The Disclosure and Assurance of Corporate Social Responsibility

The Disclosure and Assurance of Corporate Social Responsibility:

A Growing Market

Edited by

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and Jennifer Martínez-Ferrero

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PREFACE

For some years, there has been a consistent belief that traditional financial reports do not adequately represent the different dimensions of corporate activity. This belief has resulted in the addition of non-financial measures of performance (Simnet, Vanstraelen and Chua, 2009[1]). This has led companies worldwide to disclose non-financial information, among which it is possible to note the general use of stand-alone reports regarding social and/or environmental concerns—termed "sustainability reports." In this respect, "sustainability performance refers to an organization's total performance—which might include its policies, decisions, and actions that create" positive (or negative) social, environmental, and/or economic, including financial outcomes" (Institute of Social and Ethical Accountability, 2003, p. 31)[2]. There has been an increasing trend towards reporting such performance via the voluntary disclosure of a sustainability report that assesses the three main components of the triple bottom line: environmental protection, economic growth, and social equity. However, there is no regulation that requires the disclosure of this information; and companies publish their sustainability reports voluntarily.

Over the last few years, there has been an increasing trend towards reporting socially responsible performance via the voluntary disclosure of a sustainability report that assesses the three main components of the triple bottom line: environmental protection, economic growth, and social equity. This voluntary disclosure can be conceived as as being a viable mechanism through which (per the current trend) the usefulness and accuracy of firm-specific information has improved over the last few years. Nonetheless, the considerably growing trend towards such sustainability reporting in recent decades has not been accompanied by a corresponding increase in the credibility and accuracy of information. This divergence is due to a perceived lack of consistency and completeness with regard to the content and scope of sustainability reports. In the

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[1] Simnett, R., A. Vanstraelen, and W. F. Chua. (2009). Assurance on sustainability reports: An international comparison. Accounting Review 84: 937–967.
[2] Institute of Social and Ethical Accountability (ISEA) (2003). AA 1000 Assurance Standard. ISEA London

context of this lack of credibility, stakeholders demand external assurances as a means of enhancing their degree of confidence in the outcomes of the evaluation of a particular subject matter.

Within a context in which sustainability information may be hardly credible at all, companies can voluntarily initiate a process of verifying this self-reported information. This check will benefit a variety of agents. The company will legitimize the credibility of the information reported by building an effective dialogue with the different stakeholders. To them, meanwhile, a process of external checking guarantees the reliability of the information while reducing the potential asymmetry of information known between managers, shareholders, and stakeholders. However, such assurances are not a legal requirement; and no universal standard for such assurances exists. Indeed, there is substantial heterogeneity in the subject matter of sustainability reports and their objectives, levels, and criteria of assurance. This heterogeneity leads to differences between reports. Such differences make the study a relevant research topic about the "who" and the "how" in relation to assurance. This heterogeneity in assurances of services provided leads to scepticism concerning an assurer's work. This is because the nature and content of assurance statements can vary significantly—thus influencing assurance quality.

In this vein, this research monograph focuses specifically on the new trends of sustainability performance and sustainability reporting— with its particular focus being on the demand for assurance and on and on the characteristics of that assurance. In the following chapters, the authors provide theoretical argumentation and concrete evidence around sustainability performance along with the determinants of the voluntary disclosure and external assurance of that performance. Moreover, descriptive and empirical analyses will be developed and shared. Overall, this book aims to reinforce the understanding about sustainability performance, voluntary disclosure, and external assurance as follows:

The nine chapters included in this book center around three aspects: (i) socially and responsible performance; (ii) voluntary disclosure; and (iii) external assurance. Regarding the first issue, Chapter One focuses on analyzing the industry's role as an institutional factor. It provides explanatory information on the capacity of the company to promote sustainability. For this, the authors study the behaviour of the ten main (most frequently coded) industries – Basic Materials, Utilities, Oil & Gas, Industrials, Consumer Goods, Technology, Health Care, Telecommunications, Financials, and Consumer Services – included among a sample of data of 6,600 observations of 600 large international companies. The dataset listed companies by industry category according to the Industry Classification Benchmark (ICB) system. It comprised the 2004-2014 period. The main objective is the characterization of each of the industries based on their sustainable commitment through the study of 26 CSR practices that encompass sustainability from different perspectives – the environment, human rights, employees, stakeholders, and ethics – seeking to find important discrepancies that corroborate the relevance of the activity sector in socially responsible behaviour. The authors make use of multivariate statistical analyses known as X-COSTATIS, through which they analyze the co-structure of social sub-dimensions together with the environment.

Together, Chapters Two through Seven focus on the second topic examined in this book: sustainability disclosure.

As an introductory chapter to this issue, Chapter Two provides support of disclosure information to justify that corporations deal with complexity as a consequence of different accounting information systems, reports, and other information disclosure that have increased throughout the years. The quality of information disclosed by corporations is already an issue discussed in the literature; and in practice, assessing the quality of that information is a job for auditors and chartered accountants. This chapter validates its results on panel data – drawn from the 1991 to 2004 period – of corporations listed on the Euronext Lisbon. It shows that corporations include the social dimension in accounting strategies, due to the increasing demands of stakeholders. According to the empirical analysis, this chapter promotes the discussion, dissemination, and exchange of ideas about social responsibility and corporate value as a potential dimension of strategies and practices implemented and developed by each corporation. It is acknowledged that investors increasingly want to know about sustainability and their goal´s influence on the accounting information system.

Meanwhile, Chapter Three develops a descriptive analysis of sustainability disclosure and assurance at the international level. The authors use an international sample of analysis composed of 1,127 listed firms, from 2007 to 2016. The main findings of this chapter support the hypothesis that the continuing calls to achieve the disclosure of CSR performance have led companies to voluntarily disclose CSR reports—viewing them as being a part of an effective sustainable strategy that meets the need the level and quality of information demanded by stakeholders. These calls translate into a higher CSR disclosure rate and a higher quality and assurance of CSR information over last few years. Moreover, there is substantial variation across countries in terms of CSR reporting, the quality of that reporting, and assurances.

This substantial variation across countries is also examined in Chapters Four, Five, and Six.

In Chapter Four, under the assumption that one of the actions that companies can use to communicate their CSR activities includes the United Nations Global Compact platform (UN-GC), the authors aim to analyze the influence of the variety of capitalistic-oriented approaches taken by international companies. Chapter Four provides a concrete analysis of how liberal market economies and coordinated market economies influence the varieties of capitalistic-oriented approaches taken by certain international companies. The companies reviewed are members of the Organization of Cooperation for Economic Development (OCED) and are participants in the Global Compact. The authors use a sample of companies (from different countries) contained in the database of the United Nations Global Compact. Companies were grouped according to how their variety of capitalism had been classified. The focus was given to liberal market economies, coordinated market economies, and UN-GC participants. The main results obtained suggest that companies from countries with a coordinated market economy tend to be part of the Global Compact to a greater extent than are companies from countries with a liberal market economy.

In Chapter Five, the authors focus their study on Brazil, Russia, India, China, and South Africa. The authors examine these countries because of their growing relevance within the worldwide economy; and their different reactions to the economic crisis. Also, there is a gap in the literature about them; therefore, it is quite interesting to know how they are implementing these practices. The aim of this chapter is to identify the relevant factors that influence sustainability-reporting practices (their complexity and the GRI level they have achieved) in these five countries. The sample of analysis is composed of 3,582 listed companies from Brazil, Russia, India, China, and South Africa whose financial data are available in the Thomson Reuters ASSET4 Database. This chapter provides evidence that in those normative and cultural contexts in which disclosure of CSR information really is an option for companies, firms that decide to report about these issues will do so responsibly—and they will try to implement best practices. This finding will help disclosure to cease being a simple strategic legitimisation tool and become a device which contributes to the creation of value. In such cases, the CSR report would not be carried out in order to be the effect of a cause (socially irresponsible firm behaviours). Instead, the CSR report would be the cause that will have an effect in the future (higher satisfaction of different stakeholders and a better image and reputation of the companies, which implies an improvement in their competitiveness). The divergences identified between CSR disclosures in this chapter could be a response adapted to the cultural and normative environments, even among countries that (*a priori*) share certain economic features.

Subsequently, in Chapter Six, the authors focus on Latin American organizations because of the significant growth of a number of GRI reports disclosed in recent years. In this chapter, the authors seek to contribute to knowledge of the social dimension of sustainability reporting in Latin American countries—examining Argentine, Chilean, and Peruvian organizations. The authors use a content analysis technique to codify the social information present in the sustainability reports of the year 2015 as released by the organizations of Argentina, Chile, and Peru. Then, reticular or social network analysis was used on the data codified in the previous phase. The main result of this chapter is the finding that there is no homogeneity in the sustainability reporting for the selected countries – specifically in terms of social performance disclosure – in spite of the influence of the GRI G4 Guidelines.

In Chapter Seven, the authors – moving beyond attending to country-level factors – propose a descriptive study about the impact of ownership structure on sustainability disclosure as firm-level factors. Concretely, the authors provide descriptive evidence about the frequency of sustainability disclosure, its quality, and its external verification—making a comparison between non-family and family firms. For these descriptive analyses, the authors use an international sample of analysis (from 2006 to 2014) of listed financial firms. In general, the authors report the higher propensity to report a sustainability disclosure in family firms, as well as the higher quality of these reports in comparison to those of non-family business. However, the authors cannot provide significant differences in the stakeholders' demands for assurances between family and non-family firms.

Finally, the third issue of this book – external assurance – is examined in Chapters Eight and Nine. As the authors highlight, sustainability assurance is shown as being a way to enhance the credibility and reliability of the social and environmental information disclosed by companies.

The aim of Chapter Eight is to examine the assurance market in Spain. The chapter focuses on companies listed on the Madrid Stock Exchange in September 2017. It analyzes a total of 1,140 observations in a sample of 95 companies (that remained listed throughout 2005-2016). The main results of the chapter show that there is an increasing trend towards sustainability reports being assured. Most of the companies in the sample obtain assurance of their sustainability reports; and most of these, in turn, obtain assurance from one of the Big Four accounting firms (Ernst & Young, Deloitte & Touche, KPMG, and PricewaterhouseCoopers), KPMG and Deloitte being the leaders (Deloitte is the industry's top leader).

Finally, in Chapter Nine the authors aim to identify the current academic literature on assurance of Integrated Reporting. By means of the Web of Science database, the authors obtained a sample of papers to synthesize the main characteristics and trends in the field. This chapter identifies an emerging academic interest on assurance of the integrated reporting. For them, the reasons that explain the increasing number of studies about the assurance of integrated reporting perhaps lie in the activities of the IIRC.

The findings of this research monograph have implications for companies, managers, shareholders, stakeholders, and public bodies directly related to sustainability performance, the voluntary disclosure of sustainability information, and the adoption of an external assurance process. First, understanding the reasons for the disclosure of socially responsible commitment and for the subsequent assurance is interesting for different information users such as companies. By doing so, in part, they may legitimize the corporate actions and strategies in the context in which they operate. Furthermore, the evidence obtained in this book provides useful information for investors and stakeholders regarding the evaluation of how voluntary disclosure and external assurance increases the credibility of sustainability performance and reporting—thereby decreasing any lack of confidence in it. Moreover, investors should be aware of the use of sustainability disclosure and assurance to enhance credibility and confidence about sustainability performance as a signal for future investment decisions; moreover, they assess the quality of these reports highly.

In any case, sustainability disclosure and assurance may add value for shareholders and stakeholders by showing managerial commitment to engaging in socially responsible business practices. For policy markets and regulatory organisms, the findings of the book may be informative—given the increase in the number of social responsibility reports and related assurance services. For example, such stakeholders could collaborate with companies in the promotion of institutional support programmes so as to ensure that the information quality of, and the assurance of, sustainability reports truly represent the firm's actual sustainability performance. Public authorities must be able to provide new national laws and requirements, legislative reforms, institutional programmes, and financial support relevant to influencing increased production of sustainability reports, their quality and reliability as verified by assurance checks. Such verification adds value to organizations without imposing costly regulations. Moreover, in general, the sustainability disclosure and assurance practices are unregulated and thus (given the absence of regulatory laws) are non-standardized. Thus, the findings of this book show that it should be in the interests of governments, policy makers and public institutions to provide institutional support for the different sustainability reporting practices currently in use.

Isabel-María García-Sánchez and Jennifer Martínez-Ferrero
The Editors

CHAPTER ONE

A MULTIVARIATE VISION OF THE INDUSTRY SPECIFICITY AS AN EXPLANATORY FACTOR OF COMPANIES' SOCIAL PERFORMANCE

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Mª-PURIFICACIÓN GALINDO-VILLARDÓN
AND FÁTIMA DAVID

Abstract

This paper focuses on analysing the importance of the industry specificity with regard to company sustainability. It corroborates the hypothesis that local interest groups – and society in general – perceive different social and environmental risks according to the economic activity developed by the organizations. This fact is reflected in the Corporate Social Responsibility (CSR) policies and initiatives adopted by them. For this, the behaviour of the data set's ten main industries is studied from the coding of a data sample of 6,600 observations of 600 large international companies. These companies were listed according to the industry category of the Industry Classification Benchmark (ICB) system, for the 2004–2014 time period. Based on multivariate statistical methods, the industry is shown as being an institutional factor with an explanatory capacity in terms of CSR practices. This demonstrates that companies vary their behaviour according to the risks, pressures, and specific expectations of each industry. Thus, we point out how the industries dedicated to basic materials and utilities, which are considered to have a strong impact on the environment, present the highest environmental levels. Oil and gas companies focus their efforts on human rights, since their actions have a strong impact on human health. Telecommunications, along with personal-intensive companies, presents social concerns as being greater than environmental ones—prioritizing their practices towards labour rights and

stakeholders deals. Financial services (focused on employees) and consumer services (oriented towards human rights) are considered as being the most delayed in CSR terms. Their companies are comparatively less studied by the public, since they are not considered to have a strong impact on the environment, and are therefore less competitive in terms of sustainable practices. These results answer one of the oldest questions in the CSR debate, corroborating that social demands are a main point to be taken into account. Even in certain industries, social concerns outweigh environmental concerns.

Keywords: Corporate Social Responsibility (CSR), industry specificity, social performance, multivariate statistics, company sustainability, environmental management

1 Introduction

There is a growing international interest in Corporate Social Responsibility (CSR)—in particular, of the large multinational companies that are being asked for an ever-increasing commitment and measures to prevent environmental pollution, human rights violations, and unethical behaviour. This has generated the conclusion that concern about social responsibility is no longer an isolated event but a common practice, in particular, between larger companies (KPMG, 2011). Wood (1991) suggested that 'the basic idea of corporate social responsibility is that business and society are interwoven rather than being distinct entities; therefore, society has certain expectations for appropriate business behaviour and outcomes'.

Company sustainability and the dissemination of information in the environmental and social dimensions has been studied in an increasing number of investigations over the last decades (Deegan and Gordon, 1996; Deegan et al., 2002; Habisch et al., 2005; Welford, 2005; Aguilera et al., 2006; Chen and Bouvain, 2009). In this line of research, many studies show that although CSR has the stamp of being a truly global idea, it is applied in a different way by different companies, depending on the institutional characteristics of the environment in which they operate (Campbell, 2007; Gjølberg, 2009). This is because the different political, economic, legal, and cultural contexts offer a series of facilities for or barriers to sustainable development (Ortas et al., 2015; Halkos and Skouloudis, 2016). In general, most of these studies focus on analysing the country as being the institutional factor with the greatest explanatory capacity in terms of company sustainability. This points mainly to the normative pressures that make reference both to the differences in the cultural values of the countries (Ringov and Zollo, 2007; García-Sánchez et al., 2013) and to the coercive pressures corresponded to the functioning of the legal system (Kolk and Perego, 2010; Demirbag et al., 2017). However, few investigations have revealed that the industry can be defined as an organizational field from which institutional pressures arise (Aerts et al., 2006), because companies depending on the industry in which they operate face different risks to society, with different expectations of their stakeholders and consumer behaviour. A good example is the oil companies sector, considered as having a greater risk and impact on the environment than other companies, such as banking or financial services, have (Jackson and Apostolakou, 2010). Stakeholders will impose greater pressure on the oil companies to get them to adopt CSR policies aimed at protecting the environment and at protecting the health and safety of their employees.

This research focuses on analysing the industry as an institutional factor with an explanatory capacity on company sustainability. For this, the behaviour of the ten main industries – Basic Materials, Utilities, Oil & Gas, Industrials, Consumer Goods, Technology, Health Care, Telecommunications, Financials, and Consumer Services – is studied. This is based on the coding of a data sample of 6,600 observations of 600 large international companies listed according to the industry category of the Industry Classification Benchmark (ICB) system, for the 2004–2014 time period. The main objective is the characterization of each of the industries based on their sustainable commitment through the study of 26 CSR practices that encompass sustainability from different perspectivees – environment, human rights, employees, stakeholders, and ethics – seeking to find important discrepancies that corroborate the relevance of the industry in socially responsible behaviour. In addition, we direct the research towards answering one of the oldest questions in the debate on CSR: the question of whether it is worthwhile for organizations to pay attention to social demands. All of this will be carried out through a multivariate statistical analysis known as CO-X-STATIS, through which we will study the co-structure of the social sub-dimensions with regard to the environment. That is, we will interpret the importance that each industry gives to social practices as compared to their environmental commitment.

This work is structured as follows: The first section, which refers to the theoretical background, is focused on CSR and institutional contexts. The second details the structure of the data and describes the methodology used. The following sections present the results obtained from the empirical analysis; a discussion of those results; and the main conclusions of the study.

2 Theoretical Framework

2.1 Corporate Social Responsibility (CSR) and Institutional Contexts

The extensive research that exists in the field of CSR, strategic management, or international business has shown that the origin of companies is a relevant factor because it affects the way they interact with the government, its customers, suppliers, employees, and society (Kolk, 2005). The so-called 'country of origin effect' (Sethi and Elango, 1999) – which consists of the resources of the countries as their government policies, cultural values, and institutional laws – is exerting a different pressure on companies. As far as social responsibility is concerned, these differences can be very relevant—since it has been found that companies improve their sustainable commitment in response to expectations and social pressures to obtain or maintain their legitimacy (Ortas et al., 2015).

In this sense, several authors demonstrate the importance of institutional characteristics at the national level as a very influential role in the sustainable commitment of companies, as systematically explained by normative and coercive pressures (Martínez-Ferrero and García-Sánchez, 2016). The authors study the relevance of normative pressures by referring to the cultural values of each country (values obtained from the Geert Hofstede ™ website). They do so because, according to the cultural dimensions of Hofstede, (2001) local stakeholders, as a result of different cultural conditions, have different expectations regarding business behavior. Thus, previous research has shown that companies show a greater interest in sustainability in countries characterized as feminist and collectivist—and, to a lesser extent, in countries with long-term orientation, low power distance, indulgent and tolerant to uncertainty (García-Sánchez et al., 2013; Frías-Aceituno et al., 2013; Mar Miras-Rodríguez et al., 2015; Garcia-Sanchez et al., 2016; Halkos and Skouloudis, 2017; Esteban et al., 2017). In relation to coercive pressures, these correspond to laws, norms, and standards that define the legal system of a country. Additionally, among the main measures for analyzing the role of the legal system, the authors focus on whether it is governed by the civil law – or, on the contrary, whether it is governed by common law; or if the orientation of the country is more directed towards stakeholders or shareholders. Among other characteristics, they are also based on civic commitment, regulatory effectiveness, or competitive conditions. Thus, previous research shows that companies are more likely to behave in a socially responsible way when they belong to countries with a strong application of the law, governed by civil law and with a legal system oriented towards stakeholders protection (Perego, 2009; Boiral and Gendron, 2011; Kolk and Perego, 2010; Zhou et al., 2013; Garcia-Sanchez et al., 2016; Halkos and Skouloudis, 2016; García-Sánchez and García-Meca, 2017; Demirbag et al., 2017; Amor-Esteban et al., 2017).

Most such studies, which address the relationship between the sustainability of the company and institutional contexts, forget the effect that the industry can have on business behaviour. However, few investigations have revealed that the industry can be defined as an organizational field from which institutional pressures arise (Aerts et al., 2006). This is because companies depending on the industry in which they operate face different risks to society, with different pressures such as those exerted by external suppliers of resources that force or limit the company to adopt certain behaviours (Mizruchi and Fein, 1999). In addition, company survival depends on its success in managing relationships with interested parties (Hess, 2008), whose concerns vary depending on the industry to which they belong. This is due to the current concept of transparency which not only covers the economic part, but which extends to the social and environmental aspects of corporate behaviour (Gray et al., 1987; Frias-Aceituno et al., 2013). Accordingly, productive efficiency is not only defined by the level of success but also by the level of social acceptance (Ortas et al., 2015).

In this line of reasoning, several authors show that as a result of more demanding regulations and specific pressures exerted by the main interest groups of each industry, there are important differences in sustainability reports between companies from different industries (Branco and Rodrigues, 2008; Parsa and Deng, 2008; Wanderley et al., 2008; Bayoud et al., 2012; Young and Marais, 2012). Thus, companies belonging to the same industry will face similar challenges and, therefore, are likely to develop a similar pattern of behaviour with respect to CSR standards, norms, and practices—which implies a degree of convergence in their sustainability commitments (DiMaggio, 1991). That is, companies can disclose information or adopt CSR initiatives due to the fact that their competitors are doing so; they may be motivated to follow the behaviour carried out by another organization that is accepted as being a leader or a model of their industry, with the aim of acquiring social legitimacy (Larrinaga, 2007).

In addition, the market characteristics of certain industries can explain possible differences with respect to CSR practices adopted by companies – differences associated with consumer preferences and demands. (Park et al., 2014). Therefore, consumers behave differently in each industry depending on the risks that are perceived by society. For example, oil companies are perceived by consumers as being high risk in relation to their impact on environmental issues, as well as the health and safety conditions of employees. Therefore, these actors are comparatively more likely to pressure oil companies to adopt CSR policies. In addition, companies that are choosing the rules themselves and are controlling their own activities instead of leaving that responsibility to the State could have more to gain by being considered proactive. Precisely because of their impact on society and because of the scrutiny given to them by government or stakeholders, companies within such industries – higher risk; more polluting – will tend to adopt more codified and explicit CSR policies. CSR can, therefore, become an institutionalized feature of industrial management structures. This could either be as a result of coercive regulations of government authorities, regulatory pressures created by NGOs, or consumer behaviour, or through their own efforts to imitate proactively to competitors in the industry to protect their reputation. It is important to note that this type of industrial pressure should not be considered as being strictly national, but can produce isomorphism among the competitors of the same industry on an international scale (Jackson and Apostolakou, 2010).

Previous research analysing the relationship between CSR and institutional contexts only analyses the influence of national characteristics; and few of them study the industry specificity. This work shows the industry as an institutional factor with an explanatory capacity on company sustainability. To do this, we will conduct a comparative multivariate analysis, characterizing each industry according to its strengths and deficiencies. The characterization is based around 26 CSR practices that encompass environmental and social issues – human rights, employees, stakeholders, and ethics. The analysis shows the most important industrial discrepancies and, therefore, demonstrates that companies vary their behaviour according to the risks, pressures, and specific expectations of each industry. In addition, we will interpret the importance that each industry gives to social practices in comparison with its environmental commitment.

3 Methodology

3.1 Population and Sample

In sustainable terms, the most active companies correspond to the largest companies internationally listed on the stock exchange—and, therefore, this will be our target population (Martínez-Ferrero and García-Sánchez, 2016). The information about these companies was taken from the *Ethical Investment Research Services (EIRIS)* database (an independent research organization that provides non-financial information on the environmental, ethical, and social practices and policies of companies). The largest number of companies was selected, with the sole criterion being that their reports were complete—since one of the main problems of the sustainable rating agencies is the loss of data. This research refers to the 2004–2014 decade with a final sample of 600 listed organizations per year, which makes a total of 6,600 observations of international origin with a predominance of the data coming from four geographical areas: Europe, North America, Japan, and Australia, with percentages of 50.50, 25.83, 16.67, and 7.00, respectively. In view of the objectives of the work, we will group companies according to the industry category of the *Industry Classification Benchmark (ICB)* system. We will study the industrial roots of sustainability through the data of the ten main industries (see Table 1). The distribution finding a comparatively greater number of companies in industries related to industrial products (18.80%), financial services (17.30%), and consumer goods (13.50%). The rest have proportions close to 10%, with a smaller number of companies being focused on technology, utilities, and telecommunications.

Table 1. Distribution of companies by industry, following the Industry Classification Benchmark (ICB) system

Industry		Frequencies Absolute	Relative (%)
1	Basic Materials	704	10.7
2	Consumer Goods	891	13.5
3	Consumer Services	792	12.0
4	Financials	1144	17.3
5	Health Care	495	7.5
6	Industrials	1243	18.8
7	Oil & Gas	462	7.0
8	Technology	319	4.8
9	Telecommunications	264	4.0
10	Utilities	286	4.3
	Total	**6,600**	**100.0**

It is important to highlight that the selection of the 2004–2014 period is due to the fact that this decade marks the most prolific period of the academic and corporate CSR. In this period, companies – due to great advances in technological development or due to a greater facility of accessing information on corporate behaviour – have taken comparatively greater risks in terms of sustainability (Martínez-Ferrero and García-Sánchez, 2016).

3.2 CSR practices—
Variables to Quantify Sustainable Commitment

In order to quantify sustainable business behaviour in a complete, balanced, and reliable way, companies were selected with information from 26 CSR practices—which evaluate the development and commitment to sustainability on a scale of 0-4, being '0-Inadequate', '1-Weak', '2-Moderate', '3-Good', and '4-Exceptional'. These practices include many possible aspects that a company can encompass in its commitment to sustainability in terms of social and environmental dimensions. The social dimension is made up of four sub-dimensions:

- **Human rights—**a dimension which includes policies, systems, and reports in the struggle for the defence of citizens' rights;

- **Employees—**a dimension constituted by practices that evaluate the policies and systems of the company when promoting equal opportunities and better working conditions, such as the health and safety of its employees, their training and the creation of employment;

- **Stakeholders—**a dimension which includes everything related to maintaining the company's good external relations; the treatment of the company in relation to the community, customers, consumers, contractors, suppliers, etc. As well as maintaining those stakeholders' responsibilities related to their participation in the decision-making process; and

- **Ethics—**a dimension that includes practices which value the existence of a code of ethics in the company and its policies, systems, and reports in the fight against bribery.

The environmental dimension implies policies, systems, and reports oriented towards the care and preservation of the environment (Table 2). The specific selection of these practices was due to the fact that they are commonly used in research work to analyse the social and environmental performance of companies (Boudt et al., 2013; León, 2015; Martínez-Ferrero and García-Sánchez, 2016; García-Sánchez and García-Meca, 2017).

Table 2. CSR practices—measures to quantify sustainable business behaviour

Social dimension		
	Human Rights	
Human Rights policy	/	What is the extent of the Company's policy addressing human rights issues?
Human Rights systems	/	What is the extent of systems addressing human rights issues?
Human Rights reporting	/	Does the Company report on human rights issues?

Employees		
Equal opportunities policy	/	How good is the Company's policy on equal opportunity and diversity issues?
Equal opportunities systems	/	How clear is the evidence of systems and practices to support equal opportunities and diversity?
Health & safety systems	/	How clear is the evidence of health & safety systems?
Trade unions and employee participation	/	How clear is the evidence of systems to manage employee relations?
Training	/	How clear is the evidence of systems to support employee training and development?
Job creation and security	/	How clear is the evidence of systems and practices to advance job creation and security?

Stakeholders		
Community relations	/	How clear is the Company's commitment to community or charitable work?
Customer/supplier relations policy	/	Does the Company have policies on maintaining good relations with customers and/or suppliers?
Community involvement	/	How clear is the evidence of systems to maintain good relations with the community?
Responsibility for stakeholders	/	How many stakeholder issues have been allocated to board members?
Stakeholder engagement	/	What level of engagement with stakeholders is disclosed by the Company?
Stakeholder policy	/	How good are the Company's policies towards its stakeholders overall?
Stakeholder systems	/	How good is the Company's quantitative systems on stakeholder relationships?
Stakeholder reporting	/	How good are the Company's management reporting for stakeholders overall?

Ethics		
Codes of ethics	/	Does the Company have a code of ethics – and if so, how comprehensive is it?
Codes of ethics systems	/	Does the Company have a system for implementing a code of ethics – and if so, how comprehensive is it?
Countering bribery policy	/	What is the extent of the Company's policy for countering bribery?
Countering bribery systems	/	What is the extent of the Company’s system for countering bribery?
Countering bribery reporting	/	What is the extent of the Company’s reporting on countering bribery?

Environmental dimension		
Environment		
Environmental policy	/	How does EIRIS rate the Company's environmental policy and commitment?
Environmental systems	/	How does EIRIS rate the Company's environmental management system?
Environmental reporting	/	How does EIRIS rate the Company's environmental reporting?
Environmental performance	/	What level of improvements in environmental impact can the Company demonstrate?

3.3. Statistical Multivariate Analysis

3.3.1 CO-X-STATIS Method

Thiolouse (2011) presents the COSTATIS, which is a technique that combines STATIS and co-inertia analyses. In this investigation, a CO-X-STATIS analysis (X-STATIS and co-inertia, which we describe below) is performed. This method is used to simultaneously analyse two successions of tables with the same variables within each sequence and between the same individuals in both sequences. It is based on the co-inertia analysis of two compromise tables (a matrix that summarizes a set of matrices). The first step is to use two X-STATIS analyses, one for each succession, to calculate the two compromise tables; the second step consists of a co-inertia analysis to examine the relationships between these two compromises.

Figure 1 shows the procedure scheme on which the CO-X-STATIS is based, where a pair of sequences of T tables is used. Y_t is a sequence of T tables with information on n individuals measured on q variables, and X_t is another sequence of T tables that measures the same n individuals on p variables. A X-STATIS analysis is applied to each sequence, obtaining a compromise matrixY_C representative of Y_t tables and another X_C representative of X_t tables. On these two compromise matrices, Y_C and X_C, a co-inertia analysis is carried out, obtaining the matrix of cross products $Z = Y_C' D_n X_C$ through which it is possible to study the co-structure of these two compromises.

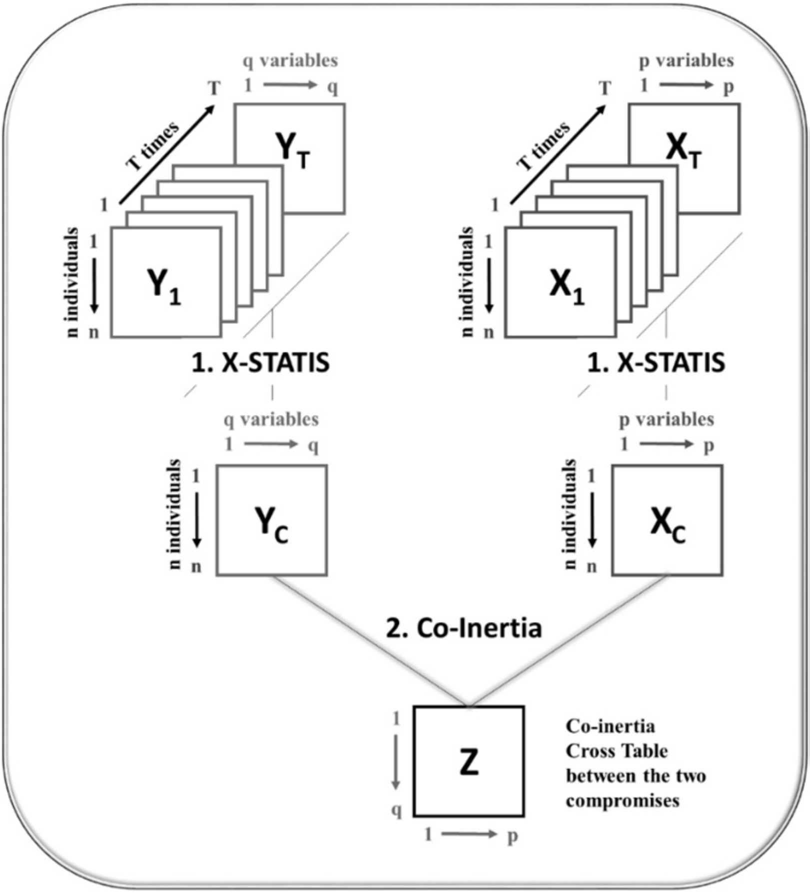

Figure 1. Outline of the CO-X-STATIS analysis

In this research, the CO-X-STATIS analysis is used to interpret the importance that each industry gives to the practices that evaluate social welfare in relation to its environmental commitment and, therefore, its characterization according to each of the practices of RSC. This will be done through a comparison of the environmental dimension (Env) with each of the social sub-dimensions – human rights (HR), employees (Emp), stakeholders (Sth), and ethics (Eth) – trying these in pairs, which will result in four CO-X-STATIS analyses (Env-HR, Env-Emp, Env-Sth, and Env-Eth). In any of these four analyses, the data will be arranged in two successions of T tables where t will refer to the years 2004–2014. The first succession of X_t tables will correspond to the social commitment, and each X_t matrix will carry the information of n individuals (industries) measures on p variables (social practices referring to a sub-dimension) and another succession of Y_t tables with information on the same n individuals measures on q variables (environmental practices). The first step is the application of an X-STATIS analysis to each succession.

The STATIS—*Structuration de Tableaux A Trois Indices de la Statisque-* family methods was developed by L'Hermier des Plantes (1976), although the theoretical basis of these methods belong to Escoufier (1976). In synthesis, the STATIS methods consist of making a study of the relationship between the T matrices so as to later determine a compromise matrix, which is the closest of all the T original matrices and is representative of all of them, and which is obtained from scalar products between configurations. In this work, however, we use the X-STATIS method (Jaffrenou, 1978). This is a method within the STATIS family with the difference that it is only applicable to successions of tables with the same individuals and the same variables (since it has the advantage of working directly with the original matrices without using operators provided that it is in compliance with the said condition). Thus, the procedure of this method is simpler and provides more representations. It follows the same scheme of the STATIS methods, which (as a general rule) are composed of three stages: interstructure, compromise, and intrastructure. However, in view of the objectives of this study, we will only focus on the first two stages.

(i) Interstructure (see Figure 2): In this stage, the relationship between the different tables is studied by comparing their structure in a global way. For this, a matrix of vectorial covariances between tables is constructed, so that the element in row t and column l is $Covv\,(X_t, X_l) = Traza\,(X_t' D_n X_l D_p)$ where X_t is the t-table of the sequence and D_n, D_p are the two metrics for the rows and columns, respectively. This will lead to a matrix TxT where each value will represent the covariance between two tables (years in this study). From the decomposition of this matrix into singular values, we look for a Euclidean representation in low dimension where each matrix (each year) is represented as a point in the plane. Thus, the proximity between two points will correspond to two tables of similar structures. In this way, the study of the interstructure will allow us to show the similarities and differences between years before performing the co-inertia analysis and which therefore correspond to interstructures from the point of view of each dimension and sub-dimension (separately): environment, human rights, employees, stakeholders, and ethics.

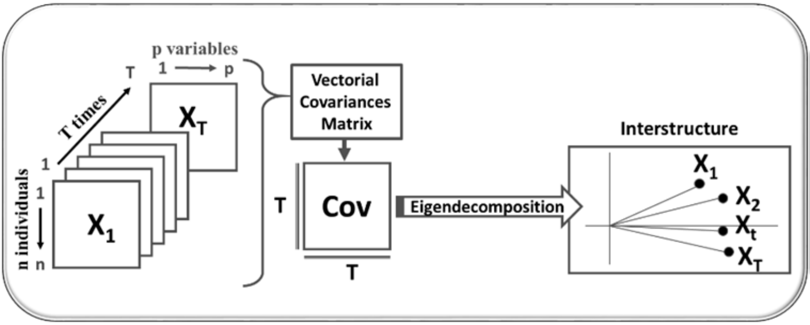

Figure 2. Outline of the Interstructure (X-STATIS analysis)

(ii) Compromise (see Figure 3): The next stage of the method is to create, from the initial T matrices, a matrix Z that is constructed in the following way: It starts from the T matrices, each with n rows (individuals) and p columns (variables), and is constructed a new matrix Z where each column vector is one of the T matrices extended; that is, where the p columns are stacked in a vector column X_t. So we have the vectors $X_1, \dots, X_t$ that make up the matrix Z. The Z matrix will consist of $n\ x\ p$ rows and T columns. The next step is to apply a principal component analysis to the created Z matrix, which we will call ZV. In this table, each column represents a main component, and these components are linear combinations of the Z columns—therefore, they contain the common information, stable of the original matrices. In this way, by unfolding the first column of ZV which is the one with the greatest variability, we will obtain a matrix that returns to obtain the dimensions of the original matrices X_t with n rows x p columns. This matrix X_c is called 'compromise' and is a global summary of the set of tables. Therefore, the compromise matrix summarizes all the information provided by all the configurations over time.

The objective of this method is to calculate the compromise matrix of each succession of tables: environment, human rights, employees, stakeholders and ethics. Thus, each of the compromises will synthesize the information of the $n = 10$ industries analysed on p CSR practices (the number of practices depends on the succession chosen) during the $T = 11$ years of study (2004–2014), filtering the noise and representing the stable information.

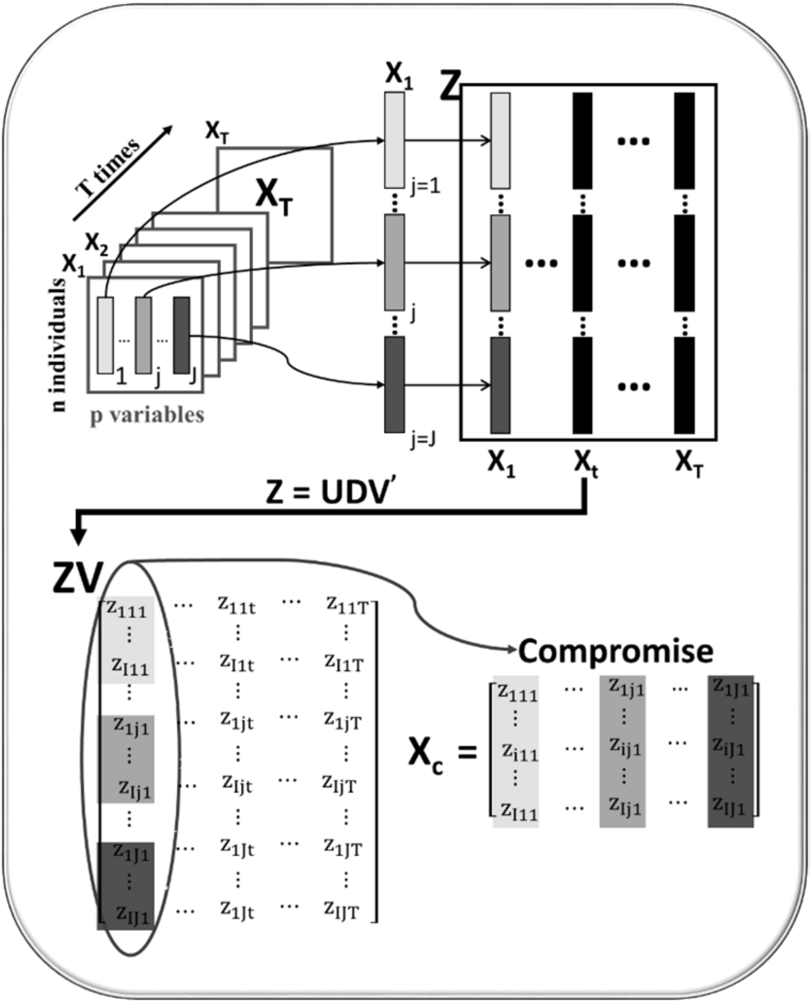

Figure 2. Outline of compromise analysis (X-STATIS analysis)

The next step of the CO-X-STATIS method is a co-inertia analysis of these compromises, taking into account these in pairs. That is, we will highlight the relationships between two 'stable structures'. The analysis of co-inertia allows us to find the common structure between two groups of variables (Dolédec and Chessel, 1994). This technique aims to find a pair of co-inertia axes – that is, a vector a_1 of the first set of variables and a vector b_1 of the second – on which to project the individuals with maximum co-inertia. If the data is centered, this analysis will maximize the covariance squared between the projections of the individuals on the said co-inertia axes (see Figure 4).

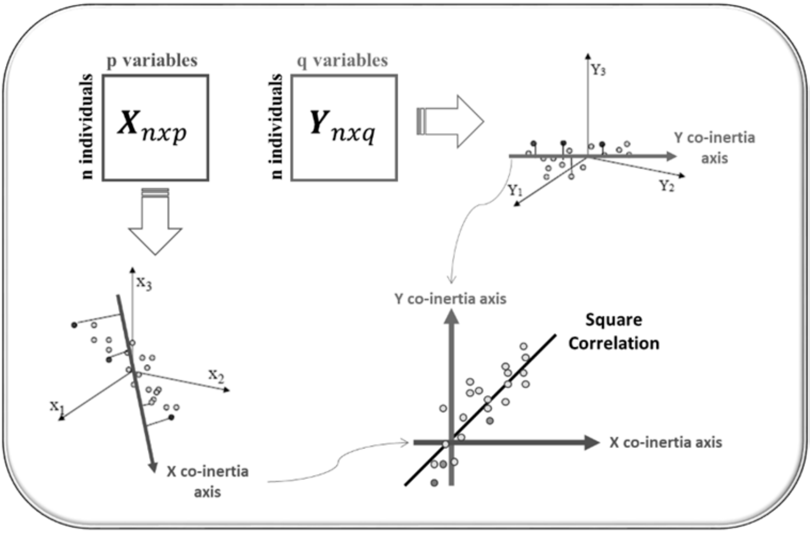

Figure 4. Outline of Co-inertia Analysis

Let X_{nxp} represent the first table and let Y_{nxq} represent the second table—two data matrices with the same n individuals according to which p and q variables are measured, respectively. Let D_n represent the diagonal matrix $n\ x\ n$ of the weights of the rows:

$$D_n = diag(\omega_1, \cdots, \omega_n),$$

and let D_p and D_q represent two metrics in $\mathbb{R}^p$ and $\mathbb{R}^q$, respectively.

Before carrying out the co-inertia analysis, it is necessary to analyse each table separately. If D_n is the uniform row weights matrix ($\omega_1 = 1/n$), and if D_p and D_q are identities (Euclidean metrics), then these will be simple principal component analyses. Considering the columns of both tables are centered, the total inertia of each table will simply be the sum of the variances: