Do institutional investors drive corporate transparency regarding business contribution to the Sustainable Development Goals?

Isabel-María García-Sánchez1 | Lázaro Rodríguez-Ariza2 | Beatriz Aibar-Guzmán3 | Cristina Aibar-Guzmán3

ABSTRACT

Institutional investors show increasing interest in how companies align their corporate social responsibility (CSR) strategies with the Sustainable Development Goals (SDGs) proposed by the United Nations (UN). The information disclosed in this regard is essential to know and monitor business contribution to the 2030 Agenda. In this paper we analyze the influence that institutional investors have on the adoption of the disclosure strategy established by UN and the Global Reporting Initiative (GRI) - GRI-SDG Compass - by companies. The results obtained for a sample of 989 international companies, which prepare their sustainability reports according to the GRI, show that ownership by foreign investors, pension funds and "other" investors boosts the relevance of the information disclosed in relation to the 2030 Agenda. On the contrary, government, financial institutions and cross-holdings have no impact on the information systems developed in this regard.

Keywords: Sustainable Development Goals (SDGs), SDG Compass, Corporate Social Responsibility, sustainability reporting, institutional investors, institutional ownership.

1. INTRODUCTION

The SDGs comprise the global priorities and aspirations established by the UN in order to achieve sustainable economic growth by 2030. They consist in 17 objectives, 5 axes, and 169 goals which form an interconnected system (Schramade, 2017) oriented to the distribution and the equal and ecological use of resources by different agents for a better management of the planet (UN General Assembly, 2015). In this sense, business contribution to the achievement of the SDGs is unquestionable (GRI, 2015; Sullivan et al., 2018), and such objectives must be part of the companies' CSR strategy so that it has real meaning and usefulness.

On the other hand, the Principles for Responsible Investment (PRI), presented by the United Nations Global Compact (UNGC) in 2016, promote that investors take ethical, social and environmental issues into consideration when making their investment decisions, encouraging their activism to boost companies to act on CSR (Amel-Zadeh and Serafeim, 2018; Dyck et al., 2019; Motta and Uchida, 2018). In this sense, Socially Responsible Investment (SRI) establishes new game rules in the relationship of institutional investors with CSR and corporate transparency (Solomon et al., 2002; Sparkes and Cowton, 2004). In this line, due to the significant growth of SRI, rating agencies, such as RobecoSAM, have begun to consider issues related to the companies' contribution to the SDGs or 2030 Agenda to assess their sustainable performance in the Dow Jones Sustainability Index (DJSI) framework.

Several arguments explain the interest of institutional investors in corporate sustainability. A first reason refers to the consideration that CSR-related actions generate value for companies and, therefore, financial performance for investors (Derwall et al., 2011; Dyck et al., 2019; Mackey et al., 2007). Other authors allude to risk aversion on the part of institutional investors (Saleh et al., 2010) and the consideration that CSR-related actions contribute to mitigate certain risks (Amel-Zadeh and Serafeim, 2018; Dyck et al., 2019; Gibson and Krueger, 2018). Finally, the interest of institutional investors in CSR has also been explained as a response to different pressures (social, governmental, media,...) or legislation (Ferreira and Matos, 2008; Jansson and Biel, 2014; Oh et al., 2011), as well as for ethical reasons and a genuine concern for sustainable development (Amel-Zadeh and Serafeim, 2018; Derwall et al., 2011).

Regardless of the underlying reasons for their interest in CSR, the fact is that CSR reporting helps market participants make more informed investment decisions (Amel-Zadeh and Serafeim, 2018; Dhaliwal et al., 2012), reducing information asymmetries (Semenescu and Curmei, 2015) and providing material information to estimate the investments' risk and long-term performance (Brandon and Krüger, 2018; Dyck et al., 2019; Saleh et al., 2010). As a result, institutional investors lead "a new form of SRI shareholder pressure" (Sparkes and Cowton, 2004: 45), promoting information transparency (García-Sánchez et al., 2014) and a better "information environment" (Lin et al., 2018).

In order to satisfy the growing interest of investors worldwide, it is necessary for companies to report on the actions they take to tackle the SDGs. Thus, the preparation and disclosure of relevant and quality information on business contribution to the SDGs is the key to satisfy the agencies' interest and attract potential investors. In this sense, the GRI, the UNGC and the World Business Council for Sustainable Development (WBCSD) issued, simultaneously with the presentation of the SDGs, a guide called SDG Compass. It is a tool that explains how to integrate the SDGs into business strategies and, especially, guides the companies' disclosure policy on CSR, turning sustainability reports into "a strategic tool" (GRI, 2015, p. 26), whether it is an independent report or whether the CSR reports prepared in accordance with the GRI G4 guide are used. Thus, SDGs-related disclosures prepared in accordance with the SDG Compass can make sustainability reports "more substantive and meaningful" (Sethi, 2005: 113) to institutional investors by helping them to assess companies' social and environmental performance (Rosati and Faria, 2019a and 2019b) and understand how CSR activities can improve a company's future value, strengthening their portfolios' resilience (Brandon and Krüger, 2018).

Several studies have analyzed the influence of institutional investors on the voluntary disclosure of CSR information by companies, obtaining mixed evidence. On the one hand, a majority of authors (Bose et al., 2017; García-Sánchez et al., 2014; Teoh and Shiu, 1990) document a positive impact of institutional investors on the disclosure of CSR information promoting enhanced CSR reporting; while, on the other, some studies (Arora and Dharwadkar, 2011) report a negative influence (i.e. institutional ownership impacts negatively on the disclosure of CSR information). As noted by Rees and Rodionova (2013: 242), this mixed evidence suggests that the direction of causality is not clear and that the link between institutional ownership and CSR reporting may be complex.

However, these studies analyzed the role of institutional investors as a uniform group and do not consider that they are a heterogeneous group. Indeed, each type of institutional investor has specific characteristics in terms of its resources and monitoring capabilities (Fich et al., 2015), and different investment preferences and horizons (Almazan et al., 2005; Hoskisson et al., 2002), which affect its attitude towards business sustainability and, consequently, its interest in CSR information (Ferreira and Matos,

2008; Oh et al., 2011) as well as the influence institutional investors exert on companies for disclosing such information (García-Meca and Pucheta-Martínez, 2018). As a result, the pattern of the relationship between institutional ownership and CSR reporting will depend on the type of institutional investor in question (Cox et al., 2004).

The aim of this paper is to deepen the study of the relationship between institutional ownership and CSR policies, by analyzing the influence of different types of institutional investors on business transparency in terms of CSR. Specifically, we consider six types of institutional investors (foreign investors, cross-holdings, government, financial institutions, pension funds and "other" investors) and examine to what extent each of them promotes the disclosure to stakeholders of more relevant CSR information, considering, for this purpose, the level of transparency in relation to the SDGs.

The sample used to carry out the analysis corresponds to an unbalanced data panel, made up of 2,615 observations related to 989 international companies that prepared their sustainability reports according to the GRI during the period 2015-2017. The results show that the presence of foreign investors, pension funds and "other" investors boosts the relevance of the information disclosed about the 2030 Agenda. On the contrary, government, financial institutions and cross-holdings have no impact on the information systems developed in this regard.

Our study contributes to the literature on CSR by expanding the available empirical evidence about the influence of ownership structure on the voluntary disclosure of CSR information (Cox et al., 2004; Ferreira and Matos, 2008; Johnson and Greening, 1999; Oh et al., 2011; Prado-Lorenzo et al., 2009) in various ways. First, our results shed light on the different role that each type of institutional investor can have in improving informative transparency in this area. Thus, we contribute to this literature by showing that institutional investors should be treated as a heterogeneous group whose influence on CSR reporting will be different depending on the characteristics and the interest in corporate sustainability of each specific type of institutional investor. In this sense, our work differs from most previous studies in that, instead of considering institutional investors as a homogeneous group (Amel-Zadeh and Serafeim, 2018; Boone and White, 2015; Chen et al., 2019; Dyck et al., 2019), we assume that different types of institutional investors have different preferences or interest with respect to CSR and,

consequently, they will exert different pressure on companies to adopt actions in this area. In addition, compared to other studies that consider generic categories of institutional investors (Harjoto and Jo, 2008; Kim and Yi, 2015; Motta and Uchida, 2018; Pucheta-Martínez and Chiva-Ortells, 2018), based on their investment horizon or their connection to companies, or those that focus on some specific types of institutional investors (Bose et al., 2017; Dam and Scholtens, 2012; Ghazali, 2007; Khan et al., 2009; Pucheta-Martínez et al., 2019b), our study presents a greater degree of detail, analyzing separately six categories of institutional investors, some of them, such as cross-holdings, little analyzed in the literature on CSR (Prado-Lorenzo et al., 2009; Rees and Rodionova, 2013), which has placed more emphasis on other categories of institutional investors.

Secondly, as far as we are aware, our study is the first to examine the relationship between institutional ownership and informative transparency in the CSR area within the 2030 Agenda framework, considering the level of transparency in relation to the SDGs. In this sense, although some studies (Rosati and Faria, 2019a and 2019b) have analyzed potential drivers for the disclosure of information on business contribution to the SDGs, these studies have not considered the role of institutional investors. Thus, our study adds empirical evidence to this emerging research line.

Third, from a methodological viewpoint, our paper contributes to the literature by adding a new way of measuring the disclosure of CSR information to those already used in previous studies (Rosati and Faria, 2019a and 2019b), evaluating the relevance of the information disclosed in relation to business contribution to the SDGs based on a five-point scale according to the proposals collected in the SDG Compass. In addition, we highlight the amplitude of the sample (2,615 observations relating to 989 companies located in 53 countries and operating in ten activity sectors), which contributes to the generalization of our results.

The paper is structured in five sections. Following this introduction, the second section outlines the characteristics of the SDG Compass. The third section presents the development of the research hypotheses based on the analysis of the interest of institutional investors in CSR and the information disclosed by companies. The fourth section sets out the study's empirical framework. The fifth section summarizes the main results along with a discussion of them. Finally, the last section presents the main

conclusions and implications of our study as well as its limitations and some possible future extensions.

2. THE SUSTAINABLE DEVELOPMENT OBJECTIVES AND THE GRI-SDG COMPASS STRATEGY

The SDGs were adopted at the UN General Assembly held in September 2015 with the aim of "to stimulate action over the next 15 years in areas of critical importance for humanity and the planet" (UN General Assembly, 2015, p. 3). The achievement of the SDGs requires the commitment of companies with a sustainable business model that allows them to tackle, in a creative and innovative way, the challenges posed by sustainable development (Caiado et al., 2018; Rosati and Faria, 2019b). The basis of this new business model is the alignment of the organization's objectives with the SDGs, integrating them into business strategies, and the disclosure of information about the degree of progress attained towards the achievement of the SDGs (GRI, 2015; Rosati and Faria, 2019a) through the use of the SDG Compass.

As noted earlier, the SDG Compass was developed as a guide to help companies to integrate sustainability into organizational culture and their activities and report to stakeholders about their performance in relation to SDGs. The SDG Compass framework adopts a holistic approach oriented to stakeholders (Verboven and Vanherck, 2016), whereby "business can use the SDGs as an overarching framework to shape, steer, communicate and report their strategies, goals and activities" (GRI, 2015:8). Thus, in the SDG Compass framework, the disclosure of information on how an organization addresses its commitment to the SDGs and the progress reached in achieving them is considered a key element to meet the stakeholders' informative needs and transmit confidence in relation to the company's involvement with sustainable development (GRI, 2015; Schramade, 2017). In this sense, the SDGs provide companies with an opportunity to "take sustainability reporting on the next level" (GRI, 2018, p. 2). Thus, the CSR disclosure strategy proposed by the SDG Compass promotes the disclosure of relevant, comparable and credible non-financial information that satisfies the stakeholders' informative interests in relation to the company's commitment to the SDGs and its contribution to the 2030 Agenda (GRI, 2015 and 2018).

3. INSTITUTIONAL INVESTORS AND THEIR INTEREST IN CSR: RESEARCH HYPOTHESIS

The interest of investors in the socially responsible performance of the companies in which they invest has increased significantly over time, not only quantitatively but also qualitatively (Cheng et al., 2014; Luo et al., 2015; Yu and Zhao, 2015). In fact, although SRI emerged in the 18th century with a religious origin (Derwall et al., 2011), it currently constitutes an "investment philosophy" that extends to an increasing part of the investment community and, in particular, of institutional investors (Sparkes and Cowton, 2004, p. 45), who take into account social, environmental, ethical and corporate governance aspects in their investment analysis and decisions (Amel-Zadeh and Serafeim, 2018).

Institutional investors control a significant percentage of capital markets worldwide, which gives them significant influence on these markets (Bena et al., 2017) and, especially, on corporate strategies and decisions (McCahery et al., 2016). Indeed, given their weight in the companies' capital stock, institutional investors have the capacity to monitor their performance and significantly influence it (Pucheta-Martínez et al., 2019b; Saleh et al., 2010), exerting this influence through different channels (García-Sánchez et al., 2014): directly, through their collective "voice" (Starks, 2009) or their involvement in the companies' boards of directors (García-Meca and Pucheta-Martínez, 2018; Pucheta-Martínez et al., 2019a and 2019b); or indirectly, investing or disinvesting in a company based on the kind of policies adopted by it (Barnett and Salomon, 2006; Dyck et al., 2019).

This influence extends to the CSR strategies scope promoting the improvement of companies' social and environmental performance (Dyck et al., 2019; Oh et al., 2011; Saleh et al., 2010). In this sense, institutional investors' interest in CSR has led to an increase in the demand for CSR information (Amel-Zadeh and Serafeim, 2018) and a parallel interest of companies in disclosing such information, both in a reactive way, to respond to the institutional investors' requirements, and proactively, to attract their attention and influence their perception in order to be perceived as a valid investment option (Lin et al., 2018; Pucheta-Martínez et al., 2019a).

From a theoretical viewpoint, the stakeholder theory raises the need for companies to consider the interests of the various stakeholders and meet their expectations and demands (Monteiro and Aibar-Guzmán, 2010). From this perspective, the voluntary disclosure of CSR information is a means used by companies to meet the stakeholders' informational needs in relation to their social and environmental performance (Cheng et al., 2014; García-Sánchez et al., 2014; Bradford et al., 2017), with special attention to key stakeholders (Nielsen and Thomsen, 2007).

On the other hand, the agency theory states that, as a result of information asymmetries between managers and investors, the latter demand mechanisms that allow them to monitor managers' actions and protect their interests (Jensen and Meckling, 1976). In this regard, the voluntary disclosure of CSR information can be seen as a corporate response to that demand (Nguyen et al., 2017; Pucheta-Martínez et al., 2019a)

As indicated earlier, the communication strategy proposed by the SDG Compass is focused on the disclosure of relevant information that meets the expectations and demands of stakeholders, in general, and institutional investors, in particular, in relation to the contribution of companies to achieve the SDGs. Therefore, according to such theories, institutional investors will be interested in promoting the adoption by companies of this new informative strategy.

However, the interest and influence of institutional investors in corporate sustainability are not uniform (Gibson and Krueger, 2018; Oh et al., 2011; Pucheta-Martínez and Chiva-Ortells, 2018), but they differ depending on the link between institutional investors and the companies in which they invest or their investment horizon. In consequence, their behavior in relation to the adoption of CSR policies and corporate transparency will not be uniform either (García-Meca and Pucheta-Martínez, 2018; Pucheta-Martínez and Chiva-Ortells, 2018).

Indeed, previous studies (Johnson and Greening, 1999; Cox et al., 2004; Oh et al, 2011) found that those institutional investors who have a long-term investment horizon tend to support investments in CSR, therefore their participation in a company's stock capital is associated with greater CSR performance; while those institutional investors with a short-term investment horizon consider that CSR investments are risky, since their benefits tend to materialize in the long-term, and do not promote them; consequently

their participation in a company's stock capital is associated with a lower CSR performance.

In a similar vein, prior research has also noted that those institutional investors characterized by a reduced relationship with the companies in which they invest (known as "pressure-resistant investors") often exercise an active monitoring on such companies (Almazan et al., 2005) and a strong pressure on their managers to adopt behaviors in accordance with the stakeholders' interests, including CSR-related actions and the disclosure of information on their CSR performance (Harjoto and Jo, 2008; Pucheta-Martínez and Chiva-Ortells, 2018). Conversely, those institutional investors characterized by a strong linkage with the companies in which they invest (known as "pressure-sensitive investors"), usually adopt a passive attitude (Almazan et al., 2005), so they are not inclined to influence such companies' CSR reporting practices (Pucheta-Martínez and Chiva-Ortells, 2018).

Based on such studies' findings, it can be said that the interest of institutional investors in sustainability is not uniform and, consequently, there are some differences in the pattern of the relationship between institutional ownership and CSR disclosure depending on the type of investor in question (Cox et al., 2004). Therefore, it is necessary a more focused analysis of such a relationship accounting for the specific type of institutional investors. Thus, compared to the studies that consider generic categories of institutional investors or focus on only some types of institutional investors, in this paper, we consider six categories of institutional investors: (1) foreign investors, (2) cross-holdings, (3) government, (4) financial institutions, (5) pension funds and endowment funds, and (6) "others" holdings. Next, we develop the arguments that support the relationship that we propose between each of these types of institutional investors and the disclosure of CSR information more relevant to stakeholders.

3.1. Foreign institutional investors

The influence of foreign institutional investors on the companies in which they invest has been widely documented in the literature. Thus, Bena et al. (2017) showed that these investors favorably influence innovation and long-term investment by companies. In the same line, Bena et al. (2017) and Ferreira and Matos (2008), offer empirical

evidence of these investors' influence on improving the corporate governance of the companies in which they invest and highlight "the disciplinary and monitoring roles of foreign institutions" (Bena et al., 2017, p. 143).

To the extent that foreign institutional investors do not usually have a close relationship with the companies in which they invest (Bena et al., 2017), they have a greater capacity to defend the stakeholders' interests (Ferreira and Matos, 2008). In addition, given that CSR practices constitute a signaling mechanism that helps reduce information asymmetries, foreign institutional investors will tend to promote CSR in the companies in which they invest (Oh et al., 2011). Therefore, it would be expected that this type of investors is more related to the adoption of internationally recognized responsible practices, such as the SDG Compass.

Thus, we propose that ownership by foreign investors will boost business transparency in relation to the 2030 Agenda and we formulate the following hypothesis:

> H1: Ownership by foreign institutions has a positive relationship with the relevance of the information disclosed in relation to business contribution to the SDGs.

3.2. Cross-holdings

Cross-ownership is an alternative to which institutional investors increasingly resort (He et al., 2019). Indeed, in order to maximize their portfolio's overall value, institutional investors use their equity ownership in several interrelated companies to exercise control over them and influence their management (He et al. al., 2019; Prado-Lorenzo, et al., 2009). In these situations, due to the existence of non-aligned interests, agency costs increase (Ojo, 2013), these institutional investors have a greater incentive to monitor the management and improve the governance of the different companies in their portfolio (Barnea and Rubin, 2010; Harford et al., 2011).

The literature on cross-ownership has not addressed the role of cross-holdings in the field of CSR. As far as we are aware, the only study that analyzes whether this type of institutional investors promotes or discourages business sustainability is that of Rees and Rodionova (2013), who, in a sample of 3,541 companies from 30 countries, observed that the strategic ownership by corporate cross-holdings (higher than 10%)

had a negative effect on CSR, in general, as well as on each of its three pillars or dimensions: social, environmental and corporate governance. Such authors justified this result arguing that these investors tended to use their influence in companies to promote their own interests instead of investments in CSR, whose benefits materialize in the long term.

Based on the results of Rees and Rodionova (2013), we posit that cross-holdings will negatively influence business transparency in relation to the 2030 Agenda and, therefore, we formulate the following hypothesis:

> H2: Ownership by cross-holdings has a negative relationship with the relevance of the information disclosed in relation to business contribution to the SDGs.

3.3. Government

Different studies document a positive influence of government participation in business capital on informative transparency and corporate sustainability (Eng and Mark, 2003; Ghazali, 2007; Li and Zhang, 2010; Rees and Rodionova, 2013). Several reasons can explain the positive relationship between ownership by government and informative transparency. Firstly, governments are responsible for seeking social welfare and sustainable development (GRI, 2015). In addition, government investment in the companies' capital stock tends to have a long-term orientation and, normally, does not pursue profit objectives (Eng and Mark, 2003), which suggests that, in its investment decisions, governments will take into consideration ethical, social and environmental issues (Rees and Rodinova, 2013).

Secondly, governments should promote the adoption of sustainable practices and the disclosure of CSR information by companies (Prado-Lorenzo et al., 2009; GRI, 2015) and responsible investment practices among investors (Aguilera et al., 2006; Motta and Uchida, 2018). Therefore, it is logical to assume that, in their role as institutional investors, governments will also promote socially and environmentally responsible behavior on the part of the companies in which they invest (Li and Zhang, 2010).

Based on the previous approaches, we posit that ownership by government will boost business transparency in relation to the 2030 Agenda and, therefore, we formulate the following hypothesis:

H3: Ownership by government has a positive relationship with the relevance of the information disclosed in relation to business contribution to the SDGs.

3.4. Financial institutions

There are two opposing views about the role of financial entities in relation to CSR (Prado-Lorenzo et al., 2009). On the one hand, a short-term orientation is attributed to them (Kim and Yi, 2015; Oh et al., 2011) and, consequently, a lower inclination to encourage the adoption of CSR actions by the companies in which they invest, given that the benefits of such actions tend to materialize in the long term (Pucheta-Martínez and Chiva-Ortells, 2018). In addition, as there is often a strong link between financial institutions and the companies in which they invest, in order to avoid conflicts, such institutional investors will tend not to put pressure on managers to disclose CSR information (Pucheta-Martínez et al., 2019b).

On the other hand, financial institutions are subject to more rigorous regulations (Kim and Yi, 2015) and greater public scrutiny (Hu and Scholtens, 2014), which have led them to assume socially responsible behaviors (Sharif and Rashid, 2014). Therefore, it is expected that financial institutions promote the adoption of CSR-related behaviors by the companies in which they invest (García-Meca and Pucheta-Martínez, 2018; Motta and Uchida, 2018). Moreover, in addition to being investors, financial institutions can also act as lenders of such companies (Prado-Lorenzo et al., 2009; Pucheta-Martínez and Chiva-Ortells, 2018). In this regard, to the extent that CSR-related actions contribute to increasing the company's value and reducing risks, financial institutions will tend to promote such actions.

We are in favour of the second view on the role of financial institutions in the disclosure of CSR information, which has been supported by most prior research's empirical findings. Indeed, Oh et al. (2011), Rees and Rodionova (2013) and Rees et al. (2012) observed a positive relationship between ownership by financial institutions and the companies' CSR performance. In the same line, García-Meca and Pucheta-Martínez (2018) and Khan et al. (2009) observed that financial institutions tend to put pressure on companies to disclose social and environmental information, hence favorably influencing the disclosure of such information. Nevertheless, other studies (Dam and

Scholtens, 2012; Johnson and Greening, 1999) found no relationship between the presence of financial entities in the companies' capital stock and their socially responsible behavior.

Accordingly, we consider that their presence in the companies' capital stock will boost business transparency in relation to the 2030 Agenda and, therefore, we formulate the following hypothesis:

> H4: Ownership by financial institutions has a positive relationship with the relevance of the information disclosed in relation to business contribution to the SDGs

3.5. Pension funds and endowments

Previous literature provides empirical evidence regarding the existence of a positive relationship between pension funds and the social and environmental performance of the companies in which they invest (Dyck et al., 2019; Rees et al., 2012; Rees and Rodionova, 2013). Several arguments support this relationship. First, as a result of regulatory pressures (Solomon et al., 2002, Cox et al., 2004) and the high degree of public scrutiny to which they have been subjected, pension funds have tended to adopt SRI criteria (Derwall et al., 2011; Jansson and Biel, 2014), so that their activism in this field favors their investment portfolio consisting of companies with high social and environmental performance (Dyck et al., 2019; Johnson and Greening, 1999). Thus, for example, pension funds tend to avoid investment in "sin companies", that is, companies linked to tobacco, liquor, weapons or gambling (Hong and Kacperczy, 2009) and to encourage socially responsible actions by the companies in which they invest (Oh et al., 2011).

Second, pension funds are characterized by having a long-term investment horizon, which makes them more inclined to support CSR actions by their portfolio companies (Cox et al., 2004; Oh et al., 2011). In addition, as noted above, pension funds are considered "pressure-resistant" investors and, as such, are more active in monitoring companies, fostering the improvement of corporate governance and accountability (Sethi, 2005).

Based on the previous approaches, we believe that ownership by pension funds will boost business transparency in relation to the 2030 Agenda and, therefore, we formulate the following hypothesis:

> H5: Ownership by pension funds has a positive relationship with the relevance of the information disclosed in relation to business contribution to the SDGs

3.6. Other institutional investors

In addition to the categories analyzed above, the influence of other types of institutional investors on CSR policies has also been the subject of attention in the literature. Thus, Cox et al. (2004) proposed a positive association between charities and corporate sustainability, arguing that this type of institutional investors, in line with their own objectives, would tend to adopt an ethical investment policy (Sparkes and Cowton, 2004), and, consequently, they would avoid investing in companies with low social and environmental performance. However, although their results for the UK show the existence of a positive relationship between charities and CSR, this is not significant.

In relation to the influence of insurance companies in CSR, Cox et al. (2004) and Johnson and Greening (1999) document a positive effect of this type of institutional investors on their portfolio companies' social and environmental performance, justifying this result in the long-term orientation of their investments (Nguyen et al., 2017) and the existence of links between them and pension funds. However, Oh et al. (2011) did not find a significant effect of ownership by insurance companies on the adoption of CSR policies.

There is also mixed evidence in relation to investment funds. Johnson and Greening (1999) showed empirically that, in line with their expectations, mutual funds had no effect on their portfolio companies' social and environmental performance. In their opinion, this result was justified because these institutional investors' short-term orientation (Aguilera et al., 2006; Nguyen et al., 2017; Oh et al., 2011) made them less predisposed to encourage actions in this area by the companies in which they invest. However, more recently, Chen et al. (2019) provided empirical evidence to the contrary, i.e., a positive influence of mutual funds on their portfolio companies' socially

responsible performance, as a result of the growing interest of their clients in the SRI (Jansson and Biel, 2014; Mackey et al., 2007).

On the other hand, Oh et al. (2011) observed a positive, although only marginally significant, impact of securities firms on companies' CSR performance; while Cox et al. (2004) found no empirical evidence about the effect of investment trusts and union trusts on corporate sustainability, although they expected a negative relationship due to these institutional investors' short-term orientation and the fact that they are not affected by regulatory pressures to adopt ethical investment criteria.

Finally, Chen et al. (2019) empirically verified a positive relationship between ownership by index funds and the adoption of CSR policies. In the same vein, Boone and White (2015) refer to the positive influence of these funds on business transparency as a result of their demands to greater information disclosure.

Overall, these studies point out a positive or null effect of these institutional investors on CSR. In our case, we propose that their presence could favor business transparency in relation to the 2030 Agenda and we formulate the following hypothesis:

> H6: Ownership by "other" institutional investors has a positive relationship with the relevance of the information disclosed in relation to business contribution to the SDGs

4. METHODOLOGY

4.1. Sample

The sample corresponds to an unbalanced data panel, consisting of 2,615 observations from 989 international companies for the period 2015-2017. The sample is conditioned by the information available in the GRI and Thomson Reuters databases needed for the estimation of Equation [1]. Financial and ownership information has been extracted from the Thomson Reuters database. Information related to the dependent variable, which determines the relevance of the information disclosed in relation to business contribution with the SDGs, has been obtained from the GRI database and supplemented by a manual search in the reports available in this organization' institutional repository.

Geographically, the companies in the sample are located in 53 countries and operate in 10 activity sectors, there being a bias in favor of industrial and financial and real estate sectors. Geographically, the companies located in the US would have a larger presence than the rest of the countries. Both biases will be corrected methodologically by including country and sector variables.

4.2. Model and analysis techniques

Equation [1] comprises an empirical model designed to explain the effect that ownership by institutional investors has on the relevance of the information disclosed in relation to business action in the SDGs. In addition to the dependent, independent and control variables, Equation [1] incorporates η, with the aim of controlling the unobservable heterogeneity underlying corporate decision-making, and the μ disturbance. ß is the parameter to be estimated. The subscripts i and t refer to the company and the time period, respectively.

$$\mathbf{DisclosureSDG}_{i,t} = ß_0 + ß_1\mathbf{ForeingIO}_{\mathbf{i,t}} + ß_2\mathbf{CrossIO}_{\mathbf{i,t}} + ß_3\mathbf{GovernmentIO}_{\mathbf{i,t}} + ß_4\mathbf{FinancialIO}_{\mathbf{i,t}} + ß_5\mathbf{PensionIO}_{\mathbf{i,t}} + ß_6\mathbf{OtherIO}_{\mathbf{i,t}} + ß_7 Analysts_{i,t} + ß_8 ForecastError_{i,t} + ß_9\text{Size}_{i,t} + ß_{10}\Delta\text{Sales}_{i,t} + ß_{11}\text{ROA}_{i,t} + ß_{12}\text{Leverage}_{i,t} + ß_{13}\text{BoardSize}_{i,t} + ß_{14}\text{BoardSizeSquare}_{i,t} + ß_{15}\text{BoardActivity}_{i,t} + ß_{16}\text{BoardActivitySquare}_{i,t} + ß_{17}\text{BoardFemale}_{i,t} + ß_{18}\text{BoardIndep}_{i,t} + ß_{19}\text{Duality}_{i,t} + ß_{20}\text{CSRCommittee}_{i,t} + ß_{21}\text{ICSRPI}_i + ß_{22}\text{NCSRPI}_i + ß_{23}\text{Industry}_{i,t} + ß_{24}\text{Country}_i + ß_{25}\text{Year}_t + \mu_{it} + \eta_i \quad [1]$$

The dependent variable "DisclosureSDG" takes values between 0 and 4 to represent the relevance of the information disclosed in relation to business contribution to the SDGs. For its coding, we have used the proposals included in the GRI-SDG Compass strategy. We took into account the alignment between the reports' content and their linkage to the business action with the SDGs, both in terms of expectations and language to ensure a common dialogue between the interested parties. Specifically, we considered the indicators that each company has incorporated into its reports and their relationship with the inventory of indicators mapped in the SGD Compass. Thus,

- The value 0 was given to those companies that, although disclose indicators related to the SDGs, they are not specifically linked to some of the 17 objectives established by the UN.
- The value 1 was assigned to those companies that have issued an autonomous SDGs report, in which they structure and organize the information around the relevant SDGs, although it does not comply with the GRI-SDG Compass strategy.
- The value 2 was received by companies that adopted the structure recommended by the SDG Compass, but only disclose in their CSR report the number of indicators established in the GRI G4 guide for the level in "accordance-core".
- The value 3 was for those companies that adopted the structure recommended by the SDG Compass, disclosing in their CSR report the number of indicators established in the GRI G4 guide for the "in-accordance-comprehensive" level.

  Companies that received scores 2 and 3 use the GRI standard and incorporate in their CSR report's table of contents a column to the GRI's table of contents that maps the relevant GRI contents against the list of relevant SDGs. In addition, they use visual solutions, as icons, for each of the relevant SDGs and highlight relevant SDG information.
- The value 4 was for those companies that issued a report following the SDG Compass strategy.

The independent variables correspond to the percentages of shares held by institutional investors which own 1% or more of the companies' capital stock. These institutional investors correspond to foreign investors ("ForeingIO"), cross-holdings ("CrossIO"), government institutions ("GovernmentIO"), banks or financial institutions ("FinancialIO"), pension funds or endowment funds ("PensionIO"), and other institutional investors ("OtherIO").

Finally, in line with previous studies, several control variables are included to avoid biased results (García-Sánchez et al., 2019a and 2019b; Rosati and Faria, 2019a and 2019b). In addition, we include the control variables "Analysts" and "ForecastError" due to the effect that the presence of such financial agents and the error in their predictions have on the companies' disclosure strategies (García-Sánchez, 2019a). The control variables are related to the company, the board of directors and the environment.

To identify business characteristics, we include: "Size" or business size measured by the natural logarithm of the company's assets; "ΔSales" or growth opportunities associated with the variation in sales between t and t-1; "ROA" or economic profitability of corporate assets; "Leverage" or the company's debt in relation to its own resources. To represent the board of directors' characteristics, we include: "BoardSize" and "BoardSizeSquare", the size of the board - identified by the number of board directors - and its square (Michelon and Parbonetti, 2012); "BoardActivity" and "BoardActivitySquare", board activity - represented by the number of meetings held by the board annually - and its square (García-Sánchez et al., 2013); "BoardFemale", the percentage of female directors (García-Sánchez et al., 2019b); "BoardIndep", the percentage of independent directors (García-Sánchez and Martínez-Ferrero, 2018); "Duality", a dummy variable that takes the value 1 for companies whose CEO is also the chairman of the board of directors and 0, otherwise; and "CSR_committee", a dummy variable that takes the value 1 if there is a CSR committee, and 0 in the opposite case (Helfaya and Moussa, 2017).

The institutional pressures that exist in relation to CSR at country and sector level are represented by the composite indices NCSRPI and ICSRPI proposed by Amor-Esteban et al. (2018a and 2018b). Finally, the analysis is controlled by country, sector and year by using the numerical variables Country, Industry, and Year, respectively.

Given the nature of the dependent variable "DisclosureSDG", which takes values ordered between 0 and 4, the analysis technique used to estimate Equation [1] is a probit model for panel data with random effects that considers that errors μ_{it} and η_i are normally distributed and estimated by maximum likelihood.

5. RESULTS

5.1. Descriptive statistics

Table 1 summarizes the mean and the standard deviation of the numerical variables as well as the absolute and relative frequency of the dichotomous variables. The level of relevance of the information disclosed in relation to business contribution to the SDGs stands at an average of 2.159 within the range of $\pm$ 0.898. Thus, in general, in their CSR reports, companies adopt the structure recommended by the SDG Compass for the

indicators they disclose following the GRI G4 guide for the "in-accordance-core" level. The companies have between 2.626% and 43.712% of their capital stock in the hands of institutional investors. The investors with the greatest ownership are government, banks and financial institutions, and “other” investors. In contrast, pension funds have the smallest ownership percentage. On average, each company is monitored by 10 analysts. The companies tend to have a board of directors formed by 10 directors, who met on average 18 times a year, and of whom 51% were independent and 11% were women. In 51% of the companies there is duality of CEO, and 46% had a specialized CSR committee.

[Insert Table 1 here]

Figure 1 shows the temporal evolution of ownership by the different groups of institutional investors during the analyzed period. In this regard, there is a slight increase in 2016 in ownership by foreign investors and cross-holdings. In that year, ownership by banks and financial institutions declined slightly, although it recovered in the following year. Ownership by the rest of the institutional investors remained constant over the studied period. In relation to the relevance of information on business action regarding the SDGs, significant growth can be observed throughout the analyzed period, especially in the year 2017. More specifically, we observe that, on average, companies have moved from state 2 to virtually reach level 3, notably increasing the number of indicators that they disclose in relation to the SDGs.

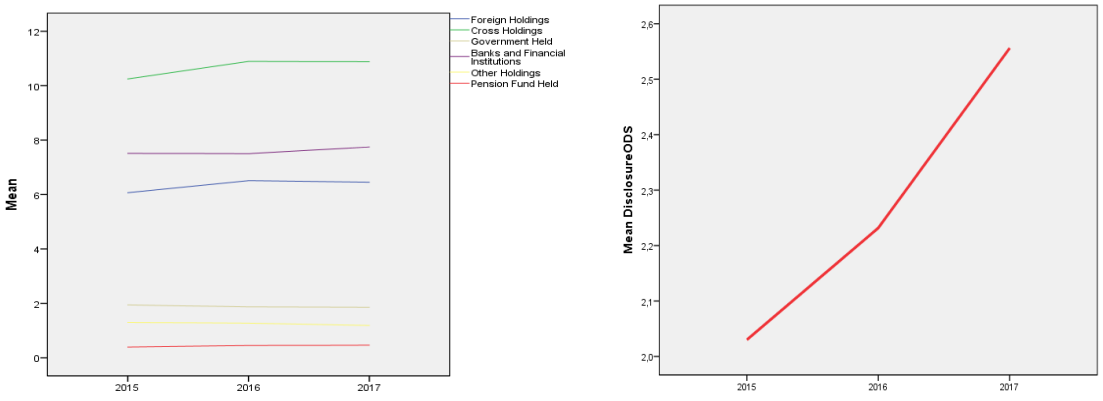

Figure 1: Temporal evolution of ownership by institutional investors and corporate transparency on the SDGs

The correlations between the variables proposed for the analysis are summarized in Table 2. The bivariate correlation coefficients are not high, indicating the absence of multicollinearity.

[Insert Table 2 here]

5.2. Results for the dependency analysis model

Table 3 presents the results obtained for Equation [1] using the probit methodology for panel data. The results show the influence that different institutional investors have on the relevance of the information disclosed about business contribution to the SDGs.

It can be observed that three out of the six types of institutional investors considered in this study - foreign investors, pension funds and "other" investors - have a positive impact, significant at 99, 95 and 90%, respectively, on the relevance of the information disclosed in relation to business contribution to the 2030 Agenda ($\mathbf{ForeignIO_t}$: $ß_1 = 0.00783$; $p - value = 0.001$; $\mathbf{PensionIO_t}$: $ß_5 = 0.0331$; $p - value = 0.012$; y $\mathbf{OthersIO_t}$: $ß_6 = 0.00717$; $p - value = 0.061$).

In this sense, hypotheses H1, H5 and H6 could be accepted, suggesting that foreign institutional investors, pension funds and other investors promote business transparency in relation to the 2030 Agenda. In relation to H1, which posed the existence of a positive effect of foreign institutional investors on the relevance of the information disclosed in relation to business contribution to the SDGs, our results are in line with most of the previous studies (Chapple and Moon, 2005; Dyck et al., 2019; Oh et al., 2011), which empirically documented a positive association between ownership by foreign institutional investors and the companies' social and environmental performance. For H5, our results also corroborate the existing empirical evidence about the influence of pension funds on business sustainability (Jo and Harjoto, 2014; Oh et al., 2011; Rees and Rodionova, 2013). Likewise, the acceptance of H6, regarding the existence of a positive relationship between institutional investors grouped in the category "other" investors and the relevance of the information disclosed in relation to business contribution to the SDGs, confirm the results of Johnson and Greening (1999) and Cox et al. (2004), concerning the positive impact of insurance companies on the CSR performance of the firms in which they invest, and those of Chen et al. (2019),

regarding the favorable influence of mutual funds and index funds on their portfolio companies' CSR policies.

Conversely, the results of Table 3 indicate an absence of impact of cross-holdings, government and financial institutions on corporate transparency in relation to business contribution to the SDGs, which does not allow us to accept hypotheses H2, H3 and H4, relating to the influence of such investors. In the case of cross-holdings (H2), our results contradict those obtained by Rees and Rodionova (2013), who observed a negative effect between a significant ownership by cross-holdings on CSR practices. However, we consider that this divergence of results can be attributed to the difference in the ownership percentages considered by such authors (over 10%) and by us (over 1%), which determines the influence that institutional investors may have on corporate decisions, in this or in another field (Rees and Rodionova, 2013). Regarding the role of government in the voluntary disclosure of more relevant CSR information, our results coincide with those of Dam and Scholtens (2012), who also noted a lack of relationship between the participation of government institutions in the European multinationals' capital stock and their CSR policies. Also, in the case of financial institutions, our results corroborate those obtained by Johnson and Greening (1999) and by Dam and Scholtens (2012) about a lack of impact of these institutional investors on the CSR of the companies in which they invest.

In relation to the control variables, similar to the results of García-Sánchez et al. (2019a) for the adoption of the GRI-IFC strategy, the number of analysts following a company has a positive impact on the relevance of the information disclosed about its contribution to the 2030 Agenda. On the other hand, we observe that the leading companies in implementing this strategy are the largest companies and those with the greatest growth opportunities; they are located in countries with greater institutional pressures of a coercive and normative nature, and operating in sectors subject to strong mimetic forces in terms of CSR. These results would confirm the evidence of Rosati and Faria (2019a) for these strategies or those of García-Sánchez et al. (2016) for the disclosure of most comparable and useful CSR information through the use of GRI guidelines recommendations.

In addition, we observe that the companies with a CSR committee are more active in relation to disclose about their contribution to the SDGs. This effect would confirm the

evidence of García-Sánchez et al. (2019b) in relation to the need to create specialized committees to develop CSR strategies and information systems aimed at the search for better corporate performance and better interactions with stakeholders.

[Insert Table 3 here]

5.3. Analysis of the effect of variability versus stability of institutional ownership

In order to go in depth about the effect of institutional ownership on the relevance of the information disclosed in relation to business contribution to the SDGs, we have graphically represented the average variability of the analyzed companies' institutional ownership, categorized according to the level of relevance of the disclosed SDGs-related information (Figure 2) and the temporal evolution of the analyzed companies' institutional ownership, according to the same classification (Figure 3).

In Figure 2, we can visually contrast the effects of the variability of institutional ownership, identifying the average investment that each type of institutional investors has in the analyzed companies, grouped according to the levels specified by the variable "DisclosureSDG". Thus, it can be seen that foreign investors are present, especially, in those companies disclosing GRI indicators associated with the 17 SDGs and have implemented the SDG Compass, reporting according to this standard. With less participation in the ownership, this association is noted for "other" institutional investors and pension funds. By contrast, an inverse relationship is observed for financial institutions and banks, which are present in the companies disclosing less relevant SDGs-related information.

Moreover, cross-holdings have a similar average investment in the different groups of companies, being slightly lower for those companies that disclose SDGs-related information with medium-low quality. The similarity of investment in companies whose level of relevance of the disclosed SDGs-related information is classified as level 0, 4 and 5 causes that the presence of such institutional investors lacks of explanatory power in this respect.

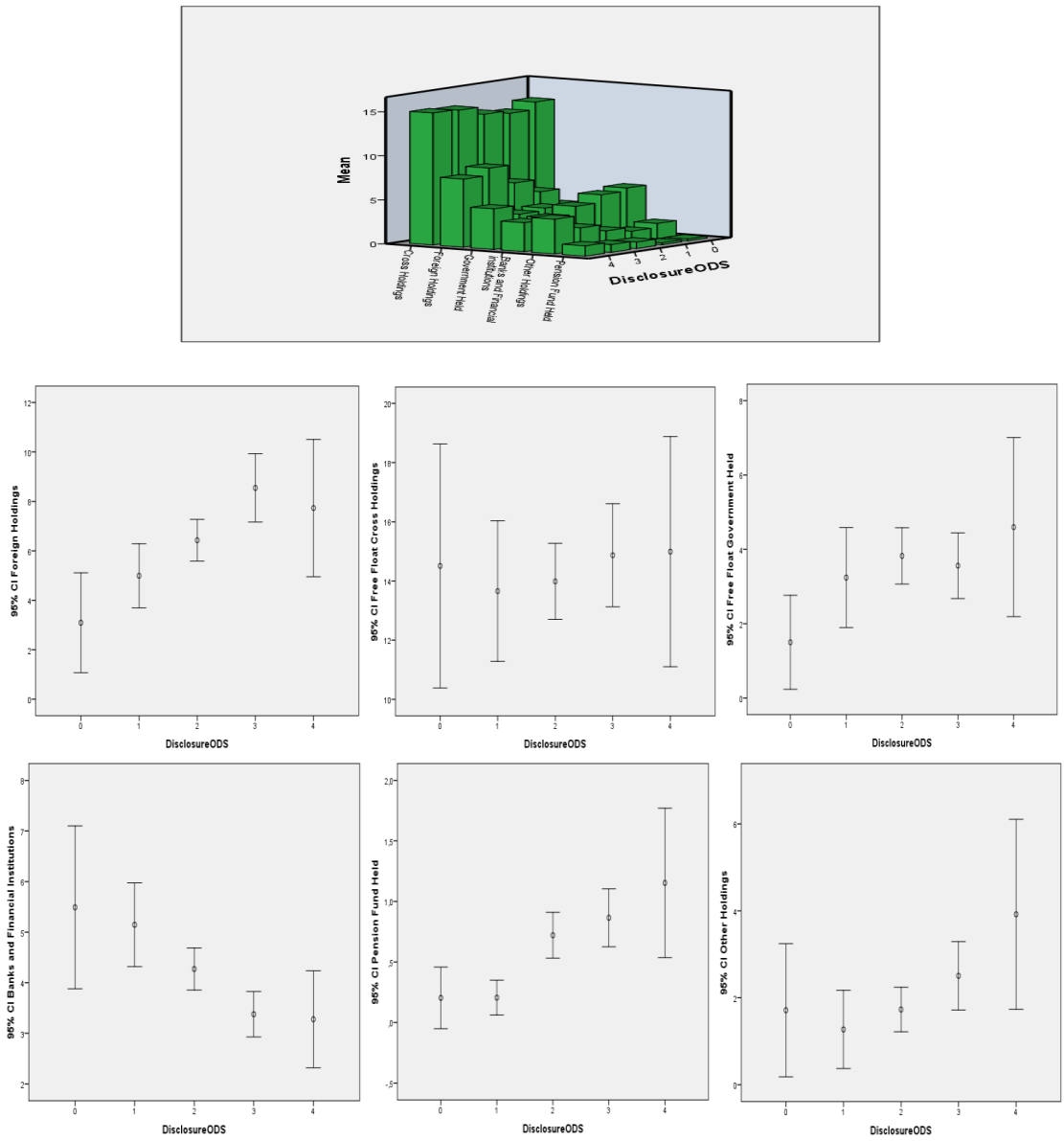

Figure 2. Effects of the variability of institutional ownership on the relevance of the information disclosed in relation to business contribution to the SDGs

Figure 3 displays the temporal evolution of the ownership percentage corresponding to each type of institutional investor in the analyzed companies grouped according to the level of relevance of the information disclosed on the SDGs. It shows in more detail that foreign institutional investors have had the greatest presence since 2016 in those companies that show a greater commitment to the SDGs. This situation is also partially observed for governments, pension funds and "other" institutional investors, because in the 2016-2017 period they present lower ownership percentages in the companies

disclosing more relevant SDGs-information but the evolution of their investment is similar for the remaining companies.

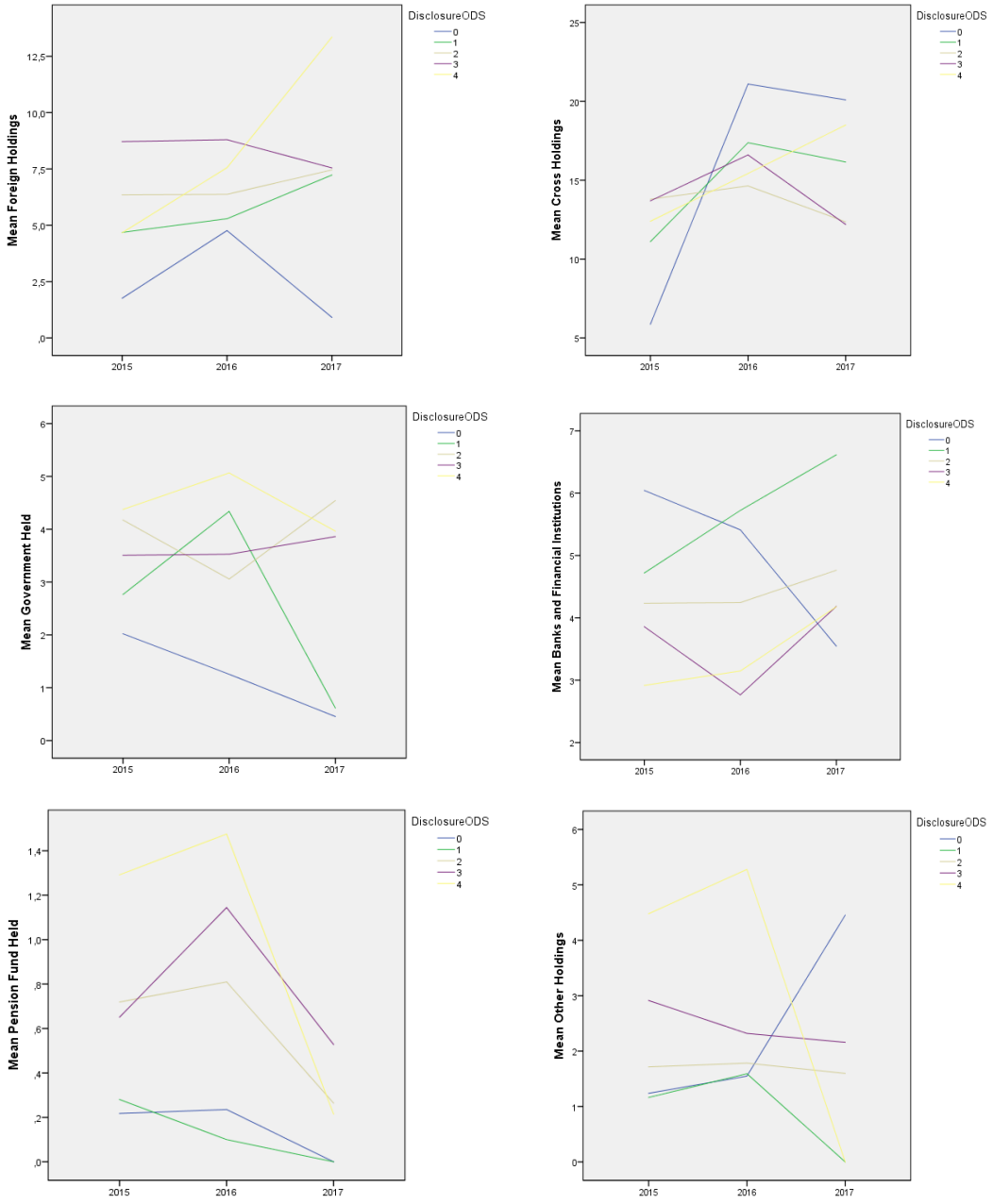

Figure 3. Temporal evolution of the relationship between the ownership percentage corresponding to each type of institutional investor and corporate transparency about the SDGs

5.4. Complementary analysis

Due to the variability observed both in the average and in the temporal evolution of institutional ownership, it is interesting to analyze the effect that increases in ownership

percentages of each of the institutional investors considered in this study may have on the results. Accordingly, we have estimated Equation [2], which, starting from Equation [1], modifies the independent variables related to the ownership percentage of the six types of institutional investors analyzed in this study by six dummy variables that identify if their ownership in t has increased in relation to the previous exercise, t-1

$$\mathbf{DisclosureSDG}_{i,t} = \boldsymbol{\omega}_0 + \boldsymbol{\omega}_1\mathbf{DForeingIO}_{\mathbf{i,t}} + \boldsymbol{\omega}_2\mathbf{DCrossIO}_{\mathbf{i,t}} + \boldsymbol{\omega}_3\mathbf{DGovernmentIO}_{\mathbf{i,t}} + \boldsymbol{\omega}_4\mathbf{DFinancialIO}_{\mathbf{i,t}} + \boldsymbol{\omega}_5\mathbf{DPensionIO}_{\mathbf{i,t}} + \boldsymbol{\omega}_6\mathbf{DOtherIO}_{\mathbf{i,t}} + \omega_7 Analysts_{i,t} + \omega_8 ForecastError_{i,t} + \omega_9 \mathrm{Size}_{i,t} + \omega_{10}\Delta\mathrm{Sales}_{i,t} + \omega_{11}\mathrm{ROA}_{i,t} + \omega_{12}\mathrm{Leverage}_{i,t} + \omega_{13}\mathrm{BoardSize}_{i,t} + \omega_{14}\mathrm{BoardSizeSquare}_{i,t} + \omega_{15}\mathrm{BoardActivity}_{i,t} + \omega_{16}\mathrm{BoardActivitySquare}_{i,t} + \omega_{17}\mathrm{BoardFemale}_{i,t} + \omega_{18}\mathrm{BoardIndep}_{i,t} + \omega_{19}\mathrm{Duality}_{i,t} + \omega_{20}\mathrm{CSRCommittee}_{i,t} + \omega_{21}\mathrm{ICSRPI}_{i} + \omega_{22}\mathrm{NCSRPI}_{i} + \omega_{23}\mathrm{Industry}_{i,t} + \omega_{24}\mathrm{Country}_{i} + \omega_{25}\mathrm{Year}_{t} + \mu_{it} + \eta_{i} \quad [2]$$

Table 4 reflects the impact that the increase in institutional ownership has on the relevance of the information disclosed on the 2030 Agenda, showing results highly similar to those obtained for the ownership percentage initially considered. Again, we observe that an increase in ownership by foreign institutional investors, pension funds and other investors has a positive impact, significant at 99, 95 and 99%, respectively, in the relevance of the information disclosed in relation to business contribution to the SDGs ($\mathbf{ForeignIO_t}$: ß$_1 = 0.239$; $p - value = 0.003$; $\mathbf{PensionIO_t}$: ß$_5 = 0.314$; $p - value = 0.026$; y $\mathbf{OthersIO_t}$: ß$_6 = 0.370$; $p - value = 0.010$).

[Insert Table 4 here]

CONCLUSIONS

The aim of this paper has been to analyze the influence of different types of institutional investors on corporate transparency in terms of CSR. Specifically, we have considered six types of institutional investors and examined to what extent each of them promotes the disclosure of CSR information more relevant to stakeholders, considering, for this purpose, the level of transparency in relation to the SDGs.

Our results for a sample of 989 international companies that prepare their sustainability reports according to the GRI show that ownership by foreign investors, pension funds

and “other” investors boosts the relevance of the information disclosed on the 2030 Agenda. On the contrary, government, financial institutions and cross-holding have no impact on the information systems developed in this regard.

The results have both theoretical and practical implications. From the point of view of the theory, our results provide a more complete view about the influence of institutional ownership on informative transparency and, by revealing the existence of different behavior patterns on the part of different types of institutional investors, our results help to understand why the previous empirical evidence about the influence of institutional investors on the voluntary disclosure of CSR information is sometimes contradictory (Cox et al., 2004; García-Meca and Pucheta-Martínez, 2018; Oh et al., 2011; Pucheta-Martínez and Chiva-Ortells, 2018). On the other hand, tangentially, our study also informs other related literatures, such as the literature on cross-ownership (Harford et al., 2011; He et al., 2019), by analyzing the influence of cross-holdings on a specific type of corporate decisions, the voluntary disclosure of CSR information, which has not been studied previously.

Regarding the practical implications, the results could guide companies in their strategies of relationship with institutional investors. Thus, in determining their policies for voluntary disclosure of CSR information, companies should consider the different preferences that different types of institutional investors have in relation to corporate sustainability in order to adjust their disclosures to the interests of those institutional investors to whom they are most interested in attracting/retaining.

Furthermore, to the extent that the disclosure of information about business contribution to the SDGs constitutes a basic instrument to promote the companies’ involvement in the 2030 Agenda (GRI, 2018; Rosati and Faria, 2019a and 2019b; UNGC, 2018), the results provide an orientation to the regulatory bodies to promote investment by those institutional investors who positively affect the companies’ informative transparency in relation to the SDGs. Thus, according to our results, in order to foster business contribution to the SDGs, it would be interesting for regulatory bodies to encourage ownership by foreign institutional investors and pension funds. At the same time, our results could also guide regulators when developing regulations to stimulate institutional investors' commitment to SRI, in line with what happened in the UK with pension funds (Cox et al., 2004; Solomon et al., 2002).

Despite its undoubted interest and usefulness, our study has some limitations that should be pointed out. First, when we defined the independent variables, we considered an ownership percentage by institutional investors of 1% or higher. However, given that the influence of institutional investors on corporate decisions and informative transparency also depends on the weight of their participation in the firms' capital stock (Oh et al., 2011; Rees and Rodionova, 2013), the results obtained could be affected by this percentage, to the extent that the influence relationship could be non-linear and there may be a threshold of ownership from which the sign of such a relationship is inverted (Harjoto et al., 2015; Pucheta-Martínez and Chiva-Ortells, 2018; Pucheta-Martinez et al., 2019a). In this regard, although in the complementary analyses we verified that the results do not change as a consequence of an increase in the ownership percentage by each of the institutional investors considered in this study, comparing the ownership percentage in the year t with the corresponding to the previous exercise (t-1), this does not exclude the possibility that higher levels of institutional ownership than the one considered in our study (for example, what Rees and Rodionova (2013) call strategic ownership) provide different results. This aspect, therefore, should be the object of attention in future research on the subject.

Secondly, our dependent variable measures the relevance of the information disclosed in relation to business contribution to the SDGs in general, without discerning among the information related to the different CSR dimensions (social, environmental or corporate governance). However, it has been shown that the institutional investors' interest is not uniform for these dimensions (Amel-Zadeh and Serafeim, 2018; Dyck et al., 2019; Rees and Rodionova, 2013) and, consequently, their influence on the voluntary disclosure of information may be different depending on the dimension considered. Therefore, future research could refine the dependent variable to capture possible differences in relation to the influence of the different types of institutional investors on the disclosure of information related to each SDGs' thematic area.

Finally, our study has sought to analyze the impact of different types of institutional investors on the relevance of the information disclosed in relation business contribution to the SDGs; that is, to what extent each type of institutional investor promotes corporate transparency in relation to the 2030 Agenda. However, we have not contemplated the "reverse causality" (Barnea and Rubin, 2010; Motta and Uchida,

2018), i.e., the possibility that it is the relevance of the information disclosed about CSR that influences the ownership by the different types of institutional investors and not vice versa. To the extent that institutional investors' investment decisions take into account the companies' social and environmental performance (Gibson and Krueger, 2018; Sparkes and Cowton, 2004), this relationship should be analyzed in future studies. In addition, in relation to the influence of institutional investors, future research could deepen the results of our study analyzing the foreign investors' profile, given that not all countries have the same sensitivity to sustainable performance, or the existence of differences between institutional investors who sign the PRI and those who do not.

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Table 1. Descriptive statistics

	Frequency	
Variable	*Absolute*	*Relative*
Duality	1,390	53,15
CSR_committee	1,198	45,81
Variable	Mean	Std. Dev.
DisclosureSDG	2.159	0.898
ForeignIO	18.568	38.884
CrossIO	24.437	42.972
GovernmentIO	43.712	20.445
FinancialIO	32.347	46.780
PensionIO	2.626	15.992
OthersIO	4.507	20.747
Analysts	10,17	8,79
ForecastError	0.116	0.097
Size	15,74	3,02
ΔSales	32,03	5,39
ROA	4,27	8,16
Leverage	12,84	8,77
BoardSize	10,24	3,65
BoardActivity	18,08	10,98
BoardFemale	11,42	11,48
BoardIndep	51,39	30,19
ICSRPI	0,039	3,02
NCSRPI	-1,82	8,95

Table 2. Bivariate correlations

		1	2	3	4	5	6	7	8	9	10	11	12
1	DisclosureSDG	1											
2	ForeignIO	0.087***	1										
3	CrossIO	-0.002	0.268***	1									
4	GovernmentIO	0.067***	0.083***	0.013*	1								
5	FinancialIO	-0.055*	0.133***	-0.161***	-0.057***	1							
6	PensionIO	0.094***	0.063***	0.035***	0.037***	0.010***	1						
7	OthersIO	0.076***	0.103***	0.018*	-0.001	-0.039***	0.011***	1					
8	Analysts	0.129***	0.084***	-0.008*	0.117***	0.057***	0.066***	-0.011***	1				
9	ForecastError	-0.007	-0.002	-0.005	-0.002	-0.003	-0.002	-0.002	-0.003	1			
10	Size	0.684***	0.022***	0.167***	0.144***	-0.168***	0.110***	0.034***	0,337***	-0.007*	1		
11	ΔSales	0.001	-0.003	-0.001	-0.001	-0.003	-0.001	-0.001	-0,010***	0.000	0,007**	1	
12	ROA	-0.010	0.001	0.001	0.017***	-0.001	0.002	0.002	0,018***	0.001	0,026***	0,001	1
13	Leverage	-0.003	-0.001	-0.001	0.001	0.001	0.001	0.001	-0,004	0.001	-0,003	0,000	0,000
14	BoardSize	0.089***	-0.012**	0.022***	0.043***	-0.071***	-0.041***	0.036***	0,090***	0.001	0,162***	0,003	0,008
15	BoardSizeSquare	0.086***	-0.012**	0.027***	0.039***	-0.072***	-0.036***	0.034***	0.075***	0.000	0.151***	0.003	0.004
16	BoardActivity	0.068**	0.056***	0.056***	0.048***	-0.070***	0.030***	0.004	-0,029***	0.008	0,037***	0,004	-0,010*
17	BoardActivitySquare	0.060**	0.058***	0.058***	0.047***	-0.070***	0.030***	0.004	-0.030***	0.008	0.016***	0.004	-0.010*
18	BoardFemale	0.001	0.005	-0.060***	0.026***	0.085***	-0.012**	-0.001	0,064***	-0.006	-0,090***	-0,006	0,004
19	BoardIndep	-0.090***	-0.060***	-0.145***	-0.055***	0.125***	-0.011**	-0.034**	0,037***	-0.005	-0,183***	-0,002	-0,006
20	Duality	0.041*	0.046***	0.037***	0.045***	-0.021***	0.029***	0.015***	-0,037***	0.003	0,001	0,000	-0,008
21	CSRCommittee	0.137***	0.014***	0.004	0.044***	-0.012***	0.017***	0.013***	0,108***	0.006	0,100***	-0,002	-0,005
22	ICSRPI	0.055***	0.037***	0.048***	0.017***	-0.028***	0.004	-0.011***	0,004	0.012***	-0,065***	0,002	0,000
23	NCSRPI	0.099***	0.187***	0.104***	0.037***	-0.107***	0.068***	0.038***	0,014***	0.012***	-0,015***	0,001	0,011***

		13	14	15	16	17	18	19	20	21	22	23	
13	Leverage	1											
14	BoardSize	0,002	1										

15	BoardSizeSquare	0.001	0.961***	1								
16	BoardActivity	-0,005	-0,118***	-0.084***	1							
17	BoardActivitySquare	-0.005	-0.125***	-0.090***		1						
18	BoardFemale	0,001	0,050***	0.015	-0,016***	-0.016***	1					
19	BoardIndep	0,005	-0,134***	-0.163***	-0,285***	-0.292***	0,268***	1				
20	Duality	-0,004	-0,063***	-0.039***	0,297***	0.308***	0,008*	-0,161***	1			
21	CSRCommittee	-0,005	0,155***	0.122***	0,180***	0.183***	0,146***	-0,011**	0,053***	1		
22	ICSRPI	-0,003	-0,033***	-0.032***	0,042***	0.042***	-0,054***	-0,009**	-0,009**	0,053***	1	
23	NCSRPI	0,006*	-0,036***	-0.019***	0,220***	0.227***	0,002	-0,104***	0,134***	0,054***	0,039***	1

Table 3. Impact of institutional investors on reporting on SDGs

	Coef. (Std.Error)
ForeingIO	0.00783***
	(0.00244)
CrossIO	-0.00201
	(0.00178)
GovernmentIO	0.00131
	(0.00253)
FinancialIO	-0.00675
	(0.00518)
PensionIO	0.0331**
	(0.0132)
OthersIO	0.00717*
	(0.00383)
Analysts	0.0271***
	(0.00394)
ForecastError	0.356
	(0.632)
Size	0.0266*
	(0.0152)
ΔSales	0.144*
	(0.0860)
ROA	-0.00228
	(0.00476)
Leverage	-3.05e-05
	(0.000123)
BoardSize	-0.00869
	(0.0524)
BoardSizeSquare	0.00122
	(0.00222)
BoardActivity	0.0307
	(0.0210)
BoardActivitySquare	-0.000178
	(0.000128)
BoardFemale	0.000461
	(0.00276)
BoardIndep	-0.00156
	(0.00133)
Duality	0.0468
	(0.0721)
CSRCommittee	0.225***
	(0.0738)
ICSRPI	0.0340**

	(0.0159)
NCSRPI	0.0169***
	(0.00370)
Controlled by country, industry and year	
Log-likelihood	1375.9353
Chi-square	161.35
p-value	0.000

Table 4. Impact of attracting new institutional investors on reporting on SDGs

	Coef. (Std.Error)
DForeingIO	0.239***
	(0.0812)
DCrossIO	-0.0766
	(0.0769)
DGovernmentIO	0.129
	(0.101)
DFinancialIO	-0.0869
	(0.0748)
DPensionIO	0.314**
	(0.141)
DOthersIO	0.370***
	(0.143)
Analysts	0.0257***
	(0.00393)
ForecastError	0.324
	(0.631)
Size	0.0332**
	(0.0150)
ΔSales	0.150*
	(0.0878)
ROA	-0.00124
	(0.00474)
Leverage	-3.70e-05
	(0.000123)
BoardSize	0.00174
	(0.0525)
BoardSizeSquare	0.000829
	(0.00223)
BoardActivity	0.0295
	(0.0209)
BoardActivitySquare	-0.000172
	(0.000127)
BoardFemale	0.000355
	(0.00275)
BoardIndep	-0.00138
	(0.00133)
Duality	0.0507
	(0.0720)
CSRCommittee	0.216***
	(0.0736)
ICSRPI	0.0167***

	(0.00371)
NCSRPI	0.0356**
	(0.0159)
Controlled by country, industry and year	
Log-likelihood	1375.5856
Chi-square	162.05
p-value	0.000