## Online Information Review

Disclosure of corporate social responsibility information and explanatory factors
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Received 14 April 2015
Revised 31 July 2015
Accepted 5 November 2015

# Disclosure of corporate social responsibility information and explanatory factors

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## Abstract

**Purpose** – The purpose of this paper is to analyze the voluntary disclosure of corporate social responsibility (CSR) in companies of different countries.

**Design/methodology/approach** – Based on a sample of 110 companies for the year 2014, a total of 79 indicators were analyzed, nine of which correspond to economic aspects of the company, 30 to environmental aspects and 40 to social aspects, according to the Global Reporting Initiative (GRI G3.1). Moreover, a dependence model was set up to see which variables may affect the disclosure of economic, social and environmental information, both separately and as a whole.

**Findings** – The companies in the sample showed an average of six economic indicators, 20 environmental indicators and 27 social indicators. Regarding the explanatory variables tested, the results obtained showed that company SIZE, LEVERAGE, DJSI and CIVILLAW were the most significant variables, most affecting a company's decision to make voluntary disclosure in relation to CSR issues.

**Practical implications** – The disclosure of more information about economic, environmental and social aspects can be used by the firm as a mechanism to reduce social and governmental pressure. It is important to point out that the information provided by companies in their CSR reports is essential in corroborating the legitimacy of their activity.

**Social implications** – Improving a company's image in society is one of the reasons why firms disclose CSR information and Internet and online tools are appropriate means of dissemination in an age of increasing speed of knowledge.

**Originality/value** – Previous studies have provided scores to reflect whether or not companies disclosed CSR, whereas the present study goes deeper by making a detailed analysis of the type of economic, environmental and social information presented by companies analyzed.

**Keywords** Corporate social responsibility, Online information, Information disclosure, GRI G3.1, International companies, Website

**Paper type** Research paper

## 1. Introduction

Information disclosure by companies on the internet has increased over the last few years and is an increasingly popular topic for analysis among researchers, at the same time being of great interest to society at large. Whereas firms are obliged to disclose certain types of information in line with the legal stipulations of each country, there are also cases of voluntary disclosure, particularly in relation to economic, social and environmental aspects, also known as elements of corporate social responsibility (CSR). According to Cooper (2004) and Campbell (2007) CSR is a function of a company's behavior toward its different stakeholders, such as customers, suppliers, regulators, employees, investors and communities.

The spread of interest in CSR has led to the positing of a theoretical framework that has grown around its definitions and focusses on which of the existing theories can be applied to this topic, which is unquestionably becoming increasingly more important.



Online Information Review
Vol. 40 No. 2, 2016
pp. 218-238

1468-4527
DOI 10.1108/OIR-04-2015-0116

Our analysis will thus range from classical theories to socio-political theories in an attempt to determine the one most suitable for our research.

Likewise, although the findings of previous studies show that more and more research is being devoted to analyzing the voluntary disclosure of CSR information, there is still no general agreement as to the indicators used or the determination of the variables that affect such disclosure.

The aim of this study is to analyze through the internet which indicators are used by companies from different countries for CSR disclosure, as well as the explanatory factors behind this voluntary disclosure. To do so, the indicators devised by the GRI, better known as the Global Reporting Initiative G3.1 (GRI G3.1, 2011), were taken as a point of reference, first because they are the ones most widely accepted internationally (Skouloudis *et al.*, 2009; Prado-Lorenzo *et al.*, 2009; Brown *et al.*, 2009; Rasche, 2009; Levy *et al.*, 2010; Roca and Searcy, 2012; Christofi *et al.*, 2012), and second because they are highly suited for our purposes since they consider the economic, environmental and social aspects of a firm (Gamerschlag *et al.*, 2011).

Our findings show that size is the most influential variable in the disclosure of CSR information in all the models; leverage only affects the disclosure of economic information, profitability does not have an impact on the firms analyzed in regard to CSR disclosure and DJSI and civil law influence the disclosure of environmental information. It is also important to highlight that one of the objectives that firms pursue with CSR information disclosure is improvement of their image in society and the internet and online tools are appropriate means of diffusion in an age of increasing speed of knowledge.

This research contributes to the existing literature in several ways: first, it uses a set of CSR indicators accepted internationally, i.e. those used in the G3.1 issued by the GRI; second, it analyses the situation of firms in two different legal contexts, civil law countries and common law countries, and it also incorporates, in addition to firm characteristics, other variables that have been less tested in previous research, such as innovation, DJSI and legal system; third, it makes a thorough and individualized analysis of the economic, social and environmental indicators used by the firms in the sample, compared to other research studies that do not present each of the indicators in such a detailed and comprehensive way (e.g. Gamerschlag *et al.* (2011) build their index with eight environmental indicators and 24 social indicators); and fourth, it considers firms from different countries as compared to other studies on CSR disclosure which only refer to specific countries, such as Tagesson *et al.* (2009) or Gamerschlag *et al.* (2011) for Swedish and Germany companies, respectively.

The paper is divided into the following sections: after this introduction, section two reviews the relevant theory and derives the hypotheses to be tested; in Section 3, the research methodology is proposed and the sample is described, specifying how the CSR disclosure index was determined, and describing the variables and the model proposed; results are analyzed in Section 4 and discussed in that section; and in Section 5 the conclusions are presented.

## 2. Theoretical framework and hypotheses

Global interest in voluntary corporate disclosure has grown immensely over the last few years, including CSR in its economic, environmental and social facets. Mark-Herbert and Von Schantz (2007) consider that companies are becoming increasingly aware of their responsibilities in this regard, and more motivated to integrate these aspects into the business as a whole. Furthermore, different research studies have attempted to

reflect how firms communicate this type of voluntary information to their stakeholders. Ho and Taylor (2007) researched what they called the triple bottom-line of 50 companies, in the USA and Japan; continuing in the US context, Holder-Webb *et al.* (2009) studied 50 American listed companies, using a content analysis technique; Reverte (2009) studied Spanish firms, with a focus on analyzing whether certain business characteristics, as well as media exposure, can be determinants of CSR disclosure practices by Spanish listed companies; Tamoi *et al.* (2007) attempted to find the level and trend of the CSR reporting pattern in industrial firms in Malaysia, and their relation to firm characteristics; Tagesson *et al.* (2009) explained the extent and content of social and environmental disclosure on corporate websites in Swedish listed corporations and Gamerschlag *et al.* (2011) have analyzed determinants of voluntary CSR disclosure in German companies.

In short, it may be said that disclosure of CSR information has increased considerably in recent years on a global scale, as a consequence of the greater interest stakeholders have in receiving voluntarily disclosed information that complements the disclosure of compulsory economic-financial information (El Ghoul *et al.*, 2011). This increase is expected to intensify in the coming years, because the European Union considers CSR a strategy for 2020, given that the set of values it entails is expected to help build a more cohesive society and lead to a more sustainable economy (European Commission, 2011).

Regarding the theories for explaining CSR disclosure, many different theoretical attempts have been made to explain why companies voluntary disclose CSR information; in this sense the main promoters of CSR information disclosure have found support in different theories that attempt to explain why firms are motivated or should be motivated to disclose this type of information.

Agency theory suggests that different corporate characteristics such as firm size, in terms of assets with respect to total investment and debt level, correlate positively with a high level of voluntary disclosure. It is a theory that can explain why we use these variables to explain CSR information disclosure, suggesting that a firm will only disclose this type of information when it appears that the benefits of disclosure outweigh its costs.

In addition to agency theory, socio-political theories have also been considered in relation to CSR disclosure. Of the socio-political theories, institutional theory (Aerts *et al.*, 2006) and stakeholder theory (Van der Laan Smith *et al.*, 2005), together with legitimacy theory, are the ones most discussed in the context of sustainability literature to explain why firms disclose CSR information.

Stakeholder theory includes moral and even philosophical values among its guidelines for management, which would lead firms to seek a certain social legitimation of their activity. This theory broadens the concept of groups having an interest in what a firm does, to include public administrations, political parties, trade unions, NGOs, employees, customers, suppliers, investors and professional associations (Malik, 2015): in short, society as a whole. Smith *et al.* (2005) provide evidence that firms from countries with a stakeholder orientation have issued a larger amount of higher-quality corporate environmental and social reports than firms from countries with a weaker emphasis on social issues and a greater orientation toward shareholders.

In regard to legitimacy theory, many researchers argue that it can explain corporate disclosure of social and environmental information (Deegan, 2002). A firm can use the revelation of more information on its environmental and social aspects as a mechanism or weapon to reduce social and governmental pressures. Its aim is to improve the firm's image and how it is perceived.

The basic difference between the two socio-political theories resides in the breadth of the plural concept of stakeholders. Whereas legitimacy theory assumes that the

information must be addressed to society at large, stakeholder theory accepts the existence of different interest groups with different ideas as to how the firm can best act, and with different capabilities for influencing organizational activity (Deegan, 2002, p. 294).

Another theory pertaining to socio-political theories is institutional theory, which considers that firms are economic units that operate within contexts formed by institutions that affect their behavior and impose certain expectations on them (Campbell, 2007); this relation makes it possible to accept that companies operating in countries with institutional similarities adopt homogeneous behaviors. This process is called isomorphism by Dimaggio and Powell (1983). Of the three existing types, coercive and normative isomorphism are the ones that most fit the present study since as Campbell (2007) points out, the firms most likely to act responsibly and disclose their behavior are those operating in institutional contexts with strong coercive and normative pressure, that is, with an important and well-developed legal system oriented to stakeholder protection (García-Sánchez *et al.*, 2013).

Following the legal system classification made by La Porta *et al.* (1998), different researchers (such as Kolk and Perego, 2008; Gainet, 2010; Wilson *et al.*, 2012; García-Sánchez *et al.*, 2013) have analyzed legal systems, comparing the common law and civil law systems applied in different countries. Kolk and Perego (2008) observe that firms domiciled in civil-law countries are more likely to publish CSR or sustainability reports.

In this research we employ a broader range, the multi-theoretical framework (Cormier *et al.*, 2005), in order to explain the voluntary disclosure of CSR and different factors which, in previous literature, have been identified as potential determinants of voluntary disclosure of CSR: firm size, profitability, leverage, and certain less addressed factors, such as innovation, DJSI and civil-common law. In addition, a control variable is used to measure the effects of industry membership.

*Firm size*

The existing literature on information disclosure usually suggests that firm size is an important factor in explaining the variability and the extent to which information is disclosed voluntarily. The greater financing needs of large firms entail a greater demand for information from investors and lenders, in order to gain a better knowledge of all aspects of the business, and voluntarily disclosing information is of great value to them. Indeed, large firms also face fewer costs associated with the generation of information or the existence of competitive disadvantages linked to disclosure.

Another possible justification of this behavior has to do with the complexity typical of large firms and the additional need to offer complementary information to agents interested in the evolution of the business. This complexity in large firms requires an efficient information system for internal management, and only larger companies have management systems sophisticated enough to facilitate information disclosure on a large scale.

From an empirical point of view, many studies have found a positive relation between firm size and voluntary disclosure. Barako *et al.* (2006) and Niehm *et al.* (2008), found that the larger the firm, the more voluntary information it disclosed regarding environmental aspects. In contrast, Hossain and Reaz (2007) found that firm size did not affect the level of social and environmental aspects that firms disclosed.

Studies taking into account different countries, such as Watson *et al.* (2002), have put forth reasons why large firms publish more information. They suggest that managers of the largest firms are more likely to realize the possible benefits of better disclosure practices, and smaller firms are more likely to feel that a complete disclosure of information

could endanger their competitive position. Knox *et al.* (2006) consider that large corporations have a more pronounced effect on society, and therefore generally have a greater number of stakeholders influencing them.

Fassin (2008) surmises that greater firm size entails a greater predisposition to adopt CSR practices, because larger organizations are more closely watched and subjected to more public scrutiny and stronger social pressure.

Likewise, Spence (2007), Niehm *et al.* (2008) and Reverte (2009) suggest that firm size will be positively related to the degree of CSR disclosure and sustainable development.

As most of the research studies on this topic consider that there is a positive relation between firm size and CSR disclosure, the following working hypothesis is posited:

*H1.* There is a positive relation between firm size and CSR disclosure.

*Leverage*

According to agency theory, the agency costs associated with the conflict of interest between creditors and shareholders increases with the level of debt (Jensen and Meckling, 1976). Thus, managers are encouraged to transfer wealth in detriment to creditors, the stimulus being greater the larger the debt. To prevent this, creditors demand more information in an attempt to reduce information asymmetry in regard to the company's situation, and to help predict its future cash flows and ability to pay off debt.

At the same time, when a firm increases its debt level in relation to its own resources, it should likewise increase its level of disclosure to assure creditors that it will be able to repay its debts.

Many of the studies carried out on voluntary disclosure have found a positive relation between debt and information voluntarily disclosed by businesses (Xiao *et al.*, 2004); other studies, however, have not found a statistically significant relation between them (Gul and Leung, 2004). In regard to environmental disclosure, Clarkson *et al.* (2008) found a positive relation, and in the case of economic, social and environmental information, Ho and Taylor (2007) consider that firms with more leverage will tend to increase the amount of CSR information published. Nonetheless, in their study they only found a statistically significant negative relation in one of their models of CSR disclosure, specifically the one related to economic information disclosure.

In line with the previous arguments, the following working hypothesis is posited:

*H2.* There is a positive relation between a firm's leverage and CSR disclosure.

*Profitability*

From the agency theory perspective, when firm profitability is high, managers wish to transmit the news in detail to the firm's shareholders in order to acquire or maintain a good image, ensure their stability and position in the job including their salary level, and exert pressure to make improvements. However, when profitability is low, they will prefer to hide the information and disclose less, in order to cover up losses or decreases in profit.

Previous research studies have not reached a consensus as to the relation between CSR disclosure and profitability. Specifically, Reverte (2009) and Clarkson *et al.* (2008) found that firm profitability was unrelated to the level of environmental disclosure in Spanish and US firms respectively. In contrast, Liu and Anbumozhi (2009) concluded that there is a relation and that furthermore it is a positive one. Belkaoui and Karpik (1989) also found this positive relation, arguing that it is caused by the fact that if managers know how to make a company profitable, they must also have good knowledge and understanding of CSR, leading to new social and environmental relations. However, other

researchers such as McWilliams and Siegel (2000) found a negative association or no clear association at all between these two variables.

Taking into consideration the theoretical arguments above, the following working hypothesis is proposed:

*H3.* There is a positive relation between firm profitability and levels of CSR disclosure.

*Innovation*

Some authors have tried to evaluate the impact of a firm's innovation strategies on the length of its CSR report (Bansal, 2005). They point out that companies must apply CSR principles to their products, processes and practices that require changes in the technology used, which means that firms incur research and development (R&D) costs.

Barbieri *et al.* (2010) show that CSR can provide opportunities for innovation through the use of social, environmental and sustainability reports, which can create new ways of working, as well as new products, services and processes. López-Pérez *et al.* (2007) and Gallego-Álvarez *et al.* (2011) point out that sustainable practices can lead to innovation, because the interest in social and environmental issues will create a favorable atmosphere for firms to seek new ways of working, new products and processes, and even new markets.

Trebucq and Evraert (2008) found that adopting the GRI is associated with R&D costs in European firms. Brammer and Millington (2008) analyzed the relation between R&D intensity and certain CSR activities, finding a positive relation.

Hasseldine *et al.* (2005) consider that R&D investments provide an opportunity to invest in modern environmental technology, and similarly, Moneva and Cuellar (2009, p. 445) propose that: "the allocation of resources to R&D activities means that companies are trying to find more innovative products or processes with lower ecological impact for reduction of pollution." Theyel (2000) studied firms in the chemical sector in the USA, and the results showed that approximately one-third of the plants considered R&D as the most important source of new ideas and technology for preventing pollution. Since the new processes will benefit all stakeholders, firms will have more incentive to disclose information about economic, social and environmental aspects.

In this study innovation is measured by R&D intensity, represented by the quotient of R&D costs divided by sales (Brammer and Millington, 2008). In light of the previous considerations, the following working hypothesis is posited:

*H4.* There is a positive relation between a firm's level of innovation and CSR disclosure.

*Dow Jones Sustainability Index*

This index assesses the environmental, financial and social behavior of the principle companies around the world that are committed to sustainability. In each yearly review the DJSI makes an exhaustive analysis of the economic, environmental and social behavior of firms, including aspects such as corporate governance, risk management, branding, climate change mitigation, supply chain, and labor practices. The assessment system used is based on the responses provided by firms in the Annual Corporate Sustainability Assessment, as well as other public information that companies make available.

The DJSI has been developed by organizations of recognized prestige and has lent credibility to the notion of investments in firms that employ CSR criteria. The benefit of belonging to this index is that sustainability practices are a potential element for wealth creation in the long run, which shareholders will benefit from, and these practices help to develop opportunities and manage economic, social and environmental risk; thus, many investors consider it a crucial value for success (Cheney, 2004; Hart and Milstein, 2003).

According to the previous literature, firms belonging to the DJSI may gain prestige, creating value in the long term. Firms will want to participate in this index and thus they will be willing to collect and disclose information about economic, social and environmental topics in order to do so. Therefore the following working hypothesis is posited:

*H5.* There is a positive relation between a firm's belonging to the DJSI and its levels of CSR disclosure.

*Civil law vs common law*

As pointed out by García-Sánchez *et al.* (2013), when working with a sample of firms from different countries it is important to take into account the legal system involved since as Campbell (2007) adduces, the companies most inclined to act responsibly and provide information about their behavior are the ones operating in institutional contexts with an important and well-developed legal system oriented to stakeholder protection.

Following the legal system classification made by La Porta *et al.* (1998), different researchers (such as Kolk and Perego, 2008; Gainet, 2010; Wilson *et al.*, 2012; García-Sánchez *et al.*, 2013) have analyzed legal systems which compare the common law and civil law systems applied in different countries.

According to La Porta *et al.* (1998) the civil legal tradition is the oldest, the most influential and the most widely distributed tradition around the world. It originated in Roman law, uses statutes and comprehensive codes as a primary means of ordering legal material, and relies heavily on legal scholars to ascertain and formulate its rules. Legal scholars typically identify three currently common families of laws within the civil law tradition: French, Germanic and Scandinavian.

Common law tradition, in contrast, includes the law of England and those laws modeled on English law. Common law is formed by judges who have to resolve specific disputes. Common law spread to British colonies, including the USA, Canada, Australia, India and many other countries. The study made by La Porta *et al.* (1998) shows that laws can differ quite a lot among countries; thus, an investor in France has different legal rights from an investor in the UK. This can be explained by the differences in their legal systems. Civil law gives investors weaker legal rights than common law, and common law countries give both shareholders and creditors stronger protection than civil law countries, which protect investors the least.

In common law countries, the protection of shareholder and creditor rights takes precedence and the role of other stakeholder groups is less emphasized; in civil law countries a corporation is considered an organization that has social responsibilities that go beyond achieving economic efficiency (Kolk and Perego, 2008) and companies have social responsibilities not only toward their shareholders but toward all their stakeholders.

Different research studies have identified significant variations in corporate environmental disclosure among companies from different countries. In this sense, Smith *et al.* (2005) provide evidence that firms from countries with a stakeholder orientation (civil law countries as Norway and Denmark) have issued a larger amount of higher-quality corporate environmental and social reports than firms from countries with a weaker emphasis on social issues (common law countries such as the USA) and a greater orientation toward shareholders. Kolk and Perego (2008), with a sample of companies belonging to the Fortune Global 250 listed firms, observe that firms domiciled in civil law countries are more likely to publish sustainability reports.

With these arguments in mind we posit the following working hypothesis:

*H6.* There is a positive relation between a civil law system and its levels of CSR disclosure.

## 3. Research methodology

Now that the working hypotheses have been presented, this section analyses the sample and methodology used to test them.

### *Sample description*

In order to test these hypotheses, we used a sample of companies that reported CSR information in the Global Reporting Initiative (GRI), corresponding to 2014, the latest year available. This information was obtained from the GRI website. The GRI is considered the most important organization of its kind at an international level, both by companies and by different stakeholders. In the words of Slater and Zwat (2015, p. 5), "GRI wishes to take advantage of technology to create a platform that contributes to effective sustainability communications well beyond reports."

In addition, firms were selected from different countries, corresponding to different legal contexts, to see whether or not there were any differences to be found with regards to CSR disclosure on the part of the companies based in them; on the one hand, France, Portugal and Spain are countries with legal systems based on civil law, and on the other, the UK and the USA have a common law system. To select the firms for our sample we considered two databases: companies included in the website of the GRI G3.1 (www.globalreporting.org); and the Datastream database, from which we obtained the economic-financial data needed for the study. The final sample thus consisted of 110 firms pertaining to different sectors of activity and countries, as shown in Table I. The sample was selected considering the availability of data in 2014 for the same companies in the two databases (website for CSR indicators and Datastream for economic-financial data).

### *CSR disclosure index*

A disclosure index was created to carry out the analysis. The drawing up of indices is a branch of content analysis and is one of the basic techniques for studying the information reported by companies. Thus, disclosure indices are configured as one of the main ways to evaluate firms' information transparency in a specific sector or country (Bonsón and Escobar, 2006).

| Sector | Number of companies | Percentage |
|---|---|---|
| Sindustrial | 21 | 19.09 |
| Sutilities | 10 | 9.09 |
| Sconsumer | 19 | 17.27 |
| Shealtcare | 8 | 7.27 |
| Sservices | 8 | 7.27 |
| Stechnology | 12 | 10.90 |
| Sbasicmaterials | 15 | 13.63 |
| Senergy | 11 | 10.00 |
| Stelecomunication | 6 | 5.45 |

**Table I.** Number of companies by activity sector

In order to devise an index for this study, different studies regarding economic, environmental and social information disclosure were taken as a reference, among others those made for listed firms in Sweden (Tagesson *et al.*, 2009) and in the USA and Japan (Ho and Taylor, 2007).

These studies are based on verifying a series of sections in the disclosed CSR information, using dichotomous values (1: presence of information sought; 0: absence of information sought), and then aggregating and, if necessary, weighting the values.

The aim of the index is to highlight the most significant aspects disclosed by companies in relation to their CSR (Wu, 2006; Orlitzky *et al.*, 2003). In the empirical analysis four indices are considered: total information on CSR, economic information, environmental information and social information (see Tables II and III, showing the most representative descriptive statistics and the frequencies obtained).

After defining the items for the index, the next step is their quantification. In regard to the methodology used for establishing the levels of disclosed information for each item included in the index, one can choose a dichotomous variable, applying values 1 or 0, according to whether or not the information in question is reported (Cooke, 1989; De Andrés *et al.*, 2010). As a result, we finally decided on the aggregation of the scores obtained for each indicator, using no type of weighting (Gallego-Álvarez *et al.*, 2008). In this study, the method most used with regard to online disclosure was considered when choosing dichotomous values for 79 indicators representing economic, environmental and social aspects of CSR. These indicators correspond to those established by the GRI G3.1 (2011), and they are the dependent variable.

*Dependent variables: CSR disclosure*

As dependent variables, we used the CSR disclosure of different firms according to GRI G3.1 (2011) standards; i.e. the information reported by firms according to the GRI (see Table III), where all the indicators used in the research are represented: economic, environmental and social indicators. It is important to highlight the use of G3.1 in this study since although some firms are now using the G4 Guidelines, there are currently not enough of them for analysis since only reports published after December 31, 2015 have to be prepared in accordance with the G4 Guidelines www.globalreporting.org/standards/g4/Transitioning_to_G4/Pages/

It is also important to mention the key contribution of the International Integrated Reporting Council and how this movement is having a strong impact on CSR frameworks. In this sense, authors such as Frías-Aceituno *et al.* (2013, p. 46) consider relevant "the publication of a single report combining global financial statements, social and governance reports and other key elements, in order to present a more holistic picture of the business." The International Integrated Reporting Framework (2014, p. 4) document states that "the primary purpose of an integrated report is to explain to providers of financial capital how an organization creates value over time.

| Index | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| CSRDISC | 10 | 79 | 54.42 | 19.87 |
| ECONDISC | 1 | 9 | 6.69 | 2.548 |
| ENVIRDISC | 3 | 30 | 20.49 | 7.51 |
| SOCIALDISC | 3 | 40 | 27.84 | 10.74 |

**Table II.**
CSR disclosure

| Economic indicators | | | Environmental indicators | | | Social indicators | | |
|---|---|---|---|---|---|---|---|---|
| Indicator | Frequency | Percentage | Indicator | Frequency | Percentage | Indicator | Frequency | Percentage |
| EC1 | 107 | 94 | EN1 | 84 | 75 | LA1 | 104 | 92 |
| EC2 | 95 | 84 | EN2 | 73 | 66 | LA2 | 92 | 80 |
| EC3 | 89 | 78 | EN3 | 107 | 95 | LA3 | 69 | 60 |
| EC4 | 76 | 65 | EN4 | 96 | 87 | LA4 | 88 | 77 |
| EC5 | 51 | 43 | EN5 | 86 | 75 | LA5 | 72 | 62 |
| EC6 | 82 | 71 | EN6 | 89 | 77 | LA6 | 60 | 50 |
| EC7 | 79 | 69 | EN7 | 76 | 66 | LA7 | 99 | 88 |
| EC8 | 85 | 75 | EN8 | 99 | 87 | LA8 | 86 | 74 |
| EC9 | 72 | 62 | EN9 | 59 | 48 | LA9 | 52 | 41 |
| | | | EN10 | 57 | 45 | LA10 | 89 | 78 |
| | | | EN11 | 62 | 54 | LA11 | 79 | 67 |
| | | | EN12 | 72 | 63 | LA12 | 84 | 72 |
| | | | EN13 | 59 | 50 | LA13 | 95 | 85 |
| | | | EN14 | 64 | 55 | LA14 | 60 | 52 |
| | | | EN15 | 51 | 38 | HR1 | 77 | 66 |
| | | | EN16 | 107 | 95 | HR2 | 85 | 75 |
| | | | EN17 | 89 | 77 | HR3 | 70 | 58 |
| | | | EN18 | 91 | 80 | HR4 | 72 | 62 |
| | | | EN19 | 62 | 52 | HR5 | 84 | 72 |
| | | | EN20 | 67 | 59 | HR6 | 87 | 75 |
| | | | EN21 | 72 | 62 | HR7 | 83 | 73 |
| | | | EN22 | 96 | 86 | HR8 | 46 | 40 |
| | | | EN23 | 81 | 68 | HR9 | 54 | 45 |
| | | | EN24 | 51 | 40 | SO1 | 88 | 77 |
| | | | EN25 | 40 | 32 | SO2 | 82 | 73 |
| | | | EN26 | 91 | 82 | SO3 | 90 | 78 |
| | | | EN27 | 58 | 51 | SO4 | 85 | 74 |
| | | | EN28 | 85 | 75 | SO5 | 92 | 80 |
| | | | EN29 | 72 | 59 | SO6 | 72 | 60 |
| | | | EN30 | 58 | 49 | SO7 | 61 | 52 |
| | | | | | | SO8 | 79 | 67 |
| | | | | | | PR1 | 85 | 76 |
| | | | | | | PR2 | 55 | 47 |
| | | | | | | PR3 | 72 | 61 |
| | | | | | | PR4 | 43 | 37 |
| | | | | | | PR5 | 75 | 66 |
| | | | | | | PR6 | 70 | 61 |
| | | | | | | PR7 | 41 | 36 |
| | | | | | | PR8 | 47 | 41 |
| | | | | | | PR9 | 72 | 62 |

**Source:** The author according to GRI indicator

**Table III.**
Frequency of CSR indicators

An integrated report benefits all stakeholders interested in an organization's ability to create value over time, including employees, customers, suppliers, business partners, local communities, legislators, regulators and policy-makers."

*Independent variables: determinants of CSR disclosure and control variable*

As independent variables we use: firm size, leverage, profitability, innovation, pertaining to the Dow Jones Sustainability Index and civil and common law, all analyzed in the development of the hypotheses section. Firm size is measured by the log of firm total

revenues; leverage is represented by the ratio between its total debt and stockholders' equity; profitability is the return on assets, measured as the ratio between operating income and total assets; innovation is the variable that represents the innovative capability of the firm, and is measured by R&D intensity, obtained from the R&D expenditure of firms divided by total sales; Dow Jones Sustainability Index is a dummy variable that takes the value 1 if the company belongs to the index, and 0 otherwise; and finally civil law system is a dummy variable, assigned a value of 1 if the company pertains to a country with a civil law system, and 0 otherwise.

In regard to control variables, activity sector has frequently been one of the variables most employed to explain the amount of CSR information disclosed by firms. The results obtained in the previous literature are far from providing a clear conclusion in this sense, unlike the case of firm size. There is thus no homogeneity, and in the majority of studies the results obtained depend on the firm's activity sector (Reverte, 2009).

In general, firms in the services and financial sectors publish very little information on social and environmental aspects, whereas firms in the mining, chemistry and energy sectors disclose a large amount of information on the social and environmental aspects of their activity (Chan and Welford, 2005). These same authors specify that the financial and services sectors pay more attention to social and philanthropic matters, whereas the mining, chemistry and energy sectors are more concerned with environmental, health, and job safety issues. Other researchers, such as Knox *et al.* (2006), found that companies in the telecommunications and extractive industries reported more about their CSR practices than firms in other industrial sectors.

To analyze the industry effect in our study, we follow the international sectoral classification and include nine dummy variables in the analysis representing the following activities: industrial, utilities, consumer goods, healthcare, services, technology, basic materials, energy and telecommunications.

*Analysis techniques*

Once the index on CSR information was drawn up, the following model was proposed in which the amount of CSR information disclosed by the companies in the different countries would be a function of firm size, leverage, performance, innovation, belonging to the DJSI, pertaining to a civil law or common law country, and activity sector:

$$\text{Corporate social responsibility disclosure} = f(\text{Size, Leverage, Performance, Innovation, DJSI, Civil Law, Activity sector}) \quad (1)$$

The model can be empirically estimated using the following equation:

$$\text{CSRDISC}_i = \beta_0 + \beta_1\text{SIZE}_i + \beta_2\text{LEVERAGE}_i + \beta_3\text{ROA}_i + \beta_4\text{INNOVA}_i + \beta_5\text{DJSI}_i + \beta_6\text{CIVILLAW}_i + \Sigma k\beta_7\text{SECTORkit} + \varepsilon \quad (2)$$

where $\text{CSRDIS}_i$ is the index obtained on CSR disclosure after analysis of the GRI website. In addition to this overall index, we obtained three individual indices, each representing the economic, environmental and social information, respectively, as shown in Table III; $\text{SIZE}_i$ is corporate size $i$ measured by the log of firm total revenues (annual sales turnover); $\text{LEVERAGE}_i$ is the leverage ratio of company i computed as the ratio between its total debt and stockholders' equity; $\text{ROA}_i$ is the return on assets, measured as the ratio between operating income and total assets; $\text{INNOVA}_i$ is the

variable that represents the innovative capability of the firm and is measured by R&D intensity, obtained from the R&D expenditure of firm i divided by total sales; $DJSI_i$ (Dow Jones Sustainability Index) is a dummy variable that takes the value 1 if the company belongs to the index, and 0 otherwise; $CIVILLAW_i$ is a variable that refers to the legal system of the country to which the company belongs, assigning the value 1 if the firm belongs to a civil law system and 0 if it belongs to a common law system. This classification was first made by La Porta *et al.* (1998), and in our study we use data from firms in France, Portugal and Spain (civil law countries) and in the UK and the USA (common law countries); and SECTORkit is a dummy variable that takes the value 1 if the company belongs to sector $k$, and 0 otherwise. Ten sectors ($k = 1, \ldots, 9$) are considered in this study: industrial, utilities, consumer goods, healthcare, services, technology, basic materials, energy and telecommunications.

Model 2 was tested empirically using a linear regression estimated by ordinary least squares. As explained above, the dependent variable was obtained from the GRI G3.1 and, if applicable, the sustainability reports presented by the firms on their websites. The independent and control variables were obtained from firms' economic-financial reports through the Datastream database.

In addition to empirically testing the variables that could affect the CSR information reported by companies, we also wished to learn the variables that affect economic, environmental and social information taken individually. Thus, four different models were estimated.

## 4. Results

*Descriptive analysis*

From the information shown in Table II we can observe that, of the 79 CSR indicators analyzed, the firms under study report an average of 54 indicators overall. They disclose an average of six economic indicators, 20 environmental indicators and 27 social indicators when these three categories are taken separately, the social indicators being the ones most reported.

Table III shows the frequencies and their corresponding percentage for each of the indicators analyzed.

Economic indicators EC1, EC2 and EC3 are the ones most reported on by the companies analyzed, and they correspond to: direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments; financial implications and other risks and opportunities for the organization's activities due to climate change and coverage of the organization's defined benefit plan obligations.

Conversely, the economic indicators least presented by firms relate to EC5, the range of ratios of standard entry level wage by gender, compared to local minimum wage at significant locations of operation.

With respect to environmental variables, the companies analyzed focus most on disclosing aspects related to energy consumption and greenhouse gas emissions (with 107 and 107 companies, respectively), and focus least on the protected status and biodiversity value of water bodies, with only 40 companies of the 110 analyzed reporting information on indicator EN25.

Another important aspect for companies with regard to CSR is the social information they report, which is divided into different blocks: employment, labor/management relations, occupational health and safety, training and education, human rights, society and product.

In regard to the first block, 104 of the 110 firms analyzed present total workforce by employment type, employment contract and region, broken down by gender, whereas only 52 companies report on indicator LA9, health and safety topics covered in formal agreements with trade unions.

In the area of human rights, 87 firms reflect the importance of measures taken to contribute to the effective abolition of child labor, but only 46 companies report on the percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.

Of the social performance indicators represented by SO, SO5, corresponding to public policy positions, and participation in public policy development and lobbying, is presented by most firms, with a total of 92, followed by indicators SO3, percentage of employees trained in the organization's anti-corruption policies and procedures, with 90 firms reporting.

Of the performance indicators for product responsibility (PR), the one corresponding to customer health and safety and in particular PR1 (life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures) is most reported by the firms analyzed. In short, the CSR indicators most presented by the firms analyzed are: EC1, EN3, EN16, LA1, HR6, SO5, and PR1.

The bivariate correlations among the variables are synthesized in Table IV. The variables SIZE, ROA and DJSI are those showing the highest correlations with the dependent variables CSRDISC, ECONDISC, ENVIRDISC and SOCIALDISC, whereas the variables representing INNOVA and ACTIVITY SECTOR have the lowest correlations, with the dependent variables representing the four models.

*Multivariate analysis*

The results obtained from estimation of the models proposed are shown in Table V. The overall significance of these models ($R^2$) oscillated between 24.19 and 35.64 percent for a confidence level of 95 and 99 percent ($p$-value $< 0.05$ and 0.01). Specifically, the model with the least predictive capacity is Model 4, which refers to the social information disclosed by the firms. This is followed by Model 1, which represents the overall CSR information disclosed, then by the model representing economic information, with an explanatory power of 32.69 percent. Model 3, representing environmental information, has an $R^2$ of 35.64 percent and is therefore the best model of those analyzed in the present research and the best explained by the independent and control variables.

Moving on to each of the variables, SIZE shows a positive and statistically significant effect in all the models, the $p$-value being $< 0.01$. This is important because the existing literature on information disclosure usually suggests that firm size is an important factor in explaining the variability and the extent to which information is disclosed voluntarily (Barako *et al.*, 2006; Niehm *et al.*, 2008).

The INNOVA variable is statistically significant for the models, but with a negative sign. This result is contrary to the hypothesis posited and the results obtained by other authors such as Barbieri *et al.* (2010) or Brammer and Millington (2008), que analyzed the relation between R&D intensity and certain CSR activities, finding a positive relation. Our result may derive from the fact that although CSR and innovation have an opportunity to co-evolve in companies with better connectivity and able to create greater value and sustainability in the long term, the innovation decision is made through a cost-benefit analysis in which the main obstacle is uncertainty (MacGregor and Fontrodona, 2008).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.CSRDISC | 1 | | | | | | | | | | | | | | | | | | |
| 2. ECONDISC | 0.9084 | 1 | | | | | | | | | | | | | | | | | |
| 3. ENVIRDISC | 0.9400 | 0.822 | 1 | | | | | | | | | | | | | | | | |
| 4. SOCIALDISC | 0.9763 | 0.8651 | 0.8518 | 1 | | | | | | | | | | | | | | | |
| 5. SIZE | 0.2859 | 0.2904 | 0.3358 | 0.2295 | 1 | | | | | | | | | | | | | | |
| 6. LEVERAGE | 0.1316 | 0.1396 | 0.1354 | 0.1164 | 0.0348 | 1 | | | | | | | | | | | | | |
| 7. ROA | −0.1596 | −0.0917 | −0.2135 | −0.1285 | −0.2593 | −0.3382 | 1 | | | | | | | | | | | | |
| 8. INNOVA | 0.0331 | 0.0299 | 0.0835 | −0.0007 | 0.509 | −0.1423 | 0.0219 | 1 | | | | | | | | | | | |
| 9. DJSI | 0.2277 | 0.199 | 0.2849 | 0.1794 | 0.1782 | 0.0918 | −0.0213 | 0.0915 | 1 | | | | | | | | | | |
| 10. CIVILLAW | 0.0794 | −0.0343 | 0.1463 | 0.0577 | 0.1697 | 0.0947 | −0.4114 | 0.1727 | −0.0075 | 1 | | | | | | | | | |
| 11. Sindustrial | −0.1806 | −0.1903 | −0.2164 | −0.1406 | −0.0317 | −0.0468 | −0.0048 | −0.0833 | −0.0075 | 0.0393 | 1 | | | | | | | | |
| 12. Sutilities | −0.1856 | −0.2112 | −0.1746 | −0.171 | 0.168 | 0.2563 | −0.1872 | −0.0312 | −0.206 | 0.0642 | −0.0934 | 1 | | | | | | | |
| 13. Sconsumer | −0.0452 | −0.0482 | 0.0081 | −0.0744 | 0.1392 | −0.0714 | −0.0798 | −0.0473 | 0.0943 | 0.3603 | −0.1682 | −0.0673 | 1 | | | | | | |
| 14. Shealtcare | −0.0255 | −0.0268 | 0.0431 | −0.0664 | −0.0007 | −0.0757 | 0.2003 | 0.3454 | 0.0304 | −0.1597 | −0.1835 | −0.0735 | −0.1323 | 1 | | | | | |
| 15. Sservices | 0.147 | 0.1627 | 0.1424 | 0.1339 | 0.0942 | 0.0132 | 0.0642 | −0.1174 | 0.0432 | 0.0382 | −0.152 | −0.0608 | −0.1095 | −0.1195 | 1 | | | | |
| 16. Stechnology | −0.0414 | 0.0196 | −0.0855 | −0.0247 | −0.2321 | −0.3018 | 0.1713 | 0.1801 | −0.1287 | −0.188 | −0.1982 | −0.0793 | −0.1429 | −0.1559 | −0.1291 | 1 | | | |
| 17. Sbasicmaterials | 0.0353 | 0.009 | −0.0064 | 0.065 | −0.2258 | 0.1754 | −0.0688 | −0.2783 | −0.0768 | −0.2144 | −0.2125 | −0.0851 | −0.1532 | −0.1671 | −0.1384 | −0.1805 | 1 | | |
| 18. Senergy | 0.1892 | 0.1965 | 0.2362 | 0.142 | 0.0544 | 0.0194 | −0.1121 | −0.1238 | 0.2954 | 0.1709 | −0.152 | −0.0608 | −0.1095 | −0.1195 | −0.099 | −0.1291 | −0.1384 | 1 | |
| 19. Stelecommunication | 0.1464 | 0.1094 | 0.1082 | 0.1672 | 0.2667 | 0.2207 | −0.1152 | 0.207 | −0.0949 | −0.0045 | −0.1155 | −0.0462 | −0.0832 | −0.0908 | −0.0752 | −0.0981 | −0.1052 | −0.0752 | 1 |

**Table IV.**
Pearson correlation

**Table V.**
Multivariate analysis results

| | CSRDISC | | | ECONDISSC | | | ENVIRDISC | | | SOCIALDISC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *β* | *t* | Sig. | *β* | *t* | Sig. | *β* | *t* | Sig. | *β* | *t* | Sig. |
| (Constant) | | −1.41 | 0.162 | | −2.02 | 0.046 | | −1.35 | 0.180 | | −1.18 | 0.241 |
| SIZE | *17.66* | *3.79* | *0.000* | *2.58* | *4.22* | *0.000* | *6.24* | *3.95* | *0.000* | *8.28* | *3.25* | *0.383* |
| LEVERAGE | 0.107 | 1.21 | 0.229 | *0.02* | *2.23* | *0.028* | 0.03 | 1.20 | 0.234 | 0.04 | 0.88 | 0.210 |
| ROA | −0.041 | −0.10 | 0.923 | 0.009 | 0.18 | 0.861 | −0.09 | −0.62 | 0.538 | 0.003 | 0.15 | 0.878 |
| INNOVA | *−7.583* | *−2.36* | *0.020* | *−0.88* | *−2.10* | *0.038* | *−2.40* | *−2.21* | *0.030* | *−4.29* | *−2.29* | *0.024* |
| DJSI | 5.641 | 1.35 | 0.179 | 0.22 | 0.42 | 0.679 | *2.45* | *1.74* | *0.085* | 2.29 | 1.22 | 0.226 |
| CIVILLAW | 8.313 | 1.56 | 0.122 | 0.12 | 0.18 | 0.858 | *3.27* | *1.81* | *0.073* | 4.91 | 1.59 | 0.116 |
| Sindustrial | −11.30 | −1.46 | 0.147 | *−2.08* | *−2.05* | *0.044* | *−5.27* | *−2.01* | *0.047* | −3.95 | −0.88 | 0.383 |
| Sutilities | *−35.23* | *−2.78* | *0.006* | *−6.21* | *−3.73* | *0.000* | *−12.8* | *−3.51* | *0.003* | *−16.14* | *−2.19* | *0.031* |
| Sconsumer | *−15.15* | *−1.84* | *0.069* | *−2.05* | *−1.9* | *0.006* | *−5.27* | *−1.89* | *0.062* | −7.81 | −1.63 | 0.107 |
| Shealtcare | 4.15 | 0.43 | 0.671 | −0.32 | −0.25 | 0.800 | 2.05 | 0.62 | 0.536 | 2.42 | 0.04 | 0.671 |
| Sservices | 0.111 | 0.01 | 0.99 | −0.37 | 0.33 | 0.742 | −0.70 | −0.24 | 0.810 | 1.19 | 0.24 | 0.841 |
| Stechnology | 8.672 | 0.89 | 0.374 | 0.87 | 0.69 | 0.494 | 1.67 | 0.51 | 0.612 | 6.11 | 1.08 | 0.282 |
| Sbasicmaterials | 0.972 | 0.11 | 0.909 | −0.87 | −0.78 | 0.435 | −0.87 | −0.31 | 0.760 | 2.72 | 0.55 | 0.282 |
| Stelecomunication | 2.92 | 0.26 | 0.797 | −1.23 | −0.83 | 0.411 | −1.18 | −0.31 | 0.760 | 5.34 | 0.81 | 0.422 |
| $R^2$ | | *0.3008* | | | *0.3269* | | | *0.3564* | | | *0.2419* | |
| *F* | | *2.95**** | | | *3.33**** | | | *3.8**** | | | *2.19*** | |

**Notes:** Significant variables in italic. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

The variable LEVERAGE has a statistically significant positive effect for a confidence level of 95 percent ($p$-value $< 0.05$) for the model in which the dependent variable is economic information; however, this variable is not statistically significant for the rest of the models. Thus, the agency theory would be partially fulfilled only when the dependent variable is economic information, since creditors will demand more information in an attempt to reduce information asymmetry in regard to the company's situation, and to help predict its future cash flows and ability to pay off debt.

The ROA variable shows no statistical significance in any of the models; these findings are in agreement with those obtained by Clarkson *et al.* (2008), who found that firm profitability is not related to the level of environmental disclosure, either in Spanish or US companies. They differ, however, from those obtained by Gamerschlag *et al.* (2011) for German firms, when they found that firm profitability is associated with higher environmental disclosures but not with social disclosures, arguing that this may be due to historical developments since companies in polluting industries have been confronted with powerful stakeholders for a long time, whereas consumer groups only seem to have been concerned with labor practices since the latter part of the 1990s (Islam and Deegan, 2010).

The DJSI variable has a positive coefficient, with a statistically significant effect ($p$-value $< 0.10$) when the dependent variable is the environmental information disclosed by the firms. In relation to the DJSI, as we argued when positing the hypotheses, the benefit of this index is that sustainability practices constitute a potential element for the creation of value for the firm in the long run that will benefit both shareholders and stakeholders. These practices help to develop opportunities and manage economic, social and environmental risks, and many investors consider this a crucial value for success (Cheney, 2004; Hart and Milstein, 2003).

The variable CIVILLAW has a statistically significant positive effect for a confidence level of 90 percent ($p$-value $< 0.10$) for the model in which the dependent variable is environmental information. It is thus confirmed that companies pertaining to countries in with a legal system oriented toward stakeholder protection have a higher interest in disclosing environmental information than those located in common law countries. This supports the view of Campbell (2007) that the companies most inclined to act responsibly and report on their behavior are the ones operating in institutional environments with an important and well-developed legal system oriented toward stakeholder protection.

In relation to the variables that represent activity sector, only the industrial, consumer, healthcare and utilities sectors turn out to be statistically significant, and not for all the models. Thus, the industrial sector is only statistically significant when the dependent variable refers to economic and environmental information, with a negative sign ($p$-value $< 0.05$). The utilities sector is also statistically significant in all the models but the significance is also negative ($p$-value $< 0.05$ and $p$-value $< 0.01$). In short, the results obtained concur with the previous literature in the sense that there is no homogeneity, and in the majority of studies the results obtained depend on the firm's sector of activity (Reverte, 2009).

With respect to the hypotheses posited, *H1* is accepted for the four models. This means that firm SIZE is relevant in the disclosure of CSR information, both overall and in its individual aspects. *H2* is accepted only when the information disclosed is economic and *H3* is not accepted, and therefore ROA does not influence a company's CSR information disclosure, and the hypotheses are rejected. *H4* is accepted in all models, but with a sign opposite to the one expected, as the relation is

negative. *H5* is accepted only when the disclosure of information is environmental and the relation is positive, which means that firms on the DJSI disclose more environmental information; finally, *H6* is only accepted when the information disclosed is environmental.

In regard to theories used, agency theory suggests that different corporate characteristics, such as firm size, correlate positively with a high level of voluntary disclosure. It is a theory that can explain why we use that variable to explain the disclosure of CSR information. According to this theory a firm will only disclose this type of information when it appears that the benefits of disclosure outweigh its costs.

In addition to agency theory, socio-political theories have also been considered in relation to CSR disclosure. Stakeholder theory and legitimacy theory are the ones most discussed in the context of sustainability literature to explain why firms disclose CSR information. Improving a company's image in society is one of the reasons why firms disclose CSR information and the internet and online tools are appropriate means of dissemination in an age of increasing speed of knowledge. Our findings also allow us to confirm the arguments of the institutional theory in the sense that companies operating in countries with similar institutions adopt homogeneous behaviors in line with strong coercive and normative pressures, that is, with a developed legal system oriented toward stakeholder protection.

## 5. Conclusions

In the present study we have used a broader range of theories than in previous studies in an attempt to determine the reasons why firms voluntarily disclose CSR information. Taking into these other theories unquestionably provides some explanations for this behavior (Cormier *et al.*, 2005).

A number of factors have also been identified which act as proxies of the theories used and have been recognized as potential determinants of voluntary disclosure of CSR: firm size, profitability, leverage, and other factors less considered in previous research, such as: innovation, DJSI and civil-common law. In addition, a control variable is used to measure the effects of industry membership.

Our findings show that profitability does not affect firms' CSR information disclosure; in contrast, size is the variable that most influences CSR disclosure in all the models. Leverage only affects the disclosure of economic information and DJSI and common law only have an impact on environmental information disclosure. In addition, it is important to note that one of the objectives pursued by firms through CSR disclosure is improvement of their corporate image in society, and publishing it on the internet is fitting in an age when knowledge is increasing rapidly.

Our results also suggest that the companies analyzed focus most on disclosing aspects related to energy consumption and greenhouse gas emissions; total workforce by employment type, employment contract and region, broken down by gender; and participation in public policy development and lobbying in an attempt to legitimize themselves to society at large.

This study, however, is not without its limitations. For example, the number of firms in the sample is small, and could be extended to include other countries; also the number of years studied, which is limited to the information available in 2014, could be extended to include more years as companies gradually upload their CSR reports to the GRI website (www.globalreporting.org); both the variables employed and the hypotheses posited could also be extended considerably if other factors are taken into account, such as reputation and corporate governance.

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