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The Impact of Corporate Governance on Corruption Disclosure in European Listed Firms through the Implementation of Directive 2014/95/EU

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Abstract: The publication of Directive 2014/95/EU represents an important milestone related to the disclosure of non-financial information. This fact together with the role of the corporate governance guide firms towards achieving of an ethical, transparent, and responsible behavior. To contribute towards the understanding of this issue, this study investigates the relationship between corporate governance mechanisms and corporate social responsibility disclosure, namely, in corruption aspects relating to Directive 2014/95/EU. In so doing, a multiple regression analysis was carried out on a panel data sample of 198 European listed firms that are part of the EuroStoxx 200 index, in a studied period from 2014 to 2017. The findings reveal that outside directors and CEO duality impact positively and significantly on corruption disclosure. Therefore, this paper contributes to the existing research on corporate social responsibility disclosure, specifically, to the corruption disclosure literature by studying the corporate governance mechanisms that enhance these practices.

Keywords: corporate social responsibility disclosure; corruption disclosure; Directive 2014/95/EU; corporate governance

1. Introduction

In 2010, the European Union and its member states implemented an action plan focusing on firm rights with the aim of guaranteeing sustainable growth throughout the decade: The Europe 2020 Strategy. In this regard, the European Union has established five ambitious objectives regarding employment, innovation, education, social integration, and climate/energy that translate into three priority lines of action, these being the promotion of transparency, the involvement of shareholders in corporate governance, and the support for business growth and competitiveness. In this regard, the "European Commission is mainly concerned with the process of integrating consumer, environmental, ethical and human rights, and social concerns into the companies' business operations, procedures and processes, with the aid of corporate social responsibility principles as well as with the help of stakeholders' inputs, while targeting the maximization of the creation of shared value for their owners/shareholders and for their other stakeholders and society at large and the careful identification, prior prevention and timely mitigation of their possible adverse impacts" [1]. With these aspects in mind, in this article we highlight the fostering of transparency, which is proposed to be achieved through the disclosure of more relevant and reliable information from firms to stakeholders in the European context. In this regard, and through an important reform of the Community Directives, the obligation to report on social and environmental issues is included in the annual accounts [2].

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Regarding the Community Directive, in November 2014, Directive 2014/95/EU of the European Parliament and of the Council was published. This Directive modifies Directive 2013/34/EU regarding the disclosure of non-financial information and information on diversity by large firms and certain groups of firms. In this regard, Directive 2014/95/EU requires firms of a certain size (with an average number of employees exceeding 500, with a total balance of 20 million euros or a turnover of 40 million euros) or firms which are considered to be of public interest to publish annually, as they do with their accounts, a report on certain issues relating to environmental and social impacts as well as to good governance.

That is why this Directive is considered to develop a new European corporate transparency scenario in which the disclosure of non-financial information changes from being a voluntary issue to a legal imperative. Before the adoption of this Directive, the European Union had paid little attention to the disclosure of non-financial information and, internationally, for several decades, the Global Report Initiative (GRI) has been a reference for the voluntary preparation of this type of non-financial information. However, the adoption of Directive 2014/95/EU constitutes a turning point related to the normalization of non-financial information by companies located in the Member States of the European Union. Additionally, the Directive implements the guidelines for firms to improve the quality and transparency in the disclosure of such information and presents the opportunity to create a homogeneous regulatory framework for non-financial information at the European level. Therefore, we highlight that the European context constitutes a scenario of relevant interest to be analyzed. With regard to non-financial information, there is previous literature which shows how firms traditionally disclose aspects related to environmental issues [3]. However, after 1999, Gunawan [4] argues that other aspects of corporate social responsibility started to come under scrutiny, such as social issues. Namely, some studies focused on the need to analyze specific issues such as corruption [5–8]. Moreover, Hess [7] explains that disclosure on anti-corruption is a powerful measure to avoid corruption. Similarly, the current and growing concern over social problems also highlights the issue of corruption. Citizens are becoming aware of the influence that firms, especially, multinationals, have on the generation and maintenance of these problems. In this vein, transparency is considered to be the main tool against corruption, which implies, among other issues, the need for better (and not only greater) social disclosure on the part of firms [9]. Additionally, another tool to avoid and fight corruption is good corporate governance [10–12]. In this regard, there are studies which analyze whether good corporate governance mechanisms may lead to avoiding corruption by fighting it [13]. Following Na et al. [14], it is crucial to study whether corporate governance mechanisms may impact on corruption issues.

Continuing with the issues raised above, on the one hand, some studies have been published which focus on the analysis of how firms disclose information on corporate social responsibility aspects, namely, corruption issues related to Directive 2014/95/EU. In this regard, Ackerman et al. [15] explain that the presentation of information on how firms work in the fight against corruption is considered an instrument to prevent bribes, accounting fraud, conflicts of interest, etc. On the other hand, there are research papers that analyze the factors that impact on corporate social responsibility disclosure. In this vein, there is a wide body of literature that explains how corporate governance mechanisms exert an influence on the disclosure of information regarding social responsibility [16–18]. However, there is little empirical research that studies how corporate governance mechanisms impact on corruption issues. Following Na et al. [14], we highlight that there is a gap in the literature regarding how corporate governance mechanisms may have an impact on corruption. These authors show the correlation between corporate governance and corruption in emerging economies such as Brazil, Russia, India, and China. In this regard, to the best of our knowledge, there are no studies that analyze how corporate governance mechanisms impact on corruption disclosure in the European context after the publication of the Directive 2014/95/EU. Therefore, this paper addresses this gap in the literature by analyzing the relationship between corporate governance mechanisms and corruption disclosure in the European context.

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Based on this rationale, the main purpose of this study is to analyze the relationship between corporate governance mechanisms and corruption disclosure. We focus on a sample of 198 European listed firms which are included in the EuroStoxx 200 index because they follow the Community Directives that regulate non-financial information about corruption disclosure. In particular, this research examines how different corporate governance mechanisms such as board size, outside directors, and CEO duality influence corruption disclosure. To this end, an empirical study is carried out based on linear regression models. Regarding the findings, this study presents a positive and significant relationship between outside directors and corruption disclosure. Furthermore, our results also show that there is a positive and significant relationship between CEO duality and corruption disclosure.

Therefore, this work contributes to the previous sustainability literature in several ways. First, this research is based on analyzing which factors enhance corporate social responsibility disclosure related to the European Directive 2014/95/EU, namely, on corruption issues. Second, to the best of our knowledge, our study is the first to analyze how corporate governance mechanisms impact on corruption disclosure in the European context. In this regard, we answer the call from some works to study how corporate governance mechanisms impact on corruption issues [14]. Third, we provide a useful guide with this work to the academic community, as our results indicate that corporate governance mechanisms such as outside directors and CEO duality contribute to enhancing corruption disclosure. Moreover, from a methodological point of view, this work proposes a corruption disclosure index related to the Directive 2014/95/EU. In doing so, the corporate social responsibility disclosure regarding corruption is also extended. Finally, the rest of the paper is organized as follows. Section 2 presents the disclosure of non-financial information on aspects related to corporate social responsibility, namely, from a corruption perspective. Section 3 is based on the theoretical framework related to corruption disclosure. Section 4 provides the hypotheses development. Section 5 shows the research design. Section 6 provides the results and their subsequent discussion are presented. Finally, the conclusions and limitations of this research are presented, as well as some guidelines for possible future research.

2. Disclosure of Non-Financial Information on Aspects Related to Corporate Social Responsibility: Corruption Perspective

It is essential for all firms to consider their interaction with their stakeholders in order to increase their legitimacy to operate in the market [19]. In this regard, we can frame these arguments from the point of view of the stakeholder and legitimacy theories. On the one hand, regarding the stakeholder theory, firms should satisfy stakeholders' interests and needs and voluntarily inform them about the results or impacts derived from their business economic activities [20–22]. In other words, following Gallardo et al. [23] firms should focus on maximizing the value for all their stakeholders in order to reduce the emergence of possible conflicts of interest between both of them [24]. Moreover, on the other hand, "legitimacy theory suggests that greater visibility leads to stronger pressures from society" [25]. Furthermore, this theory focuses on the acceptance of the firms' actions by those who are around it [23].

According to the above arguments, actions performed on disclosure of information are essential as they constitute a way of dialogue and interaction between firms and their stakeholders. In addition, the disclosure of non-financial information may improve relationships between people, environment and resources (stakeholders), and avoid the conflict of interests between them. This point of view is taken from the agency theory that is based on solving the problems that arise from the relationships between the stakeholders. This theory focuses mainly on the delegation of authority, from the principal to the agent, and the coordination of opposite interests between them [26].

Furthermore, we highlight that stakeholders increase the demand for information on the part of firms because financial information is insufficient for decision-making. Pursuing this idea further, it is clearly necessary to complement financial information with non-financial information so that stakeholders are able to improve their understanding of the business model, the firm's strategy and positioning, among other aspects [1,27].

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Regarding the above, firms disclose non-financial information on social and environmental issues such as intellectual aspects, human and social capital, environment and the fight against corruption. In this way, firms legitimize their behavior, inform, modify, and meet the perceptions and expectations of their stakeholders, and, thus increase firms' survival [17,28,29]. Therefore, a firm's survival depends on the interactions, transactions, and exchanges with its stakeholders [30]. For this reason, firms address the disclosure of both financial and non-financial information in order to inform their stakeholders.

According to Samelak [31], it can be said that sustainability reports reveal the evolution of corporate information disclosure. The sustainability reports constitute a tool that provides internal and external information on the economic, social, and environmental impacts that firms generate in the performance of their activities. Regarding the Global Reporting Initiative (GRI) Sustainability statistics, the number of sustainability reports have significantly increased in the last decade. For instance, the number of reports published in 2018 in the GRI database reached 55,119, which is an important increase of approximately 29% compared with 2016 (Database 2017. Available online: http://database.globalreporting.org/ (accessed on 10 July 2019)).

Focusing on the legislation, there are some research papers [32,33] which argue that regulated disclosure leads to an increase in a firm's market value. Following this argument, Directive 2014/95/EU was published in the European Union, this being a first attempt to regulate the disclosure of non-financial information for firms in the member countries. This Directive is an important regulation aimed at improving the transparency, importance, cohesion, and comparability of the disclosed non-financial data [34]. Regarding the Directive's requirements, we underline that they cover the main areas of social responsibility and focus on "the core principle standards or reporting guidelines of social responsibility" [35]. In this vein, Directive 2014/95/EU requires firms of public interest to disclose, in their sustainability reports, issues such as corruption, social, personal, human rights and environmental, focusing all these aspects on the business models, risks, impacts, policies, results and situation, along with the key indicators.

Furthermore, in 2017 the European Commission drew up and published non-binding guidelines on the methodology applicable to the presentation of non-financial information, with the aim of facilitating the relevant and useful dissemination of non-financial information by firms. These guidelines had to consider aspects such as existing best practices, international evolution, the results of other international projects in this area, and aspects related to the fight against corruption.

Based on the above arguments, the transposition of the Directive to the European countries had to be applied no later than 6 December 2016 (the "transposition" is the process by which each Member State adapts its legislation to the requirements of the Directive in question - European Union, 2016). Moreover, these countries had to establish that the provisions contemplated were applied by the firms' subject to the Directive from that date onwards and during the fiscal year that began on 1 January 2017.

As far as the above arguments are concerned, this paper focuses on the corruption disclosure aspects. Accordingly, following Ackerman et al. [15], corruption is defined as a phenomenon that focuses on a set of acts such as bribery, extortion, accounting fraud, and conflict of interest. Thus, corruption disclosure is an instrument for preventing these because, as Hess [7] shows, they guide firms to adopt measures and to ensure their effectiveness, contributing to increasing awareness of this problem among firms' stakeholders. Accordingly, transparency and disclosure of non-financial information on corruption constitute one of the main instruments of its prevention [36].

3. Literature Review and Hypothesis Development

3.1. Corruption

Investigations, among others, into some firms such as Rolls-Royce in China or Wall Mart for alleged cases of corruption in their commercial relations have led to enormous concern on the part of society and a loss of trust and legitimacy for firms [37]. In this regard, corruption is among the social and environmental problems that most concern the population due, among other reasons to the

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enormous influence that companies have on their generation. Corruption "is a severe impediment to sustainable economic, political, and social progress for countries at all levels of development . . . This underscores the importance of intensifying efforts to improve governance frameworks and strengthen actions to improve the prevention, detection, and sanctioning of corruption" [38].

Furthermore, we highlight other definitions of corruption from the viewpoint of non-governmental organizations and voluntary initiatives such as Transparency International, the GRI 205, and the Global Compact. Accordingly, Transparency International [6] argues that corruption can be defined as "the abuse of power for personal gain" and can be classified as: (i) Large-scale corruption, whether the acts have been committed at the highest levels of the government involving the distortion of policies or central functions of the State; and (ii) minor or bribery corruption, in the event that there is an offer, promise, delivery, acceptance, or requirement of an incentive to carry out an illegal, unethical action that involves abuse of trust and political corruption. Moreover, the GRI 205 [39] and the Principle 10 of the Global Compact (www.pactomundial.org.) also address corruption such as bribery practices, unethical payments, fraud, extortion, collusion, and money laundering.

Similarly, prior researchers have contributed with some definitions to the academic literature. No and Osuagwu [11] explain that corruption can be defined "as the misuse or abuse of positions, power or procedures for personal or group interests, needs and wants. It involves the violation of established rules, practices, and procedures for personal and/or group interests. It is concerned with actions directed towards securing wealth, power, authority, influence, relevance or advantage through illegal means". Additionally, Issa and Alleyne [12] argue that the corruption impacts negatively on the economic development, corrode civil society, and reduces democratic accountability. Additionally, corruption involves huge social costs, among which one of the most serious is the increase in poverty [40], especially in underdeveloped or developing countries [9]. Regarding these arguments, corruption can be performed through the following forms: Bribery, fraud, and conflicts of interest [41,42].

In this regard, following Na et al. [14] existing literature [13,43–47] shows that corruption is affected, on the one hand, by external factors such as governance structures, legal systems, or corruption networks and, on the other hand, by internal factors of firms such as the firm age, the firm growth rate, corporate governance, etc. In this research, the authors are focused on the corruption disclosure as outlined in the European Directive 2014/95/EU and on the relationships between corporate governance mechanisms and corruption disclosure. In the next section, we draw from previous literature to develop hypotheses about whether some factors related to corporate governance mechanisms impact on corruption disclosure.

3.2. Corporate Governance and Corruption

Previous research argues that corporate governance is one of the main factors of corruption [14]. In this vein, corporate governance, defined as the system in which companies are managed [48] is related to the firms' behavior with regard to corruption. According to Jameli et al. [49], corporate governance promotes the commitment of firms towards ethical, transparent, and responsible behavior in their agreements.

Following the above arguments, Frías et al. [37] analyze the relationship between some corporate governance mechanisms and the level of implementation and scope of policies against corruption in the sample of North American and Canadian listed firms. These authors show that board size and the number of outsiders on the board have a positive and significant relationship with the undertaking of an ethical role and, therefore, avoid corruption behaviors. Similarly, Na et al. [14] study how corporate governance mechanisms impact on the level of corruption in emerging markets such as Brazil, Russia, India, and China. Their findings reveal that the CEO experience is positively related to firm corruption. Finally, Wu [13] and Jameli et al. [49] also show a positive relationship between corporate governance mechanisms and firm corruption.

Furthermore, based on disclosure, we highlight that there are also studies that analyze the relationship between corporate governance and corporate social responsibility disclosure. In this

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regard, Khan et al. [16] examine the relationship between corporate governance and corporate social responsibility in a sample of Bangladeshi firms. Their findings show that corporate governance mechanisms perform an active role in enhancing firm legitimacy through corporate social responsibility. Additionally, Michelson et al. [19] explain that board composition and leadership are related to sustainability disclosure in American and European contexts. Moreover, Said et al. [50] argue that corporate governance mechanism has an impact on corporate social responsibility disclosure in Malaysian public listed companies.

Bearing in mind the above arguments, there are also research papers that highlight that corruption should be considered as an important part of corporate social responsibility disclosure. In this vein, some studies show that there is a close relationship between the characteristics of corporate governance and the disclosure of information on corruption [18,51–54]. Therefore, in this research, we focus on the relationship between corporate governance mechanisms and corporate social responsibility disclosure, namely, on the aspects of corruption.

3.3. Hypotheses Development

In this section, we address the relationship between how corporate governance mechanisms effect corporate social responsibility disclosure, namely, corruption issues. Therefore, some internal corporate governance mechanisms such as board size, outside directors, and CEO duality are analyzed in order to determine their relationship with the level of disclosure on corruption issues.

3.3.1. Board Size

The board is the body in which strategic decisions are taken. Li et al. [55] explain that the board makes decisions on behalf of shareholders and ensures ethical management behaviors. Following these arguments, there are some organizations such as the IFAC (International Federation of Accountants, Geneva, Switzerland) [38] and the IFSA (Investment and Financial Services Association Limited, Sidney, Australia) [56] that recommend the development and implementation of ethical codes and anti-corruption policies by the board. In so doing, the board should come under analysis due to the fact that it plays a relevant role in the implementation of social responsibility practices, especially in the establishment of anti-corruption policies [37,57].

Regarding previous literature, there are two approaches to board size. On the one hand, the resource dependence theory explains that larger boards have a set of skills and experience that allow firms to obtain critical resources, prestige, and legitimacy [58,59]. Similarly, stakeholder theory shows that larger boards may be more advantageous because they represent a wider group of stakeholders [60]. In addition, following Li [61], larger boards have a better advisory role and this skill may offset some aspects related to less effective monitoring or lower maneuverability. On the other hand, there are works that purport that smaller boards are able to communicate, coordinate, and represent better the interests of stakeholders [62].

Empirically, previous works present a mixed relationship between board size and corporate social responsibility disclosure. There are a broad number of studies that find a positive relationship between board size and the disclosure of information on corporate social responsibility [63–65]. On the other hand, there are other authors that find a negative relationship between board size and corporate social responsibility disclosure [66]. Regarding the above-mentioned arguments, which present an unclear relationship between board size and the level of corporate social responsibility disclosure, we suggest that board size has an impact on social responsibility disclosure, namely, on the level of disclosure in corruption issues. Thus, we suggest the following hypothesis:

Hypothesis 1 (H1). *There is a systematic relationship between board size and the level of corruption disclosure.*

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3.3.2. Outside Director

The role of outside directors on the board is one of the most relevant corporate governance mechanisms [67]. In this regard, agency theory explains that the presence of outside directors on the board is a good measure with which to control and monitor managers' self-serving behaviors [68]. Furthermore, focusing on Li [69], when the boards of directors have more outside members, the board has a stronger structure and, therefore, can make better and more successful decisions. In this vein, outside directors check managers' performance that may be oriented to socially irresponsible decisions [70]. Furthermore, there are also studies that argue that outside directors exert better control over unethical behaviors and fraud [71]. In so doing, outside directors have greater incentives to carry out anti-corruption and bribery policies as these improve firms' solvency and success [37,72]. Therefore, it would appear that outside directors promote socially responsible activities which are focused on stakeholder orientations and the survival of their associated firms [73].

From the point of view of empirical works, the authors find a positive and significant relationship between the presence of outside directors and corporate social responsibility disclosure [67,74]. Regarding these arguments, we suggest that a higher percentage of outside directors enhance the disclosure of corporate social responsibility information, specifically, on aspects related to corruption. Therefore, we propose:

Hypothesis 2 (H2). There is a positive relationship between outside directors and the level of corruption disclosure.

3.3.3. CEO Duality Role

Previous literature argues that when the decision-making occurs under a single person who is holding simultaneously the dual role of CEO and chairman of the board of directors (CEO duality role), it may reach higher levels of performance in the firm [75]. In this sense, Dowel et al. [76] explain that the CEO dual role benefits the firm due to the CEO's interest in maintaining its reputation in the market.

Drawing on existing empirical evidence concerning the impact of CEO duality and corporate social responsibility disclosure, the relationship is unclear. There are studies which show a positive relationship between the CEO duality role and corporate social responsibility disclosure such as Daraghma et al. [77] who analyze this relationship in Palestine, Elsayed [78] in Egypt, and Kota et al. [79] in India. In this line, Jirapon et al. [80] suggest that CEO duality is positively related to corporate social responsibility disclosure because it enhances CEO reputation. Similarly, Jizi et al. [81] show that CEO duality is positively related to corporate social responsibility disclosure, highlighting that CEO behave ethically and fairly with regard to their stakeholders.

By contrast, Schmid et al. [82] analyze the separation of the positions of the CEO and chairman in Switzerland, a country where this constitutes a habitual practice, and conclude that there is no significant difference in corporate social responsibility practices between firms where the positions are carried out by a single person and those where they are separated. Moreover, Prado et al. [83] explain that an excess of CEO power is more closely linked to the pursuit of personal interests than the development of social responsibility behavior. These authors also argue that in this situation there is also less disclosure information on corporate social responsibility. According to the above, we argue that there is an unclear relationship between the CEO duality role and the disclosure of corporate social responsibility information, specifically, on aspects related to corruption. Stated formally:

Hypothesis 3 (H3). There is a systematic relationship between CEO duality role and the level of corruption disclosure.

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4. Research Design

4.1. Sample

The sample description is presented in Table 1, Panel A. The analysis focuses on a sample of firms listed in Europe which are part of the EuroStoxx 200 index. We do not consider firms operating or listed in France and Denmark as in these countries corporate social responsibility reports are mandatory throughout the studied period. We also exclude from the sample selection firms operating in the banking and insurance industries, firms which present financial reports in a currency other than Euros and some firms from which necessary information is lacking. Thus, the total sample results in an unbalanced panel of 198 firm-year observations from 2014 to 2017. The studied period starts in 2014, as this is when the aforementioned Directive 2014/95/ EU comes into effect. Following Khan et al. [16], panel data methodology is used with the purpose of eliminating the existence of heterogeneity and heteroscedasticity of the independent variables used in our study.

Table 1. Sample description.

Panel A: Sample Size	2014	2015	2016	2017
1. Number of firms (EuroStoxx 200)	200	200	200	200
2. Less				
2.1 Firms operating or listed in France and Denmark.	43	43	43	43
2.2 Firms operating in banking and insurance sector	43	43	43	43
2.3 Firms presenting financial reports in a currency different from Euro:	62	62	62	62
2.4 Firms without necessary information	3	3	3	1
3. Total final sample	49	49	49	51
Panel B: Industry type			N	%
Real Estate services			8	4.04
Oil and energy			28	14.14
Technology and telecommunications			28	14.14
Consumer services			30	15.15
Consumer goods			42	21.21
Basic materials, manufacturing, and construction			62	31.31
Total			198	100
Panel C: Country			N	%
Belgium			3	1.52
UK			12	6.06
Switzerland			4	2.02
Italy			10	5.05
Finland			16	8.08
Spain			31	15.66
Netherlands			30	15.15
Germany			92	46.46
Total			198	100

Panel B and C, in Table 1, also show the type of the industry and countries that form our sample. The data for our analysis is taken from different sources: We collect the corporate governance and financial data from the corporate governance and annual reports published by the Spanish National Stock Market Commission (CNMV) and the firms' websites; and the social responsibility information is collected from the annual reports of our listed sample firms.

4.2. Model Specification

We use multiple regression analysis, based on previous research such as Muttakin and Khan [67] and Khan et al. [16], to test the relationship between corporate governance variables and corporate

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social responsibility disclosure on corruption aspects through the proposed hypotheses. The regression model is the following:

$$CBI_{i,t} \equiv \beta_0 + \sum_{j=3}^{1} \beta_j \cdot CorporateGovernance_{i,t,} + \sum_{j=4}^{7} \beta_j \cdot Control_{i,t,} + \mu_{i,t} + \eta_i$$

where CBI is the corruption disclosure index; Corporate Governance is represented by board size, outside directors, and CEO duality; and Control are the control variables such as profitability, leverage, firm size, age, corporate governance system, industry, and firm years.

4.3. Variables

Dependent Variable

The corruption disclosure index represents the dependent variable in our study. Following Alonso et al. [84], we have carried out an index of disclosure which contains a checklist of items related to the non-financial information concerning corruption which is published in the annual reports (see Table 2). Thus, the authors have designed a disclosure index according to the guidelines of G4 and Standard 205 from the GRI which are suggested by Directive 2014/95/EU.

Table 2. Corruption disclosure index.

A ti	Report the anti-corruption policies, procedures, and standards			
Anti-corruption policies, procedures, and standards	Reports on the managerial position responsible for this issue			
Criteria used in corruption-related risk assessments	Report the total number and percentage of operations assessed for risks related to corruption			
	Report the significant risks related to corruption identified through the risk assessment			
Internal control processes and resources allocated to preventing corruption	Report the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms, or hotlines			
preventing corruption	Reports on the managerial position responsible for this issue			
Employees having received appropriate training	Report the total number and percentage of employees that have received training on anti-corruption, with a breakdown according to employee category and region			
	Report that employees have received training on anti-corruption, with a breakdown according to employee category and region			
	Report the use of whistleblowing mechanisms			
Use of whistleblowing	Report the possibility of making complaints anonymously			
mechanisms	Report on the degree of satisfaction of the users of the irregularity reporting mechanisms			
The number of pending or completed legal actions on anticompetitive behavior	Report the total number and nature of confirmed incidents of corruption			
	Report the total number of confirmed incidents in which employees were dismissed or disciplined for corruption			
	Report public legal cases regarding corruption brought against the organization or its employees during the reporting period and the outcomes of such cases			

Source: [84].

Accordingly, the corruption disclosure index is designed through an analysis of the contents of the annual reports awarding the following scores [85,86]: One if an item included in the checklist is disclosed completely; zero if an item included in the checklist is not disclosed; and 0.5 if an item included in the checklist is disclosed partially. In so doing, each item is assigned a score related to the amount of information that is disclosed in the annual reports. According to Muttakin and Khan [67] the corruption disclosure index is measured as follows:

$$CBI_{j} = \frac{\sum_{t=1}^{n_{j}} Xij}{n_{j}}$$

where: The CBI_j index is the corruption disclosure index for j firms; nj is the numbers of items expected for j firms, where $n \le 14$; and X is one if full information is disclosed, zero if information is not disclosed, and 0.5 if partial information is disclosed, in so doing, $0 \le CBI_j \le 1$. Thus, the corruption disclosure index is measured by calculating the ratio of the scores awarded to the maximum attainable score.

Following previous disclosure index studies [52,67], we test Cronbach's alpha coefficient to analyze the consistency of the disclosure index. Accordingly, the coefficient alpha for our index is 0.769. Hence, this value provides a good measure of accuracy of the set of items that form the corruption disclosure index.

4.4. Independent and Control Variables

Regarding the independent variables, we take some corporate governance variables that previous literature suggests are related to social responsibility disclosure. First, board size is measured as the number of members on the board of directors. In this regard, some authors argue that board size has a relationship with corporate social responsibility disclosure [64,67,74]. Second, outside directors is the percentage of outside directors on the board of directors. Chen et al. [53] show that the outside directors' role is less aligned to management than the insiders' role, for this reason, they may be more proactive in increasing social responsibility disclosure policies. Third, CEO duality is a dummy variable which takes value one when the CEO and chairman are the same person in a firm, otherwise it takes value zero. There is contradictory literature about the relationship between CEO duality and corporate social responsibility disclosure. Some authors find a positive relationship [80,81], others negative [52] and also neutral [67] relationship with corporate social responsibility disclosure.

In order to avoid any bias in our results, a set of control variables from previous literature is included in our model. Profitability is measured through the ratio of earnings before interest and taxes to total assets. Previous studies present differing conclusions. On the one hand, some authors argue that profitable firms disclose more corporate social responsible aspects [18,87,88]. On the other hand, [67] indicate a negative relationship between corporate social responsibility and profitability or financial performance. There are also studies that do not present any relationship between the above variables [89,90]. Leverage is calculated through book value of total debt to total assets. Kim et al. [87] explain that the most socially responsible firms have a lower percentage of debt. However, Preston et al. [90] argue that firms with a higher level of indebtedness voluntarily offer social responsible information in order to reduce their agency costs and, consequently, their cost of capital. Firm size is the natural logarithm of total sales [14]. It is suggested that larger firms are more likely to disclose more information than smaller firms [70]. Age is the logarithm of the number of years since a firm's constitution. In this regard, Muttakin et al. [67] explain that older firms disclose more social responsible information. Corporate governance system is a set of three dummy variables that control the institutional factors of each corporate governance system of our sample. Here, we classify the corporate governance systems in Anglo-Saxon, Germanic, and Latin as done by Aceituno [37] in their research. Finally, following Muttakin et al. [67], we also use dummy variables to control the type of industry and the firm years.

5. Results

Table 3 shows the descriptive statistics for the dependent and the independent variables used. First, the corruption disclosure index presents an average of 28%. Second, the independent variables show the following figures. Board size is around 17 members. The average percentage for outside directors on boards is 73%. Moreover, the average for duality between CEO and chairman is 15.1% in our studied sample. Third, regarding the control variables, the figures present a sample with an average profitability of 0.075, an average leverage of 0.623, and an average firm size of 9.889. Finally, 73.2% of our firms have a German corporate governance system, 6.1% the Anglo-Saxon corporate governance system, and 20.5% the Latin corporate governance system.

Variables Mean Standard Deviation Minimum Maximum Dependent variable 0.191 0.038 0.923 Corruption disclosure index 0.280Independent variables 7 42 Board size 16.975 7.382 Outside directors 0.730 0.3 0.1531 CEO duality 0.151 0.359 1 Control variables -0.0390.239 Profitability 0.048 0.075 0.623 0.134 0.319 0.980 Leverage 5.551 9.889 1.220 12.349 Firm size 5 79.273 51.917 186 Age 0 German corporate governance system 0.732 0.443 1 0 Anglo-Saxon corporate Governance system 0.239 1 0.0610 0.207 0.4061 Latin corporate governance system

Table 3. Descriptive statistics.

Note: Corruption disclosure index; Board size: Number of members of board of directors; Outside directors: Percentage of outside directors on board of directors; CEO duality: Dummy variable which takes value one when the CEO and chairman are the same person in a firm, otherwise it takes value zero; Profitability: Ratio of earnings before interest and taxes to total assets; Leverage: Book value of total debt to total assets; Firm size: Natural logarithm of total sales; Age: Logarithm of the number of years of firm's constitution; Corporate governance system: A set of three dummy variables that controls the institutional factors of each corporate governance system of our sample these being the Germanic, Anglo-Saxon, and Latin corporate governance systems.

The correlations and the variance inflation factor (VIF) for all the variables are reported in Table 4. The figures present no multicollinearity problems due to the fact that the correlations between variables are lower than 0.7 in all cases [91]. Regarding the VIF, the findings are between 1.25 and 2.13. Hence, there is sufficient evidence to rule out multicollinearity as no value exceeds 10 [92].

Table 5 presents the results of the multiple regression models which show the relationship between corporate governance variables and the corporate social responsibility disclosure on corruption. In Model 1, we analyze the relationship between board size and corruption disclosure. The findings show that there is a positive and non-significant relationship between board size and corruption disclosure ($\beta = 0.001$, p > 0.1). Thus, in our paper we cannot corroborate that board size and corruption disclosure are related. Hypothesis 1 is not supported. Finally, Model 1 is significant (F = 5.950; p < 0.001) and the variables explain 40% (R2) of the variation in corruption.

Table 4. Correlations and variance inflation factor (VIF).

Variables	1	2	3	4	5	6	7	8	9	10	11
Corruption disclosure index	1										
2. Board size	-0.041	1									
3. Outside directors	0.276 ***	-0.106	1								
4. CEO duality	0.461 ***	-0.243 ***	0.328 ***	1							
5. Profitability	-0.019	-0.294 ***	0.084	0.061	1						
6. Leverage	-0.023	0.368 ***	0.201 ***	-0.073	-0.405 ***	1					
7. Firm size	-0.013	-0.013 ***	-0.038	-0.089	-0.358 ***	0.371 ***	1				
8. Age	-0.124 *	0.042	-0.321 ***	-0.133 *	0.038	-0.087	-0.047	1			
9. German corporate governance system	-0.354 ***	0.264 ***	-0.217 ***	-0.349 ***	-0.026	-0.033	-0.047	0.341 ***	1		
10. Anglo-Saxon corporate governance system	-0.066	-0.126 *	-0.019	-0.107	0.128 *	-0.018	-0.002	-0.077	-0.420 ***	1	
11. Latin corporate governance system	0.425 ***	-0.215 ***	0.248 ***	0.444 ***	-0.046	0.047	0.053	-0.327 ***	-0.645 ***	-0.129 ***	1
VIF	1.56	2.13	1.37	1.40	1.39	1.60	1.72	1.25	1.84	1.38	1.24

Note: *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

Table 5. Multiple regression analysis.

Model 1	Model 2	Model 3	Model 4
0.001 (0.001)	-	-	-0.001 (0.002)
-	0.335 *** (0.0974)	-	0.233 *** (0.092)
-	-	0.187 *** (0.034)	0.156 *** (0.039)
-0.082	-0.321	-0.036	-0.254
(0.250)	(0.261)	(0.263)	(0.243)
0.022	-0.093	0.075	-0.007
(0.105)	(0.110)	(0.098)	(0.108)
-0.014	-0.004	-0.009	0.001
(0.016)	(0.013)	(0.012)	(0.016)
0.002	0.007	0.008	0.008
(0.014)	(0.016)	(0.013)	(0.015)
-0.058	-0.061	-0.037	-0.046
(0.042)	(0.041)	(0.045)	(0.043)
0.224 ***	0.198 ***	0.139 ***	0.130 ***
(0.042)	(0.040)	(0.033)	(0.040)
0.166 ***	0.203 ***	0.132 ***	0.1701 ***
(0.043)	(0.038)	(0.039) ***	(0.037)
0.157 ***	0.174 ***	0.112	0.139 ***
(0.049)	(0.044)	(0.047)	(0.045)
0.017	0.028	-0.043	-0.029
(0.044)	(0.045)	(0.045)	(0.046)
0.135 ***	0.158 ***	0.118 ***	0.146 ***
(0.048)	(0.049)	(0.047)	(0.051)
-0.045	0.010	-0.045	0.008
(0.079)	(0.073)	(0.072)	(0.078)
-0.085 ***	-0.070 ***	-0.088 ***	-0.076 ***
(-0.035)	(0.034)	(0.032)	(0.032)
-0.124 ***	-0.113 ***	-0.131 ***	-0.121 ***
(0.030)	(0.030)	(0.028)	(0.029)
-0.119 ***	-0.110 ***	-0.126 ***	-0.116 ***
(0.031)	(0.030)	(0.028)	(0.027)
0.341 *	0.034	0.250	0.032
(0.197)	(0.194)	(0.151)	(0.208)
198	198	198	198
0.400	0.444	0.485	0.506
5.950	8.200	12.990	11.150
	(0.001) 0.082 (0.250) 0.022 (0.105) -0.014 (0.016) 0.002 (0.014) -0.058 (0.042) 0.224 *** (0.042) 0.166 *** (0.043) 0.157 *** (0.049) 0.017 (0.044) 0.135 *** (0.049) -0.045 (0.079) -0.085 *** (-0.035) -0.124 *** (0.030) -0.119 *** (0.031) 0.341 * (0.197) 198 0.400	(0.001) - 0.335 *** (0.0974)	(0.001) 0.335 *** (0.0974) - - 0.187 *** (0.034) - - 0.187 *** (0.034) - - 0.082 (0.250) (0.261) (0.263) 0.022 -0.093 0.075 (0.105) (0.110) (0.098) -0.014 -0.004 -0.009 (0.016) (0.013) (0.012) 0.002 0.007 0.008 (0.014) (0.016) (0.013) -0.058 -0.061 -0.037 (0.042) (0.041) (0.045) 0.224 *** 0.198 *** 0.139 *** (0.042) (0.040) (0.033) 0.166 *** 0.203 *** 0.132 *** (0.043) (0.038) (0.039) *** 0.157 *** 0.174 *** 0.112 (0.049) (0.044) (0.047) 0.017 0.028 -0.043 (0.044) (0.045) (0.045)

Note: Corruption disclosure index; *Board size*: Number of members of board of directors; *Outside directors*: Percentage of outside directors on board of directors; *CEO duality*: Dummy variable which takes value one when the CEO and chairman are the same person in a firm, otherwise it takes value zero; *Profitability*: Ratio of earnings before interest and taxes to total assets; *Leverage*: Book value of total debt to total assets; *Firm size*: Natural logarithm of total sales; *Age*: Logarithm of the number of years of firm's constitution; *Corporate governance system*: A set of three dummy variables that controls the institutional factors of each corporate governance system of our sample, these being the Germanic, Anglo-Saxon, and Latin corporate governance systems. Finally, we also use dummy variables to control the *type of industry* and the *firm years*. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

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Hypothesis 2 proposes that the outside directors have a positive relationship with corruption disclosure. As shown in Model 2, the proportion of outside directors is significant (β = 0.335, p < 0.01). Therefore, Hypothesis 2 is supported. Additionally, Model 2 is significant (F = 8.200; p < 0.001) and the variables explain 44.4% (R2) of the variation in corruption.

Hypothesis 3 suggests that there is a systematic relationship between CEO and chairman duality and the disclosure of corruption. As can be seen in Model 3 CEO duality is positively and statistically significant ($\beta = 0.187$, p < 0.01) with corruption disclosure, confirming Hypothesis 3. Moreover, Model 3 is significant (F = 12.990; p < 0.001) and the variables explain 48.5% (R2) of the variation in corruption.

In Model 4, we regress corruption disclosure with all corporate governance mechanisms to analyze the relationship of all the hypothesis variables in one model. The findings related to the board size, outside directors, and CEO duality are consistent with the main results shown in Models 1, 2, and 3.

Regarding the control variables, our overall findings present a non-relationship between profitability, debt and firm size, and corruption disclosure. These results are in line with previous studies [81,82]. In addition, taking German corporate governance system as the reference category, it can be seen in all models that Latin corporate governance systems disclose more corruption information than Anglo-Saxon corporate governance systems. With regard to industry we argue that, taking the oil and energy industry as the reference category, the data in all models indicate that basic materials, manufacturing and construction, consumer goods and technology, and telecommunications disclose higher corruption information than consumer and real estate services industries. Finally, Model 4 shows that the overall model is significant (F = 11.150; p < 0.001) and the variables explain 50.6% (R2) of the variations in corruption disclosure. Thus, this last model presents the best accuracy in explaining the corruption disclosure.

6. Further Analyses

In this section, we check the robustness of the estimated relationships between corporate governance mechanisms and level of corruption disclosure through another set of regressions (see Table 6). First, we measure the corruption disclosure using the natural logarithm value of the anti-corruption index as a dependent variable. Thus, we rerun Model 4, in Model 5, and find that the results are similar to our previous models suggesting that our results are robust. Second, following Muttakin et al. [68], we rerun, in Model 6, our main model after dropping all control variables. The findings are also consistent with the results presented in above Table 5. Third, due to the fact that different board characteristics may influence firms' corruption disclosure, we used a random effect data panel models in order to estimate more robust and consistent results. Following Pindado et al. [93], we argue that random effects are also robust to verify the unobservable heterogeneity and, therefore, are useful to analyze the significance of our variables' coefficients. Accordingly, Model 7 presents unchanged results in respect to our previous figures. In addition, the Hauman test rejects fixed effects and shows that random effects are suitable to test our findings.

	ř		
Variables	Model 5	Model 6	Model 7
Board size	-0.001	0.001	-0.001
	(0.010)	(0.001)	(0.003)
Outside directors	0.732 **	0.178	0.286 ***
	(0.400)	(0.082)	(0.113)
CEO duality	0.620 ***	0.218	0.145 ***
	(0.142)	(0.048)	(0.052)
Profitability	-1.185 (0.971)	-	-0.496 (0.343)

Table 6. Further analyses.

Table 6. Cont.

Variables	Model 5	Model 6	Model 7
I	-0.155		-0.070
Leverage	(0.483)	-	(0.140)
P'	0.005		0.010
Firm size	(0.075)	-	(0.019)
	0.064		0.011
Age	(0.075)	-	(0.024)
A. 1. C.	-0.119 ***		-0.045
Anglo-Saxon corporate governance system	(0.192)	-	(0.074)
I dia amanda	0.279		0.127
Latin corporate governance system	(0.164)	-	(0.051)
Paris materials manufacturing and account of	0.446		
Basic materials, manufacturing, and construction	(0.128)	-	
	0.316		-
Consumer good	(0.154)	-	
	-0.486		Yes
Consumer services	(0.205)	-	ies
m 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.325		_
Technology and telecommunications	(0.197)	-	
D. I.F. (-0.628		-
Real Estate services	(0.423)	-	
	-0.279		
Year dummy 1	(0.138)	-	
V	-0.453		-
Year dummy 2	(0.139)	-	Yes
V 1 2	-0.445		-
Year dummy 3	(0.138)	-	
	-2.181 **	0.105 *	-0.053
Constant	(0.967)	(0.059)	(0.258)
Observations	198	198	198
R^2	0.401	0.23	
F-statistic	10.220	17.740	
Significance of F	0.000	0.000	
Wald Chi-square			97.03 ***
Hauman test			4.42

Note: Corruption disclosure index; *Board size*: Number of members of board of directors; *Outside directors*: Percentage of outside directors on board of directors; *CEO duality*: Dummy variable which takes value one when the CEO and chairman are the same person in a firm, otherwise it takes value zero; *Profitability*: Ratio of earnings before interest and taxes to total assets; *Leverage*: Book value of total debt to total assets; *Firm size*: Natural logarithm of total sales; *Age*: Logarithm of the number of years of firm's constitution; *Corporate governance system*: A set of three dummy variables that controls the institutional factors of each corporate governance system of our sample, these being the Germanic, Anglo-Saxon, and Latin corporate governance systems. Finally, we also use dummy variables to control the *type of industry* and the *firm years*. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

7. Discussion

This study analyzes whether corporate governance mechanisms such as board size, outside directors, and CEO duality are related to corporate social responsibility disclosure, namely, corruption issues in the wake of the publication of the European Directive 2014/95/EU.

An examination of our empirical analyses reveals a number of interesting and relevant results. First, it appears that the number of directors on the board does not have a relationship with corruption

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disclosure. In this regard, previous literature has shown a positive or negative relationship between board size and corporate social responsibility disclosure. However, in our case, our results show that board size does not increase the level of disclosure on corporate social responsibility issues. In our study, perhaps the specific context and period under study may be the causes of disparities in our results, related to the board size, in contrast with those from prior literature.

Second, with regard to outside directors, the findings reveal a positive and significant relationship with the disclosure of corruption issues. In this vein, firms that have more outside director members tend to have greater disclosure of social corporate responsibility aspects related to corruption. This is consistent with a number of prior studies that argue that outside directors play a significant role in enhancing the disclosure of social responsibility activities [67,74,81] because they monitor better firms' unethical behavior and fraud [59]. Furthermore, there is also literature that explains that outside directors are more concerned with encouraging social demands and stakeholders' expectations because they have no economic interests in the firm [67] and these actions increase their reputation [94]. Accordingly, this support the conclusion that outside directors increase the disclosure of corruption aspects.

Third, this study purports that the presence of CEO duality has a positive and significant relationship with disclosure on corruption aspects that are mentioned in the European Directive 2014/95/EU. Hence, when the CEO and chair are the same person this dual role enhances the disclosure of corporate social responsibility practices related to the fight against corruption as these practices foster reputations and improve market success [80]. Similarly, some research works explain that when there is CEO duality business decision-making occurs more easily and quickly [77] and also their business knowledge help take decisions timelier and more optimal [79]. These aspects could positively influence the development of disclosure of corporate social responsibility information and, thus, aspects as novel as the information on corruption.

In conclusion, the overall results of this research provide empirical evidence that corporate governance mechanisms are important factors in increasing corruption disclosure in European countries. Namely, outside directors and CEO duality are factors that play an active role in increasing disclosure on corruption issues.

8. Conclusions, Limitation, and Future Lines of Research

The present work studies the literature in corporate governance examining different factors related to board size, outside directors and CEO duality and their influence on corporate social responsibility disclosure, namely, corruption issues.

Our work provides a series of contributions to the previous literature on sustainability, specifically, with regard to non-financial information and the aspects of corruption, as well as to corporate governance.

From the point of view of the theoretical contributions, the existing literature related to corporate social responsibility disclosure [14,23,32,55] is extended. Namely, this study complements previous literature on analysing which factors influence in the corporate social responsibility disclosure. While prior researches show that corporate governance impact on the corporate social responsibility disclosure [50,61,81], this work highlights, specifically, that some corporate governance mechanisms such as CEO duality and board size impact on the disclosure of corruption issues. In addition, our findings also help to expand the corporate governance literature showing that managers should focus on outside directors and CEO duality because they impact on corporate social responsibility disclosure, namely, in corruption aspects. In this vein, to the extent of our knowledge, this work is also the first paper that analyses how corporate governance mechanisms impact on corruption disclosure issues according to the European Directive 2014/95/EU. Therefore, we address the call for more studies [14] in studying how corporate governance mechanism may impact on corruption aspects, namely, in the disclosure, after the publication the Directive 2014/95/EU [1].

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From the point of view of the methodological contributions, in the corporate social responsibility disclosure literature, this paper is, as far as we know, the first to propose a corruption disclosure index related to the Directive 2014/95/EU. Thus, this study provides a guide to firms, showing the main aspects that should be considered regarding the disclosure in corruption.

Finally, the results of this research work have also some relevant implications. First, the findings address the call of the academic community that studies which factors impact on corporate social responsibility disclosure, specifically, on aspects of corruption [14]. Furthermore, our findings offer researches a new perspective regarding the corporate governance mechanisms that may influence in the corruption disclosure. Thus, this study opens a new door for researches who want to analyse these relationships in other environments. Second, this study has implications for managers highlighting that this paper provides guidelines about how to manage corporate governance mechanisms in order to enhance corporate social responsibility disclosure. Accordingly, managers should focus on corporate governance mechanism such as outside directors and CEO duality when they develop the strategies and firm goals related to the corruption disclosure. Third, our results provide an interesting point of view to regulators who studies the corporate social responsibility and, namely, the corruption issues. Furthermore, our work may be considered a useful guide to help regulators and policy makers to work on appropriate regulatory reforms related to corporate governance codes and international standards in corporate social responsibility.

This study is subject to several limitations that may be considered for future lines of research. First, our findings need to be re-evaluated in other contexts. For this reason, it could be interesting to carry out the study not only in the European context, where the Directive is applied, but also in other countries in order to make comparisons and be able to obtain conclusions. Second, it would be interesting to take into account other corporate governance internal mechanisms such as mutual monitoring among the executives or ownership structure [69,95]. Regarding mutual monitoring, Li [69] finds that it is an effective and relevant control mechanism in firms. Thus, it could be interesting to study how mutual monitoring influence on corporate social responsibility disclosure. Previous literature has also focused on ownership structure from large shareholders, who have holdings of 5% or more, highlighting that is a good mechanism that may influence in corporate social responsibility disclosure [16]. Third, some researchers also argue that there are other governance mechanisms related to the external environment of the firm such as the market competition for corporate control [95] and the institutional and regulatory environment [24] that should be considered as they may impact on the disclosed of corporate social responsibility [24]. Finally, future research could also extend the time period analyzed, for instance, we could study the corruption disclosure before and after the publication of the European Directive 2014/95/EU in order to see the difference between these periods.

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