SUSTAINABLE DEVELOPMENT GOALS AND ASSURANCE OF NON-FINANCIAL INFORMATION REPORTING IN SPAIN[1]

ABSTRACT

Purpose

This paper investigates the relationship between corporate reporting on issues related to the Sustainable Development Goals (SDG) and the quality of non-financial information (NFI) corroborated by different types of assurors.

Design/methodology/approach

The study methods employed include logistic regressions, focusing on data for Spanish listed companies in 2017-2018.

Findings

Analysis shows that companies are more likely to report SDG-related performance when their sustainability report is assured. This association remains constant irrespective of the nature of the assurance, which only became mandatory in Spain following the entry into force of Act 11/2018 in this respect. Moreover, companies that hire KPMG or PwC (two of the Big 4 accounting firms) as assurance providers are more likely to report SDG-related performance than those that hire non-accounting firms. Finally, companies with higher quality assurance statements are more likely to address SDG-related matters.

Originality

To our knowledge, no prior research has been undertaken to analyse the relationship between SDG-related company reporting and the assurance of NFI.

Research implications

We believe the findings reported in this paper will help decision-makers better understand the quality of organisations' contributions towards achieving the SDGs. Furthermore, the paper has implications for stakeholders, policymakers, academics and assurance providers concerning the relationship between SDG-related reporting and the quality of NFI.

Keywords

SDGs, Non-financial information, ESG score, Assurance, Assurors.

Paper type

Research paper.

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1. INTRODUCTION

This study focuses on the early adoption of reporting practices related to Sustainable Development Goals (SDGs) by Spanish listed companies. The aim of the paper is to identify the relationship between the SDGs and the quality of Non-Financial Information (NFI) analysed, according to the assurance of this information.

In 2015, the United Nations approved the 2030 Agenda for Sustainable Development and agreed upon 17 SDGs (GRI and UNGC, 2018) and 169 targets, seeking a balanced approach to the economic, social and environmental dimensions addressed. The SDGs span a wide range of issues related to sustainable development such as poverty, health, education, climate change and environmental degradation (UN, 2015; Schleicher et al., 2018; Rosati and Faria, 2019a). Policies addressing these goals are currently being implemented by governments, companies and nongovernmental organisations.

In 2018, the United Nations Global Compact (UNGC) and the Global Reporting Initiative (GRI) launched a joint enterprise on SDG reporting (GRI, 2018; UNGC, 2018) commending businesses "to incorporate SDG reporting into their existing processes, empowering them to act and make the achievements of the SDGs a reality" (UNGC, 2018). According to the GRI (2018), sustainability reports can facilitate the measuring, understanding, driving and communication of companies' SDG-related performance, setting internal goals and managing the transition towards more sustainable development.

Various theoretical approaches have been proposed to explain companies' adoption of more sustainable business models (Chen and Roberts, 2010; Hahn and Kühnen, 2013). In this respect, legitimacy, stakeholder and signalling theories (Freeman, 1994; Deegan, 2002; Jizi, 2017; Nunes and Park, 2017, Tyson and Adams, 2020) suggest that companies seek to obtain legitimacy by including certain items in their reporting which signal the degree of their commitment to meeting stakeholders' expectations.

European Union Directive 2014/95/EU imposed new requirements for the disclosure of NFI and in Spain Act 11/2018 extended this legislation by imposing the mandatory external assurance of NFI, reversing the voluntary nature of assurance stipulated in the previous Royal-Decree-Law 18/2017 of 24 November. Therefore, in the present study, the data for 2017 refer to non-mandatory NFI assurance, while the sample data for 2018 reflect the mandatory nature of the assurance provided. This peculiarity makes the Spanish context especially interesting to researchers.

The assurance of NFI enhances confidence in the information disclosed and is an indicator of the company's legitimacy and of its engagement with stakeholders. According to Simnett (2012) and García-Sánchez (2021), the external assurance of the content and structure of a company's sustainability reports enhances its reputation, reliability and comparability and, therefore, its global credibility.

One of the most significant steps a company can take to enhance its sustainability reporting is to incorporate the SDGs into its published information. According to the 2030 Agenda for Sustainable Development, which arose following agreements between the UNGC and GRI, businesses are expected to play an important role in making the SDGs a reality (UNGC, 2018; GRI, 2018; Rosati and Faria, 2019a, b).

In 2017, KPMG (2017) noted that only 39% of the companies in its sample reported on their contributions to the SDGs. However, in a recent survey (KPMG, 2020), the same organisation observed that 72% of G250 companies (i.e., the world's 250 largest companies by revenue as defined in the Fortune 500 ranking for 2019) and 69% of the N100 companies (the top 100 companies by revenue from a worldwide sample of 5,200 companies) place their business activities in the context of the SDGs in their corporate reporting. Nevertheless, SDG reporting differs significantly among companies and tends to emphasise the positive contributions, while there is a notable lack of transparency on their negative impacts.

The publication of a sustainability report (on the company's adoption of the SDGs) is a strategic decision, emphasising the organisation's willingness to address these issues. External assurance of this report corroborates the accuracy and trustworthiness of the information disclosed (Simnett et al., 2009). As observed by Schaltegger and Wagner (2011), external verification is an indicator of legitimacy and commitment to information disclosure in general and sustainability reporting in particular, and encourages organisations to adopt a strategic orientation that is compatible with sustainability disclosure.

Although relatively few companies have begun to disclose SDG-related information (Schramade, 2017), this area offers many research opportunities (Bebbington and Unerman, 2018; Larrinaga et al., 2019; Lapsley and Miller, 2019; Martínez-Ferrero and García-Meca, 2020). Among many areas that could usefully be investigated, researchers could: i) examine the alignment between governmental and corporate actions in terms of working to achieve the SDGs; ii) study the contributions made by SMEs in this respect, iii) analyse the influence of different stakeholders in driving SDG disclosure strategies. In the present paper, we analyse the role played by external assurors, the type of assuror involved and the quality of the assurance report produced, regarding the disclosure of compliance with the SDGs in the context considered.

Spain is an interesting case for study because Spanish companies achieve high scores in various sustainability indexes (Garrido Miralles et al., 2016; Ortíz and Marín, 2017; Tarquinio et al., 2018; Sierra-Garcia et al., 2018; García-Sánchez et al., 2021). According to KPMG (2020), 98% of the Spanish companies analysed published sustainability reports, compared to the global average of 77%, and of these, 83% referenced SDGs in their sustainability reports, in comparison with the global average of 69%. Moreover, Spain has pioneered the mandatory provision of external assurance of sustainability reporting.

The present study addresses a specific research gap, namely the role played by external assurance in companies' sustainability reporting and the association between the type of assuror, the quality of the assurance report and the propensity of firms to address the SDGs in their sustainability reports. Another interesting aspect is the voluntary vs. mandatory nature of this assurance and the impact of each mode on the variables considered.

In the following section, we present the theoretical framework employed and develop our hypotheses through the literature review. We then consider the sample of firms included in this analysis and describe the methodology applied. After this, the results of our empirical study are presented and discussed. Finally, we summarise the main conclusions drawn.

2. THEORETICAL FRAMEWORK

Several theories could explain companies' decision to obtain sustainability reporting assurance. In this research, we pose our hypotheses by reference to three complementary frameworks: legitimacy theory, stakeholder theory and signalling theory (Hummel et al., 2019). Following Chen and Roberts (2010), who summarised theoretical considerations related to social and environmental accounting research, we show that legitimacy theory provides a high-level approach to the analysis of social expectations. In addition, however, we must consider stakeholder theory, which is also concerned with the organisations and their environment, and signalling theory, in the understanding that the type of assuror chosen and the quality of the assurance report published send valuable signals to stakeholders and are strongly associated with the level of NFI reporting.

The assurance process may play a crucial role in establishing legitimacy (O'Dwyer et al., 2011) and can be a necessary means of satisfying social demands and even of ensuring an organisation's survival (Martínez-Ferrero and García-Sánchez, 2017a). In this respect, legitimacy theory could be used to explain the relationship between a company's assurance of its sustainability reports and its involvement with the SDGs. In particular, from legitimacy theory it could be argued that companies assure their NFI reporting in order to increase the credibility of these publications (Fernández-Feijóo et al., 2015; Bollas-Araya et al., 2019).

Another important approach is that of stakeholder theory, which can play a vital role in understanding the provision of sustainability information; according to this theory, the greater the pressure imposed by stakeholders, the greater a company's need to provide credibility in its NFI reporting (Simoni et al., 2020). In researching this field, therefore, it is necessary to assess the degree to which a higher level of stakeholder commitment will persuade a company to have its sustainability report assured by a third party. Consistently, stakeholder theory suggests that, in order to succeed, companies must address their stakeholders' expectations (Freeman, 1994). Following Hodge et al. (2009) and O'Dwyer and Owen (2005), we suggest that in obtaining assurance of their sustainability disclosure, companies seek to demonstrate their reliability and credibility to stakeholders.

Finally, the type of assuror chosen and the quality of the assurance report produced can be viewed as signs of a company's legitimacy and its commitment to sustainability reporting (Schaltegger and Wagner, 2011), reflecting its strategic orientation towards the SDGs (Rosati and Faria, 2019b). According to signalling theory, companies may take steps to assure their sustainability action reporting in order to certify that they and their stakeholders are aware of the need to act on sustainability-related issues. Signalling theory can be utilised to clarify whether or not Spanish companies are assuring their NFI reports as a substantive signal of concern for society and the environment. Signalling theory suggests, moreover, that by incurring the costs of assurance services companies are indicating (to potential users of this NFI) that they are committed to the provision of high-quality information (Simnett et al., 2009). As observed by Tyson and Adams (2020), "preparers may assure their sustainability reports to provide clearer and more persuasive "signals" about their actual sustainability performance and practices". These authors argue that non-financial preparers could request certain items regarding details of the company's engagement, scope or standards provided in the assurance report to highlight the credibility of its sustainability information.

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. SDG Reporting

As mentioned above, both the UNGC and the GRI encourage organisations to publish sustainability reports on their SDG performance. In this respect, Rosati and Faria (2019b) identified and analysed the country-level institutional factors related to the decision to address the SDGs in sustainability reports. These authors concluded that organisations located in countries with higher levels of climate change vulnerability, national corporate social responsibility, company spending on tertiary education, indulgence and individualism, and lower levels of market coordination, employment protection, power distance and long-term orientation are more likely to report on the SDGs. In a similar study, Rosati and Faria (2019a) investigated the relationship between the early adoption of SDG reports and a series of organisational factors, finding that larger organisations, with a higher level of intangible assets, a stronger commitment to sustainability frameworks and external assurance, a higher share of female directors and a younger board of directors are more likely to adopt SDG reporting.

Other studies have analysed the extent of SDG reporting by companies in various countries and sectors. Fonseca and Carvalho (2019) analysed the level of engagement of Portuguese companies and observed that the communication of SDGs is more likely when the organisation has a higher business volume, is a member of the UNGC Network and discloses its sustainability reports online. Izzo et al. (2020) focused on Italian listed companies. Their main conclusions were that SDG awareness is high within this business community and that the majority of highly traded, liquid and highly capitalised Italian companies incorporate the SDGs into their disclosure practices. However, the exact nature and requirements of the SDGs are often absent from these reports, and many fail to define the key performance indicators related to these goals. The authors also found that Italian companies prefer to use non-financial statements and sustainability reports to disclose information about their commitment to SDGs. Hummel and Szekely (2020) examined SDG disclosure in the annual reports presented by a sample of European firms listed in the STOXX Europe-600 index. According to their findings, reporting quality increased significantly over time but many of these publications failed to disclose sufficient quantitative, forward-looking information. Moreover, this SDG reporting was often influenced by financial and non-financial stakeholders. Tsalis et al. (2020) proposed a methodological framework to evaluate the level of alignment of corporate sustainability reporting practices with the scope of SDGs, and empirically analysed 48 sustainability reports published by 20 Greek firms. This analysis revealed significant differences in the breadth and quality of information disclosed. Among other factors, reporting practices were influenced by the industry sector in which the firm operated. Finally, the authors concluded that the publication of the 2030 Agenda had not produced any major change in the content or structure of the sustainability reports considered. Nichita et al. (2020) analysed the development of SDG reporting by the ten largest chemical companies in Central-Eastern Europe, finding that 63% of the reports considered did not clearly mention the SDGs addressed by the company's investments, and that the SDG reports considered differed widely in their structure and extent. Finally, Nechita et al. (2020) sought to determine the extent to which the financial indicators disclosed in the annual report impact on the quality of non-financial reporting, with particular reference to the SDGs, among chemical companies operating in Central and Eastern Europe. This paper highlighted companies' contribution to the SDGs, particularly those concerning the environment and decent work conditions for employees, and suggested that R&D costs and other intangibles are the most influential variables in explaining the variations in firms' SDG reporting. Furthermore, Martínez-Ferrero and Garcia-Meca (2020) evidenced that greater corporate governance mechanisms such as CEO duality, independent boards and meetings are positively associated with companies' addressing the SDGs in their sustainability reports. Finally, Tyson and Adams (2020) argued that a company's decision to assure its NFI might be related to its contributions towards achieving the SDGs.

3.2. External assurance

Reflecting its importance, a growing body of research has examined various aspects of sustainability assurance. Numerous researchers have observed that assurance improves the quality of sustainability reporting, lowers the cost of equity capital and increases firms' credibility to non-professional investors (Hodge et al., 2009; Simnett et al., 2012; Kolk and Perego, 2010; Casey and Grenier, 2015; Cheng et al., 2015; Ballou et al., 2018; Michelon et al., 2019). With respect to Spanish listed companies, Reverte (2020) examined whether investors believed voluntary assurance, as provided for under Directive 2014/95/EU, was producing satisfactory results. The study findings showed that investors favour companies that adopt external assurance and that they prefer assurance statements to be broad in scope, to offer a reasonably high level of assurance and to be of good general quality. Miralles-Quirós et al. (2021), in their study of Spanish companies listed on the Ibex-35 index, considered whether the adoption of assurance influenced stock prices. The main conclusions drawn were that these companies are increasingly socially committed and seek to transfer assured information to their stakeholders, a goal that is approved by investors, in line with the level of assurance obtained.

Other studies have shown that board characteristics such as independence, size, separation between CEO and chairman of the board, and the presence of a sustainability committee are all positively associated with the likelihood of the firm assuring its sustainability report (Peters and Romi, 2015; Martínez-Ferrero and García-Sanchez, 2017b; Chappel et al., 2017; Al-Shaer and Zaman, 2018; Liao et al., 2018; Martínez-Ferrero et al., 2018). Industry and organisational characteristics also have a significant influence on this question (Zorio et al., 2013; Sierra et al., 2013; Ferreira Gomes et al., 2015; Bollas-Araya et al., 2019). Finally, various studies have concluded that a company's sustainability performance is greater when an external body is contracted to assure its sustainability reporting (Casey and Grenier, 2015; Braam and Peeters, 2018; Hummel et al., 2019).

Although little research evidence has been presented in this respect, some studies have reported that external assurance is positively and significantly associated with SDG reporting (Rosati and Faria, 2019b; van der Waal and Thijssens, 2020). In the present article, we argue that, according to legitimacy, stakeholder and signalling theories, firms are more likely to report their contributions to the SDGs when their NFI is assured.

In view of these considerations, we propose the following hypothesis:

H_1: The introduction of mandatory external assurance of sustainability reports has heightened the presence of the SDGs in corporate sustainability reporting.

3.3. Type of assurance provider

External assurance is provided by independent experts, termed assurors, who are usually classified as accountants (audit firms) and non-accountants (engineering firms and small consultancies/boutique firms) (Bollas-Araya and Sierra-García, 2021).

According to legitimacy and stakeholder theories and prior studies of voluntary assurance, reporting quality is significantly higher when the assurors are accountants (Romero et al., 2010; Fernández-Feijóo et al., 2012; Zorio et al., 2013), due to their independence and high level of expertise (Velte and Stawinoga, 2017).

The type of assurance provider chosen depends on certain corporate characteristics. According to Zorio et al. (2013), the business sector in which the company operates is a determinant factor in choosing an assuror, while Fernández-Feijóo et al. (2015) concluded that a large accounting firm was more likely to be hired as an assuror when the company operated in a particularly visible sector of the economy. Similarly, Sierra- García et al. (2013) found that companies in sectors such as oil and energy, basic materials or financial services were more likely to choose an accounting firm for this task. Simnet et al. (2009), Kolk and Perego (2010) and Fernández-Feijóo et al. (2015) all reported that large companies were more likely to employ accountants as assurors. Finally, Zorio et al. (2013) affirmed that the company's listing status was another significant factor in the choice of assurance provider.

In view of the above considerations regarding the association between the type of assurance provider and the company's contribution to the SDGs, and in accordance with legitimacy, stakeholder and signalling theories, we hypothesise the following relationship:

H_2: The use of accountants as external assurors has a significant positive impact on the presence of the SDGs in sustainability reporting.

3.4. The quality of the assurance report

Other studies in this area have analysed the content and quality of assurance statements, revealing significant differences across assurors. Most apply one or more standards (AA100AS and ISAE3000) to carry out the verification process (Manetti and Toccafondi, 2012; Perego and Kolk, 2012), although O'Dwyer and Owen (2005) and Deegan et al. (2006a) have noted that in many cases the statement makes no mention of standards. O'Dwyer and Owen (2005) also observed that non-accountants were more likely to mention standards, especially AA1000AS. In contrast, Deegan et al. (2006a, b), Mock et al. (2007, 2013) and Bollas-Araya et al. (2018) all suggested that accountants were more likely to mention standards. Furthermore, Perego and Kolk (2012), Manetti and Toccafondi (2012), Bollas-Araya et al. (2018) and Seguí et al. (2018) affirmed that accountants were more likely to employ ISAE 3000, whereas non-accountants tended to use AA1000AS. Manetti and Toccafondi (2012) and Seguí et al. (2018) observed that accountants were also more likely to combine different standards in their assurance work. With regard to the scope and intensity of the assurance processes performed by an independent third party, organisations are recommended to favour a reasonable/high level of assurance rather than a limited/moderate level, in order to maximise the credibility and usefulness of their reports (Velte and Stawinoga, 2017). Nevertheless, several studies have shown that most assurors apply only a limited/moderate level of assurance (Manetti and Becatti, 2009; Manetti and Toccafondi, 2012; Seguí et al., 2018). Moreover, O'Dwyer and Owen (2005) and Bollas-Araya et al. (2018) found that accountants are more likely to indicate the level of assurance and to apply a more conservative, cautious and limited approach, thus providing low levels, whereas non-accountants apply a more evaluative approach and provide higher levels. Similarly, Mock et al. (2007, 2013) and Martínez-Ferrero and García-Sánchez (2018) revealed that large accounting firms were more likely to provide lower levels of assurance. Lastly in this respect, Mock et al. (2007,

2013) concluded that large accounting firms are less likely to include recommendations in their assurance statements. Manetti and Toccafondi (2012) presented evidence that indications for improvements are more commonly given by consultants. On the other hand, Bollas-Araya et al. (2018) found no association between the inclusion of recommendations and the type of assuror. Additionally, Perego and Kolk (2012) indicated that the quality of the recommendations and opinions given is positively associated with the involvement of non-accountants. Finally, Martínez-Ferrero and García-Sánchez (2018) demonstrated that the greater experience of the Big 4 firms and their relevant skills and training increased the probability of their issuing more precise opinions.

Continuing our analysis of assurance report quality, if the assuror describes in detail how this verification was performed, this will increase users' confidence in the resulting CSR report (Garcia-Sánchez et al., 2018). Several studies have examined whether the perceived quality of an assurance report is associated with its credibility. Thus, Hodge et al. (2009) observed that the provision of a suitable framework for the assurance process could enhance its credibility to stakeholders. Other studies have investigated the relationship between the quality of the assurance report and certain corporate characteristics. Romero et al. (2010), Fernández-Feijóo et al. (2012) and Zorio et al. (2013) all found that assurance quality was significantly higher in the reports produced by large companies that chose accountants as their assurance providers. Moreover, Rossi and Tarquinio (2017) found that when the company had a CSR committee and operated within a sensitive business sector these factors were associated with a higher quality assurance index. With regard to the type of assuror, Zorio et al. (2013) and Garcia-Sánchez et al. (2021) discovered a positive association between assurance quality and the provision of assurance services by an auditor, rather than a consultant. On the other hand, Rossi and Tarquinio (2017) concluded that CSR reports assured by auditors were of lower quality.

Regarding assurance on SDG reporting, Adams (2020) revealed a number of gaps detected in the consultation on SDG Disclosure Recommendations. Some participants affirmed that assurance standards are not sufficiently developed, although Deloitte noted that assurance on SDG can be performed using ISAE 3000. The respondents also expressed the view that, at present, the scope and level of assurance engagements remain limited, which reduces their credibility. Given that the ISAE 3000 standard is commonly used by accountants in the assurance process, we believe that companies which employ accountants to assure their sustainability reports are more likely to disclose information about their SDG performance. In addition, applying a broader scope and a higher level of assurance increases the quality, and hence the credibility, of assurance. Therefore, we believe it more likely that companies with higher quality assurance reports will include the SDGs in their sustainability reports.

In view of the above considerations regarding the association between the content and quality of assurance reports and their contribution to the SDGs, taking into account legitimacy, stakeholder and signalling theories, we hypothesise the following relationship:

H_3: The quality of the assuror's report has a significant positive impact on the presence of the SDGs in sustainability reporting.

4. RESEARCH METHODOLOGY

In this study, we address three main research questions. Does external assurance heighten the presence of the SDGs in companies' sustainability reports? Is this presence affected by the type of external assuror employed? Is this presence affected by the quality of the assurance report? In the following section, we present the method used to analyse the study data, together with the models constructed and the variables included to test our hypotheses.

4.1. Data

This study is focused on companies that are listed on the Madrid Stock Exchange, using data for 2017 and 2018, as targeted by Directive 2014/95/EU and its application under Spanish legislation. As shown in Table 1, the initial observations identified 260 companies (130 for each year). Nine of these companies were foreign-based and were excluded from the analysis. Of the 251 remaining in the sample, 205 issued sustainability/non-financial reports. We then eliminated from consideration the 74 companies lacking environmental, social and governance (ESG) information from the Thomson-Reuters Eikon platform. The final sample, thus, was composed of 131 companies with ESG ratings. Later examination revealed that in 105 cases, the companies' non-financial reports had been verified by an independent assurance provider.

Insert TABLE 1 about here

Table 2 shows that the largest business sector of the companies considered, both in 2017 and 2018, was that of basic materials, industry and construction (31.43%), while the smallest were those of consumer goods (5.13%, in 2017) and petroleum and energy (9.09%, in 2018).

Insert TABLE 2 about here

As shown in Table 3, of the 105 companies with an ESG rating and whose non-financial reports were verified by an assurance provider, 85 (80.95%) referred to the SDGs in their sustainability reports. Of these 85 reports, 29.41% were assured by the accountancy firm PwC, followed closely by the other accounting firms (EY, Deloitte, and KPMG). Only 9.41% of reports were assured by a non-accounting firm. During the study period, the provision of SDG-related reporting decreased slightly, from 87.2% to 77.3%.

Insert TABLE 3 about here

4.2. Models and variables

The first of our study hypotheses – whether the entry into force of Act 11/2018 requiring the assurance of NFI reporting influenced the presence of SDGs – was examined by analysing the categorical data of our sample. For hypotheses 2 and 3, a logistic regression was used to determine whether the type of assuror and the quality of the assurance report influenced the presence of SDG considerations in sustainability reporting. In this context, we formulated the following models:

Model 1: $\mathbf{SDG_{i,t} = ß_0 + ß_1\ Type\ Assuror_{i,t} + ß_2\ ESG\ Score_{i,t} + ß_3\ Control\ Variables_{i,t} + \varepsilon_{i,t}}$

Model 1a: $SDG_{i,t} = ß_0 + ß_1\ Type\ Assuror_{i,t} + ß_2\ Environmental\ Score_{i,t} + ß_3\ Control\ Variables_{i,t} + \varepsilon_{i,t}$

Model 1b: $SDG_{i,t} = ß_0 + ß_1\ Type\ Assuror_{i,t} + ß_2\ Social\ Score_{i,t} + ß_3\ Control\ Variables_{i,t} + \varepsilon_{i,t}$

Model 1c: $SDG_{i,t} = ß_0 + ß_1$ Type $Assuror_{i,t} + ß_2$ Governance $Score_{i,t} + ß_3$ Control $Variables_{i,t} + \varepsilon_{i,t}$

Model 2: $SDG_{i,t} = ß_0 + ß_1\ QINDEX_{i,t} + ß_2$ ESG $Score_{i,t} + ß_3$ Control $Variables_{i,t} + \varepsilon_{i,t}$

Model 2a: $SDG_{i,t} = ß_0 + ß_1\ QINDEX_{i,t} + ß_2$ Environmental $Score_{i,t} + ß_3$ Control $Variables_{i,t} + \varepsilon_{i,t}$

Model 2b: $SDG_{i,t} = ß_0 + ß_1\ QINDEX_{i,t} + ß_2$ Social $Score_{i,t} + ß_3$ Control $Variables_{i,t} +$ ui,

Model 2c: $SDG_{i,t} = ß_0 + ß_1\ QINDEX_{i,t} + ß_2$ Governance $Score_{i,t} + ß_3$ Control $Variables_{i,t} + \varepsilon_{i,t}$

The study variables are listed and defined in Table 4 and in Table 5.

Insert TABLE 4 about here

Insert TABLE 5 about here

5. RESULTS AND DISCUSSION

5.1. Descriptive statistics

Table 6 shows the descriptive statistics obtained for the dummy variables across the total sample (n=105). Notably, 80.95% of these companies addressed the SDGs in their sustainability reports, a higher value than was obtained by Martínez-Ferrero and Garcia-Meca (2020). By type of assuror, PwC assured 33.33% of the reports, followed by KPMG (20.95%), while just 8.57% of assurance processes were carried out by a non-accounting firm. Only 29.52% of companies had a sustainability committee. By sector, 43.19% of companies operated within a 'sensitive' business sector.

Insert TABLE 6 about here

Table 7 provides the descriptive statistics for the continuous variables. The average quality index obtained was 16.89. The highest score obtained was 21 out of 23; thus, no assurance report achieved the maximum score possible. The average ESG score was 65.32%, with the highest score being obtained for the social component (75.20%). The average company size (natural logarithm of total assets) was 16.10. The average ROA was 3.77%, with a minimum value of -38.87% and a maximum of 67.37%. Finally, the mean leverage was .562, with individual values ranging from 0 to 1.88.

Insert TABLE 7 about here

5.2. Empirical results

As can be seen in Table 8, the presence of SDGs in sustainability reporting was higher in 2018 (73.9%), after the entry into force of Act 11/2018, which imposed the mandatory assurance of NFI reports. Nevertheless, the association between the adoption of assurance and the provision of SDG reporting is significant in both periods, before and after the implementation of the Act. The likelihood of SDG reporting was higher when the report was assured, both when this was compulsory (77.3% in 2018) and when it was voluntary (87.2% in 2017).

Insert TABLE 8 about here

Table 9 shows the results obtained by the first model regarding the impact of the type of assuror on the firm's propensity to address the SDGs in its sustainability report. In this respect, the involvement of KPMG or PwC has a very strong influence. In each case, the coefficient for the variable type of assuror is negative and statistically significant, in comparison with a non-accountant provider (β_3=-2.347965, $p <.10$; β_4=-3.197655, $p <.05$ for KPMG and PwC, respectively). In other words, companies that employ either of these firms, rather than a non-accounting firm, are more likely to address the SDGs in their sustainability reports, a finding that is supported by legitimacy, stakeholder and signalling theories. Moreover, the ESG score is positively and significantly related to the inclusion of the SDGs (β_5=.0570355, $p <.01$). Among the control variables considered, leverage and the presence of a sustainability committee are both positively and significantly related to the inclusion of the SDGs (β_6=.2.41931, $p <.05$; β_9=3.307281, $p <.05$). The score for the social element, in Model 2b, is positively related to the inclusion of the SDGs. However, neither the Environmental score in Model 1a nor the Governance score in Model 1c are significant in this respect.

Insert TABLE 9 about here

Finally, the results shown in Table 10 highlight the impact of the quality index of an assurance report on the inclusion of the SDGs. Logistic model 2 shows that the variable quality index (β_1=.559764, p <.05) is positively and significantly associated with the inclusion of the SDGs. Thus, companies obtaining more credible assurance are more likely to address the SDGs in their sustainability report, in line with legitimacy, stakeholder and signalling theories. Moreover, the ESG score is positively and significantly related to SDG inclusion (β_2=.0495233, p <.01), meaning that companies with higher scores for environmental, social and governance issues are more likely to address the SDGs in their sustainability reports. Moreover, both leverage and the presence of a sustainability committee are positively and significantly related to this aspect of sustainability reporting (β_3=1.701165, p <.10; β_6=2.275662, p <.10). By individual ESG scores, the Social score in Model 2b is positively related to the inclusion of the SDGs but neither the Environmental score in Model 2a nor the Governance score in Model 2c are statistically significant in this respect.

Insert TABLE 10 about here

6. CONCLUSIONS

The SDGs were only arrived at following lengthy multistakeholder negotiations, but many governments are now implementing policies and adopting regulations in this regard. If these goals are to be achieved, the alignment and contributions of companies are of vital importance, and therefore businesses must be made aware of the risks and opportunities arising in this respect, in terms of the social, environmental and economic dimensions that may be affected. The disclosure of SDG-related issues in corporate reporting is a valuable means of communicating a company's efforts to its stakeholders. With this in mind, the 2030 Agenda urges companies to take active steps in this direction, and underscores the belief that making businesses more sustainable is a fundamental component of achieving the SDGs (Scheyvens et al., 2016; Schramade, 2017). Specifically, Target 12.6 encourages large companies to incorporate information on sustainability into their reporting cycle, via the communication of NFI.

Accounting considerations are an important factor determining the implementation of the SDGs (Bebbington and Uneman, 2018). In this understanding, our paper analyses the role played by external assurance, the type of assuror and the quality of the assurance report in the disclosure of SDG-related performance by Spanish listed companies. Reference to the SDGs enables companies to demonstrate how their social, economic and environmental activities add value to society. An effective report will strengthen the company's reputation and enhance its relationships with stakeholders. In recent years, stakeholders have begun to demand more accountability, and the assurance of NFI is increasingly important in ensuring its credibility. In our opinion, the present study is timely and relevant. In short, analysis of the credibility provided by assurance and of the impact produced by the type of assurer and the quality of the report is a valuable contribution to the SDGs.

These questions are examined taking into account legitimacy, signalling and stakeholder theories, all of which are relevant to social disclosure practices. Specifically, our research study focuses on the impact of the Spanish adaptation of Directive 2014/95/EU, with particular attention to companies listed on the Madrid Stock Exchange in 2017 and 2018. The importance of this period is that in 2017 assurance was voluntary, whereas in 2018 it was compulsory. The results of our empirical research confirm that there is a significant positive association between the adoption of assurance and the publication of an SDG-related sustainability report. This association exists irrespective of the mandatory or voluntary nature of the assurance. Two of the Big 4 accounting firms (KPMG and PwC) are the most important providers of assurance services in this field. These results show that firms use SDGs to display their care about stakeholders' concerns, sending a signal to the market.

From a practical perspective, our research clarifies why companies choose to publish SDG-related information and highlights its importance to NFI quality. Our findings show that assurance plays an important role in enhancing the credibility of sustainability reports. These results, framed within stakeholder theory, show that in response to increasing demands from stakeholders, companies have had to increase the quality of the information they publish. These outcomes are relevant not only to the country considered in our analysis (Spain) but also from an international perspective, as they underscore the universal importance of sustainability information and its credibility with respect to the SDGs. Credibility is of vital importance not only to NFI but also to SDG disclosure. However, despite the strong evidence obtained in favour of NFI assurance, we emphasise the need to further improve the content of assurance reports, which in many cases continue to present serious deficiencies. Finally, our findings highlight the fact that the assurance of NFI confers greater legitimacy on the publisher and reduces scepticism about information on the SDGs.

This study has significant implications for stakeholders, policymakers, academics and assurance providers. For stakeholders, it clarifies the relationship between SDG disclosure and NFI quality and corroborates the value of NFI assurance in support of the SDGs. For investors, it reveals that SDG-related sustainability reporting contributes to reducing global risks. For policymakers, the study results provide new information about the impact and credibility of companies' sustainability reporting, and enhance our understanding of how and why organisations modify their sustainability practices. For academics, this research contributes to an emerging body of literature aligned with the SDGs. If the UN SDGs are accepted as an essential element of corporate reporting, further research will be needed to identify and measure interactions among the 17 SDGs. For assurance providers, our study informs the debate about professionalism, integrity and independence, revealing that different practitioners may design and apply different strategies. From a practical perspective, the results of this paper contribute to understanding companies' engagement with SDGs and the credibility of their efforts in this respect.

Nevertheless, the conclusions of this paper must be viewed with caution due to its inherent limitations. The main problem concerns the non-availability of data about the type of SDGs addressed by companies in their NFI reports. This information gap represents a potential area for future research, namely to quantify the quality of SDG reporting. Another shortcoming of the present research is the open-ended nature of the debate. On 20 February 2020, the European Commission launched a public consultation to discover the views of the producers and consumers of sustainability reports, finding that 63% of participants believed that due to differences in assurance requirements, the financial and non-financial information currently being provided is inappropriate and/or insufficient. Therefore, the question of providing reasonable versus limited assurance is far from settled, and the ultimate consequences of this consultation remain to be seen.

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TABLES

Table 1: Sample description

	Sample
Madrid Stock Exchange 2017-2018 (130 each year)	**260**
Less foreign companies	9
Total companies analysed	**251**
Less companies without Sustainability/Non-Financial report	46
Companies with Sustainability/Non-Financial report	**205**
Less companies without ESG ratings	74
Companies with ESG ratings	**131**
Less companies without assurance	26
Companies with ESG ratings and non-financial reports with assurance	**105**

Table 2: Sector by year

	2017		2018		Total	
Sector	**n**	**%**	**n**	**%**	**n**	**%**
Consumer goods	2	5.13	9	13.64	11	10.48
Basic materials, industry and const.	12	30.77	21	31.82	33	31.43
Petroleum and energy	6	15.38	6	9.09	12	11.43
Consumer services	5	12.82	10	15.15	15	14.29
Financial services and real estate	9	23.08	13	19.70	22	20.95
Technology and telecommunications	5	12.82	7	10.61	12	11.43
Total	**39**	**100**	**66**	**100**	**105**	**100**

Table 3: SDG by assuror and year

	2017		2018		Total	
	SDG		SDG		SDG	
Assuror	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**
EY	7 (20.59%)	-	11(21.56%)	2	18 (21.18%)	2
Deloitte	7 (20.59%)	-	10 (19.61%)	2	17 (20%)	2
KPMG	7 (20.59%)	2	10 (19.61%)	3	17 (20%)	5
PwC	11 (32.35%)	3	14 (27.45%)	7	25 (29.41%)	10
Non-Accountant*	2 (5.88%)	-	6 (11.76%)	1	8 (9.41%)	1
Total	**34 (87.2%)**	**5**	**51 (77.3%)**	**15**	**85 (80.95%)**	**20**

*Non-Accountant: Bureau Veritas; AENOR, TÜV Rheinland and SGS

Table 4: Study variables

SDG	A dummy variable, coded as one if the company addresses the SDGs in its sustainability report and zero otherwise.
TYPE OF ASSUROR	A categorical variable, coded as zero if the assuror is a non-accountant firm, one if it is EY, two if it is Deloitte, three if it is KPMG and four if it is PwC.
QUALITY INDEX REPORT	The 12 items that reflect the quality of assurance reports are based on the assurance quality index proposed by O'Dwyer and Owen (2005), Perego (2009), Perego and Kolk (2012), Zorio et al. (2013) and Martínez-Ferrero et al. (2018). See Table 5.
ESG SCORE	Represents the company's ESG performance according to the ESG score provided by Thomson Reuters Eikon, which ranges from 0.1 to 100 based on 10 categories of data points, assigned by Thomson Reuters Eikon.
ENVIRONMENTAL SCORE	Represents the firm's Environmental performance according to Thomson Reuters Eikon. This value ranges from 0.1 to 100, based on 10 categories of data points that Thomson Reuters Eikon assigns.
SOCIAL SCORE	Represents the firm's Social performance provided by Thomson Reuters Eikon, which ranges from 0.1 to 100 based on 10 categories of data points assigned by Thomson Reuters Eikon.
GOVERNANCE SCORE	Represents the firm's Governance performance provided by Thomson Reuters Eikon, which ranges from 0.1 to 100 based on 10 categories of data points assigned by Thomson Reuters Eikon.
SUSTAINABILITY COMMITTEE	A dummy variable, coded as one if the company has a sustainability committee or similar and zero otherwise.
SIZE	Natural log of the firm's total assets.
ROA	Profit divided by total assets.
LEVERAGE	Total debt divided by equity.
SENSITIVE SECTOR	A dummy variable coded as one if the company operates in a sensitive sector and zero otherwise.
YEAR	A dummy variable coded as one if the company data refer to 2018 category and zero otherwise.

Note: Sensitive sectors include petroleum and energy, financial services, real estate, technology and telecommunications. According to the literature, these sectors are most likely to publish information about their corporate social responsibility behaviour (Simnett et al., 2009; Kolk and Perego, 2010).

Table 5: Quality index

Items	**Scale**	
Addressee	0	No reference
	1	Addressee is mentioned as 'the readers'
	2	Specific stakeholder is mentioned
Assuror's responsibilities	0	No reference
	1	Reference
Assuror's independence	0	No reference
	1	Reference
	2	Compliance with IESBA and IFAC code of ethics
Assurance engagement objective	0	No reference
	1	Limited assurance
	2	Reasonable assurance
Assurance engagement scope	0	No reference
	1	Reference to specific environmental pollution section
	2	Reference to multiple specific sections
	3	Reference to entire report

Criteria	0	No reference
	1	Reference to specific non-public criteria
	2	Reference to publicly available criteria
Assurance standards	0	No reference provided
	1	Reference to non-public criteria
	2	Reference to publicly available local criteria
	3	Reference to generally acceptable standards such as AA1000AS or IAE3000
Work summary	0	No reference
	1	Reference available
Materiality	0	No reference
	1	Reference limited to a broad statement; the assuror does not confirm that all material issues are included.
	2	Reference and explanation of materiality setting or reference limited to a broad statement; stakeholder perspective introduced.
	3	Clear reference to and explanation of materiality setting, from a stakeholder perspective.
Completeness	0	No reference
	1	Reference
Responsiveness to stakeholder	0	No reference
	1	Reference
General opinion	0	No reference
	1	A general remark or a statement stating the opinion of the assurance provider (e.g., “XY's report is a fair presentation of XY's CSR performance”).
	2	More detailed explanatory statement that includes recommendations for improvement.

Source: Adapted from Perego and Kolk (2012), Sierra García et al. (2013) and Martínez-Ferrero et al. (2018)

Table 6: Dummy variables

Variables		**Freq.**	**%**	**Cum.**
SDG	Yes	85	80.95	80.95
	No	20	19.05	100.00
Type of assuror	EY	20	19.05	19.05
	Deloitte	19	18.10	37.15
	KPMG	22	20.95	58.10
	PwC	35	33.33	91.43
	Non-accountant	9	8.57	100.00
CSR committee	Yes	31	29.52	29.52
	No	74	70.48	100.00
Sensitive sector	Yes	46	43.19	43.19
	No	59	56.19	100.00

Table 7: Continuous variables

Variables	Mean	Std. Dev.	Min	Max
Quality index	16.8952	3.2103	0	21
ESG score	65.3203	17.7329	9.78	91.36
Environmental score	65.0771	22.3563	4.54	97.43
Social score	75.2098	18.2067	13.99	97.22
Governance score	52.6122	22.2672	1.21	94.08
Size	16.1070	1.9031	11.9361	21.1012
ROA	0.0377	0.0985	-0.3888	0.67374
Leverage	0.5624	0.3336	0.00	1.8855

Table 8: Chi-square test: SDGs vs. Assurance

	Assurance											
	2017						2018					
	SDGs		No SDGs		Total		SDGs		No SDGs		Total	
Assurance	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	34	87.2	5	12.8	39	100	51	77.3	15	22.7	66	100
No	0	0.0	23	100.0	23	100	0	0.0	3	100.0	3	100
Total	34	54.8	28	45.2	62	100	51	73.9	18	26.1	69	100
	Pearson Chi-square = 44.399 (p = 0.000) Fisher's Exact test (p = 0.000)						Pearson Chi-square = 8.886 (p = 0.003) Fisher's Exact test (p = 0.016)					

Table 9: Logistic model (Model 1)

	Model 1	Model 1a	Model 1b	Model 1c
	Coef. (Std. Err)	Coef. (Std. Err)	Coef. (Std. Err)	Coef. (Std. Err)
Type of assuror (Reference: Non-Accountant)				
EY	-0.4704 (1.4638)	-0.1964 (1.4236)	-0.4819 (1.4842)	-0.2511 (1.3791)
Deloitte	-.9955 (1.4987)	-.5653 (1.4513)	-.9305 (1.5185)	-.4354 (1.3888)
KPMG	-2.3480*** (1.4214)	-2.0004** (1.3666)	-2.9276*** (1.5265)	-1.8365* (1.2776)
PwC	-3.1977** (1.4307)	-2.7099** (1.3572)	-3.1854** (1.4394)	-2.5483** (1.2602)
ESG score	0.0570* (.0211)	-	-	-
Environmental score	-	0.0256 (0.0158)	-	-
Social score	-	-	0.8493* (0.0248)	-
Governance score	-	-	-	0.0130 (0.0140)
CSR committee	2.4193** (1.1453)	2.5409** (1.1182)	2.4409** (1.1567)	2.6777** (1.1304)
Size	-.07297 (.2366)	.0618 (.2294)	-.1294 (.2378)	.1689 (.2152)

ROA	1.8268 (3.6951)	2.1761 (3.4173)	1.4944 (3.6109)	1.5184 (3.4151)
Leverage	3.3073** (1.8274)	2.6595 (1.6523)	3.0004 (1.8286)	2.6617 (1.6869)
Sensitive sector	0.1836 (0.8177)	0.0625 (0.7759)	0.6328 (0.9045)	-0.2383 (0.7180)
Year	0.1072 (0.8946)	0.2970 (0.8493)	-0.1687 (0.9304)	0.0732 (0.8390)
*1%; **5%; ***10%				
Log likelihood	-33.739	-36.930	-30.833	-37.894
Number of observ.	105	105	105	105
LR $chi^2(8)$	34.77	28.39	40.58	26.46
Prob > chi^2	0.0003	0.0028	0.0000	0.0055
Pseudo R^2	0.3401	0.2777	0.3969	0.2588

Table 10: Logistic Model (Model 2)

	Model 2	Model 2a	Model 2b	Model 2c
	Coef. (Std. Err)	Coef. (Std. Err)	Coef. (Std. Err)	Coef. (Std. Err)
Quality index	0.0560** (0.0904)	0.0272* (0.0850)	0.0726** (0.0920)	0.0403*** (0.0844)
ESG score	0.0495* (0.0182)	-	-	-
Environmental score	-	0.0180 (0.0138)	-	-
Social score	-	-	0.0653* (0.0196)	-
Governance score	-	-	-	0.0098 (0.0127)
CSR committee	1.7012*** (1.0860)	1.9333*** (1.0760)	1.8468*** (1.1138)	2.0653** (1.0695)
Size	-0.1219 (0.2223)	0.0305 (0.2182)	-0.2251 (0.2306)	0.1206 (0.1981)
ROA	0.0181 (3.3949)	0.6294 (3.0474)	-0.0715 (3.3242)	0.3395 (3.0244)
Leverage	2.2757*** (1.4651)	1.8686 (1.3704)	2.1161 (1.5044)	1.9167 (1.3837)
Sensitive sector	0.3002 (0.6765)	0.1098 (0.6575)	0.8092 (0.7520)	-0.0744 (0.6246)
Year	0.2758 (0.7893)	0.2671 (0.7573)	0.0946 (0.8108)	0.1510 (0.7491)
*1%; **5%; ***10%				
Log likelihood	-39.524	-42.869	-36.531	-43.435
Number of observ.	105	105	105	105
LR $chi^2(8)$	23.20	16.51	29.19	15.38
Prob > chi^2	0.0031	0.0356	0.0003	0.0522
Pseudo R^2	0.2269	0.1615	0.2855	0.1504