is

calculated as a dummy variable that takes the value 1 if the company has a CSR committee and 0 otherwise (Dal Maso et al., 2017). Female directors are also controlled, labelled as FEM_DIRECT and calculated as the ratio of the number of female directors on a board and the total number of directors (Pucheta-Martínez & Gallego-Álvarez, 2019). Board independence, denoted by B_INDEP, is calculated as the ratio of the number of independent directors on a board and the total number of directors on that board, in line with Pucheta-Martínez and Gallego-Álvarez (2019). Furthermore, we also take into account the different regions (Asia, Europe, North America and Oceania) (Pucheta-Martínez & Gallego-Álvarez (2019), which is calculated as a dummy variable, taking the value 1 if the country of the sample belongs to the region examined and 0 otherwise. Moreover, we use the variable industry type, denoted by INDUSTRY, and measured as a dummy variable that takes the value 1 if the firm operates in the industry analysed and 0 otherwise. As indicated above, we use the nine economic sectors considered by TRBC: basic materials, consumer cyclicals, consumer non-cyclicals, energy, healthcare, industrials, technology, telecommunication services and utilities. Finally, we use the year fixed effects (YEAR), calculated as a set of dummy variables. Table 4 offers a summary of all the variables addressed in this paper.

Insert Table 4 here

3.5 Model specification

The hypothesis proposed will be estimated with the following model:

$$\begin{aligned} \text{ENV_REPORT}_{it} = & \beta_0 + \beta_1 \text{STAKEHOL_ENGAG}_{it} + \beta_2 \text{Q_TOBIN}_{it} + \\ & \beta_3 \text{STAKEHOL_ENGAG} \times \text{Q_TOBIN}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LEV}_{it} + \beta_6 \text{B_SIZE}_{it} + \\ & \beta_7 \text{CSR_COMMITTEE}_{it} + \beta_8 \text{FEM_DIRECT}_{it} + \beta_9 \text{B_INDEP}_{it} + \beta_{10} \text{EUROPE}_{it} + \\ & \beta_{11} \text{NORTHAMERICA}_{it} + \beta_{12} \text{OCEANIA}_{it} + \beta_{13} \text{BASIC MATERIALS}_{it} + \\ & \beta_{14} \text{CONSUMER CYCLICAL}_{it} + \beta_{15} \text{CONSUMER NON-CYCLICAL}_{it} + \beta_{16} \text{ENERGY}_{it} \\ & + \beta_{17} \text{HEALTHCARE}_{it} + \beta_{18} \text{INDUSTRIALS}_{it} + \beta_{19} \text{TECHNOLOGY}_{it} + \\ & \beta_{20} \text{TELECOMMUNICATION SERVICES}_{it} + \sum \beta_j \text{YEAR}_t + U_i + \delta_{it} \end{aligned}$$

Where “i” represents each firm and “t” the year. Additionally, U_i represents unobservable heterogeneity (firm-fixed effects) and is controlled because it may potentially be associated with environmental reporting. These firm-fixed effects are constant over time but vary among individuals. Finally, δ_{it} represents the error term and varies over time among firms.

The Generalized Method of Moments (GMM) estimator is recognised as one of the principal statistical tools for the analysis of economic and financial data. Thus, in this research, we use the GMM procedure developed for dynamic models of panel data (Arellano & Bond, 1991; Blundell & Bond, 1998, 2000). The GMM estimator will allow us to solve the problems of serial correlation, heteroscedasticity and endogeneity in the model (Leitao, 2010). It is more powerful and consistent than other procedures because it addresses unobservable heterogeneity and potential endogeneity issues, while also mitigating the estimation bias.

The following statistics are provided by the GMM: the Wald χ^2 test, the Arellano–Bond tests AR(1) and AR(2) and the Hansen test. The model fitness is assessed by the Wald χ^2 statistic, while the Arellano–Bond statistic AR(2) will assess whether a second-order serial correlation exists in the first difference residuals. The rejection of the null hypothesis of ‘no serial correlations’ supports the non-existence of second-order serial correlation. Lastly, the Hansen test of over-identifying restrictions also allows us to assess the fitness of the instruments considered in the model. The rejection of the null hypothesis of non-correlation between the instruments and the error term shows us that the instruments are appropriate.

4. ANALYSIS OF RESULTS

4.1 Descriptive statistics

Table 5 summarises the mean, standard deviation, and the 25th, 50th and 75th percentiles. The score of the environmental information disclosed is 25.30% of the 58 items analysed in the environmental disclosure index. Additionally, 36.40% of firms in our sample explain how they engage with stakeholders and comply with SE regulations, resolutions or proposals. This figure shows that over one-third of the companies in the sample have a SE policy, suggesting that firms are increasingly interested in stakeholders’ needs and demands. Corporate performance is, on average, 0.74. Additionally, firm size (SIZE) is 10.86 (log of total assets, expressed in euros); leverage (LEV) averages 24.85% and the number of board members (B_SIZE) is, on average, 12.53. The proportion of independent board directors (B_INDEP) is 81.60%; the proportion of female directors on boards (FEM_DIRECT) 13.75%, and 63.30% of firms have a CSR committee (CSR_COMMITTEE). With regard to location, 12.60% of the firms are domiciled in Asia (ASIA), 29.40% in Europe (EUROPE), 52.80% in North America (NORTHAMERICA) and 5% in Oceania (OCEANIA). Finally, the basic materials’ (BASIC MATERIALS) sector accounts for 12.00% of firms, consumer cyclicals (CONSUMER CYCLICAL) 17.90%, consumer non-cyclicals (CONSUMER NON-CYCLICAL) 7.30%, energy (ENERGY) 8%, the healthcare sector (HEALTHCARE) 10.80%, industrials

(INDUSTRIALS) 21.30%, technology (TECHNOLOGY) 7.80%, telecommunications services (TELECOMMUNICATION SERVICES) 4.60% and utilities (UTILITIES) 10.00%.

Insert Table 5 here

In Table 6, we present the correlation matrix in order to assess whether multicollinearity concerns exist. As shown in Table 6, all the coefficients are lower than 0.8 (Archambeault & DeZoort, 2001), suggesting that there are no multicollinearity problems.

Insert Table 6 here

4.2 Regressions analysis

In Table 7, we report the findings from the two models estimated with the GMM estimator.

In Model 1, we explore the association between SE and environmental reporting. The variable SE (STAKEHOL_ENGAG) exhibits a positive sign and is statistically significant. Thus, Hypothesis 1 cannot be rejected. This finding suggests that firms with SE policies tend to disclose environmental information, consistent with Adams and Frost (2006), who demonstrate the positive effect of SE on reporting CSR issues through a firm's web page, and Dobbs and Van Staden (2016), who show a positive association between SE and voluntary reporting. Authors including Favotto et al. (2016) have found that SE is essential in the disclosure of environmental information, resulting in better financial performance. Moreover, SE may be considered as an instrument for dialogic communication and for interactive and mutual learning between firms and stakeholders. Such communication allows both parties to learn from this collaboration and change aspects of their strategies, behaviours and expectations, as well as promoting social change or disclosing more environmental information. The disclosure of environmental issues by firms may improve their reputation and legitimacy. Then, the implementation of SE strategies may be a driver for reaching this goal because SE policies are positively associated with environmental disclosure.

Model 2 analyses the moderating effect of firm performance on the relationship between SE and environmental reporting. The variables SE (STAKEHOL_ENGAG) and firm performance (Q_TOBIN) provide a positive sign and are statistically significant. The interaction term between SE and firm performance (STAKEHOL_ENGAG x Q_TOBIN) presents a negative sign and is statistically significant. Thus, we have to reject the second hypothesis. Our evidence suggests that SE policies do not impact strongly on environmental reporting in the event of higher firm performance. In other words, good corporate performance moderates negatively the positive relationship between SE and the disclosure of environmental information, which confirms that better performance acts as a substitute for the implementation

of SE policies in firms, as we predicted, rather than playing a complementary role. This finding suggests that firm performance and SE policy mechanisms substitute rather than complement each other because their coexistence has a negative effect on the reporting of environmental information.

According to the control variables, in both models, the variable CSR Committee (CSR_COMMITTEE), the proportion of female directors on board (FEM_DIRECT) and the region Europe (EUROPE) present a positive sign and are statistically significant. Therefore, firms domiciled in Europe, with female directors on their board and with a CSR committee are more likely to report information about environmental issues. The remainder of the control variables are not significant from a statistical point of view.

Insert Table 6 here

4.3 Robustness check

An additional robustness analysis was conducted by considering as a dependent variable environmental disclosure (ENV_REPORT), the aggregate of 58 items focused on environmental issues. Each item on which the company reports information takes the value 1, 0 for no information reported. This variable can thus range between 0 and 58. We supplemented this analysis with an alternative dependent variable, the ratio between the aggregate of 58 items focused on environmental issues and the total assets of the firm (firm size) (Clarkson et al., 2008). This gave us a value for environmental disclosures per thousand US dollars of assets for each of our sample companies (all economic data provided by Thomson Reuters is expressed in US dollars).

For the sake of brevity, the findings are not shown. The principal results are consistent with those provided for the baseline models, which leads us to conclude that our evidence is not sensitive to the way in which environmental disclosure is measured.

5. CONCLUSION

This study aimed to investigate whether SE policies encourage environmental reporting in a sample of international firms. Furthermore, we examined the moderating role played by firm performance on the relationship between SE and environmental reporting.

Our findings show that firms with SE policies are more likely to disclose environmental information. We also found that better firm performance moderates negatively the relationship between SE policies and environmental disclosure. The coexistence of the two mechanisms, SE strategies and good corporate performance, can be considered as substitutive, rather than

complementary, tools in environmental issues since their combination reduces the disclosure of environmental information.

The results of the study have several implications. Firstly, this paper illuminates the benefits of implementing SE policies because they are likely to enhance the reporting of environmental information. However, the interaction of SE strategies with better corporate performance has a negative effect on environmental disclosure. Our evidence is useful for firms interested in improving both their performance and disclosure of environmental matters because the development of SE policies is likely to lead to a reduction in reporting of environmental information. Thus, companies and firms' managers oriented towards environmental goals in engaging with stakeholders' needs and demands will have to decide between enhancing firm performance or implementing SE policies. Secondly, our evidence may be useful for policy-makers, when regulating or making recommendations about environmental reporting. They should encourage companies involved in environmental issues to focus more on implementing SE policies, while moderating the increase in firm performance, because the coexistence of both mechanisms, firm performance and SE strategies, mitigates the reporting of environmental information. Thirdly, this research offers an opportunity to extend previous evidence based on stakeholder theory, since we address how firm performance moderates the association between SE policies and environmental disclosure. Earlier research has focused on analysing the factors increasing the disclosure of CSR or environmental information, but there is no previous evidence of the moderating role of corporate performance on SE policies and the disclosure of environmental matters, to the best of our knowledge. Finally, stakeholders interested in obtaining environmental disclosures from firms should take into account whether companies have SE policies and whether they tend to be profitable firms. In this latter case, the information available about environmental issues may be limited.

Our study has limitations which may serve as avenues for future research. Firstly, we analysed the moderating role of firm performance on the relationship between SE and environmental disclosure by focusing on a sample of international non-financial firms. Future studies could extend our research to financial entities. Secondly, this study does not address the effect of the worldwide financial crisis on the relationship between SE and environmental disclosure. Thirdly, as we deal with a cross-country sample, other researchers extending our work may enrich it by using country-level variables. Finally, future research may also consider enhancing the model proposed by introducing mediating variables, such as board composition or female directors, among others, in order to explore their effect on the association between SE and environmental disclosure.

REFERENCES

- Adams, C. A., & Frost, G. R. (2006). The internet and change in corporate stakeholder engagement and communication strategies on social and environmental performance. *Journal of Accounting & Organizational Change*, 2(3), 281-303.
- Aguilera, R. V. (2005). Corporate governance and director accountability: An institutional comparative perspective. *British Journal of Management*, 16, 39-53.
- Alipour, M., Ghanbari, M., Jamshidinavid, B., & Taherabadi, A. (2019). Does board independence moderate the relationship between environmental disclosure quality and performance? Evidence from static and dynamic panel data. *Corporate Governance*, 19(3), 580-610.
- Alsaifi, K., Elnahass, M., Salama, A. (2020). Carbon disclosure and financial performance: UK environmental policy. *Business Strategy and the Environment*, 29(2), 711-726.
- Archambeault, D., & DeZoort, F. T. (2001). Auditor opinion shopping and the audit committee: An analysis of suspicious auditor switches. *International Journal of Auditing*, 5, 33-52.
- Andriof, J. & Waddock, S. (2002). *Unfolding stakeholder engagement*, Unfolding Stakeholder Thinking, Vol. 1, Greenleaf Publishing, Sheffield, 19-42.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and application to employment equations. *The Review of Economic Studies*, 58, 277-297.
- Bebbington, J., Brown, J., Frame, B., & Thomson, I. (2007). Theorizing engagement: The potential of a critical dialogic approach. *Accounting, Auditing & Accountability Journal*, 20(3), 356-381.
- Bellucci, M., Simoni, L., Acuti, D. & Manetti, G. (2019). Stakeholder engagement and dialogic accounting. *Accounting, Auditing & Accountability Journal*, 32(5), 1467-1499.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115-143.
- Blundell, R., & Bond, S., (2000). GMM Estimation with persistent panel data: an application to production functions. *Econometric Reviews*, 19(3), 321-340.
- Brown, J., & Dillard, J. (2014), Integrated reporting: On the need for broadening out and open in up. *Accounting, Auditing & Accountability Journal*, 27(7), 1120-1156.
- Chen, H. (2018). Sustainability reporting & stakeholder engagement: Determinants on reporting quality. Doctoral Thesis, Durham University, UK.
- Clarkson, P.M., Li, Y., Richardson, G.D., & Vasvari, F.P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, 33(4-5), 303-327.
- Cooper, S.M., & Owen, D.L. (2007). Corporate social reporting and stakeholder accountability: the missing link. *Accounting, Organizations and Society*, 32(7-8), 649-667.
- Cormier, D. and Magnan, M. (1999). Corporate environmental disclosure strategies: determinants, costs and benefits. *Journal of Accounting, Auditing and Finance*, 429-51
- Dal Maso, L., Liberatore, G., & Mazzi, F. (2017). Value relevance of stakeholder engagement: The influence of national culture. *Corporate Social Responsibility and Environmental Management*, 24(1), 44-56.
- Deegan, C., Rankin, M. & Tobin, J. (2002). An examination of the corporate social and environmental disclosures of BHP from 1983-1997: a test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, 15(3), 312-343.
- Dienes, D., Sassen, R. & Fischer, J. (2016). What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, 7(2), 154-189.

- Dobbs, S., & Van Staden, C. (2016). Motivations for corporate social and environmental reporting: New Zealand evidence. *Sustainability Accounting, Management and Policy Journal*, 7(3), 449-472.
- Favotto, F., Bozzolan, S., & Parbonetti, A. (2016). *Economia aziendale: modelli, misure, casi*. Milano, McGraw-Hill education.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman, Boston, US.
- Gao, S.S. & Zhang, J.J. (2001). A comparative study of stakeholder engagement approaches in social auditing, in Andriof, J. and McIntosh, M. (Eds), *Perspectives on Corporate Citizenship*, Greenleaf Publishing, Sheffield, UK, 239-255.
- Gable, C. & Shireman, B. (2005). Stakeholder engagement: a three-phase methodology. *Environmental Quality Management*, 14, 9-24.
- Gallego-Álvarez, I., Ortas, E., Vicente-Villardón, J.L., and Álvarez-Etxeberria, I. (2017). Institutional Constraints, Stakeholder Pressure and Corporate Environmental Reporting Policies. *Business Strategy and the Environment*, 26, 807-825
- Hassan, A., & Ibrahim, E. (2012). Corporate environmental information disclosure: Factors influencing companies' success in attaining environmental awards. *Corporate Social Responsibility and Environmental Management*, 19(1), 32-46.
- Hendry, K., & Kiel, G. C. (2004). The role of the board in firm strategy: Integrating agency and organisational control perspectives. *Corporate Governance: An International Review*, 12(4), 500-520.
- Herremans, I.M., Nazari, J.A. & Mahmoudian, F. (2016). Stakeholder relationships, engagement and sustainability reporting. *Journal of Business Ethics*, 138(3), 417-435.
- Hillman, A. J., Cannella, A. A., & Paetzold, R. L. (2000). The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change. *Journal of Management Studies*, 37(2), 235-256.
- Institute of Social and Ethical Accountability (ISEA) (1999). *Accountability 1000 (AA1000): Standard, Guidelines and Professional Qualification*, Institute of Social and Ethical Accountability, London.
- Isemann, R. & Kim, K.-C. (2006). *Interactive sustainability accounting: developing clear target group tailoring and stimulating stakeholder dialogue*, in Schaltegger, S., Bennett, M. and Burritt, R. (Eds), *Sustainability Accounting and Reporting*, Springer, Dordrecht, 533-555.
- Kaur, A. & K. Lodhia, S. (2014). The state of disclosures on stakeholder engagement in sustainability reporting in Australian local councils. *Pacific Accounting Review*, 26 (1/2), 54-74.
- Kaur, A. & Lodhia, S. (2018). Stakeholder engagement in sustainability accounting and reporting. *Accounting, Auditing & Accountability Journal*, 31(1), 338-368.
- Kiel, G. C., & Nicholson, G. J. (2005). Evaluating boards and directors. *Corporate Governance: An International Review*, 13(5), 613-631.
- Kong, D, Yang, X, Liu, C, Yang, W. (2020). Business strategy and firm efforts on environmental protection: Evidence from China. *Business Strategy and the Environment*, 29, 445– 464.
- Jensen, M., & Meckling, W. (1976). Theory of the firm: Management behaviour, agency costs and capital structure. *Journal of Financial Economics*, 3(4), 305-60.
- Jermias, J., & Gani, L. (2014). The impact of board capital and board characteristics on firm performance. *The British Accounting Review*, 46(2), 135-153.
- Malarvizhi, P., & Matta, R. (2016). Link between Corporate Environmental Disclosure and Firm Performance—Perception or Reality? *Review of Integrative Business and Economics Research*, 5(3), 1-34.

- Leitao, N. C. (2010). Financial Development and Economic Growth: A Panel Data Approach. *Theoretical and Applied Economics*, 10(551), 15-24.
- Manetti, G. (2011). The quality of stakeholder engagement in sustainability reporting: empirical evidence and critical points. *Corporate Social Responsibility and Environmental Management*, 18(2), 110-122.
- Manetti, G. & Bellucci, M. (2016). The use of social media for engaging stakeholders in sustainability reporting. *Accounting, Auditing & Accountability Journal*, 29(6), 985-1011.
- Manetti, G., Bellucci, M., & Bagnoli, L. (2016). Stakeholder engagement and public information through social media: A study of Canadian and American public transportation agencies. *The American Review of Public Administration*, 47(8), 991–1009.
- Manetti, G. & Toccafondi, S. (2012). The role of stakeholders in sustainability reporting assurance. *Journal of Business Ethics*, 107(3), 363-377.
- Marshall, S., Brown, D., & Plumlee, M. (2009). The Impact of Voluntary Environmental Disclosure Quality on Firm Value. *In Academy of Management Proceedings*, 1, 1-6.
- Matsumura, E. M., Prakash, R., & Vera-Munoz, S. C. (2014). Firm-value effects of carbon emissions and carbon disclosures. *The Accounting Review*, 89(2), 695-724.
- Mitchell, R. K., Agle, B. R. & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22(4), 853-886.
- Morsing, M. & Schultz, M. (2006). Corporate social responsibility communication: Stakeholder information, response and involvement strategies. *Business Ethics: A European Review*, 15(4), 323-338.
- Omnamasivaya, B. A., & Prasad, M. S. V. (2016). The influence of financial performance on environmental accounting disclosure practices in India: Empirical evidence from BSE. *IUP Journal of Accounting Research & Audit Practices*, 15(3), 16-33.
- Onkila, T., Joensuu, K. & Koskela, M. (2014). Implications of managerial framing of stakeholders in environmental reports. *Social and Environmental Accountability Journal*, 34(3), 134-156.
- Patten, D.M. (1992). Intra-industry environmental disclosures in response to the Alaskan oil spill: a note on legitimacy theory. *Accounting, Organizations and Society*, 17(5), 471-475
- Prado-Lorenzo, J.M., Gallego-Álvarez, I. & Garcia-Sanchez, I.M. (2009). Stakeholder engagement and corporate social responsibility reporting: the ownership structure effect. *Corporate Social Responsibility and Environmental Management*, 16(2), 94-107.
- Pucheta-Martínez, M. C., Bel-Oms, I., & Olcina-Sempere, G. (2018). Female institutional directors on boards and firm value. *Journal of Business Ethics*, 152(2), 343-363.
- Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2019). Do board characteristics drive firm performance? An international perspective. *Review of Managerial Science*, 1-47.
- Sarumpaet S. (2005). The relationship between environmental performance and financial performance of Indonesian companies. *Jurnal Akuntansi & Keuangan*, (7)2, 89-98.
- Tingbani, I., Chithambo, L., Tauringana, V., & Papanikolaou, N. (2020). Board gender diversity, environmental committee and greenhouse gas voluntary disclosures. *Business Strategy and the Environment*, <https://doi.org/10.1002/bse.2495>
- Van Huijstee, M. & Glasbergen, P. (2008). The practice of stakeholder dialogue between multinationals and NGOs. *Corporate Social Responsibility and Environmental Management*, 15(5), 298-310.
- Wei, P, Mao, X, Chen, X. (2020). Institutional investors' attention to environmental information, trading strategies, and market impacts: Evidence from China. *Business Strategy and the Environment*, 29, 566– 591.

- Westphal, J. D., & Bednar, M. K. (2005). Pluralistic ignorance in corporate boards and firms' strategic persistence in response to low firm performance. *Administrative Science Quarterly*, 50(2), 262-298.
- Yau, Y. (2012). Stakeholder engagement in waste recycling in a high-rise setting. *Sustainable Development*, 20(2), 115-127.

Table 1
Number of observations by country

Country	Observations	Percentage	Cum.
Australia	696	4.14%	4.14%
Austria	67	0.40%	4.54%
Belgium	150	0.89%	5.43%
Canada	2,151	12.80%	18.23%
Denmark	281	1.67%	19.90%
Finland	202	1.20%	21.10%
Germany	516	3.07%	24.17%
Ireland	319	1.90%	26.07%
Japan	2,129	12.67%	38.74%
Netherlands	286	1.70%	40.44%
New Zealand	151	0.90%	41.34%
Norway	84	0.50%	41.84%
Sweden	605	3.60%	45.44%
Switzerland	497	2.96%	48.40%
United Kingdom	1,948	11.59%	59.99%
United States	6,725	40.01%	100.0%
Total	16,807	100%	

Table 2
Number of observations by industry

TRBC economic sector name	Number of observations	Percentage of observations	Cum. of observations
Basic Materials	2,027	12.06%	12.06%
Consumer Cyclicals	3,011	17.92%	29.98%
Consumer Non-cyclicals	1,227	7.30%	37.28%
Energy	1,346	8.01%	45.29%
Healthcare	1,820	10.83%	56.12%
Industrials	3,592	21.37%	77.49%
Technology	1,326	7.89%	85.38%
Telecommunications services	773	4.60%	89.98%
Utilities	1,685	10.02%	100.0%
Total	16,807	100%	

**Table 3
Environmental disclosure items**

Resource use			Emissions		Innovation
Environment management team			VOC emissions reduction		Eco-design products
Environment management training			Particulate matter emission reduction		Noise reduction
Environmental materials sourcing			Waste reduction total		Hybrid vehicles
Toxic chemicals reduction			e-Waste reduction		Environmental assets under MGT
Renewable energy use			Environmental restoration initiatives		Equator principles
Green buildings			Staff transportation impact reduction		Environmental project financing
Environmental management	supply chain		Environmental investment	expenditures	Nuclear
Environmental monitoring	supply chain		Policy emissions		Labelled wood
Environmental partnership termination	supply chain				Organic products initiatives
Land reduction	environmental impact		Targets emissions		Product impact minimisation
Resource reduction policy			Biodiversity impact reduction		Take-back and recycling initiatives
Water efficiency policy			Emissions trading		Responsible use of environmental products
Energy efficiency policy			Climate change commercial risk opportunities		GMO products
Sustainable packaging policy			NOx and SOx emissions reduction		Agrochemical products
Environment supply chain policy			VOC or particulate matter emissions		Agrochemical 5% revenue
Resource reduction targets					Environmental products
Resource reduction policy					Animal testing in the last 12fy
Water efficiency policy					Animal testing cosmetics
Energy efficiency policy					Animal testing reduction
Sustainable packaging policy					Renewable clean energy products
Environment supply chain policy					Water technologies
Resource reduction targets					Sustainable building products

Table 4
Variables description

Variables	Description
ENV_REPORT	The ratio between the aggregation of 58 items focused on environmental issues and the total number of items analysed. If the company discloses information concerning each item, it will take the value 1 and 0, otherwise
STAKEHOL_ENGAG	Dummy variable that takes the value 1 if the company explains how it engages with its stakeholders and complies with regulations regarding stakeholder engagement, resolutions or proposals
Q_TOBIN	The market capitalization of common stock+ book value liabilities divided by the book value of total assets
SIZE	The log of total assets
LEV	Debt over total assets
B_SIZE	Number of directors on board
CSR_COMMITTEE	Dummy variable that takes the value 1 if the company has a CSR committee, and 0 otherwise
FEM_DIRECT	Proportion of female directors on boards = Total number of female directors on boards / Total number of directors on boards
B_INDEP	Proportion of independent directors on boards = Total number of independent directors on boards / Total number of directors on boards
ASIA	Dummy variable: 1 = If the country is in Asia; 0 = Otherwise
EUROPE	Dummy variable: 1 = If the country is in Europe; 0 = Otherwise
NORTHAMERICA	Dummy variable: 1 = If the country is in North America; 0 = Otherwise
OCEANIA	Dummy variable: 1 = If the country is in Oceania; 0 = Otherwise
BASIC MATERIALS	Dummy variable: 1= Basic Materials; 0 = Otherwise
CONSUMER CYCLICAL	Dummy variable: 1= Consumer Cyclical; 0 = Otherwise
CONSUMER NON-CYCLICAL	Dummy variable: 1= Consumer Non-Cyclical; 0 = Otherwise
ENERGY	Dummy variable: 1= Energy; 0 = Otherwise
HEALTHCARE	Dummy variable: 1= Healthcare; 0 = Otherwise
INDUSTRIALS	Dummy variable: 1= Industrial; 0 = Otherwise
TECHNOLOGY	Dummy variable: 1= Technology; 0 = Otherwise
TELECOMMUNICATION SERVICES	Dummy variable: 1= Telecommunication Services; 0 = Otherwise
UTILITIES	Dummy variable: 1= Utilities; 0 = Otherwise

Table 5
Descriptive statistics

Variable	Obs.	Mean	Standard Deviation	Q25	Q50	Q75
ENV_REPORT	16,807	0.253	0.184	0.078	0.255	0.412
STAKEHOL_ENGAG	16,807	0.364	0.481	0.000	0.000	1.000
Q_TOBIN	16,807	0.740	0.478	0.551	0.682	0.837
SIZE	16,807	10.860	1.620	10.566	11.024	11.53
LEV	16,807	24.853	13.781	5.778	12.431	21.011
B_SIZE	16,807	12.526	3.899	9.600	12.000	14.400
CSR_COMMITTEE	16,807	0.633	0.514	0.000	1.000	1.000
FEM_DIRECT	16,807	13.748	12.080	0.000	12.222	22.000
B_INDEP	16,807	81.604	28.393	73.333	91.667	100.000
ASIA	16,807	0.126	0.327	0.000	0.000	0.000
EUROPE	16,807	0.294	0.457	0.000	0.000	1.000
NORTHAMERICA	16,807	0.528	0.450	0.000	0.000	1.000
OCEANIA	16,807	0.050	0.245	0.000	0.000	0.000
BASIC MATERIALS	16,807	0.120	0.324	0.000	0.000	0.000
CONSUMER CYCLICAL	16,807	0.179	0.379	0.000	0.000	0.000
CONSUMER NON-CYCLICAL	16,807	0.073	0.280	0.000	0.000	0.000
ENERGY	16,807	0.080	0.281	0.000	0.000	0.000
HEALTHCARE	16,807	0.108	0.295	0.000	0.000	0.000
INDUSTRIALS	16,807	0.213	0.412	0.000	0.000	0.000
TECHNOLOGY	16,807	0.078	0.262	0.000	0.000	0.000
TELECOMMUNICATION SERVICES	16,807	0.046	0.179	0.000	0.000	0.000
UTILITIES	16,807	0.100	0.220	0.000	0.000	0.000

Mean, standard deviation and quartiles (25, 50 and 75). ENVIR_DISCL is the ratio between the aggregation of 58 items focused on environmental issues and the total number of items analysed. If the company discloses information concerning each item, it will take the value 1, and 0 otherwise; STAKEHOL_ENGAG Dummy variable that takes the value 1 if the company explains how it engages with its stakeholders and complies with regulations regarding shareholder engagement, resolutions or proposals and 0, otherwise; Q_TOBIN is the market capitalization of common stock+ book value liabilities divided by the book value of total assets; SIZE is the log of total assets; LEV is debt over total assets; B_SIZE is the total number of directors on boards; CSR_COMMITTEE is a dummy variable that takes the value 1 if the company has a CSR committee, and 0 otherwise; FEM_DIR is the proportion of female directors on boards= Total number of female directors on boards/Total number of directors on boards; B_INDEP is the proportion of independent directors on boards= Total number of independent on boards/ Total number of directors on boards; ASIA is a dummy variable: 1= If the country is in Asia, 0=Otherwise; EUROPE is a dummy variable: 1= If the country is in Europe, 0=Otherwise; NORTHAMERICA is a dummy variable: 1= If the country is in North America, 0=Otherwise; OCEANIA is a dummy variable: 1= If the country is in Oceania, 0=Otherwise; BASIC MATERIALS is a dummy variable: 1= Basic Materials, 0 = Otherwise; CONSUMER CYCLICAL is a dummy variable: 1= Consumer Cyclical, 0 = Otherwise; CONSUMER NON-CYCLICAL is a dummy variable: 1= Consumer Non-Cyclical, 0 = Otherwise; ENERGY is a dummy variable: 1= Energy, 0= Otherwise; HEALTHCARE is a dummy variable: 1= Healthcare, 0 = Otherwise; INDUSTRIALS is a dummy variable: 1= Industrial, 0 = Otherwise; TECHNOLOGY is a dummy variable: 1= Technology, 0 = Otherwise; TELECOMMUNICATION SERVICES is a dummy variable: 1= Telecommunication Services, 0 = Otherwise and UTILITIES is a dummy variable: 1= Utilities, 0 = Otherwise.

Table 6
Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
ENV_REPORT (1)	1.000																						
STAKEHOL_ENGAG (2)	0.572***	1.000																					
Q_TOBIN (3)	-0.004	-0.005	1.000																				
SIZE (4)	0.533***	0.396***	-0.024**	1.000																			
LEV (5)	0.144***	0.096***	0.689***	0.278***	1.000																		
B_SIZE (6)	0.345***	0.223***	-0.030***	0.550***	0.182***	1.000																	
CSR_COMMITTEE (7)	0.618***	0.423***	0.010	0.321***	0.097***	0.216***	1.000																
FEM_DIRECT (8)	0.149***	0.202***	0.031***	0.143***	0.070***	0.135***	0.120***	1.000															
B_INDEP (9)	0.021	0.135***	-0.074***	0.139***	0.061***	0.135***	-0.003	0.389***	1.000														
ASIA (10)	0.219***	-0.042***	0.015	0.132***	0.053***	0.074***	0.131***	-0.434***	-0.580***	1.000													
EUROPE (11)	0.171***	0.234***	0.102***	-0.001	0.025**	0.003	0.072***	0.113***	0.144***	-0.284***	1.000												
NORTHAMERICA (12)	-0.233***	-0.155***	-0.236***	0.043***	-0.042***	0.114***	-0.131***	0.209***	0.313***	-0.358***	-0.610***	1.000											
OCEANIA (13)	-0.163***	-0.064***	0.212***	-0.243***	-0.060***	-0.285***	-0.069***	0.027***	-0.017*	-0.137***	-0.203***	-0.257***	1.000										
BASIC MATERIALS (14)	0.071***	0.102***	-0.049***	-0.065***	-0.054***	-0.069***	0.103***	-0.087***	0.012	-0.013	0.026***	-0.082***	0.104***	1.000									
CONSUMER CYCLICAL (15)	-0.068***	-0.082***	0.016	-0.071***	-0.020**	-0.009	-0.058***	0.036***	-0.113***	0.005	-0.012	-0.009	0.035***	-0.199***	1.000								
CONSUMER NON-CYCLICAL (16)	0.038***	0.065***	0.049***	0.048***	0.074***	0.082***	0.053***	0.145***	0.029***	-0.029***	0.034***	-0.006	-0.002	-0.132***	-0.166***	1.000							
ENERGY (17)	-0.102***	0.001	-0.148***	0.037***	-0.90***	-0.034***	-0.009	-0.060***	0.057***	-0.107***	-0.080***	0.161***	-0.018*	-0.123***	-0.154***	-0.103***	1.000						
HEALTHCARE (18)	-0.069***	-0.036***	-0.131***	-0.051***	-0.089***	-0.057***	-0.051***	0.038***	0.087***	-0.046***	0.016	0.013	0.008	-0.125***	-0.156***	-0.104***	-0.096***	1.000					
INDUSTRIALS (19)	0.038***	-0.067***	0.171***	0.006	0.111***	0.041***	-0.014	-0.107***	-0.070***	0.134***	0.062***	-0.130***	-0.053***	-0.210***	-0.262***	-0.175***	-0.162***	-0.164***	1.000				
TECHNOLOGY (20)	0.015	-0.036***	-0.137***	-0.049***	-0.221***	-0.074***	-0.065***	-0.036***	-0.028***	0.041***	-0.055***	0.071***	-0.069***	-0.124***	-0.154***	-0.103***	-0.095***	-0.097***	-0.163***	1.000			
TELECOMMUNICATION SERVICES (21)	0.0030	0.042***	0.080***	0.096***	0.113***	0.055***	-0.005	0.058***	0.057***	-0.021**	0.045***	-0.028**	0.001	-0.074***	-0.092***	-0.062***	-0.057***	-0.058***	-0.097***	-0.057***	1.000		
UTILITIES (22)	0.086***	0.084***	0.132***	0.157***	0.236***	0.102***	0.063***	0.101***	0.080***	-0.040***	-0.065***	0.105***	-0.250**	-0.093***	-0.116***	-0.078***	-0.072***	-0.073***	-0.122***	-0.072***	-0.043***	1.000	

ENVIR_DISCL is the ratio between the aggregation of 58 items focused on environmental issues and the total number of items analysed. If the company discloses information concerning each item, it will take the value 1, and 0 otherwise; STAKEHOL_ENGAG Dummy variable that takes the value 1 if the company explains how it engages with its stakeholders and complies with regulations regarding shareholder engagement, resolutions or proposals and 0, otherwise; Q_TOBIN is the market capitalization of common stock+ book value liabilities divided by the book value of total assets; SIZE is the log of total assets; LEV is debt over total assets; B_SIZE is the total number of directors on boards; CSR_COMMITTEE is a dummy variable that takes the value 1 if the company has a CSR committee, and 0 otherwise; FEM_DIR is the proportion of female directors on boards= Total number of female directors on boards/Total number of directors on boards; B_INDEP is the proportion of independent directors on boards= Total number of independent on boards/ Total number of directors on boards; ASIA is a dummy variable: 1= If the country is in Asia, 0=Otherwise; EUROPE is a dummy variable: 1= If the country is in Europe, 0=Otherwise; NORTHAMERICA is a dummy variable: 1= If the country is in North America, 0=Otherwise; OCEANIA is a dummy variable: 1= If the country is in Oceania, 0=Otherwise; BASIC MATERIALS is a dummy variable: 1= Basic Materials, 0 = Otherwise; CONSUMER CYCLICAL is a dummy variable: 1= Consumer Cyclical, 0 = Otherwise; CONSUMER NON-CYCLICAL is a dummy variable: 1= Consumer Non-Cyclical, 0 = Otherwise; ENERGY is a dummy variable: 1= Energy, 0= Otherwise; HEALTHCARE is a dummy variable: 1= Healthcare, 0 = Otherwise; INDUSTRIALS is a dummy variable: 1= Industrial, 0 = Otherwise; TECHNOLOGY is a dummy variable: 1= Technology, 0 = Otherwise; TELECOMMUNICATION SERVICES is a dummy variable: 1= Telecommunication Services, 0 = Otherwise and UTILITIES is a dummy variable: 1= Utilities, 0 = Otherwise. *p-value<0.1 **p-value<0.05 ***p-value<0.01.

Table 7
Multivariate analysis results of the Generalized Method of Moments

	MODEL 1	MODEL 2
	Coef.	Coef.
	P> t 	P> t
ENVIR_DISCL(t-1)	0.360*** (0.000)	0.365*** (0.000)
STAKEHOL_ENGAG	0.033** (0.016)	0.193** (0.021)
Q_TOBIN		0.229** (0.038)
STAKEHOL_ENGAG x Q_TOBIN		-0.219** (0.049)
SIZE	-0.006 (0.397)	-0.003 (0.649)
LEV	-0.000 (0.527)	-0.000 (0.537)
B_SIZE	-0.001 (0.884)	-0.001 (0.892)
CSR_COMMITTEE	0.176*** (0.000)	0.196*** (0.000)
FEM_DIRECT	0.005*** (0.004)	0.004** (0.026)
B_INDEP	-0.002 (0.185)	-0.002 (0.135)
EUROPE	0.290** (0.027)	0.362** (0.014)
NORTHAMERICA	0.041 (0.696)	0.118 (0.347)
OCEANIA	-0.088 (0.484)	-0.080 (0.596)
BASIC MATERIALS	0.333 (0.191)	0.367 (0.168)
CONSUMER CYCLICAL	0.319	0.369

	(0.269)	(0.217)
CONSUMER NON-CYCLICAL	0.147	0.127
	(0.530)	(0.612)
ENERGY	0.202	0.216
	(0.438)	(0.478)
HEALTHCARE	0.434	0.532
	(0.177)	(0.110)
INDUSTRIALS	0.230	0.232
	(0.374)	(0.387)
TECHNOLOGY	0.346	0.334
	(0.105)	(0.139)
TELECOMMUNICATION SERVICES	0.357	0.271
	(0.323)	(0.476)
Year effects	Yes	Yes
Wald χ^2 test	5144.05***	4884.80***
Arellano–Bond test AR(1) (z, p> z)	-1.24 (0.216)	-1.55 (0.120)
Arellano–Bond test AR(2) (z, p> z)	-1.35 (0.176)	-1.43 (0.153)
Hansen test (chi-square, p> chi²)	29.68 (0.236)	19.66(0.765)

ENVIR_DISCL is the ratio between the aggregation of 58 items focused on environmental issues and the total number of items analysed. If the company discloses information concerning each item, it will take the value 1, and 0 otherwise; STAKEHOL_ENGAG Dummy variable that takes the value 1 if the company explains how it engages with its stakeholders and complies with regulations regarding shareholder engagement, resolutions or proposals and 0, otherwise; Q_TOBIN is the market capitalization of common stock+ book value liabilities divided by the book value of total assets; SIZE is the log of total assets; LEV is debt over total assets; B_SIZE is the total number of directors on boards; CSR_COMMITTEE is a dummy variable that takes the value 1 if the company has a CSR committee, and 0 otherwise; FEM_DIR is the proportion of female directors on boards= Total number of female directors on boards/Total number of directors on boards; B_INDEP is the proportion of independent directors on boards= Total number of independent on boards/ Total number of directors on boards; ASIA is a dummy variable: 1= If the country is in Asia, 0=Otherwise; EUROPE is a dummy variable: 1= If the country is in Europe, 0=Otherwise; NORTHAMERICA is a dummy variable: 1= If the country is in North America, 0=Otherwise; OCEANIA is a dummy variable: 1= If the country is in Oceania, 0=Otherwise; BASIC MATERIALS is a dummy variable: 1= Basic Materials, 0 = Otherwise; CONSUMER CYCLICAL is a dummy variable: 1= Consumer Cyclical, 0 = Otherwise; CONSUMER NON-CYCLICAL is a dummy variable: 1= Consumer Non-Cyclical, 0 = Otherwise; ENERGY is a dummy variable: 1= Energy, 0= Otherwise; HEALTHCARE is a dummy variable: 1= Healthcare, 0 = Otherwise; INDUSTRIALS is a dummy variable: 1= Industrial, 0 = Otherwise; TECHNOLOGY is a dummy variable: 1= Technology, 0 = Otherwise; TELECOMMUNICATION SERVICES is a dummy variable: 1= Telecommunication Services, 0 = Otherwise and UTILITIES is a dummy variable: 1= Utilities, 0 = Otherwise. *p-value<0.1 **p-value<0.05 ***p-value<0.01.