CORPORATE ENVIRONMENTAL DISCLOSURE PRACTICES IN DIFFERENT NATIONAL CONTEXTS: THE INFLUENCE OF CULTURAL DIMENSIONS

María Consuelo Pucheta-Martínez
Universidad Jaume I
Departamento de Finanzas y Contabilidad
Campus del Riu Sec, s/n
12071-Castellón
Spain
e-mail: pucheta@uji.es

Isabel Gallego-Álvarez
University of Salamanca
Multidisciplinary Institute for Enterprise (IME)
Department of Business Administration
Campus Miguel de Unamuno, Edificio FES
37007-Salamanca
Spain
e-mail: igallego@usal.es

Corresponding author: María Consuelo Pucheta-Martínez

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.

CORPORATE ENVIRONMENTAL DISCLOSURE PRACTICES IN DIFFERENT NATIONAL CONTEXTS: THE INFLUENCE OF CULTURAL DIMENSIONS

Abstract

The influence of different national contexts on corporate environmental disclosure practices, including the effects of cultural environments, has yet to be properly addressed in the literature. The purpose of this research is, therefore, to analyse how cultural factors affect the environmental disclosure practices of companies in different countries. This research is supported by the diversity of cultures across countries. Given that a cultural framework prompts different organisational actions and strategies, the question to be answered through this research is as follows: How do cultural aspects impact corporate environmental disclosure? Cultural factors are precisely the ones that can explain similarities and differences between stakeholders' actions and preferences. The sample used in this research comprises companies in 28 countries and nine economic sectors for the period 2004 to 2015. Our main findings show that companies operating in countries with individualist, masculine and indulgent cultures are less likely to disclose environmental information. Contrary to our predictions, cultures with a long-term orientation also discourage the reporting of environmental information, while uncertainty avoidance contexts tend to promote more environmental reporting.

Keywords: Environmental disclosure practices, cultural dimensions, national culture, international companies

CORPORATE ENVIRONMENTAL DISCLOSURE PRACTICES IN DIFFERENT NATIONAL CONTEXTS: THE INFLUENCE OF CULTURAL DIMENSIONS

1. Introduction

Environmental disclosure is affected by various aspects of both an internal and an external nature. Other factors may also lead to differences in corporate environmental information disclosure, and these can be attributed to the diversity of cultures across countries. Differences in national culture have very important implications for ethics, corporate social responsibility, organisational culture, and managerial practices. Being successful in today's complex and turbulent environments, nowadays business organisations are expected to practice ethics and corporate social responsibility in order to gain social legitimacy. These two expectations are more complex than profit maximisation and are highly culturally driven. Given that a cultural framework prompts different organisational actions and strategies (Scott, 2008), the question to be answered through this research is as follows: How do cultural aspects impact corporate environmental disclosure? Cultural factors are precisely the ones that can explain similarities and differences between stakeholders' actions and preferences (Tsakumis, 2007). Indeed, cultural differences across countries have a significant impact on the way companies behave (Williamson, 2000) such that "culture on corporate sustainability or environmental practices may vary depending on the level of analysis at which those practices are considered, underlining the importance of conceptualizations of culture at levels of analysis other than country" (Miska, Szőcs, & Schiffinger, 2018, p. 265).

Environmental issues are now one of the biggest concerns for companies and society in general. Many companies have been criticised for their negative impact on the environment, rather than for their technological or economic performance, and it is therefore logical that companies are interested in showing society that they are also concerned about the welfare of the environment; to do so, they resort to the disclosure of environmental information, both

qualitative and quantitative, which will allow the environmental impact of a company's activities to be measured, calculated or estimated (Craig & Diga, 1998; Burritt, 2002; Cho & Patten, 2007; Vormedal & Ruud, 2009). At the same time, stakeholders are increasingly putting pressure on companies to introduce major environmental responsibility measures, such as publishing environmental reports and thereby disclosing aspects related to their public image, activities and aspirations associated with the environment (Choi, 1999; Berthelot, Cormier, & Magnan, 2003; Kolk, 2003).

In recent years, empirical studies have increasingly focused on environmental matters (Shi, 2004). Many involved analysis of various factors affecting corporate environmental disclosure. Bewley and Li (2000), for example, have reached the conclusion that companies with greater coverage in the media and more political exposure disclose more information on environmental matters. Liu and Anbumozhi (2009) have focused on companies in China to analyse different factors that affect environmental reporting, concluding that firm size is one of the variables with the greatest impact. Sun, Salama, Hussainey, and Habbash (2010) have analysed the relationship between corporate environmental disclosure and earnings management, and the impact of corporate governance mechanisms on that relationship. Their study focuses on UK companies, and their findings do not record any statistically significant relationship between the different measures of discretionary accrual regarding earnings management and environmental disclosure. Other studies have addressed the relationship between environmental disclosure and environmental performance (e.g., Clarkson, Richardson, & Vasvari, 2007; Cho, Roberts, & Patten, 2010; Iatridis, 2013). Many of these studies report a positive relationship between performance and corporate environmental disclosure.

In view of the above ideas, our research purpose is to shed more light on the impact that different cultures have on these disclosure practices (Scott, 2001). To do so, we follow the dimensions proposed by Hofstede (1983), Hofstede and Hofstede (2005), and Hofstede,

Hofstede and Minkov (2010): power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence. These cultural dimensions have been tested in previous studies in the field of corporate social responsibility (Van der Laan Smith, Adhikari, & Tondkar, 2005; Orij, 2010), and to a lesser extent in the environmental field.

In general, our main findings show that certain cultural dimensions, such as individualism, masculinity and indulgence, have a negative effect on environmental information disclosure. In contrast, power distance does not impact on environmental reporting, while uncertainty avoidance and long-term orientation affect positive and negatively the disclosure of environmental issues, respectively, contrary to our expectations in both cases.

Our findings also contribute to the debate on environmental disclosure in several ways. First, the effect that cultural contexts have on environmental disclosure is analysed, building on previous research studies (Kolk & Perego, 2010; Once & Almagtome, 2014; De Villiers & Marques, 2016; Semenova & Hassel, 2016). The study delves into the type of information international companies disclose about their environmental practices by considering 53 items on three related matters: innovation, resource use and emissions. Second, cultural contexts are proxied by using the Hofstede's culture dimensions in line with most of earlier research on culture, which was dominated by the use of Hofstede's culture dimensions. These culture dimensions are power distance, uncertainty avoidance, individualism, masculinity, uncertainty avoidance, long-term orientation and indulgence. Third, our evidence shows that the power distance dimension does not affect environmental reporting, in comparison to past research, which supports a negative association between them. Furthermore, our findings also demonstrate that uncertainty avoidance and long-term orientation have a positive and negative effect on the disclosure of environmental information, respectively, which is also contrary to most of earlier research on this issue. Thus, our evidence on the power distance, uncertainty avoidance and long-term orientation dimensions contributes to existing theory on culture and

environmental practice in organizations. Specially, the discouragement of environmental reporting in long-term orientation cultures is the most important novelty of this research because it counters to what prior research on managers'temporal orientation would say. Finally, based on the results obtained, it is evident that the cultural context in which companies operate is influential and that environmental reporting is determined by cultural pressures, as suggested by scholars such as Aerts, Cormier, and Magnan (2006).

The paper is structured as follows: the theoretical framework is explained in the next section. The hypotheses are presented in section three. Section four provides the methodology and the variables used. The results are analysed in section five and, finally, the conclusions and our findings' implications are presented in section six.

2. Theoretical framework

National culture and environmental disclosure

In recent years, a growing number of organisations have sought to modify their environmental practices so as to reduce their environmental impacts and improve their corporate image (Monteiro & Aibar-Guzmán, 2010; Barnett, Darnall, & Husted, 2015). Meanwhile, companies have also begun disclosing corporate environmental information to avoid potential conflicts with their stakeholders (Epstein & Roy, 2001).

Scholars such as Cerin (2002), Berthelot, Cormier, and Magnan (2003), Moneva and Ortas (2010), and Higgins and Larrinaga (2014) contend that stakeholders require organisations to act in an eco-friendly way, and so many companies throughout the world have now increased the level and scope of their environmental information disclosure as a value-added tool (Gamble, Hsu, Kite, & Radtke, 1995). There seems to be no single explanation for why companies issue this type of information. Several reasons may be considered to explain why organisations report on environmental issues. Scholars such as Deegan and Samkin (2006)

consider that an initial reason may be that companies wish to show how responsible they are towards a wide range of stakeholders. Through environmental disclosure, companies respond to stakeholders' expectations, and in so doing contribute to the welfare of society (Hooghiemstra, 2000). Other researchers (Balmer & Greyser, 2007; Vanhamme & Grobben, 2009) have argued that the disclosure of environmental information is used primarily to protect a company's reputation and identity by engaging with stakeholders through what some have described as a form of moral discourse (Reynolds & Yuthas, 2008). Another reason for reporting on environmental issues is that companies expect some reward in terms of long-term profitability that may improve their ability to attract labour, reassuring shareholders about non-financial risk, reducing information asymmetries (Merkl-Davies & Brennan, 2007) and improving stakeholder decision-making (Du, Bhattacharya, & Sen, 2010).

Others argue that companies report on environmental aspects because they are forced to do so by various cultural pressures, as they operate within contexts formed by national cultures that affect their behaviour and impose certain expectations on them (Collier, 2001; Modell, 2002; Campbell, 2007). This contextual relationship means that companies operating in countries with similar cultural dimensions will adopt similar behaviours. In this context, organisations operating in similar environments tend to adopt the same strategic behaviour, and it thus focuses on the deeper aspects of social structures (Claessens & Fan, 2002).

According to Scott (2008), a cultural system can be considered an example of social structure because it introduces a dimension of social life that is prescriptive, evaluative and obligatory. According to Tsakumis (2007), cultural systems explain the similarities and differences of how the human mind is programmed, which in turn differentiates societies around the world. Thus, organisations are influenced by cultural aspects. Roy and Goll (2014) consider that culture guides the behavior of members of a society by providing logical behaviour. For Caprar, Devinney, Kirkman, and Caligiuri (2015), culture is discussed as a set of shared

characteristics reflected in the behavior of individuals within a specific group. In this regard, Hofstede (1980) is representative of these approaches.

Moreover, Su (2006) reveals that culture has an important impact on corporate decision-making processes and influences companies' structures, managers and behaviour. Companies operating in different cultural systems are forced to adopt a sustainable behaviour that will mould their standards of transparency and environmental practices (Richardson & Boyd, 2005).

It is therefore important to define what we consider a culture to be and how it affects corporate decisions in matters of environmental disclosure. According to Vitell, Paolillo, and Thomas (2003), a culture may be defined as a collective programming of the mind that is almost invisible and unconscious and difficult to change, affecting people's basic values and corporate values at the same time. In this regard, Parboteeah and Cullen (2003, p. 138) consider a culture to be a historically determined set of implicit and explicit abstract notions and beliefs (i.e., what is good, proper and desirable), shared by a group of individuals with a common historical experience. These cultural values, standards, beliefs and assumptions are symbolically reinforced and passed down from one generation to another through socialisation and education. According to other scholars, such as Su (2006) and Tsakumis (2007), a national culture has a significant impact on the ethics of decision-making processes, and is expected to have an influence on organisational structure, managers' behaviour and business performance, as it will generate an orientation towards more or less sustainable business operations (Richardson & Boyd, 2005), and will help to determine the level of transparency that companies manifest in relation to their environmental actions.

Several studies have analysed the impact that the cultural context has on aspects such as accounting practices (Gray, 1988) or the disclosure of several kinds of corporate information (Adams & Kuasirikun, 2000). Gray (1988) argues that cultural values have a significant impact on national accounting standards and frameworks, as well as on company reports. In turn,

Adams and Kuasirikun (2000) report that cultural contexts also play a major role in the way companies report other kinds of corporate information, such as that of an environmental nature. This may be because cultural aspects are significant when assessing the importance of environmental issues, as generally speaking, stakeholders in different countries have varying expectations regarding corporate decisions due to their differing cultural conditions that inform different personal values, standards and practices (Carroll, 1979).

The research conducted by Hoffman (1999) also focuses on cultural dimensions, and specifically builds a framework for understanding the coherence of organisational fields and cultural contexts in environmental matters for companies operating in the US chemical industry. According to Hoffman (1999), as cultures evolve, links are forged between their regulatory and cognitive aspects that may reveal the influence of cultural aspects within the environmental setting of the different organisations.

Considering companies in Canada and the US, Buhr and Freedman (2001) explore the role cultural factors play in environmental disclosure. They contend that Canadian culture is more propitious for corporate environmental disclosure than US culture because Canadian society has a more collectivist nature that induces companies to report this kind of information.

Roy and Goll (2014) examine the influence of national culture on various facets of a country's sustainability indicators – namely, environmental aspects. Environmental aspects refer to the protection of nature. Data from 57 countries were used in the analyses, with countries from all over the world, various forms of government, and all population sizes. They include Africa (seven countries), Asia (14 countries), Australasia (two countries), North America (six countries), South America (six countries), and Europe (21 countries). The results obtained support the basic argument that cultural practices influence environmental behaviours.

A culture's impact tends to be analysed through the dimensions proposed by Hofstede (1980, 2001), Hofstede and Hofstede (2005) and Hofstede, Hofstede, and Minkov (2010).

Although the model initially considered four cultural dimensions (i.e., power distance, uncertainty avoidance, individualism, and masculinity), two more were subsequently included (i.e., long-term orientation and indulgence), thereby totalling six dimensions. These dimensions provide a major framework not only for analysing a national culture, but also for considering the effect cultural differences have on management and organisation. According to Hoecklin (1996), this theoretical framework is especially useful for shedding light on people's understanding of an organisation, the mechanisms deemed appropriate for controlling and coordinating operations within it, and its members' roles and relationships. According to Beugelsdijk, Maseland, and van Hoorn (2015), Hofstede's framework predominates in the analysis of national cultures in international business and management, and represents a relevant source for the investigation of national culture issues. In terms of culture's conceptualizations, most studies have used the Hostfede's dimensions in their research (e.g., Haxhi & van Ees, 2010; Ho, Wang, & Vitell, 2012; Husted, 2005).

Hofstede develops this working framework through a sample of IBM employees. The data involve answers to questions on their values and perceptions regarding their employment situation. Some of these questions are related to personal time, physical conditions, employment security, freedom, cooperation, use of skills, and training. In broader terms, according to Hofstede (1980), they may be stated as follows: Do you have enough time for your personal or family life? Do you have good physical conditions, such as an adequate workspace, good ventilation, etc.? Do you have job security? Do you have the necessary freedom to adopt your own approach to the job? Do you have the training opportunities to improve your skills and knowledge, or learn new skills and knowledge? In total, Hofstede (1980) compiled the answers from 32 value statements provided by over 117,000 IBM employees in 40 countries, noting approximately 90 significant and independent correlations of variables or indicators with the first four dimensions for further validation of the results. Hofstede (1983) replicated and

extended the study to include a total of 50 countries, encountering the same dimensions. Subsequent studies have provided the scores on the dimensions from 76 countries, partly based on replications and extensions of the IBM study on different international populations and by different scholars (Hofstede et al., 2010). Hofstede's cultural model (Hofstede, 2001; Hofstede & Hofstede, 2005; Hofstede et al., 2010) has been widely applied in prior academic research in different fields such as accounting, administration, economics and sociology. We are applying this cultural model here to the subject of environmental disclosure, a field that has received less attention in prior research (Roy & Goll, 2014).

This research, therefore, aims to verify how corporate environmental disclosure responds to different cultural systems. The culture contexts are proxied by using the six Hofstede's culture dimensions consistent with past investigations, which have also employed them (Caprar, Devinney, Kirkman, & Caligiuri, 2015).

3. Research hypotheses

Organisations are influenced by cultural aspects that reflect the way in which organisations conform to the norms, values and cultures that distinguish one society from another throughout the world (Tsakumis, 2007). Hence, culture guides the behaviour of the members of society by providing a dominant logic (Roy & Goll, 2014). Hofstede (2001) considers culture to be a "collective programming of the mind that distinguishes the members of one group or category of people from another" (p. 10).

Several models have been developed to understand cultural differences, such as those by Schwartz, GLOBE, and Hofstede. The last one is the most widely used in the literature on different business topics such as accounting, business, management, and economics (De Mooij & Hofstede, 2010). In addition, Hofstede's model of cultural dimensions has also been used in various studies of macro-cultural contexts related to issues of social responsibility and business

ethics (Ringov & Zollo, 2007; Williams & Zinkin, 2008; García-Sánchez, Rodríguez-Ariza, & Frías-Aceituno, 2013), although macro-cultural contexts in the environmental field have been less studied.

Currently, there are six cultural dimensions (Hofstede, 1983; Hofstede & Hofstede, 2005; Hofstede, Hofstede & Minkov, 2010): power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence. These dimensions refer to different aspects ranging from the acceptance of women's role and one's idea of society to the assignment of values orientated to the past, present or future.

Several research studies have analysed how different cultural systems influence the field of corporate social responsibility. Van der Laan Smith, Adhikari, and Tondkar (2005) have conducted their study on US and Scandinavian companies using three of Hofstede's six cultural dimensions. The authors conclude that companies in Scandinavian countries have a greater commitment to social and environmental practices than their US counterparts. Orij (2010) has also focused on companies belonging to different countries, analysing the relationship between corporate social disclosure and national culture. Other studies, such as those conducted by Vachon (2010) and Husted (2005), have analysed the impact of national cultures on corporate social disclosure, reporting contradictory findings attributable to different cultural environments.

In the environmental field, Fekrat, Inclan, and Petroni (1996) conducted their research on a sample of 168 companies operating in 18 countries with different cultural systems. Their research reveals differences in the environmental information disclosed by these companies. Gamble, Hsu, and Tollerson (1996) also found significant differences in environmental practices for a sample of 276 companies in 27 countries. Once and Almagtome (2014) analysed Hofstede's cultural dimensions for companies from 20 countries, finding that some of the

dimensions, such as individualism and long-term orientation, are related to more corporate environmental disclosure, while a high degree of power distance is related to less disclosure.

Considering the above, research hypotheses are formulated for each of Hofstede's cultural dimensions to analyse the behaviour of environmental disclosure in different cultural contexts.

3.1. Power distance

One of the cultural dimensions established by Hofstede (2001) describes the level of hierarchy in a society, known as power distance. This dimension represents the extent to which members of organisations within a given culture expect and accept that power is distributed unequally. Inequality might appear in what each individual brings to society and what they receive from it, in the distribution of power, or in each individual's rights and obligations. According to Waldman, de Luque, Washburn, and House (2006), cultures with greater power distance accept that the hierarchy between superiors and subordinates is extensive and legitimate. Hofstede and Hofstede (2005) consider that when there is a great power distance, positions are placed vertically, giving rise to different levels of power; individuals with less power have less interest in social rights. Accordingly, Miska, Szöcs, and Schiffinger (2018) contend that people in cultures with a great power distance tend to group themselves into different classes depending on a range of criteria. Power bases tend to be stable, and the belief is that power ensures social order, relational harmony and stability. In such cultures, only a few people have access to resources, capabilities and skills. This means the practices of power distance correlate negatively with economic prosperity, competitiveness and human development.

Regarding social and environmental disclosure by organisations, Veser (2004) has found that when power distance is high, stakeholders consider it less likely they will receive a large amount of information on corporate social and environmental practices. However, when

there is a lower power distance, organisations need to disclose more information about these practices to gain stakeholder benefits/approval. Similarly, Gray (1988) considers that the greater the power distance, the less information is disclosed, because power inequalities are preserved and stakeholders are less likely to have higher expectations of social and environmental disclosure, as they comply with their home culture and believe that power should be concentrated in the hands of only a few.

Previous studies on power distance and corporate social and environmental disclosure have not obtained unanimous results (Miska, Szöcs, & Schiffinger, 2018). In this respect, Ho, Wang, and Vitell (2012) and Ioannou and Serafeim (2012), for example, have shown that greater power distance increases the disclosure of environmental information, while Orij (2010) and Peng, Dashdeleg, and Chih (2014) have found a negative relationship between power distance and corporate environmental practices. These results are in line with those indicated by Vachon (2010), who considers that companies in countries with less power distance will be less concerned about relations with shareholders and will feel more responsible for the welfare of the community at large and for publicising their environmental practices. To analyse this relationship, the following hypothesis is proposed:

H1: *The higher the power distance in a society is, the lower or weaker environmental disclosure will be.*

3.2. Individualism

Another dimension established by Hofstede (2001) is individualism. In this type of society, people feel comfortable when they are empowered to make a decision based on what the individual thinks is best, and the freedom and independence of the individual is considered of great importance, with priority being given to personal interests over the social group. Furthermore, in these types of societies, systems protecting an individual's rights are highly developed, and stakeholders are less interested in achieving objectives that are not their own.

As a result, companies in a cultural environment of an individualistic nature will be less willing to disclose social and environmental information.

In contrast, collectivist societies are formed by individuals who think more as members of a group than as individuals, and therefore have stronger links to society (Hofstede & Hofstede, 2005). In short, these societies have close ties between individuals, extended families and groups, whereby everyone accepts responsibility for the members of their group (Peng & Lin, 2009). In these types of societies, the group is considered more important than the individual, and the values that predominate are cohesion and consensus, while personal, private initiatives are secondary (Scholtens & Dam, 2007). Greater emphasis is therefore placed on the impact of organisations on society, and collectivist societies tend to be more sensitive to the interests of stakeholders (Ho, Wang, & Vitell, 2012; Blodgett, Lu, Rose, & Vitell, 2001).

Previous studies, such as those conducted by García-Sánchez, Cuadrado-Ballesteros, and Frias-Aceituno (2016), show that organisations belonging to countries where a collectivist culture prevails tend to have greater incentives to disclose social and environmental information to their stakeholders to favour their decision-making processes. Thus, considering the above arguments and the previous evidence, we propose the following hypothesis:

H2: *The more individualistic a society is, the lower or weaker its corporate environmental disclosure will be.*

3.3. Masculinity

The masculinity dimension refers to gender and the role of women in society. Male-orientated cultures tend to be more assertive and focused on material success, while those with a female orientation tend to be more cooperative, modest and focused on quality of life. Societies that consider themselves masculine describe men as assertive, aggressive, ambitious, competitive and materialistic, while co-operative behaviour is less appreciated.

In some societies, the social roles of men and women overlap, with neither sex behaving competitively, while other societies are considered to have a female orientation. Hofstede (1980) considers that female-orientated cultures reveal a preference for co-operation, constraint, care for the weak, and quality of life. In general, organisations with a feminine culture are not as competitive as those with a masculine one, as the former give more priority to concern for others and little distinction is made between men and women in the same position (Hofstede, 2001). According to Orij (2010), masculinity is the opposite of a culture's social orientation, whereby less masculine societies have a greater orientation towards stakeholders (Van der Laan Smith, Adhikari, Tondkar, & Andrews, 2005).

Scholars such as Peng, Dashdeleg, and Chih (2014) observe that cultures with a high degree of masculinity place more importance on values such as professional career and business success. In contrast, people in cultures where masculinity is not so important give greater value to the group and society (Gray, 1988), while stakeholders seek information about corporate decisions, such as those related to preservation of the environment and community development.

Regarding the results obtained in previous research, there seems to be a negative relationship between masculinity and corporate social and environmental practices (Husted, 2005; Orij, 2010). Other researchers have also found a negative relationship between masculinity and environmental sustainability, noting that the greater the degree of femininity of a given culture, the greater the degree of sustainability, environmental management, and commitment to sustainable development (Peng & Lin, 2009; Roy & Goll, 2014). Therefore, based on the previous arguments, we propose the following hypothesis:

H3: *The more masculine a society is, the lower or weaker its corporate environmental disclosure will be.*

3.4. Uncertainty avoidance

This dimension measures how members of a culture feel threatened by uncertain, unknown or unstructured situations, and represents the level of aversion to the unknown. According to Sully de Luque and Javidan (2004, p. 602), uncertainty avoidance is "the extent to which ambiguous situations are threatening to individuals, to which rules and order are preferred, and to which uncertainty is tolerated in a society". Societies with high uncertainty avoidance impose more rules and regulations on people, with less tolerance for change and innovation (De Mooij & Hofstede, 2010). In this case, business practices related to the environment will be promoted through the issue of regulations, which will prompt organisations to develop more rigid and standardised actions.

In contrast, societies with low uncertainty avoidance are more receptive to change and have more flexible rules and laws, and thus stakeholders in these types of societies have higher expectations concerning social and environmental habits and require more information on environmental issues and sustainability in general. This opinion is shared by Adelopo, Cea Moure, and Obalola (2013), who posit that companies from countries with less tolerance to uncertainty disclose more environmental information to reduce uncertainty.

Regarding the sign of the relationship, the various scholars do not agree, reporting mixed results. Scholars such as Vachon (2010) find a negative relationship between uncertainty avoidance, green corporatism, and environmental innovation, while other researchers such as Husted (2005), Orij (2010), and Thanetsunthorn (2015) have not found a positive or negative determinant of the impact of uncertainty avoidance on environmental and social disclosure. Considering the previous arguments, the hypothesis is as follows:

H4: *The higher the uncertainty avoidance in a society is, the lower or weaker its corporate environmental disclosure will be.*

3.5. Long-term orientation

This dimension suggests that a society attaches considerable importance to future events and occurrences, whereas a cultural dimension with a short-term orientation implies that a society gives more importance to the past and the present than to the future. Furthermore, individuals in these kinds of society believe that the truth depends heavily on the situation, context and time, and they have a major propensity to save and invest, being known for their astuteness and perseverance (Hofstede & Minkov, 2010).

Cultures with a long-term orientation are willing to look to the future, and socially responsible investments in companies can lead to sustainable and long-term competitiveness and prosperity. Stakeholders view these cultures as less likely to consider corporate social and environmental investments as an agency cost and a waste of shareholders' resources (Cheng, Ioannou, & Serafeim, 2014). In fact, stakeholders in this type of culture give more importance to reports on social and environmental aspects than to traditional financial reports, as they provide important information about the future. Conversely, in cultures with a short-term orientation, it may be difficult to justify the value of corporate social and environmental investments because their payoffs take time to materialise.

Cultures with a long-term orientation are associated with a social approach, and corporate social and environmental practices are expected to be positively related. Scholars such as Hackert, Krymwiede, Tokle, and Vokurka (2012) have found that investments for preventing pollution and investments in recycling and waste reduction are carried out primarily by organisations operating in this type of culture. This consideration is consistent with the notion that societies with a long-term cultural dimension are more committed to the preservation of the environment and related sustainability issues. Considering all of the above, the following hypothesis is presented:

H5: *The greater the long-term orientation in a society is, the higher or stronger its corporate environmental disclosure will be.*

3.6. Indulgence

This dimension is the latest addition to Hofstede's cultural framework (Hofstede, Hofstede, & Minkov 2010) and is related to gratification versus the control of basic human desires connected with well-being. Indulgent societies are more permissive in relation to the natural human desire of health and well-being, while control societies are more likely to believe that such gratification should be controlled and regulated by strict norms. It is not therefore considered likely that indulgent societies will sacrifice well-being in favour of the environment. Societies of this kind have some main features, including a perception of personal life control, greater importance of leisure, freedom of speech, and a higher percentage of people declaring themselves to be very happy, while maintaining public order is not given a high priority, among other aspects.

As Ismail and Lu (2014, p. 45) observe, "people in indulgence societies prefer happiness and tend to create a perception of freedom, health, and control over life. Its opposite pole, restraint culture, refers to a society which controls the gratification of the above mentioned desires and feelings."

This cultural dimension therefore concerns the degree to which people seek to regulate their desires and impulses, according to the way they are proposed. Relatively strong control is called restriction, while relatively weak control is called indulgence. Given these definitions, we may posit that restriction cultures will have organisations with more incentives to carry out activities related to the environment, and then make them known to stakeholders. Considering the previous arguments, we propose the following working hypothesis:

H6: *The more indulgent a society is, the lower or weaker its corporate environmental disclosure will be.*

4. Methodology, sample and variables

4.1. Sample

Our initial sample consisted of 13,178 international firm-year observations from 2004 to 2015. Financial entities were excluded because these companies comply with different rules from non-financial firms and, therefore, financial statements of these two types of firms are not comparable. From this initial sample, 419 firms were also removed because the data of some of the variables were missing. Thus, the final panel data sample is unbalanced and consists of 12,759 firm-year observations pertaining to 28 countries, which are provided in Table 1. As can be seen, the country with the highest representation is the United States with 28.41%, followed by Japan with 14.02% and the United Kingdom with 9.48%. In contrast to these figures, Portugal represents 0.23%, and Greece is the country with the lowest percentage at 0.08%. All the information was collected from the Thomson Reuters database.

Insert Table 1

The international companies of the final sample operate within the nine industries shown in Table 2. The sectorial classification used in this research is based on the TRBC economic sector classification by Thomson Reuters. The number of companies from each industry is also provided in Table 2. The sectors most represented are industrials, consumer cyclical and basic metals with 21.91%, 19.23% and 13.74%, respectively, and telecommunications services with 3.61%, the lowest representation.

Insert Table 2

4.2. Variables

4.2.1. Dependent variable

The dependent variable, environmental disclosure, is labelled ENVIR_DISCL. Our environmental disclosure proxy, in line with scholars such as Lee, Kim, Lee, and Li (2012) and Rupp and Mallory (2015), was measured using a multidimensional construct with the purpose of collecting all environmental information reported by the firms of our sample. Thus, our environmental reporting index is measured by the ratio between the unweighted aggregation of 53 items relating to environmental matters presented in Table 3 (e.g., Gallego-Álvarez & Ortas, 2017) – which will take the value 1 if the company reports the item analysed, and 0 otherwise – and the total number of items analysed (53). All the environmental items disclosed by the firms of our sample have been collected from the Thomson Reuters database. These items are included in the Asset ESG Environmental datatypes section. Three areas were explored to construct the environmental reporting index – innovation, resource use and emissions – consistent with Radu and Francoeur (2017) and Wu, Liu, Chin, and Zhu (2018), among others. Thus, our environmental reporting index attempts to respond to questions such as: (a) renewable energy use: do firms make use of renewable energy? (b) environmental supply chain management: do companies use environmental criteria (ISO 14000 or energy consumption, among others) in the selection process of their suppliers or sourcing partners? (c) emission reduction policy: do firms have a policy to reduce emissions? (d) waste reduction total: do companies report on initiatives to recycle, reduce, reuse, substitute, treat or phase out total waste, hazardous waste or wastewater? (e) environmental products: do firms report on at least one product line or service that is designed to have positive effects on the environment or which is environmentally labelled and marketed? (f) water technologies: do companies develop products or technologies that are used for water treatment and purification or that improve water use efficiency?

Insert Table 3

4.2.2. Independent variables

Cultural issues were measured following the national cultural dimension model created by Hofstede (1980, 2001), which was enhanced later by Hofstede et al. (2010). Authors such as Vachon (2010) and Peng, Dashdeleg, and Chih (2014), Gallego-Álvarez and Ortas (2017) and Miska et al. (2018) support the national culture dimension model as the most suitable construction for measuring the different cultures among countries. Hofstede's model takes into account six cultural dimensions to capture the cultural differences of several countries: (1) power distance, defined as POW_DIST, (2) individualism versus collectivism, defined as INDIV, (3) masculinity versus femininity, labelled as MASCUL, (4) uncertainty avoidance, labelled as UNC_AVOID, (5) long-term orientation, based on Confucian thinking and defined as LONG_ORIENTATION, and (6) indulgence versus restraint, labelled as INDULG.

The first cultural dimension, power distance, shows the degree to which a society admits that there is no equality in the power of organisations. Members in societies with high levels of power distance are more likely to pursue formal codes of conduct and are reluctant to go against what superiors say. In contrast to this, members in societies with low levels of power distance do not perceive great differences in position, status or power, and tend to follow informal codes of conduct. According to the Hofstede website, the variable power distance, POW_DIST, measures differences between national societies and the position of societies relative to each other is expressed in a power distance index score. The values of the power distance index score range from 0 to 100. Scores close to 0 stand for a smaller power distance, while scores close to 100 stand for a larger power distance. Power distance index score will account for high values (50-100) in societies with dictatorships or oligarchies, smaller middles class, more income inequality or political systems changed by revolution (societies with long power distance), among others, while low values (0-49) will be scored in societies with larger middle class,

peaceful conflict resolution, political systems changed by evolution or less income inequality (societies with less power distance).

In relation to the second cultural dimension, individualism versus collectivism, individualism reflects if people living together are more individualist or, to the contrary, more collectivist. Thus, members of individualist societies tend to be independent, look after themselves and value the achievement of personal goals rather than group interests, while individuals in collectivist cultures are more likely to respect tradition, be interested in all relative to the group and to tend to perceive themselves as members of an extended organisation. Individualims vs collectivism can only measure in comparison to other societies. The culture dimension individualism, INDIV, is expressed in an individualism index score that also ranges from 0 to 100. Scores close to 0 stand for the most collectivist, while scores close to 100 stand for the most individualist society. The individualism index score will account for low values (0-49) in societies with human rights less respected, less press freedom, slower pace of life or older husbands and younger wives, showing a more collective society, while societies with more press freedom, smaller age differences between spouses, human rights more respected or fater pace of life will account for high values (50-100) (a more individualist society).

The cultural dimension of masculinity versus femininity relates to societies predominately having female or male values. In a masculine culture, members tend to value personal attainment, money and success, and are more competitive and aggressive in comparison to feminine cultures, where members tend to care for others, place greater importance on quality of life and are more nurturing, modest and humble. This culture dimension, masculinity vs femininity, can also be measured in comparison to other societies. The masculinity, MASCUL, is expressed in a masculinity index score that also ranges from 0 to 100. Scores close to 0 stand for the most feminine, while scores close to 100 stand for the most masculine society. The masculinity index score will account for low values (0-49) in

societies with fewer people living in poverty, more leisure, longer vacations or both genders shop for food (more feminine societies), while societies with women who are food shoppers, salary preferred over leisure, more people living in poverty or more functional illiterates will account for high values (50-100) (more masculine societies).

The fourth cultural dimension, uncertainty avoidance, reflects the fact that individuals feel themselves threatened or uncomfortable in a context by uncertain circumstances, and as a result, these members will try to achieve conformity through contexts and a belief system created by them. In societies where uncertainty avoidance is high, members value security, place greater emphasis on written rules and consensus and do not tolerate deviations from the rule, while societies with low levels of uncertainty avoidance feel a lower need for written norms and are tolerant of deviations from the norm. A deeper description of these four culture dimensions can be found in the paper by Blodgett, Bakir, and Rose (2008). The uncertainty avoidance, UNC_AVOID, also measures differences between national societies and the position of societies relative to each other is expressed in an uncertainty avoidance index score that ranges from 0 to 100. Scores close to 0 stand for weaker uncertainty avoidance societies, while scores close to 100 stand for stronger uncertainty avoidance societies. The uncertainty avoidance will account for low values (0-49) in societies with more alcoholism, higher speed limits on motorways, fewer nurses per doctor or consumers buy more pure and clean products (more uncertainty avoiding societies), while societies with less alcoholism, consumers buy more ready-made convenience products or lower speed limits on motorways will account for high values (50-100) (more uncertainty accepting societies).

The fifth cultural dimension, long-term orientation, represents the extent to which a society places greater interest on honesty, self-discipline, learning, adaptiveness and accountability of its members. In cultures with a long-term orientation, members are instilled with the tendency to be prudent and humble and be persistent in the achievement of their goals,

and they are not encouraged to be self-assertive. In societies with a short-term orientation, the main values are achievement, freedom, and thinking for oneself, and rights and personal needs will determine personal loyalties. Hofstede and Minkov (2010) indicate that, "On the long-term side, what works is more important than what is right. Matter and spirit are integrated. Good and evil depend upon the circumstances. On the short-term side, there is a deep concern with righteousness. Matter and spirit are separated, and there exist universal guidelines about what is good and evil." The long-term orientation, LONG_ORIENTATION, also measures differences between national societies and the position of societies relative to each other is expressed in a long-term orientation index score that ranges from 0 to 100. Scores close to 0 stand for a shorter-term orientation, while scores close to 100 stand for a longer-term orientation. The long-term orientation will account for low values (0-49) in societies with secondary school students perform poorly at mathematics, small savings quote, little money for investment or companies report quarterly results (a shorter-term oriented society), while societies with secondary school students perform well at mathematics, large savings quote, funds available for investment or companies seek market share and long-term profits will account for high values (50-100) (a longer-term oriented society).

The sixth and last cultural dimension refers to indulgence versus restraint. Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms. Indulgent cultures will tend to focus more on individual happiness and well-being, leisure time is more important and there is greater freedom and personal control. This is in contrast with restrained cultures, where positive emotions are less freely expressed and happiness, freedom and leisure are not given the same importance. The indulgence versus restraint dimension, INDULG, also measures differences between national societies and the position of societies relative to each other is

expressed in an indulgence versus restraint index score that ranges from 0 to 100. Scores close to 0 stand for a more restrained society, while scores close to 100 stand for a more indulgent society. The indulgent dimension will account for low values (0-49) in societies with lower crime rates, larger police force, lower approval of foreign music and films or less obesitas, in wealthy countries (a more restrained society), while societies with higher crime rates, smaller police force, freedom of speech for al lis rated as very importante or more obesitas, in wealthy countries, will account for high values (50-100) (a more indulgente society)

Summarising, the six cultural dimensions range from 0 to 100, with 50 being the halfway point. Countries with a score under 50 show a low culture score, while 50 or above is considered a high culture score. For instance, for the culture dimension of individualism versus collectivism, a score under 50 is categorised as collectivist and above 50 as individualist. Therefore, a country with a score of 30 would be collectivist, but less collectivist than another country with a score of 10, because this figure is nearer 0. All the values associated with each culture dimension are publicly available through the website of Geert Hofstede. Thus, all data for measuring Hofstede's six cultural dimensions for each country have been collected from the Hofstede website.[1]

4.2.3. Control variables

Drawing on past evidence, we take into account several factors that may potentially affect the environmental disclosure index. The legal system is considered as a control variable using two proxies. First, we consider the legal system in which the country operates, labelled as CIVIL_LAW. In this regard, this variable is measured as a dummy variable that will take the value 1 if the country has civil law, and 0 otherwise. Kolk and Perego (2010) show that firms operating in countries with civil law show a greater commitment to disclosure of environmental information. Second, we also take into account the efficiency of the judicial system – namely,

the degree to which the judicial system of a country can guarantee compliance with laws and recommendations, in line with La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998). The efficiency of the judicial system is denoted by EFFICIEN_JUDIC_SYST and is measured from 0 to 10. In this case, 5 will be the halfway point. Thus, if the efficiency of the judicial system scores a value of 2, for example, it shows that the level of efficiency of the judicial system is low, whereas it will be higher if the score is 9. Authors such as Cressy, Cumming, and Mallin (2010, p. 119) indicate that "corporations are more likely to act in environmentally responsible ways when there are strong and well-enforced state regulations in place to ensure such behaviour". The effect of those industries with high or low impact on stakeholders is also controlled. In this regard, we categorise industries into critical industries – that is, industries with direct and strong effects on stakeholders – and less critical industries – namely, industries with less impact on stakeholders. This variable is denoted as HIGH_IMPACT_INDUS and is calculated as a dummy variable that will take the value 1 if firms operate in high-impact industries, and 0 otherwise. We have used Young and Marais (2012), the FTSE4 Good Indexes (2015), Semenova and Hassel (2016) and Jaggi, Allini, Macchioni, and Zagaria (2018) to classify industries according to their low and high impact on stakeholders, as outlined in Table 4.

Insert Table 4

Firm size is the fourth control variable considered, defined as SIZE and measured as the logarithm of total assets of companies. It is expected, consistent with Jaggi et al. (2018), that big companies will be more likely to disclose environmental information, given that they are more exposed to public scrutiny, and the impact of their activities on the environment will be more visible. Return on assets (ROA) is also controlled for and was calculated as the operating income before interests and taxes over total assets. In line with past research (e.g., Kim, Park, & Wier, 2012), firms with good corporate performance will be more likely to disclose

environmental information because it may reduce investors' fears about a company's risk. Leverage, labelled as LEVERAGE, has also been considered as a control variable. It is measured as debt over total assets. Companies with high levels of leverage will be more likely to report environmental information since it may allow creditors to assess any risk regarding firm performance (Clarkson, Li, & Richardson, 2004; Jaggi et al., 2018).

Board size has also been taken into account as a control variable. It is defined as B_SIZE and is measured as the number of board members. It is expected that the higher the number of directors on the board, the higher the disclosure of environmental information, consistent with Husted and Milton de Sousa-Filho (2018), because bigger boards will be more likely to provide wider perspectives and opinions in the decision-making process, involving more negotiation and debate. Board independence (B_INDEP) is also controlled for, and it is measured as the ratio between the total number of independent directors on the board and the total number of members on the board. We predict a positive association between board independence and environmental reporting (e.g., Husted & Milton de Sousa-Filho, 2018). Independent directors are non-executive directors and they defend shareholders' interests, particularly those of minority shareholders and stakeholders. Thus, they will support the reporting of environmental matters.

The presence of a CSR committee is also considered as a control variable – labelled as CSR_COMMITTEE – and is measured as a dummy variable that takes the value 1 if the firm has a CSR committee, and 0 otherwise. A positive effect of CSR committees on environmental disclosure is expected (Konadu, 2017). Companies that set up CSR committees are signalling their interest in stakeholders' societal demands; hence, firms with these committees will promote firm transparency through the disclosure of CSR information such as that referring to environmental matters.

The regional effect has also been controlled by using five geographic zones: Asia, Europe, Latin America, North America and Oceania. These regions are denoted as ASIA, EUROPE, LATINAMERICA, NORTHAMERICA and OCEANIA, and they are calculated as dummy variables that will take the value 1 if the country of the sample belongs to the region explored, and 0 otherwise. OCEANIA will not be included in the regression because it will be the reference category. Another control variable used is the economic growth of a country, which is defined as DEVELOPED and measured as a dummy variable that takes the value 1 if firms operate in a developed country and 0 if firms operate in a developing country. Wei and Wang (2016) find that firms domiciled in developed countries disclose more environmental information. Finally, year effects (YEAR) are also controlled, including a set of dummy variables. In Table 5, we offer a summary of all the variables employed in this research.

Insert Table 5

4.3. Methodology

To test our hypotheses, we run the following model:

$$ENVIR\_DISCL_{it} = \beta_0 + \beta_1 POW\_DIST_{it} + \beta_2 INDIV_{it} + \beta_3 MASCUL_{it} + \beta_4 UNC\_AVOID_{it} + \beta_5 LONG\_ORIENTATION_{it} + \beta_6 INDULG_{it} + \beta_7 CIVIL\_LAW_{it} + \beta_8 EFFICIEN\_JUDIC\_SYST_{it} + \beta_9 HIGH\_IMPACT\_INDUS_{it} + \beta_{10} SIZE_{it} + \beta_{11} ROA_{it} + \beta_{12} LEVERAGE_{it} + \beta_{13} B\_SIZE_{it} + \beta_{14} B\_INDEP_{it} + \beta_{15} CSR\_COMMITTEE_{it} + \beta_{16} ASIA_{it} + \beta_{17} EUROPE_{it} + \beta_{18} LATINAMERICA_{it} + \beta_{19} NORTHAMERICA_{it} + \beta_{20} DEVELOPED_{it} + \sum \beta_j YEAR_t + \mho_i + \Theta_{it}$$

Where:

The subscript "i" represents the firm, "t" refers to the time period, β is the estimated parameter, $\mho_i$ represents the unobservable time-invariant, firm-specific effects (the unobservable heterogeneity) variable among individuals and constant over time (Greene, 1988), and Θ_{it} is the disturbance term that varies the cross-time and cross-section joint effect. Firm-

specific effects are taken into account in order to control for firm-particular effects on our dependent variable.

The model is estimated using the dynamic panel data estimator of the generalised method of moments (GMM) (Arellano & Bond, 1991, 1998), which lags the dependent variable (introducing the temporal dependency). Contrary to other estimators, the GMM procedure is consistent and efficient because it considers the unobservable heterogeneity ($\mho_i$) by modelling it as an individual effect and by removing it with the first differences of the variables. Additionally, the GMM procedure also takes into account endogeneity and reduces the estimation bias.

The GMM procedure presents the Wald χ^2 test, the Arellano–Bond tests AR(1) and AR(2), and the Hansen test. The Wald χ^2 test shows us the model fitness. Whether a second-order serial correlation in the first difference residuals exists is shown by the Arellano–Bond test AR(2). The null hypothesis posits "no serial correlation", showing its rejection ($p>0.1$) that there is no second-order serial correlation. Additionally, the Hansen test of over-identifying restrictions confirms the suitability of the instruments used in the estimation if the null hypothesis of non-correlation between the instruments and the error term is rejected ($p>0.1$).

5. Analysis of results

5.1. Descriptive statistics

In Table 6, we provide the most important statistics of all the variables used in this research study. Our dependent variable, environmental disclosure index (ENVIR_DISCL), shows, on average, a value of 0.24. Thus, the international firms of our sample report information on nearly 24% of the 53 environmental items considered in our research to construct the environmental disclosure index. Focusing on the six cultural dimensions, the power distance (POW_DIST) is 45.17 out of 100, individualism (INDIV) is 72.36 out of 100,

masculinity (MASCUL) is 61.46 out of 100, uncertainty avoidance (UNC_AVOID) is 56.63 out of 100, long-term orientation (LONG_ORIENTATION) is 48.11, and indulgence (INDULG) is 59.55. Furthermore, 42.18% of the firms of our sample operate in a country with civil law (CIVIL_LAW) and the efficiency of the judicial system (EFFICIEN_JUDIC_SYST) is, on average, 9.37 out of 10, showing that the efficiency of the judicial systems is high. A total of 61.25% of the firms of the sample operate in high-impact industries. Firm size is 9.64 (log of total assets, expressed in euros), the return on assets (ROA) is 6.38%, the leverage, on average, is 13.11%, the number of board members is 10.89, 50.79% of the board members are independent, and 59.08% of the firms have a CSR committee. Additionally, 19.80% of the countries in our sample are located in Asia, 32.06% in Europe, 2.88% in Latin America, 38.44% in North America and 6.82% in Oceania, while 91.37% of the countries operate in developed countries.

In Table 6, the Shapiro–Francia W test for normality is also provided for each variable. The null-hypothesis of this test is that the population is normally distributed (Azat, 2014). Thus, on the one hand, if the *p*-value is less than the chosen alpha level, then the null hypothesis is rejected and there is evidence that the data tested are not normally distributed. On the other hand, if the *p*-value is greater than the chosen alpha level, then the null hypothesis that the data came from a normally distributed population cannot be rejected. For all the values of the Shapiro–Francia W test, the p-value is >0.1, and accordingly, for all the variables, we cannot reject the null hypothesis of normality and we can confirm that our data are normally distributed.

Insert Table 6

In addition, multicollinearity concerns have been checked by calculating the correlation matrix provided in Table 7. According to the values of Table 7, none of the coefficients is higher

than 0.8 (e.g., Pucheta-Martínez, Bel-Oms, & Olcina-Sempere, 2016). Therefore, multicollinearity is not a problem in our analysis.

Insert Table 7

5.2. Multivariate analysis and discussion

In Table 8, we present the findings of the nine models built for testing our hypotheses. In Model 1, we explore the association between the cultural dimensions of power distance (POW_DIST) and environmental disclosure. The variable of power distance provides a negative sign, according to our expectations, but it is not statistically significant. Thus, our first hypothesis is not supported and this finding suggests that power distance does not have an effect on the reporting of environmental information. Our evidence shows that the level of hierarchy in a society is not a determinant factor affecting the disclosure of environmental matters. In other words, a higher or lower power distance in the national culture of each country does not influence the decision-making process of firms regarding corporate environmental reporting. This is in contrast to Waldman et al. (2006) and Peng, Dashdeleg, and Chih (2014), who find that managers operating in firms located in countries with a stronger power distance will tend to disclose less environmental information because this cultural dimension induces them to show less commitment to stakeholders' needs, and to Ho, Wang, and Vitell (2012) and Ioannou and Serafeim (2012), who support the thesis that a stronger power distance is positively associated with environmental reporting. It was expected a lower environmental disclosure in societies with a large power distance because in these societies there will be more income inequality, more violence in national politics, political systems change by revolution, middle class is smaller, dictatorships are more normal, business executives tend to be older, superiors are superior beings and subordinates expect to be told. In this case, the less powerful members of institutions and organisations will expect and accept that power is distributed unequally and companies tend to adopt corporate behaviors, which are not engaged with stakeholders' needs.

A high-power distance value would be more likely to reduce the dialogue between the management team and employees, and to mitigate the consumer pressure on businesses with regard to environmental-related issues such as environmental disclosure. This assumption is supported by Waldman et al. (2006), who suggest that societies with stronger power distance values encourage corporations' managers to show little concern for stakeholders and firms do not need to issue more information about environmental matters to achieve the benefits of stakeholders. This would let us expect a negative relationship between a high-power distance and environmental reporting, in contrast to what our evidence has shown.

Insert Table 8

In Models 2, 3 and 6, the effects of individualism (INDIV), masculinity (MASCUL) and indulgence (INDULG), respectively, on environmental disclosure are examined. All variables (INDIV, MASCUL and INDULG) provide a negative sign, as predicted, and are statistically significant. Therefore, hypotheses 2, 3 and 6 cannot be rejected. These results confirm that the cultural dimensions of individualism, masculinity and indulgence negatively affect the reporting of environmental information. According to Ho et al. (2012), communities in which individualism prevails place importance on independence and freedom and consequently, this individualism incites people to prioritise individual needs and interests rather than collective demands. This may explain why firms operating in individualist cultures will be less likely to report environmental information, because the sensitivity of the firms' managers towards stakeholders' needs will be lower. According to Akaah (1990), in individualistic cultures, workers show behaviours less ethics than those of collectivist cultures. In this regard, collectivist countries will tend to show more concerns about the effect of business activities on society (Ho et al., 2012, p. 425) and more sensitivity toward stakeholders' needs (Blodgett, Lu, Rose, & Vitell, 2001). This supports the thesis that collectivist cultures will be more likely to disclose environmental information than individualistic cultures, as Garcia-Sanchez, Cuadrado-

Ballesteros, and Frias-Aceituno (2016) suggest by providing evidence that firms from collectivistic contexts will have more incentives to report environmental and social information to their stakeholders because it will improve their decision-making process. Additionally, it seems that communities where masculinity predominates are less inclined to provide resources, such as environmental information, to their stakeholders. The findings suggest that masculine cultures in our sample show a lower stakeholder orientation, in line with past literature (Peng & Lin, 2009; Roy & Goll, 2014). In masculine communities, where work prevails over family, religion focuses on powerful God, the strongest is admired, the weakest is disdained, fathers should deal with facts and mothers with feelings, and emotional gender roles are distinct: men should be assertive, tough and focused on material success, while women on the quality of life, companies decrease the disclosure of environmental information. In this regard, co-operation, integration, cohesion, agreement, fewer functional illiterates, fewer people living in poverty, both genders shop for food and more aid to poorer countries, among others, are not predominant values among companies' managers. These values would be more expected to prevail in feminine contexts and, consequently, would be associated with a higher disclosure of environmental information. Furthermore, indulgent cultures also tend to report less environmental information, because these communities support desires such as enjoying life or entertainment more than restraint cultures (Ismail & Lu, 2014). Members in indulgent communities will also feel healthier and happier, have a perception of personal life control, their attitude is positive and optimist, freedom of speech for all is rated as very important and moral discipline and ethic will be lower, inter alia. These feelings are less conducive to the disclosure of environmental information, particularly because indulgent communities are not related to ethical and moral discipline, and they will be not expected to be more transparent and to require extensive disclosure than restraint societies, where moral discipline and ethics are stricter, societies suppress gratification of needs and regulate it by means of strict social norms,

maintaining order in the nation is rated as very important and personalities are more introverted and pessimistic. Indulgent cultures will have less incentives to satisfy stakeholders' needs and demands through environmental practices, given the features that characterise them.

In Model 4, we analyse the impact of uncertainty avoidance (UNC_AVOID) on environmental disclosure. The coefficient of the variable is positive, in contrast to our predictions, and is significant from a statistical point of view. According to this finding, hypothesis 4 cannot be supported. Thus, strong uncertainty avoidance cultures have a positive impact on the reporting of environmental information. Moreover, it also seems that the strict codes of behaviour and beliefs predominant in uncertainty avoidance communities, as well as the major presence of norms and rules imposed on individuals and the intolerance to unorthodox ideas and behavior, encourage managers to disclose environmental information. This suggests that more environmentally proactive companies establish norms to ensure certainty and stability. In this regard, Kim & Kim (2009, p. 497) consider that "CSR-related activities seem to be interpreted by public relations practitioners as one means to guarantee the success of both the organization and society at the same time". Our evidence is not in line with most of past research on the topic, which shows that strong uncertainty avoidance may result in a weak commitment of companies to sustainability issues such as environmental disclosure (Vachon, 2010; Cordeiro & Sarkis, 1997). It would be expected a higher disclosure of environmental information in weak uncertainty avoidance societies because they maintain a more relaxed attitude in which practice counts more than principles (Nakata & Sivakumar, 1996) and companies' stakeholders often require corporate sustainability practices, such as environmental reporting.

In Model 5, we explore the relationship between the long-term orientation culture dimension (LONG_ORIENTATION) and the reporting of environmental information. The variable exhibits a negative sign, contrary to our predictions, and is statistically significant.

Thus, the fifth hypothesis cannot be accepted and we conclude that communities that show a long-term orientation are less inclined to disclose information related to environmental issues. Although sustainability and environmental issues show their benefits in the long term, our evidence seems to suggest that communities with a long-term orientation tend to report less environmental information. A lower environmental reporting would be more likely in short-term orientation cultures, where virtues related to the past and the present, such as national pride, respect for tradition, and fulfilling social obligation are fostered. Furthermore, firms stress bottom line and report quarterly results, investors prefer mutual funds and shares and there is little money for investment and small savings quotes, inter alia. Our findings are contrary to the views of Hofstede (2001), who supports that long-term oriented societies will stand for fostering the pragmatic virtues oriented to future rewards, in particular perseverance, will stand for adapting to changing circumstances, firms will seek long-term profits, there will be funds available for investment and large savings quotes and investors will prefer family business and real estate, which would be more consistent with a higher environmental disclosure, due to its long-term benefits. Our results are also opposing to the literature on managers' temporal orientation, which would suggest that long-term oriented societies would emphisise long term outcomes and priorities such as benefits or performances derivited from the disclosure of environmental matters. Thus, our evidence may imply a lower engagement of long-term orientation cultures with environmental matters.

Concerning the control variables, the findings show that countries with civil law tend to disclose less environmental information when individualism and uncertainty avoidance are explored and more environmental information when the long-term orientation cultural dimension is analysed. Furthermore, in all models, except for Model 1, where the power distance is explored, a higher efficiency of the judicial system and a higher board size will result in a higher reporting of environmental matters. Firm size is positively associated to

environmental information only when uncertainty avoidance is analysed. Additionally, more independent board members positively affect environmental information disclosure when the masculinity and uncertainty avoidance cultural dimensions are taken into account, and the presence of a CSR committee in a company has a positive effect on the reporting of environmental information in all models, except in Model 1 (power distance) and Model 4 (uncertainty avoidance), where the signs are not statistically significant. The variable of developed countries follows the same pattern as the variable of a CSR committee, but it negatively affects environmental disclosure. Moreover, countries domiciled in Asia show a negative impact on environmental information when the individualism and indulgence cultural dimensions are considered. Countries in Latin America show a negative effect on environmental information not only when the individualism and indulgence dimensions are explored, but also when uncertainty avoidance is considered. Countries in North America only show a negative impact on the disclosure of environmental information when indulgence is analysed. Companies operating in European countries show a positive effect on environmental information disclosure when we take into account the individualism, masculinity and long-term orientation cultural dimensions. The remaining control variables are insignificant. In Table 9, we provide a summary of the expected and obtained signs for each of the hypotheses.

Insert Table 9

5.3. Robustness analysis

An analysis of robustness was conducted to corroborate our results. In this regard, we used as a dependent variable the unweighted aggregation of the 53 items of environmental issues considered for measuring our environmental disclosure index (ENVIR_DISCL). This variable varies from 0 to 53. So as not to extend the paper more than necessary, the results of the regressions are not shown here, but they confirm the evidence shown in our baseline models.

Therefore, the impact of the cultural dimensions on environmental disclosure is independent of the way of measuring the dependent variable.

6. Conclusions

Drawing on the diversity of cultures across countries, specifically the Hofstede's cultural dimensions, the aim of this paper is to explore the effect of the culture context where firms operate on their environmental disclosure practices. As proxies of the cultural context, we use Hofstede's six cultural dimensions (normative isomorphism): (1) power distance, (2) individualism, (3) masculinity, (4) uncertainty avoidance, (5) long-term orientation, and (6) indulgence.

The findings show that three of Hofstede's six cultural dimensions—individualism, masculinity and indulgence—do indeed have an impact on environmental disclosure, while power distance is not significant, and uncertainty avoidance and long-term orientation are positive and negatively associated with the reporting of environmental information, contrary to our predictions. Individualism, masculinity and indulgence have a negative effect on environmental information.

Several implications can be derived from this analysis. First, our evidence confirms the diversity of cultures across countries perspective on the reporting of environmental information. Further research could seek to shed some light on the impact of this aspect of the culture approach on other business decisions, such as CSR disclosure or firm performance. This evidence may reinforce the theoretical foundations that argue which factors incentivise firms to disclose environmental issues. Second, our findings provide a solid understanding of which cultural contexts, measured with Hofstede's six cultural dimensions, encourage the reporting of environmental information, and which may be useful for regulatory bodies. Countries with individualist, masculine and indulgent cultures are not the most suitable contexts for disclosing

environmental issues. Contrary to our predictions, long-term orientation cultures also discourage the reporting of environmental information, while uncertainty avoidance contexts tend to encourage the reporting of environmental matters. Thus, international policymakers might take into account this evidence and recommend or enforce certain aspects over which they may have some influence, such as certain cultural dimensions. At the same time, our evidence can also be very useful for bringing about the regulatory homogenisation of environmental disclosure practices with a view to harmonisation by the European Union or the United Nations. Third, managers of companies may consider our findings of great interest, and they should pay attention to the disclosure practices on environmental issues in relation to the demands of stakeholders. The stakeholders' expectations should be exceeded by companies and, for this reason, firms should adopt policies and make decisions which are beneficial for society, where culture is a key determinant. In this regard, managers should learn to address cultural differences by implementing proper practices in the cultural context in which they operate and, therefore, they should deeply know the culture of the country. Our findings provide relevant evidence for managers who are looking into enter new markets with the knowledge needed to learn more about the cultural aspects, and who are expecting to be successful in international business. Furthermore, the results of this research may also be relevant for stakeholders, given that they will have more knowledge regarding in which institutional contexts companies are more likely to report environmental information. Finally, our evidence may be useful for other researchers, since this paper offers partial empirical support for the diversity of cultures across countries approach at the international level in terms of how Hofstede's six cultural dimensions affect environmental disclosure. Our findings disprove some of the main results of past research, which also focuses on the Hofstede's culture dimensions. Specifically, contratry to prior empirical evidence, the power distance does not impact environmental disclosure, while uncertainity avoidance affects positively it and long-term

orientation negatively. This contradicting evidence signals the need for additional empirical reseach to better understand the suggested relationship between national cultures and environmental reporting. We hope future researchers can benefit from our findings and we encourage them to extend our research and to build on these insights.

Some future lines of research can be derived from our investigation. We encourage other scholars to extend our research to a sample of companies in both developed and developing countries. It would also be interesting to explore the effects of Hofstede's cultural dimensions or other voluntary disclosures using a sample of financial entities.

Notes

[1] The cultural insights website of Geert Hofstede can be accessed at: https://www.geert-hofstede.com/

References

Adams, C. A., & Kuasirikun, N. (2000). A comparative analysis of corporate reporting on ethical issues by UK and German chemical and pharmaceutical companies. *European Accounting Review,* 9(1), 53–80.

Adelopo, I., Cea Moure, R., & Obalola, M. (2013). On the effects of legal and cultural institutions on corporate social disclosures by banks. Leicester Business School, Occasional Paper 87.

Aerts, W., Cormier, D., & Magnan, M. (2006). Intra-industry imitation in corporate environmental reporting: An international perspective. *Journal of Accounting and Public Policy,* 25, 199–331.

Akaah, I. P. (1990). Attitudes of marketing professionals toward ethics in marketing research: A cross-national comparison. *Journal of Business Ethics*, 9(1), 45-53.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies, 58, 277–297.

Azat, D. (2014). GMM estimation and Shapiro–Francia normality test: a case study of developing countries. *Studies in Business and Economics, 9*(1), 43–58.

Balmer, J., & Greyser, S. (2007). Corporate marketing: Integrating corporate identity, corporate branding, corporate communication, corporate image and corporate reputation. *European Journal of Marketing, 40*, 730–741.

Barnett, M. L., Darnall, N., & Husted, B. W. (2015). Sustainability strategy in constrained economic times. *Long Range Planning, 14*, 63–68.

Berthelot, S., Cormier, D., & Magnan, M. (2003). Environmental disclosure research: review and synthesis. *Journal of Accounting Literature, 22*, 1–44.

Bewley, K., & Li, Y. (2000). Disclosure of environmental information by Canadian manufacturing companies: A voluntary disclosure perspective. *Advances in Environmental Accounting and Management*, *1*, 201–226.

Beugelsdijk, S., Maseland, R., & van Hoorn, A. (2015). Are scores on Hofstede's dimensions

of national culture stable over time? A cohort analysis. *Global Strategy Journal*, 5(3), 223–240.
Blodgett, J. G., Lu, L-CH., Rose, G. M., & Vitell, S. J. (2001). Ethical sensitivity to stakeholder interest: A cross-cultural comparison. *Journal of the Academy of Marketing Science, 29*(2), 190–202.
Blodgett, J. G., Bakir, A., & Rose, G. M. (2008). A test of the validity of Hofstedes's cultural framework. *Journal of Consumer Marketing, 25*(6), 339–349.
Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*, 115–143.
Buhr, N., & Freedman, M. (2001). Culture, institutional factors and differences in environmental disclosure between Canada and United States. *Critical Perspective in Accounting, 12*, 293–312.
Burrit, R. L. (2002). Environmental reporting in Australia: current practices and issues for the future. *Business Strategy and the Environment, 11*, 391–406.
Campbell, J. L. (2007). Why Would Corporations Behave in Socially Responsible Ways? An Institutional Theory of Corporate Social Responsibility. *Academy of Management Review, 32*(3), 946–967.
Caprar, D. V., Devinney, T. M., Kirkman, B. L., & Caligiuri, P. (2015). Conceptualizing and measuring culture in international business and management: From challenges to potential solutions. *Journal of International Business Studies*, 46(9), 1011–1027.
Carroll, A. B. (1979). A three-dimensional conceptual model of corporate social performance. *Academy of Management Review, 4*(4), 497–505.
Cerin, P. (2002). Communication in corporate environmental reports. *Corporate Social Responsibility and Environmental Management, 9*, 46–65.
Claessens, S., & Fan, J. (2002). Corporate governance in Asia: A survey. *International Review of Finance, 3*(2), 71–103.
Clarkson, P., Li, Y., & Richardson, G. (2004). The market valuation of environmental capital expenditures by pulp and paper companies. *The Accounting Review, 79*, 329–353.
Clarkson, P., Li, Y., Richardson, G., & Vasvari, F. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society, 33*, 303–327.
Collier, P. (2001). The power of accounting: a field study of local financial management in a police force. *Management Accounting Research*, *12*, 465–486.
Cordeiro, J. J., & Sarkis, J. (1997). Environmental proactivism and firm performance: Evidence from security analysis earnings forecasts. *Business Strategy and the Environment*, 6, 104-114.
Craig, R., & Diga, J. (1998). Corporate accounting disclosure in ASEAN. *Journal of International Financial Management and Accounting, 9*(3), 247–273.
Cressy, R., Cumming, D., & Mallin, C. (2010). Entrepreneurship, Governance and Ethics. *Journal of Business Ethics, 95*, 117–120.
Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal, 35*(1), 1–23.
Cho, C., & Patten, D. (2007). The role of environmental disclosures as tools of legitimacy: a research note. *Accounting, Organizations and Society, 32*, 639–647.
Cho, C. H., Roberts, R. W., & Patten, D. M. (2010). The language of US corporate environmental disclosure. *Accounting, Organizations and Society, 35*(4), 431–443.
Choi, J. (1999). An investigation of initial voluntary environmental disclosures made in Korean semi-annual financial reports. *Pacific Accounting Review, II*(I), 73–102.
Deegan, C., & Samkin, G. (2006). *New Zealand financial accounting*. Manukau: McGraw-Hill.

De Mooij, M., & Hofstede, G. (2010). The Hofstede model: Applications to global branding and advertising strategy and research. *International Journal of Advertising, 29*(1), 85–110.

De Villiers, Ch., & Marques, A. (2016). Corporate social responsibility, country-level predispositions, and the consequences of choosing a level of disclosure. *Accounting and Business Research, 46*(2), 167–195.

Du, S., Bhattacharya, C., & Sen, S. (2010). Maximizing business returns to corporate social responsibility: The role of CSR communication. *International Journal of Management Review, 12*, 8–19.

Epstein, M. J., & Roy, M. J. (2001). Sustainability in Action: Identifying and Measuring the Key Performance Drivers. *Long Range Planning, 34*, 585–604.

Fekrat, M., Inclan, C., & Petroni, D. (1996). Corporate environmental disclosures: Competitive disclosure hypothesis using 1991 annual report data. *The International Journal of Accounting, 31*, 175–195.

FTSE4 Good Indexes. (2015). Indexes sector classification, http://www.ftse.com/Indices (accessed 8th march 2017).

Gallego-Álvarez, I., & Ortas, E. (2017). Corporate environmental sustainability reporting in the context of national cultures: A quartile regression approach. *International Business Review, 2*, 337–353.

Gamble, G. O., Hsu, K., Kite, D., & Radtke, R. R. (1995). Environmental disclosure in annual reports and 10Ks: an examination. *Accounting Horizons, 9*, 34–54.

Gamble, G. O., Hsu, K., & Tollerson, C. D. (1996). Environmental disclosures in annual reports: An international perspective. *The International Journal of Accounting, 31*(3), 293–331.

García-Sánchez, I. M., Rodríguez-Ariza, L., & Frías-Aceituno, J. V. (2013). The cultural system and integrated reporting. *International Business Review, 22*(5), 828–838.

García-Sánchez, I. M., Cuadrado-Ballesteros, B., & Frías-Aceituno, J. V. (2016). Impact of the institutional macro context on the voluntary disclosure of CSR information. *Long Range Planning, 49*, 15–35.

Gray, S. (1988). Towards a theory of cultural influence on the development of accounting systems internationally. *Abacus, 24*, 1–15.

Greene, W. H. (1998). *Econometric analysis* (Third edition). New Jersey: Prentice Hall.

Hackert, A. M., Krymwiede, D., Tokle, J., & Vokurka, R. J. (2012). Global corporate social responsibility, practices and cultural dimensions, S.A.M. *Advanced Management Journal, 77*(4), 33–41.

Haxhi, I., & van Ees, H. (2010). Explaining diversity in the worldwide diffusion of codes of good governance. *Journal of International Business Studies*, 41(4), 710–726.

Higgins, C., & Larrinaga, C. (2014). Sustainability reporting. Insights from institutional theory. In J. Unerman, J. Bebbington, & B. O'Dwyer (Eds.), *Sustainability accounting and accountability* (2nd ed., pp. 273–285). London: Routledge.

Ho, F. N., Wang, H. M. D., & Vitell, S. J. (2012). A global analysis of corporate social performance: The effects of cultural and geographic environments. *Journal of Business Ethics, 107*(4), 423–433.

Hoecklin, L. (1996). Managing cultural differences. Strategies for competitive advantage. Wokingham: Addison-Wesley.

Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the US chemical industry. *Academy of Management Journal, 42*(4), 351–371.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Newbury Park: Sage Publications.

Hofstede, G. H. (1983). The Cultural Relativity of Organizational Practices and Theories. *Journal of International Business Studies, 82*, 76–88.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks: Sage Publications.

Hofstede, G., & Hofstede, G. J. (2005).*Cultures and Organizations: Software of the Mind* (2nd Edition). USA: McGraw-Hill.

Hofstede, G., & Minkov, M. (2010). Long- versus short-term orientation: New perspectives. *Asian Pacific Business Review, 16*(4), 493–504.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010).*Cultures and Organizations: Software of the Mind* (10th Edition*)*. USA: McGraw-Hill.

Hooghiemstra, R. (2000). Corporate communication and impression management – new perspectives why companies engage in corporate social reporting. *Journal of Business Ethics, 27*, 55–68.

Husted, B. W. (2005). Culture and ecology: A cross-national study of the determinants of environmental sustainability. *Management International Review, 45*(3), 349–371.

Husted, B. W, & Milton de Sousa-Filho, J. (2018). Board structure and environmental, social, and governance disclosure in Latin America. *Journal of Business Research,* https://doi.org/10.1016/j.jbusres.2018.01.017.

Iatridis, G. E. (2013).Environmental disclosure quality: Evidence on environmental performa nce, corporate governance and value relevance. *Emerging Markets Review, 14*, 55–75.

Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies, 43*(9), 834–864.

Ismail, M., & Lu, H. S. (2014). Cultural values and career goals of the millennial generation: An integrated conceptual framework. *The Journal of International Management Studies, 9*(1), 38–49.

Jaggi, B., Allini, A., Macchioni, R., & Zagaria, R. (2018). The factors motivating voluntary disclosure of carbon information: Evidence based on Italian listed companies. *Organization & Environment, 77*(4), 33–41.

Kim, Y., & Kim, S-Y. (2009). The influence of cultural values on perceptions of corporate social responsibility: Application of Hofstede´s dimensions to Korean public relations practitioners. *Journal of Business Ethics*, 914, 485–500.

Kim, Y., Park, M. S., & Wier, B. (2012). Is earnings quality associated with corporate social responsibility? *The Accounting Review, 87*(3), 761–796.

Kolk, A. (2003). Trends in sustainability reporting by the Fortune Global 250. *Business Strategy and the Environment, 12*, 279–291.

Kolk, A., & Perego, P. (2010). Determinants of the adoption of sustainability assurance statements: An international investigation. *Business Strategy and the Environment, 19*(3), 182–198.

Konadu, R. (2017). Gender diversity impact on corporate social responsibility (CSR) and Greenhouse Gas emissions in the UK. *Economics and Business Review*, *3*(1), 127–148.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *Journal of Finance, 52*, 1131–1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *Journal of Political Economy, 106*, 1113–1155.

Lee, Y. K., Kim, Y. S., Lee, K. H., & Li, D. (2012). The impact of CSR on relationship quality and relationship outcomes: a perspective of service employees. *International Journal of Hospitality Management, 31*, 745–756.

Liu, X. B., & Anbumozhi, V. (2009). Determinant factors of corporate environmental information disclosure: An empirical study of Chinese listed companies. *Journal of Cleaner Production, 17*, 593–600.

Merkl-Davies, D., & Brennan, N. (2007). Discretionary disclosure strategies in corporate narratives: Incremental information or impression management? *Journal of Accounting Literature, 26*, 116–196.

Miska, C., Szöcs, I., & Schiffinger, M. (2018). Culture's effects on corporate sustainability practices: A multi-domain and multi-level view. *Journal of World Business, 53*(2), 263–279.

Modell, S. (2002). Institutional perspectives on cost allocations: integration and extension. *European Accounting Review, 11*, 653–679.

Moneva, J. M., & Ortas, E. (2010). Corporate environmental and financial performance: a multivariate approach. *Industrial Management and Data Systems, 110*, 193–210.

Monteiro, S. M. S., & Aibar-Guzmán, B. (2010). Determinants of environmental disclosure in the annual reports of large companies operating in Portugal. *Corporate Social Responsibility and Environmental Management, 17*, 185–204.

Nakata, C., & Sivakumar, K. (1996). National culture and new product development: An integrative review. *Journal of Marketing*, 60, 61-72.

Once, S., & Almagtome, A. (2014). The relationship between Hofstede's national culture and corporate environmental disclosure: an international perspective. *Research Journal of Business and Management, 1*(3), 279–304.

Orij, R. (2010). Corporate social disclosures in the context of national cultures and stakeholder theory. *Accounting, Auditing & Accountability Journal, 23*(7), 868–889.

Parboteeah, K. P., & Cullen, J. B. (2003). Social institutions and work centrality: Explorations beyond national culture. *Organization Science, 14*(2), 137–148.

Peng., Y-S., & Lin., S-S. (2009). National culture, economic development, population growth and environmental performance: The mediating role of education. *Journal of Business Ethics, 90*, 203–219.

Peng, Y-S., Dashdeleg, A-U., & Chih, H-L. (2014). National culture and firm's CSR engagement: A cross-nation study. *Journal of Marketing and Management, 5*(1), 38–49.

Pucheta-Martínez, M. C., Bel-Oms, I., & Olcina-Sempere, G. (2016). Female institutional directors on boards and firm value. *Journal of Business Ethics*. https://doi.org/10.1007/s10551-016-3265-9

Radu, C., & Francoeur, C. (2017). Does innovation drive environmental disclosure? A new insight into sustainable development. *Business Strategy and the Environment, 26*, 893–911.

Reynolds, M., & Yuthas, K. (2008). Moral discourse and corporate social responsibility reporting. *Journal of Business Ethics, 78*, 47–64.

Richardson, P. J., & Boyd, R. (2005). Not by genes alone: How culture transformed human evolution. Chicago: University of Chicago Press.

Ringov, D., & Zollo, M. (2007). The impact of national culture on corporate social performance. *Corporate Governance, 7*(4), 476–485.

Roy, A., & Goll, I. (2014). Predictors of various facets of sustainability of nations: The role of cultural and economic factors. *International Business Review, 23*, 163–176.

Rupp, D. E., & Mallory, D. B. (2015). Corporate social responsibility: psychological, person-centric, and progressing. *Annual Review of Organizational Psychology and Organizational Behaviour, 2*, 211–236.

Scott, W. R. (2001). Institutions and organizations. London: Sage Publications.

Scott, W. R. (2008). Approaching Adulthood: The Maturing of Institutional Theory. *Theory and Society, 37*(5), 427–442.

Scholtens, B., & Dam, L. (2007). Cultural values and international differences in business ethics. *Journal of Business Ethics, 75*(3), 273–284.

Semenova, N., & Hassel, L. G. (2016). The moderating effects of environmental risk of the industry on the relationship between corporate environmental and financial performance. *Journal of Applied Accounting Research, 17*, 97–114.

Shi, T. (2004). Ecological economics as policy science: rhetoric or commitment towards an improved decision-making process on sustainability. *Ecological Economics, 48*, 23–36.

Su, S. (2006). Cultural differences in determining the ethical perception and decision-making of future accounting professionals: a comparison between accounting students from Taiwan and the United States. *The Journal of American Academy of Business, 9*(1), 147–158.

Sun, N., Salama, A., Hussainey, K., & Habbash, M. (2010). Corporate environmental disclosure, corporate governance and earnings management. *Managerial Auditing Journal, 25*(7), 679–700.

Sully de Luque, M., & Javidan, M. (2004). Uncertainty avoidance. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 602–653). Thousand Oaks, CA: Sage.

Thanetsunthorn, N. (2015). The impact of national culture on corporate social responsibility: evidence from cross-regional comparison. *Asian Journal of Business Ethics, 4*(1), 35–56.

Tsakumis, G. T. (2007). The influence of culture on accountants' application of financial reporting rules. *Abacus, 4*, 27–48.

Vachon, S. (2010). International operations and sustainable development: Should national culture matter? *Sustainable Development, 18*, 350–361.

Van der Laan Smith, J., Adikhari, A., & Tondkar, R. H. (2005). Exploring differences in social disclosures internationally: A stakeholder perspective. *Journal of Accounting and Public Policy, 24*(2), 123–151.

Van der Laan Smith, J., Adikhari, A., Tondkar, R. H., & Andrews, R. (2010). The impact of corporate social disclosure on investment behavior: A cross-national study. *Journal of Accounting and Public Policy, 29*, 177–192.

Vanhamme, J., & Grobben, B. (2009). Too good to be true! The effectiveness of CSR history in countering negative publicity. *Journal of Business Ethics, 85*(Supplement 2), 273–283.

Veser, M. (2004). The influence of culture on stakeholder management: social policy implementation in multinational corporations. *Business and Society, 43*, 426–436.

Vitell, S. J., Paolillo, J. G. P., & Thomas, J. L. (2003). The perceived role of ethics and social responsibility: A study of marketing professionals. *Business Ethics Quarterly, 13*(1), 63–86.

Vormedal, I., & Ruud, A. (2009). Sustainability reporting in Norway – an assessment of performance in the context of legal demands and socio-political drivers. *Business Strategy and the Environment, 18*, 207–222.

Waldman, D., de Luque, S., Washburn, N., & House, R. (2006). Cultural and leadership predictors of corporate social responsibility values of top management: A GLOBE study of 15 countries. *Journal of International Business Studies, 37*, 823–837.

Wei, J. T. & Wang, I. M. (2016). Environmental disclosure, investors' investment decisions and their perceptions of the credibility of management. *Global Journal of Business Research, 10*(4), 17–25.

Williams, G., & Zinkin, J. (2008). The Effect of Culture on Consumers' Willingness to Punish Irresponsible Corporate Behaviour: Applying Hofstede's Typology to the Punishment Aspect of Corporate Social Responsibility. *Business Ethics: A European Review, 17*(2), 210–226.

Williamson, O. E. (2000). The new institutional economics: Taking stock, looking ahead. *Journal of Economic Literature, 38*, 595–613.

Wu, W., Liu, Y., Chin, T., & Zhu, W. (2018). Will green CSR enhance innovation? A perspective of public visibility and firm transparency. *International Journal of Environmental Research and Public Health, 15*, 268–282.

Young, S., & Marais, S. (2012). A Multi-level Perspective of CSR Reporting: The Implications of National Institutions and Industry Risk Characteristics. *Corporate Governance: An International Review, 20*(5), 432–450.

Table 1
Number of observations by country

Country	Observations	Percentage	Cum.
Australia	817	6.40%	6.40%
Austria	41	0.32%	6.72%
Belgium	97	0.76%	7.48%
Brazil	257	2.01%	9.50%
Canada	1,155	9.05%	18.55%
Chile	110	0.86%	19.41%
China	342	2.68%	22.09%
Denmark	115	0.90%	23.00%
Finland	142	1.11%	24.11%
France	578	4.53%	28.64%
Germany	407	3.19%	31.83%
Greece	10	0.08%	31.91%
Hong Kong	128	1.00%	32.91%
India	171	1.34%	34.25%
Ireland	175	1.37%	35.62%
Italy	133	1.04%	36.66%
Japan	1,789	14.02%	50.69%
Mexico	124	0.97%	51.66%
Netherlands	220	1.72%	53.38%
New Zealand	53	0.42%	53.80%
Norway	70	0.55%	54.35%
Portugal	29	0.23%	54.57%
Spain	211	1.65%	56.23%
Sweden	261	2.05%	58.27%
Switzerland	393	3.08%	61.35%
Thailand	97	0.76%	62.11%
United Kingdom	1,209	9.48%	71.59%
United States	3,625	28.41%	100%
Total	**12,759**	**100%**	

Table 2
Number of firms and observations by activity sector

TRBC economic sector name	Number of firms	Number of observations	Percentage of observations	Cum. of observations
Basic Materials	203	1,753	13.74%	13.74%
Consumer Cyclicals	283	2,454	19.23%	32.97%
Consumer Non-cyclicals	157	1,279	10.02%	43.00%
Energy	148	1,193	9.35%	52.35%
Healthcare	124	1,012	7.93%	60.28%
Industrials	324	2,795	21.91%	82.19%
Technology	130	1,017	7.97%	90.16%
Telecommunications services	55	460	3.61%	93.76%
Utilities	82	796	6.24%	100%
Total	**1,506**	**12,759**	**100%**	

Table 3
Environmental disclosure items

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

Land environmental impact reduction	
	Agrochemical 5% revenue
	Animal testing in the last 12fy
	Animal testing cosmetics
	Animal testing reduction
	Renewable clean energy products
	Water technologies
	Sustainable building products

Table 4
High- and low-impact industries

Economic sector	Young and Marais (2012) model	FTSE4Good Indexes (2015) model	Semenova and Hassel (2016) model	Jaggi, Allini, Macchioni, and Zagaria (2018) model
Financials	Low	Low	Low	Low
Industrials	High	High	High	High
Utilities	High	High	High	High
Cyclical consumer goods and services	Low	Low	Low	Low
Healthcare	Low	Low	Low	Low
Non-cyclical consumer goods and services	High	High	High	High
Technology	Low	Low	Low	Low
Basic materials	High	High	High	High
Energy	High	High	High	High
Telecommunication services	Low	Low	Low	Low

Table 5
Variables description

Variables	Description
ENVIR_DISCL	The ratio between the aggregation of 53 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
POW_DIST	Power distance is one of the six culture dimensions addressed by Hofstede (2010) and ranges from 0 to 100
INDIV	Individualism is one of the six culture dimensions addressed by Hofstede (2010) and ranges from 0 to 100
MASCUL	Masculinity is one of the six culture dimensions addressed by Hofstede (2010) and ranges from 0 to 100
UNC_AVOID	Uncertainty avoidance is one of the six culture dimensions addressed by Hofstede (2010) and ranges from 0 to 100
LONG_ORIENTATION	Long-term orientation is one of the six culture dimensions addressed by Hofstede (2010) and ranges from 0 to 100
INDULG	Indulgence is one of the six culture dimensions addressed by Hofstede (2010) and ranges from 0 to 100
CIVIL_LAW	Dummy variable that takes the value 1 if the company operates in a country with civil law, and 0 otherwise
EFFICIEN_JUDIC_SYST	This variable measures the efficiency of the judicial system of a country and ranges from 0 to 10
HIGH_IMPACT_INDUS	Dummy variable that takes the value 1 if the company operates in an industry with strong and direct environmental impact, and 0 otherwise
SIZE	The log of total assets
ROA	Operating income before interests and taxes over total assets
LEVERAGE	Debt over total assets
B_SIZE	Number of directors on board
B_INDEP	Proportion of independent directors on boards = Total number of independent directors on boards / Total number of directors on boards
CSR_COMMITTEE	Dummy variable that takes the value 1 if the company has a CSR committee, and 0 otherwise
ASIA	Dummy variable: 1 = If the country is in Asia; 0 = Otherwise
EUROPE	Dummy variable: 1 = If the country is in Europe; 0 = Otherwise
LATINAMERICA	Dummy variable: 1 = If the country is in Latin America; 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
DEVELOPED	Dummy variable: 1 = If the country is developed; 0 = If the country is developing

Table 6
Descriptive analysis

Variable	Obs.	Mean	Standard Deviation	Shapiro–Francia W test
ENVIR_DISCL	12,759	0.24	0.17	0.94
POW_DIST	12,759	45.17	13.32	0.82
INDIV	12,759	72.36	21.29	0.86
MASCUL	12,759	61.46	19.24	0.87
UNC_AVOID	12,759	56.63	20.58	0.84
LONG_ORIENTATION	12,759	48.11	24.07	0.84
INDULG	12,759	59.55	14.80	0.82
CIVIL_LAW	12,759	42.18	49.38	0.62
EFFICIEN_JUDIC_SYST	12,759	9.37	1.24	0.63

HIGH_IMPACT_INDUS	12,759	61.25	48.72	0.64
SIZE	12,759	9.64	1.48	0.50
ROA	12,759	6.38	8.45	0.72
LEVERAGE	12,759	13.11	22.06	0.00
B_SIZE	12,759	10.89	3.58	0.89
B_INDEP	12,759	50.79	34.84	0.88
CSR_COMMITTEE	12,759	59.08	49.17	0.65
ASIA	12,759	19.80	39.86	0.46
EUROPE	12,759	32.06	46.67	0.58
LATINAMERICA	12,759	2.88	16.71	0.11
NORTHAMERICA	12,759	38.44	48.65	0.62
OCEANIA	12,759	6.82	25.21	0.23
DEVELOPED	12,759	91.37	28.08	0.34

Mean, standard deviation and the Shapiro–Francia W test for normality. ENVIR_DISCL is the ratio between the aggregation of 53 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; POW_DIST represents the power distance, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; INDIV represents individualism, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; MASCUL represents masculinity, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; UNC_AVOID represents uncertainty avoidance, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; LONG_ORIENTATION represents long-term orientation, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; INDULG represents indulgence, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; CIVIL_LAW is a dummy variable that takes the value 1 if the company operates in a country with civil law, and 0 otherwise; EFFICIEN_JUDIC_SYST measures the efficiency of the judicial system of a country and ranges from 0 to 10; HIGH_IMPACT_INDUS is a dummy variable that takes the value 1 if the company operates in an industry with strong and direct environmental impact, and 0 otherwise; SIZE is the log of total assets; ROA is the operating income before interests and taxes over total assets; LEVERAGE is the debt over total assets; B_SIZE is the number of directors on a board; B_INDEP is the proportion of independent directors on boards = Total number of independent directors on boards/ 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; ASIA is a dummy variable that takes the value 1 if the country is in Asia, and 0 otherwise; EUROPE is a dummy variable that takes the value 1 if the country is in Europe, and 0 otherwise; LATINAMERICA is a dummy variable that takes the value 1 if the country is in Latin America, and 0 otherwise; NORTHAMERICA is a dummy variable that takes the value 1 if the country is in North America, and 0 otherwise; OCEANIA is a dummy variable that takes the value 1 if the country is in Oceania, and 0 otherwise; DEVELOPED is a dummy variable that takes the value 1 if the country is a developed country, and 0 if the country is a developing country.

Table 7
Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	**(16)**	**(17)**	**(18)**	**(19)**	**(20)**	**(21)**
ENVIR_DISCL (1)	1.00																				
POW_DIST (2)	0.06***	1.00																			
INDIV (3)	–0.15***	–0.35***	1.00																		
MASCUL (4)	0.09***	0.06***	–0.18***	1.00																	
UNC_AVOID (5)	0.15***	0.39***	–0.51***	0.14***	1.00																
LONG_ORIENTATION (6)	0.23***	0.24***	–0.74***	0.40***	043***	1.00															
INDULG (7)	–0.02***	–0.62***	0.57***	–0.35***	–0.46***	–0.59***	1.00														
EFFICIEN_JUDIC_SYST (8)	0.01	–0.36***	0.49***	0.33***	–0.21***	–0.15***	0.32***	1.00													
CIVIL_LAW (9)	0.22***	0.31***	–0.78***	0.16***	0.63***	0.74***	–0.58***	–0.29***	1.00												
HIGH_IMPACT_INDUS (10)	0.08***	0.04***	–0.12***	–0.04***	0.05***	0.05***	–0.01	–0.13***	0.04***	1.000											
SIZE (11)	0.51***	0.22***	–0.06***	0.12***	0.07***	0.16***	–0.29***	–0.04***	–0.18***	0.10***	1.00										
ROA (12)	–0.13***	–0.10***	0.17***	–0.11***	–0.27***	–0.21***	0.15***	0.05***	–0.19***	–0.13***	–0.20***	1.000									
LEVERAGE (13)	0.14***	0.07***	–0.06***	0.02*	0.06***	0.08***	–0.08***	–0.08***	0.09***	0.16***	0.29***	–0.37***	1.00								
B_SIZE (14)	0.32***	0.24***	–0.11***	0.07***	0.06***	0.15***	–0.28***	–0.20***	0.13***	0.07***	0.51***	–0.09***	0.18***	1.00							
B_INDEP (15)	–0.08***	–0.23***	0.63***	–0.27***	–0.37***	–0.56***	0.39***	0.20***	–0.54***	–0.03***	–0.01	0.15***	–0.04***	–0.13***							
CSR_COMMITTEE (16)	0.62***	0.00	–0.07***	0.034***	0.07***	0.12***	–0.00	0.00	0.05***	0.11***	0.30***	–0.13***	0.10***	0.19***	–0.01	1.00					
ASIA (17)	0.10***	0.55***	–0.64***	0.51***	0.35***	0.63***	–0.64***	0.03***	0.42***	0.04***	0.11***	–0.17***	0.02**	0.10***	–0.47***	0.06***	1.00				
EUROPE (18)	0.20***	–0.45***	–0.18***	–0.08***	–0.08***	0.34***	0.05***	–0.16***	0.33***	–0.01***	0.05***	0.02***	0.07***	0.07***	–0.18***	0.08***	–0.34***	1.00			
LATINAMERICA (19)	0.02*	0.25***	–0.26***	–0.23***	0.17***	–0.01***	–0.09***	–0.33***	0.20***	0.09***	0.02*	0.002	0.05***	–0.06***	–0.15***	–0.00	–0.09***	–0.12***	1.00		
NORTHAMERICA (20)	–0.21***	–0.02*	0.71***	–0.18***	–0.32***	–0.62***	0.29***	0.15***	–0.63***	–0.05***	–0.02*	0.11***	–0.07***	–0.02***	0.58***	–0.09***	–0.39***	–0.54***	–0.14***	1.00	
OCEANIA (21)	–0.14***	–0.24***	0.16***	–0.17***	0.10***	–0.42***	0.41***	0.18***	–0.20***	0.00	–0.24***	0.01***	–0.05***	–0.28***	0.05***	–0.04***	–0.13***	–0.19***	–0.05***	–0.21***	1.00
DEVELOPED (22)	0.04***	–0.48***	0.46***	0.10***	0.05***	–0.05***	0.25***	0.57***	–0.21***	–0.10***	–0.05***	–0.09***	–0.02*	–0.07***	0.21***	0.04***	–0.27***	0.21***	–0.56***	0.17***	0.08***

ENVIR_DISCL is the ratio between the aggregation of 53 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; POW_DIST represents the power distance, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; INDIV represents individualism, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; MASCUL represents masculinity, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; UNC_AVOID represents uncertainty avoidance, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; LONG_ORIENTATION represents long-term orientation, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; INDULG represents indulgence, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; CIVIL_LAW is a dummy variable that takes the value 1 if the company operates in a country with civil law, and 0 otherwise; EFFICIEN_JUDIC_SYST measures the efficiency of the judicial system of a country and ranges from 0 to 10; HIGH_IMPACT_INDUS is a dummy variable that takes the value 1 if the company operates in an industry with a strong and direct environmental impact, and 0 otherwise; SIZE is the log of total assets; ROA is the operating income before interests and taxes over total assets; LEVERAGE is the debt over total assets; B_SIZE is the number of directors on a board; B_INDEP is the proportion of independent directors on boards = Total number of independent directors on boards / 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; ASIA is a dummy variable that takes the value 1 if the country is in Asia, and 0 otherwise; EUROPE is a dummy variable that takes the value 1 if the country is in Europe, and 0 otherwise; LATINAMERICA is a dummy variable that takes the value 1 if the country is in Latin America, and 0 otherwise; NORTHAMERICA is a dummy variable that takes the value 1 if the country is in North America, and 0 otherwise; OCEANIA is a dummy variable that takes the value 1 if the country is in Oceania, and 0 otherwise; DEVELOPED is a dummy variable that takes the value 1 if the country is a developed country and 0 if the country is a developing country. *p-value<0.1 **p-value<0.05 ***p-value<0.01.

Table 8
Multivariate analysis results of the Generalised Method of Moments

	MODEL 1 Coef. P>|t|	MODEL 2 Coef. P>|t|	MODEL 3 Coef. P>|t|	MODEL 4 Coef. P>|t|	MODEL 5 Coef. P>|t|	MODEL 6 Coef. P>|t|
ENVIR_DISCL(t−1)	1.493**	−0.041	−0.037	−0.014	−0.066	−0.000
	(0.024)	(0.387)	(0.368)	(0.763)	(0.182)	(0.999)
POW_DIST	−0.007					
	(0.951)					
INDIV		−0.094***				
		(0.003)				
MASCUL			−0.031***			
			(0.004)			
UNC_AVOID				0.033***		
				(0.001)		
LONG_ORIENTATION					−0.046***	
					(0.003)	
INDULG						−0.043**
						(0.034)
CIVIL_LAW	1.393	−1.217**	0.117	−0.887**	1.186**	0.092
	(0.208)	(0.027)	(0.637)	(0.024)	(0.011)	(0.712)
EFFICIEN_JUDIC_SYST	0.122	1.220***	0.766**	0.329*	0.433**	0.513**
	(0.761)	(0.003)	(0.012)	(0.079)	(0.040)	(0.041)
HIGH_IMPACT_INDUS	−0.159	0.054	0.023	0.127	0.086	0.102
	(0.802)	(0.843)	(0.931)	(0.504)	(0.668)	(0.651)
SIZE	−0.045	0.078	0.036	0.112*	0.045	0.051
	(0.658)	(0.292)	(0.541)	(0.081)	(0.297)	(0.351)
ROA	0.021	−0.002	0.001	0.007	0.001	−0.003
	(0.309)	(0.692)	(0.747)	(0.221)	(0.906)	(0.593)
LEVERAGE	0.000	0.000	0.000	0.000	−0.000	0.000
	(0.823)	(0.770)	(0.635)	(0.868)	(0.798)	(0.483)
B_SIZE	0.099	0.029*	0.034**	0.057***	0.067***	0.052***
	(0.116)	(0.078)	(0.039)	(0.006)	(0.004)*	(0.003)
B_INDEP	0.008	0.001	0.001*	0.002**	0.002	0.002
	(0.194)	(0.430)	(0.083)	(0.013)	(0.071)	(0.200)
CSR_COMMITTEE	0.044	0.143***	0.123***	0.123	0.090***	0.115***
	(0.648)	(0.003)	(0.002)	(0.978)	(0.009)	(0.006)

ASIA	−4.874	−3.966***	0.065	−0.685	1.262	−2.253**
	(0.223)	(0.002)	(0.896)	(0.147)	(0.109)	(0.016)
EUROPE	−4.115	1.122**	0.756**	0.654	1.029**	−0.323
	(0.161)	(0.024)	(0.045)	(0.176)	(0.034)	(0.505)
LATINAMERICA	−2.895	−2.649*	−0.655	−2.179**	0.183	−1.746*
	(0.390)	(0.059)	(0.612)	(0.015)	(0.863)	(0.062)
NORTHAMERICA	−3.383	−0.499	−0.295	−0.338	−0.166	−0.707**
	(0.309)	(0.191)	(0.396)	(0.187)	(0.573)	(0.032)
DEVELOPED	−0.645	−2.640**	−2.478**	−2.405***	−0.919	−2.088**
	(0.805)	(0.018)	(0.020)	(0.008)	(0.298)	(0.014)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Wald χ^2 test	306.52***	564.20***	925.30***	542.35***	440.61***	599.80***
Arellano−–Bond test AR(1) (z, p>|z|)	−1.40 (0.161)	−1.19 (0.234)	−1.08 (0.282)	−1.99 (0.046)	−1.55 (0.120)	5.47 (0.987)
Arellano−–Bond test AR(2) (z, p>|z|)	−0.20 (0.843)	−0.67 (0.505)	−0.07 (0.943)	0.32 (0.751)	−0.11 (0.916)	24.21 (0.007)
Hansen test (chi−square, p>|chi^2|)	2.01 (0.570)	16.24(0.908)	19.66 (0.765)	30.18 (0.218)	21.43(0.065)	25.37 (0.021)

ENVIR_DISCL is the ratio between the aggregation of 53 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; POW_DIST represents the power distance, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; INDIV represents individualism, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; MASCUL represents masculinity, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; UNC_AVOID represents uncertainty avoidance, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; LONG_ORIENTATION represents the long-term orientation, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; INDULG represents indulgence, one of the six culture dimensions addressed by Hofstede (2010), and ranges from 0 to 100; CIVIL_LAW is a dummy variable that takes the value 1 if the company operates in a country with civil law country, and 0 otherwise; EFFICIEN_JUDIC_SYST measures the efficiency of the judicial system of a country and ranges from 0 to 10; HIGH_IMPACT_INDUS is a dummy variable that takes the value 1 if the company operates in an industry with a strong and direct environmental impact, and 0 otherwise; SIZE is the log of total assets; ROA is the operating income before interests and taxes over total assets; LEVERAGE is the debt over total assets; B_SIZE is the number of directors on board; B_INDEP is the proportion of independent directors on boards = Total number of independent directors on boards / 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; ASIA is a dummy variable that takes the value 1 if the country is in Asia, and 0 otherwise; EUROPE is a dummy variable that takes the value 1 if the country is in Europe, and 0 otherwise; LATINAMERICA is a dummy variable that takes the value 1 if the country is in Latin America and 0, otherwise; NORTHAMERICA is a dummy variable that takes the value 1 if the country is in North America, and 0 otherwise; OCEANIA is a dummy variable that takes the value 1 if the country is in Oceania, and 0 otherwise; DEVELOPED is a dummy variable that takes the value 1 if the country is a developed country and 0 if the country is a developing country. *p-value<0.1 **p-value<0.05 ***p-value<0.01.

Table 9
Expected and obtained signs for each one of the hypotheses

Cultural variables	Hypotheses	Expected signs	Obtained signs
POW_DIST	H1	Negative	Not significant
INDIV	H2	Negative	Negative
MASCUL	H3	Negative	Negative
UNC_AVOID	H4	Negative	Positive
LONG_ORIENTATION	H5	Positive	Negative
INDULG	H6	Negative	Negative