Do well-reputed companies carry out higher quality social reporting? An empirical approach

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Abstract

Purpose – The purpose of this research objective was to analyse social reporting within MERCO Business companies both from the point of view of the quantity of information disclosed and the references about their quality. This approach constitutes a novelty with respect to previous literature on the subject.

Design/methodology/approach – This paper assesses how social reporting is being carried out by the companies included in the MERCO Corporate Reputation Business Monitor, MERCO Business, during the period 2014–2016. The methodological design include the construction of a weighted index based on two unweighted indexes related to the quantity revealed and the quality detected. In addition, this study integrates intellectual capital and social responsibility approaches in order to deep into these voluntary disclosures.

Findings – While social reporting is considerable from a quantitative point of view within MERCO Business companies, they do not reach very high levels of quality, which is good to counteract the final value of the quantity–quality index that the authors' propose.

Research limitations/implications – In MERCO Business companies, quantity is not a proxy for quality within social reporting. In this sense, only considering both dimensions it will be possible to assess these disclosures in a more complete way.

Practical implications – This study allows a more accurate and comparable view of social reporting than those studies that only focus on how much information is disclosed. Besides, it involves an important advance in the identification of the relative quality of social reporting, opening a new line of research that will be key to comparing this type of disclosures in a more homogeneous way. Likewise, the results can be applied in future studies in the intellectual capital field given the complementarity between both types of disclosures.

Social implications – Likewise, these results will be of interest for future actions aimed at regulating the improvement of the quality of social reporting in the hands of managers, investors and regulators.

Originality/value – The authors have tested the value of quality in social reporting using a weighted index amongst the most reputable companies in the Spanish scenario. These disclosures have been compared with and without the use of it in order to deduce its value to obtain valid conclusions about social reporting.

1. Introduction

Intellectual capital (IC) and sustainability are complex, comparable and mutually supportive issues (Massaro et al., 2018). For this reason, within the different formats used by companies to reveal their social and environmental performance, it is not surprising to find references about their IC (Oliveira et al., 2010; Cinquini et al., 2012 and Castilla-Polo and Ruiz-Rodríguez, 2017). In fact, for some time now, the integration of formats to disclose IC and social information has been proposed (Del Bello, 2006; Castilla-Polo and Gallardo-Vázquez, 2007; Pedrini, 2007 and Veltri and Nardo, 2013). In contrast with the reduced use of specific IC reports (Tejedo, 2016), the high interest of companies in publicizing their social behavior, practices widely known as social reporting (SR)[1], follows a growing trend (KPMG, 2017). For all the above, SR is used as a strategic framework to signal IC and at the same time, a way to gain knowledge about IC (Cinquini et al., 2012). This leads us to consider SR as a non-specific route for the analysis of IC such as that of Cinquini et al. (2012), Oliveira et al. (2010) and Tejedo and Araujo (2020).

In this study, we have analysed the case of companies with an excellent reputation, since we understand that this is the main intangible asset for achieving sustainable competitive advantages (Lourenco et al., 2014) and a source of significant external/relational capital (Duff et al., 2016). According to Fombrun and Shanley (1990), SR – as a way to show social responsiveness– may influence stakeholders' judgments, which are the foundation of reputation. Surroca et al. (2010), Dyduch and Krasodomska (2017) and Castelo and Lima (2006) also refer to the role of social objectives in the creation/improvement of a better reputation for companies. Specifically, the research on reputation management warns of the need to develop a good reporting strategy, especially in those issues included within the IC and SR spheres (Axjonow, 2018; Birkey, 2016 and Gürel et al., 2012).

The direct relationship between SR and reputation has been extensively studied (Axjonow, 2018; Oyewumiz et al., 2018; Dyduch and Krasodomska, 2017 and Birkey et al., 2016). We must also highlight the positive relationship between IC disclosures and reputation (Oliveira et al., 2010), in which the case of human capital stands out (Ginesti et al., 2018). However, there is also the opposite sense of this relationship, and according to recent research it is to be expected that companies with a better reputation will make social disclosure of a superior level. On precisely this topic, in a two-

way analysis of the reputation-SR relationship, Castilla-Polo and Sánchez-Hernández (2020) found slight differences in favour of the reputation-SR direction of this relation. Our study starts from this last approach, assuming that better reputation should lead to better and higher quality SR, considering the IC information included in these disclosures in a general way. However, it is not our objective to differentiate both types of disclosures. See Annex 1 for a comprehensive overview of the IC-SR research context used as our starting point.

In the literature on SR, quality appears comparatively less studied than quantity. Alotaibi and Hussainey (2016) highlight the existence of a greater interest among social researchers in analysing its extension to the detriment of the study of its quality and Brammer and Pavellin (2008) point out the limited interest in quality is due to the difficulty of analysing it. Most of the time, quantity is often used to draw conclusions about quality. We agree with Beretta and Bozzolan (2004) when they stated that the quantity of disclosures is not a satisfactory proxy for its quality. Nonetheless, this vision of quality is supported by a substantial number of studies because of its easy empirical implementation.

Linked to the above, the main critique of SR research is summarized by Michelon et al. (2015:60) under the following discourse: "despite the widespread popularity of them, concerns have been raised as to whether their introduction and development is designed simply to suggest a positive image of the organization, being essentially one-sided and incomplete, or to communicate its effective commitment by recognizing and discussing environmental and social challenges and problems". In short, these authors demand observe the degree of commitment to SR which justifies the need for more research in terms of quality, an issue already pointed out by Beretta and Bozzolan (2008). This idea is shared in the IC disclosure studies where there is an equally growing need to increase their quality (Duff et al., 2018; Cuozzo et al., 2017 and Melloni et al., 2015). Both types of voluntary disclosures should improve the trust of their target audience with quality, a research gap we propose to analyse.

Regarding the methodological approach prevailing in this study, we support the development of an index for SR (Laskar and Maji, 2018; Dias et al., 2017; Garg, 2017; Alotaibi and Hussainey, 2016; Habek and Wolniak, 2016, among others) and IC information included in SR (Ruiz-Rodríguez and Castilla-Polo, 2019; Ferreira et al., 2017; Lim et al., 2017, between others) as do the vast majority of antecedents. An index allows a summary measure to be built for voluntary disclosures which includes not only quantity issues but also

quality and this is one of the main concerns in this study. We improve on the prior literature by developing a self-constructed index based on the quality and quantity dimensions. To test this index, an empirical research was conducted with leading Spanish companies on reputation according to the MERCO Corporate Reputation Monitor, which is a reference tool for large companies, specifically in the assessment and management of their reputation. To the best of our knowledge, this is the only contribution within this topic and frame.

Specifically, our methodological design incorporates the following two levels and objectives. On the first level, we will justify and develop a weighted index that includes the vision that not only is communicating social information important for companies but it is also desirable that they comply with some requirements associated with its quality. It represents a contribution to the literature on this topic due to the absence of previous studies combining both dimensions into an objective view. On the second level, we will test this index among the most reputable companies in the Spanish scenario. Thus, these disclosures will be compared with and without the its use in order to deduce its value in obtaining valid conclusions in high reputation companies.

This study contributes to the literature on SR and IC because it introduces a coherent framework for both types of disclosures, given their complementarity. Previous papers have used SR to delve into IC (Cinquini et al. 2012; Oliveira et al., 2010; and Tejedo and Araujo 2020). In this vein, we adopt SR as a way to communicate IC as intangible assets are mainly disclosed using social responsibility formats such as sustainability reports or stand-alone reports. Secondly, it introduces quality as a crucial dimension into non-financial corporate reporting. Given that disclosing per se does not guarantee the quality of the content communicated, i.e. its relevance and reliability, we consider it essential to complement both dimensions. This research can help shift the attention from quantity to quality in the reporting area. Thirdly, it makes an original contribution in the Spanish companies with best reputation by testing a weighted index to analyse SR in an extended way and considering both quantity and quality variables. It is expected that reputation leaders carry out SR as there is a positive relationship between these variables, but can it be concluded that these disclosures meet quality requirements? To combine both dimensions into one measure is a key contribution of this study and will allow a more comprehensive view of such disclosures to be attained.

The structure of this paper is as follows. Section 2, dedicated to a review of the most relevant literature on SR quantity and quality in order to justify

the variable used, follows this introductory section. Next, the research design is presented in Section 3. Section 4 is devoted to the main results obtained in our research, followed by a discussion section (Section 5). Finally, the main conclusions drawn from our research, limitations and future lines of research are given in Section 6.

2. Social reporting in its dimensions of quantity and quality

Under the headings below, we review the state of the art on SR quantity and quality studies, as a necessary step for the justification of the necessary contribution of both dimensions into a more complete SR analysis. Likewise, specific references on IC will be included given the complementarity of both types of disclosures.

2.1. SR Quantity

Among the authors who have studied the quantitative analysis of SR, the research objectives have been focused on the nature and frequency of these disclosures, their patterns and trends, the format used, and the relationships between disclosing and certain structural variables, including size, industry and profitability, by way of examples. Broadly speaking, there is a growing trend for this type of disclosures (KPMG, 2017; Sadou et al., 2017; Clarkson et al., 2011 and Sobhani et al., 2009), although the general level found is scarce or low (Escamilla et al., 2017; Calixto, 2013 and Kuo et al., 2012). It is considered that large companies which have greater visibility and that act in sectors with high contamination are more likely to implement SR (Qiu et al., 2016). Likewise, it is noted that SR varies among industries, between countries and with time (KPMG, 2017).

Within IC disclosures, we must highlight the low level found (Amorelli and García-Sánchez, 2019; Uyar and Kilic, 2012; An et al., 2011, Bezhani, 2010 and Sharma and Dhari, 2007). Human capital, as an integral part of IC referring to employees, is usually one of the most widely disclosed categories (Beretta et al., 2019; Duff et al., 2018; Ginesti et al., 2018 and Cinquini et al., 2012). However, in order to achieve an effective IC disclosure strategy, an analysis and combination of the needs of each company and all stakeholders would be necessary (Giacosa et al., 2016).

Content analysis has been widely used in the literature for the measurement of SR from a quantity point of view and also for IC disclosures (Castilla-Polo and Ruiz-Rodríguez, 2017). According to Odera et al. (2016), the main advantages of using this method are its reliability, objectivity,

external validity, volume of data considered and extension, since it is based on huge numerical variables to establish significant links between the variables. Within this methodology, the amount of SR can be measured in different ways that include alternatives ranging from counting pages to searching for sentences or items of interest to the researcher for different reasons. Thus, authors such as Lee (2017), Akbas (2016) and Dagilienė and Mykolaitienė (2015) rely on counting the number of words while Al-Shaer et al. (2017) and Menassa and Brödhacker (2017) use the number of sentences, considering that it provides complete and meaningful information. However, Odera et al. (2016) decided to complement sentences with a word count, given the interpretation difficulties found with the exclusive use of sentences. Another relevant unit of measurement in content analysis is the number of pages devoted to these contents. A strong argument raised by Unerman (2000) against the use of number of characters, words or sentences is that this implies that non-narrative SR will be ignored. Charts, figures or photographs cannot be used if we consider this metric. In fact, our goal is not to analyse the quantity of information disclosed by categories and dimensions, which would invalidate the use of the page as a metric, but to give a global measure of the extent.

As far the format is concerned, it has been common to integrate SR into the beginning of the annual report (Castilla-Polo, 2020). However, according to Unerman (2000), this format provides an incomplete picture of the social information disclosed since the rest of the corporate report may contain more information. This can be extended to IC. In fact, Parshakov and Shakina (2020) consider that few companies disclose information about IC in their annual reports, preferring to use other alternative formats. Along the same lines, Tejedo (2016) and Tejedo and Araujo (2020) highlight the reduced use of the IC report compared to sustainability reports to disclose information on intangibles.

For all the above reasons, Mahoney et al. (2013) call for an exploration of SR across reports. Among the most internationally recognized and extended are those prepared under the framework of the Global Reporting Initiative (GRI) (sustainability reports) or those others that generically have come to be called social reports (which do not follow GRI). Both are considered as stand-alone reports. We believe, as does Lee (2017), that multiple SR sources provide a more comprehensive view of a company's commitment to social and environmental issues. Indeed, SR can be seen as a way to increase the non-financial performance of companies, which is favoured due to the way in which IC is disclosed in integrated reports (Beretta et al., 2019). In this regard, there are several authors who highlight

the importance of integrated reports as a means of disclosing social information and, consequently, IC (Paulone et al., 2019 and Camodeca et al., 2018).

In our methodological design, three variables were established relating to the possible types of reports: annual reports, sustainability reports and social reports. We overcome the limitation proposed by Mahoney et al. (2013) regarding the combined study of stand-alone and annual reports. It is also possible to make use of more than one report on social performance according to the company, so the type of report has not been defined exclusively in our methodological design.

We have selected the number of pages as the numerical variable in combination with the presence of each type of report measured through dichotomous variables. The page count in stand-alone reports was easy because the number total of pages of this report was included. In annual reports, the number of pages devoted to social and environmental contents was identified through the research team's manual revision of such reports and the subsequent recount of the concrete pages covered by these contents (see Table I).

Table I

2.2. SR Quality

As has been commented, there is a greater interest among social researchers in analysing size to the detriment of the study of quality. The conclusion of these latter studies is that quality is usually poor (Chiu and Wang, 2015; Ahmad and Haraf, 2013; Khan et al., 2013; Hooks and Van Staden, 2011; De Villiers and Van Staden, 2006, among others). However, for other authors such as Habek and Wolniak (2016) and Cormier and Magnan (2003), there has been an increase in quality (Sadou et al., 2017). If we focus on IC disclosures, the idea of poor quality also prevails (Duff et al., 2018; Cuozzo et al., 2017 and Melloni et al., 2015). In a more concrete way, Wang (2016) considers that the inclusion of IC in the voluntary disclosures of the companies will improve their quality given that it will allow stakeholders to make a deeper corporate assessment.

It is a widespread finding among the authors on this topic that the quality of SR can be valued according to the degree of detail offered. Thus, Alberici and Querci (2016) associate quality of all the items included in the GRI report with their detailedness; Toms (2002) proposes a scale that includes different positions ranging from "externally monitored environmental report" to "non-quantified information"; Habek and Wolniak (2016) also

use a scale to measure quality ranging from 0 "no mention" to 4 "best practices and a creative approach"; Lee (2017) assesses the quality with a scale of 0 "not disclosed" to 4 "truly extraordinary" in the mining and metal industry sector; and Sarkar and Bhattarcharjee (2017) use a scoring methodology for each item from 0 "no disclosure" to 1 "excellent disclosure". Pivac et al. (2017) also analyse the quality of SR information within annual reports but according to five phases, ranging from the importance of each item in the annual report to the assessment of its quality (presented or not) and finally the aggregation of all this information in a summary index.

In the scales pointed out, it is not quality itself that is measured but the quantity of information offered; that is quantity is used as a proxy of quality. For this reason, all these papers are criticized for being subjective in terms of the researcher's assessment as well as in the design of the proposed scale itself. In our study, objective indicators are proposed to assess the quality that partially overcomes this deficiency. From the operational point of view, we propose addressing quality in SR based on the approach of Leitoniene and Sapkauskiene (2015), which associates the quality of SR with its relevance and reliability. We understand that the relevance of SR in concerned with providing information about the company's commitment to SR while the reliability is focused on the credibility it offers to external people, especially the stakeholders it addresses. We move on to the differentiated commentary on the justification of the variables that we add to each dimension and that appear in Table II.

Table II

Within the relationship between *quality and relevance*, the follow-up of an SR plan, the presence of an SR Committee as well as SR awards received by the firm will contribute to improving the quality of the SR according to Adams (2017), Dias et al. (2017), Latridis (2013), Amran et al. (2014) and Brammer and Pavellin (2008), among others. Amran et al. (2014) analyse the quality of the sustainability reports based on the mission and vision of the enterprise, that is, the integration of social contents in the corporate strategy, and conclude that the creation of strategic alliances will improve the quality of sustainability reports. In the same vein, Escamilla et al. (2016) relate quality to the follow-up of an SR plan. In addition, Sadou et al. (2017) and Amran et al. (2014) consider that receiving external awards referring to SR positively influences the quality of environmental and social disclosures.

From the perspective of the *quality-reliability relationship*, there are numerous studies for which a reliability indicator is the follow-up of any

kind of SR standard or guideline. Among the most recognized, we highlight the role of the GRI guidelines as do García-Sánchez et al. (2018), Laskar and Maji (2018), Dobbs and Van Standen (2016), Lu et al. (2015), Latridis (2013), Wijesinghe (2012), Clarkson et al. (2011, 2008), Oliveira et al. (2010) and Ortas et al. (2005). However, there are some contrary opinions according to which the use of GRI is not associated with higher quality in SR (Michelon et al., 2015). Together with this variable, the assurance of these contents is also related to its quality, as interpreted by Al-Shaer et al. (2017), Latridis (2013) and Brammer and Pavelin (2008). According to these authors, the association between these two variables is positive or, as Habek and Wolniak (2016) concluded, externally checking the social and environmental information disclosed voluntarily is associated with higher levels of quality.

In the IC field, there is less development in the analysis of its relevance, although the strategic relevance can be highlighted of variables such as professional competence, internal co-operation, knowledge transfer, and customer relationship, which differ depending on the sector to which the company belongs. In addition, the existence of planning for the disclosure of these contents stands out as a necessary criterion (Matos et al., 2017). On the other hand, reliability has been analysed through the use of IC guidelines, which are tools analogous to the SR standards and are considered as a quality signal (Mertins et al., 2009) as these guidelines can contribute to the reliability of IC disclosures. Also the content verification guarantees greater reliability in this type of contents (Cavicchi, 2017 and Dyduch and Krasodomska, 2017).

3. Research design

3.1. Sampling procedure and data collection

To perform our empirical study, the top 100 Spanish companies with the best reputation were analysed, all of which are included in the Corporate Reputation Monitor, MERCO. This international ranking performs a multi-stage measurement involving different sources of information and stakeholders, forming an index that constitutes, in turn, the base of the ranking published annually since 1999. This ranking has been used by previous studies such as Odriozola and Baraibar-Diez (2017), Pérez et al. (2017), Bautista et al. (2010) and Fernández and Luna (2007).

Regarding the data collection method, it should be noted that the information used comes mainly from corporate websites; that is, they are primary sources. However, for some variables used, it was possible to corroborate such information with that available in public databases such as the GRI Database, for sustainability reports, and the United Nations (UN) website (in our case, the website of Global Compact Spain and their respective Progress Reports to corroborate if the companies were signatories or not of this pact). As a key point, the quantity-quality index is not created through previous text analysis, as is the most common methodology behind the process of index development (Pivac et al., 2017). It is based on a review conducted of the corporate information offered by the companies included in the Corporate Reputation Monitor MERCO with respect to the 16 variables that compose it.

The period of information gathering extended over the months of July to October 2018. Similarly, to obtain an overview of the trend, the search for primary data was completed with those available for the same population over the years 2014 and 2016. This aspect allowed us to have a three-year period that enabled us to analyse both the current situation in these companies and their evolution in their immediate past.

To ensure the reliability of the information gathered, a replication control was undertaken by a highly reputed expert researcher in SR from the Spanish university community who has great experience and background in this field and whose collaboration the authors requested. The expert reviewed a random sample of five companies (5% of the population studied) according to all the variables reviewed in the methodological design. The average score of agreement reached was 78%, which is acceptable because it exceeds the 70% minimum currently required. In fact, all research involves the need to ensure its reliability, understood as consistency in the results independently of the researcher who carries it out, the data selected and the time considered (Poortman and Schildkamp, 2012 and Mertens, 1998).

Once these checks were made, all the data were incorporated into the statistical program SPSS v.22, which was used to obtain the results presented in Section 4.

3.2. Index creation process

Combining quantity with quality, we propose a specific index where both what the companies are disclosing and whether they are following quality conditions for these disclosures are added. Thus, in the case of a company

that meets all the quality variables, it would be considered that the quantity offered is a valid indicator, while in others where it does not reach that value, quantity would be qualified as a percentage with the quality level detected. This constitutes an attempt to make a more complete analysis through SR rates by using the following formula:

$$SR\ Index\ (a, x) = \sum_{a=1}^{100} Quantity\ Index(a, x) * Quality\ Index(a, x)$$

where "a" is each company studied and "x" every year analysed.

The Quantity Index includes the variables used to analyse the presence of each type of SR report in a non-exclusive manner, because the same company could publish several formats on its website. We refer to the use of the annual report (R1), SR report (R2) or sustainability report (R3). In turn, we add the number of pages that the company discloses about these contents, the variables E1, E2 and E3, respectively. The above is translated into the following formula for the estimation of the quantity index of company "a" in the year "x".

$$Quantity\ SR\ Index\ (a, x) = \sum_{i=1}^{3} Type\ of\ report\ (Ri) * Number\ of\ pages\ (Ei)$$

where "i" is the number of different reports used, three possible reports, for each company and for each year analysed.

For the quality index, a matrix was constructed that includes the presence or absence of the different quality variables. In total, five variables were used, three variables for relevance issues (RE1 to RE3) and two for liability concerns (L1 and L2). Hence, 8*1 (RE1/RE2/L1.1/L1.2/L1.3/L1.4/L1.5/L2) were defined as dichotomous variables) +5 (RE3 was defined as a Likert scale from 1 to 5 taking into account the number of awards received) = 13, the maximum possible total score in each year analysed. The variables related to the type of SR standards followed were also included in the index (L1.1, L1.2, L.1.3, L1.4 and L1.5), because is not the same to follow one or more than one standards in quality terms. The overall index of the quality of information is calculated as the sum of the indicators of reliability and relevance of the information disclosed. Specifically, the quality index for the company "a" in the year "x" would collect the score obtained in the relevance and reliability variables and as a percentage according to the following formula.

$$Quality\ Index\ (a, x) = \frac{\sum_{i,j=1}^{n} Score\ from\ Relevance\ variables\ (REi) + Score\ from\ Reliability\ variables\ (Lj)}{Maximum\ Score} x100$$

where "i" is the number of variables that make up the analysis of relevance in our study, three variables (seven points maximum), and "j" the number of variables in the case of reliability, two variables (six points maximum).

4. Results

This section summarizes the main results found by distinguishing between descriptive analysis and SR index testing within MERCO companies and is devoted to justifying how this quality could change the interpretation of these disclosures.

4.1. Descriptive analysis

4.1.1. What are well-reputed companies disclosing?

The first issue analysed is the type of report used by MERCO companies in their SR, differentiating between including information in the annual report, preparing a sustainability report under the GRI methodology and disclosing any other specific document in SR topics, those called SR reports. Faced with this triple classification, we must indicate that the sustainability report has a priority role within the studied population. Thus, in Table III we can see that the average value of this type of report reaches 75% of use, which indicates a high preference for it in the population studied. The other two types of formats appear with a residual nature. The annual report reaches only 5.7% in average terms during the study period, being exceeded slightly by the SR report with an average of 7.7%.

Table III

The evolution of each report shows that, surprisingly, only the use of the SR reports and the annual reports increased in the period studied. Both formats were used more in 2016 than in 2014, although with little significant variation. Conversely, in the case of sustainability reports, the opposite occurred. Their use decreased over the three years.

If we analyse the average number of pages of each report during the years studied (see Table III), we can see how the SR report develops in size from 57.6 to 64.6 pages, gradually expanding the number of pages offered and being the only format that presents an increase in its extent. If the annual report is considered, it can be observed that on average it goes from 14.8 to 13.1 pages, slightly reducing its extent. Similarly, the sustainability report decreases in size from 171.5 to 138.7 pages, and is the type of report with a more pronounced negative global variation in extent. It is important to

underline that the sustainability report is the only report that decreases in presence and size, although it is the one with the most follow-up among this population. Another significant aspect that can be pointed out in Table III is the wide range found in all formats. Thus, it can be observed that the maximum value of pages of each report is quite broad and that it departs considerably from the average value. As an example, see the case of the sustainability report where at least one company offered 459 pages compared to the average values ranging from 138 to 171 pages.

Finally, if we add previous results in an index, it appears with values higher than 100 pages in all cases (with a mean value of 119.5), as can be seen in Table III. This would lead us to conclude that MERCO companies disclose a lot of information on social and environmental issues and could be considered as SR benchmarking if we only analysed this aspect.

4.1.2. How are well-reputed companies disclosing?

SR reliability, as one of the two conditions for quality, was supported in our study by the use of an SR standard (L1) as well as social assurance (L2). As can be seen in Table IV, the percentage of companies that follow some SR standard is very high, and on average, it stands at 82%. Within these, the most used standard is GRI, with an average value of 75% of follow-up between these companies, corroborated by the extensive use of the previously mentioned sustainability report. The principles of the UN Global Compact (with an average value of 46.3%) and the framework of Integrated Reporting (23%) follow GRI. The last positions are occupied by the AA1000 (12.7%) and other SR standards (1.3%) where only the ICEA guidelines were found in this population.

Table IV

The other relevance variable – social assurance – was understood in a broad sense within our research, either in all or in some of the publicly disclosed contents. Our results show that in 2016 its presence was reduced from a value of 42% to 29%. In other words, there has been a downward variation of 13%. However, the average value obtained is important, 36.3%. In other words, one in every three companies has performed some type of social assurance.

SR relevance, as the second condition for quality, was included in our methodological design through the integration of social concerns in business strategy (RE1), the presence of an SR committee (RE2), and finally, the achievement of awards and recognitions in SR (RE3) due to the role of endorsement that it exerts over SR. As we can observe in Table IV, SR is

integrated in an extended way within the management of the companies studied, as SR makes a significant part of their strategy (76.3%) and has the operational support of an SR committee (44%) on some occasions. However, in both variables, the evolution is slightly downward. Regarding SR awards, it can be noted that an average of 38.7% of the companies analysed have received at least one in relation to their SR management. In fact, it is the only variable within the relevance dimension that has not presented a decreasing tendency during the period reviewed.

If we now analyse a specific index for quality (see Table IV), our results would lead us to question the quality offered by the companies in our sample during the period studied and we can observe how the value has been around 30% (a mean value of 28.2%). This implies that the quality of the disclosures made is questionable in the sense that it does not meet the requirements demanded by the literature on this subject. The reliability sub-index achieves better results in average terms (32.6%) but opposes the low value of the relevance sub-index (22%). While both are requirements for SR quality, their combination reflects that the sample does not reach even a third of the quality that could be theoretically required.

4.2. SR Index testing: the insights offered

According to Baldarelli and Gigli (2014), most academic studies do not clarify the relationship between SR and reputation, with some exceptions such as Castilla-Polo and Sánchez-Hernández (2020). However, it can distinguish two generally admitted questions: the first that emphasizes that reputation is a predecessor of SR and the second that SR is deduced as partly attached to reputation. Whatever the approach, what is clear is the interrelation between both concepts, which leads us to expect them to be especially valid subjects for the study of SR.

The main figures for the partial indexes of quantity and quality differentiated in turn in the relevance and reliability dimension are incorporated in Table V, as well as for the SR index that considers both dimensions.

Table V

SR index or, in other words, the average value of the index that weights the quantity with the quality detected, is **43.4.** This would imply that in our population, the average quantity-quality level detected in our population would be 43.4 pages. That is to say, compared to the 119.5 pages disclosed, only 43.4 would meet total quality requirements previously set by our variable design. This would lead us to raise the differences between SR and

SR equivalents, with all the guarantees of reliability and relevance set by our variable design, which, as indicated, constitutes a fundamental contribution to this topic. It can be observed that in the period analysed, this index obtained values below 50%. Thus, the scores account for 41.2, 44.1 and 44.8, respectively; showing that reputation leaders are disclosing a large amount of information but the level of quality is questionable.

An important number of studies consider that SR quantity is a proxy of quality. If this statement were true, there would be no significant differences between the two variables and the value of the SR quantity index would coincide with SR index (null hypothesis). However, the problems of this simplification have already been questioned and the SR index has been proposed to improve them. Our proposal considers that quality should also form part of the SR analysis, which would lead us to state that the SR quantity index is bigger than the SR index since quality will not always be perfect (alternative hypothesis). In this section, we propose testing its value by comparing the results obtained in the case of high-reputation companies studied by proposing the Student t-test for related samples (Table VI).

Table VI

In view of the results obtained by the Student t-test, there are significant differences between both indexes and it can be concluded that the null hypothesis is rejected (p-value < 0.005), i.e. the consideration of SR quality reduces the values of the SR quantity index within the analysed population in the SR Index. Therefore, the SR quantity index is bigger than the SR index because the latter is corrected for quality, which is not full. This evidence allows us to correct the following two erroneous assumptions that could be derived if we only consider SR partial indexes:

-Firstly, the conclusion that the level of quantity is indicative of good SR performance in high reputation companies. Analysing the values obtained by the quantity SR index, this would be a deducible conclusion. They could even be qualified as SR benchmarking due to the level of disclosures found.

-Secondly, the conclusion that the quality of the disclosures is equally excellent considering the quantity of these disclosures as a proxy of their quality. This would be an erroneous interpretation because if we analyse the quality SR index, this conclusion would not be supported in an extensive way in either of its two dimensions: relevance and reliability.

But, how does the SR index contribute to the interpretation of these results? The answer is that *modifying the amount of disclosures with their*

level of quality gives an equivalent SR value in quantity and quality. In a more specific way, the SR index corroborates that quality is not a good proxy for quantity in MERCO companies.

5. Discussion

IC and sustainability are complex and comparable issues that complement each other in order to meet the demand of stakeholders (Massaro et al., 2018, Giacosa et al., 2016). But in order to go deeper into accountability, quantity is not sufficient; hence we also proposed analysing quality. The literature on SR is mainly based on the analysis of the contents disclosed and the research on quality is quite limited (Huang and Watson, 2015). However, Gray and Milne (2015:53), referring to the research on SR quality, indicate that it is a highly complex issue and that it can be criticized with a fairly obvious assertion of its position on the issue: "the point in SEA is that it is what you do (i.e. the selected problem/issue focus) that matters. How do you do it (assuming you do it well) is, at least, relatively unimportant and possibly even largely irrelevant". Our proposition considers that "how you do it" is as important as "what you disclose" and for this reason quality corrects quantity.

This paper contributes to the development of SR and IC theory because it introduces quality as a necessary dimension to be considered in voluntary disclosures. Dumay and Guthrie (2019:2299) demanded multidisciplinary IC research "going out in the world and interacting with people and organizations as part of the solution". Sustainability holds a crucial position in societal demands and for this reason it must be considered as a key aspect. Nevertheless, not only communicate can meet stakeholders expectations because they are worried about the commitment behind these disclosures. This introduces quality into the analysis of SR and IC is our main contribution to both research fields.

In Spanish reputation leaders, a high level of interest in SR was expected. At a crucial time when society demands that companies be responsible and meet their commitment to society and the environment as a key value, knowing if those companies with the best reputation are attending to these demands is a fundamental question. If they only disclose and do not disclose with quality, their commitment to sustainability can be questioned. Our results go along with this line of research.

If we consider the SR-reputation relationship, a double way is found. According to Odriozola and Baraibar-Diez (2017), Lu et al. (2015), Baldarelli

and Gigli (2014), Park et al. (2014), Tischer and Hildebrandt (2014) and Bayoud et al. (2012), among other advantages, the companies that carry out SR find an improvement in their corporate reputation. But at the same time, reputation is associated with SR (Castilla-Polo and Sánchez-Hernández, 2020). In all cases, this interest was corroborated through the quantity index with a mean value of nearly 120 pages that implies a high level of this type of disclosures among the population studied. Our results also confirm that the sustainability report occupies the first position by a significant distance from the other formats: annual reports and social reports. In fact, KPMG (2017), GRI (2017) and some authors such as Truant et al. (2017), Siew (2015) or Michelon et al. (2015) also raise the extensive use of GRI methodology. For Amorelli and García-Sánchez (2019), the comparison between SR and GRI guidelines allows the determination of whether this information is global, comparable, and harmonized. This format is also used to study IC disclosures (Tejedo and Araujo, 2020 and Oliveira et al., 2010), given the complementarity between these disclosures and the need to integrate them proposed by authors such as Del Bello (2006), Castilla-Polo and Gallardo-Vázquez (2007), Pedrini (2007) and Veltri and Nardo (2013).

In terms of quality, our results show an average value for the quality index of 28.2%, which is a low level. This conclusion is also reached by Alotaibi and Hussainey (2016), Habek and Wolniak (2016), Ahmad and Haraf (2013), Khan et al. (2013) and Hooks and Van Staden (2011), among others. As Habek and Wolniak (2016:415) state, "the quality level of the studied reports is generally low, and there is space for improvement in all studied countries", a completely valid question for our studied case that could be considered as SR benchmarking in quantity but not in quality.

SR as well as IC disclosures are included in non-financial reporting; that is, both are voluntarily disclosed by companies without norms and criterions to follow. For IC disclosures, Wang (2016) concludes that precisely their incorporation in annual reports as mandatory information will increase their quality. In the SR sphere, the regulation is residual, only for large European listed companies with more than 500 employees (see Directive 2014/95/EU of the European Parliament and of the Council for Non-Financial Information and Diversity). For all the above reasons, the growing interest in SR quality dimension is not surprising. Dienes et al. (2016:155) demand a comprehensive vision of sustainability reporting in order to avoid "the risk of misinterpreting the results", and Paolone et al. (2019) include the need to give guarantees to the quality disclosed as a necessary step in the creation of a sustainability report. An adequate disclosure policy both

in terms of quantity and quality is to be expected in both types of disclosures if we aim at efficient reputation management (Gürel, 2012) due to reputation being based "on the use of perceptions of past behaviour and performance to evaluate how the organization will behave or perform in the future" (Duff et al., 2016:168).

At this point, we move on to focus on our main contribution to the SR field. Studies on SR are extensive and therefore claiming a contribution may be harder. In this regard, if we want to go further and try to know whether SR is a result of the integration of social and environmental concerns in the company, we should not only look at the final result, the published report, but also the variables from the company itself that would justify this information having quality. It is for this reason that our methodological design weighs the quantity with the quality of SR, which constitutes originality by not analysing both aspects independently but in combination to obtain a representative value. Previous studies such as Beretta and Bozzolan (2004) develop an index based on risks that considers quantity but also richness; Michelon et al. (2015) combine the content of the information disclosed, the type of information used and the managerial orientation; for environmental, social and governance reporting (ESG), De la Cuesta and Valor (2011) suggested: relevance, comparability, reliability and accessibility; Odriozola and Baraibar-Diez (2017) only introduce two quality requirements: level of applicability of standards and assurance; and Pérez et al. (2017) address the intensity of reporting as a quality goal for SR. These contributions can only be considered partial antecedents to our study, all of them conditioned by partial visions of SR.

It is fundamental to argue the need to address the fact that in research on voluntary disclosures not only is necessary to assess the quantity of information revealed but also its quality. This is the case even when aware that the measurement of this latter aspect is very difficult but that it can be objectified through the use of variables related to this dimension, which have been taken as a base for the design of SR index (see Table I and II). In the case of MERCO companies, the SR index obtained an average value of 43.4 pages; this would imply that this would be the level of valid disclosure to take into account. In other words, we can conclude that during 2014-2016, our population offered SR with full quality (in terms of the variables defined by our paper) of the aforementioned extent, which would no longer allow us to qualify them as benchmarking in SR, a conclusion which is proof of its value in itself. It was expected that the best-reputed Spanish companies would take advantage of their SR to extract the maximum value, although the data provided by the SR index confirms that the policy of

disclosure is not considering that the quality affects (Zou et al., 2017) and that it is valued also by their stakeholders (Axjonow, 2018). According to Waddock (2008), relationships with stakeholders will improve if there is a strong reliance on IC, a question which we extend to social and environmental issues.

6. Conclusions, limitations and futures lines of research

We are aware of the difficulty of developing a real measure for SR, since capturing the intention behind the actions is a very difficult task but by adding quality indications, we are closer than if we only asses its quantity. Measures of quantity are often used as a substitute for measures of quality (Toms, 2002 and Beretta and Bozzolan, 2008). We do not support the idea that the quantity disclosed is related to the relative importance of SR, which is why we add references to quality in order to be able to make more precise conclusions about SR. In a similar sense to Michelon et al. (2015) and Beretta and Bozzolan (2004), we consider that SR quality depends on both the quantity and on the quality of the information disclosed. If companies simply disclose but do not disclose with quality, their social commitment can be questioned. We agree with Dumay (2016:168), who raise the cusp of the fourth stage of IC research, whereby companies "go beyond IC reporting", a question we apply to SR.

This paper develops a methodological contribution within the SR field that can be applied to IC disclosures, given that these contents are often reported under the SR framework. An index is proposed that considers explicitly not only the quantity disclosed, but also other dimensions regarding its quality. That is, SR is measured according not only to what companies disclose but also some quality guarantees which they offer for this information. Likewise, we tested it on a sample of leading companies in terms of reputation and we corroborated the problem of using SR quantity as a proxy of SR quality.

By measuring only how much SR companies are revealing we cannot deduce whether they are doing it or not with sufficient quality. As disclosing and disclosing with quality are not the same, the creation of the SR index introduces a considerable advance on the previous literature and enables us to obtain a real comparison of SR between companies. Due to this contribution, we consider that the SR index could be used in future empirical models to explain the contradictory evidence found to date in the relationships of SR-performance and SR-reputation (Waddock and Graves, 1997 and Qiu et al., 2016). Future studies could use the SR Index to explain

both relationships, and the results could perhaps be clarified if quality is introduced into the analysis. Alternatively, the SR index could allow investors, regulators and stakeholders to better approach to the firm's SR commitment. Finally, given the relationships between reputation and stakeholders perceptions, it seems clear that SR should guarantee relevant and reliable reporting if the objective is efficient management of reputation.

We are aware that one of the limitations of our study is the selection of variables within the SR index. Although we relied on previous literature to decide what variables to incorporate in both dimensions, it is true that our results are conditioned by this design. In fact, this limitation is common to all self-constructed indexes. In this sense, the novelty of the methodological development carried out justifies the partial comparison of our findings. On the other hand, during the study the importance was justified of the complementarity of SR and IC disclosures. Although the objective was not to catalogue both contents separately in this case, it is a desirable future line of research.

7. Notes

[1] In our study SR, social reporting, environmental disclosures, and corporate social disclosures will be used as synonyms. We understand social disclosure in a broad sense that also includes the communication of information about intangible assets or IC.

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Tables

Table 1: SR Quantity dimension: variable design

Id.	Variable	Type[2]	Description	Background
R1	*Annual Report*	D	Presence or absence of SR issues into annual reports.	Laskar and Maji (2018), Al-Shaer et al. (2017), Días et al. (2017), Dyduch and Krasodmska (2017), Lee (2017), Menassa and Brödhacker (2017), Momin et al. (2017),

[2] D: dichotomous variable and N: numerical variable.

				Sadou et al. (2017), Alotaibi and Hussainey (2016), Akbas (2016), Duff (2016), Leung and Gray (2016), Odera et al. (2016), Shaukat et al. (2016), Dagilienė and Mykolaitienė (2015), Khlif et al. (2015), Michelon et al. (2015), Said et al. (2013), Wang et al. (2013), Bayoud et al. (2012), Clacher and Hagendorff (2012), Bouten et al. (2011), Clarkson et al. (2011), Hooks and Van Staden (2011), Mahadeo et al. (2011), Cuganesan et al. (2010), Menassa (2010), Michelon (2011), Hassan and Harahap (2010), Islam and Deegan (2010), Lynch (2010), Menassa (2010), Saleh (2009), Sobhani et al. (2009), De Villiers and Van Staden (2006) and Hasseldine et al. (2005)
E1	*Annual Report: pages*	N	Number of pages devoted to SR issues.	Momin et al. (2017), Leung and Gray (2016), Odera et al. (2016), Hooks and Van Staden (2011), Lynch (2010), De Villiers and Van Staden (2006) and Saleh (2009)
R2	*Social Report*	D	Presence or absence of specific reports that do not follow the GRI methodology.	Axjonow (2018), Gavana et al. (2018), Ringham and Miles (2018), García-Sánchez et al. (2018), Días et al. (2017), Dyduch and Krasodmska (2017), Menassa and Brödhacker (2017), Momin et al. (2017), Duff (2016), Lu et al. (2015), Michelon et al. (2015), Odriozola et al. (2015), Patten and Zhao (2014), Kuo et al. (2012), Hooks and Van Staden (2011) and Michelon (2011)
E2	*Social Report: pages*	N	Number of pages of these reports.	Momin et al. (2017), Patten and Zhao (2014) and Hooks and Van Staden (2011)
R3	*Sustainability Report*	D	Presence or absence of sustainability reports under the GRI methodology.	Laskar and Maji (2018), Baraibar-Diez and Luna (2018), Gavana et al. (2018), Ringham and Miles (2018), García-Sánchez et al. (2018), Fuente et al. (2017), Garg (2017), Lee (2017), Shaukat et al. (2016), Chen et al. (2015), Michelon et al. (2015), Odriozola et al. (2015), Ortas et al. (2015), Clarkson et al. (2011), Hooks and Van Staden (2011), Josep and Taplin (2011), Michelon (2011) and Clarkson et al. (2008)
E3	*Sustainability Report: pages*	N	Number of pages of sustainability reports.	Garg (2017) and Hooks and Van Staden (2011)

Source: Own

Table 2: SR Quality dimension: variable design

Id.	Variable	Type[3]	Description	Background
RE1	*SR Strategy*	D	Explicit reference to SR in business strategy (in a broad sense or, specifically for certain social and/or environmental contents).	Adams et al. (2017), Dyduch and Krasodmska (2017), Garg (2017), Odriozola and Baraibar-Díez (2017), Pérez and López-Gutiérrez (2017), Truant et al. (2017), Habek and Wolniak (2016), Martínez-Ferrero et al. (2015), Odriozola et al. (2015), Hahn and Hüfl (2014), Ahmad and Haraf (2013), Khan et al. (2013), Clarkson et al. (2011), Josep and Taplin (2011), Mallin and Michelon (2011), Cuganesan et al. (2010), Hassan and Harahap (2010), Lynch (2010), Clarkson et al. (2008), Chester and Woofter (2005) and Cormier and Magnan (2003)
RE2	*SR Committee*	D	Presence or absence of a specific Committee for SR within the organization chart.	Laskar and Maji (2018), Al-Shaer et al. (2017), Días et al. (2017), Fuente et al. (2017), Pavlopoulos et al. (2017), Pérez and López-Gutiérrez (2017), Truant et al. (2017), Amran et al. (2014), Latridis (2013), Clarkson et al. (2011), Mallin and Michelon (2011), Hassan and Harahap (2010), Brammer and Pavelin (2008), Clarkson et al. (2008) and Chester and Woofter (2005)
RE3	*SR awards*	S	Awards and recognitions related SR performance (in a broad or specific sense for certain aspects).	Garg (2017), Sadou et al. (2017), Alotaibi and Hussainey (2016), Duff (2016) Kuo et al. (2012), Clarkson et al. (2011), Hooks and Van Staden (2011), Josep and Taplin (2011), Islam and Deegan (2010), Lynch (2010), Saleh (2009), Sobhani et al. (2009), Brammer and Pavelin (2008), Clarkson et al. (2008), De Villiers and Van Staden (2006) and Cormier and Magnan (2003)
L1	*SR standard*	D	Presence or absence of any type of SR standard.	Bansal et al. (2018), Laskar and Maji (2018), Ringham and Miles (2018), Días et al. (2017), Fuente et al. (2017), Garg (2017), Momin et al. (2017), Odriozola and Baraibar-Diez (2017), Pérez and López-Gutiérrez (2017), Pérez et al. (2017), Sethi et al. (2017), Truant et al. (2017), Duff (2016), Chen et al. (2015), Dagilienė and Mykolaitienė (2015), Khlif et al. (2015), Michelon et al. (2015), Odriozola et al. (2015), Ortas et al. (2015), Siew (2015), Ahmad and Haraf (2013), Wang et al. (2013), Djajadikerta and Trireksani (2012), Kuo et al. (2012), Bouten et al. (2011), Clarkson et al. (2011), Hooks and Van Staden (2011), Josep and Taplin (2011), Cuganesan et al. (2010), Lynch (2010), Hassan and Harahap (2010), Islam and Deegan (2010) and Clarkson et al. (2008)
L1.1	*GRI*	D	Preparation of the sustainability report in accordance with the GRI recommendations.	Bansal et al. (2018), García-Sánchez et al. (2018), Laskar and Maji (2018), Ringham and Miles (2018), Fuente et al. (2017), Garg (2017), Lee (2017), Momin et al. (2017), Odriozola and Baraibar- Diez(2017), Pérez and López-Gutiérrez (2017), Sethi et al. (2017), Truant et al. (2017), Habek and Wolniak (2016), Chen et al. (2015), Dagilienė and Mykolaitienė (2015), Lu et

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[3] D: dichotomous variable; S: scale variable (from 1 to 5 corresponding to the minimum and maximum level of SR awards founded).

				al. (2015), Plumlee et al. (2015), Matínez-Ferrero et al. (2015), Michelon et al. (2015), Odriozola et al. (2015), Ortas et al. (2015), Siew (2015), Latridis (2013), Wang et al. (2013), Bouten et al. (2011), Clarkson et al. (2011), Hooks and Van Staden (2011), Josep and Taplin (2011), Lynch (2010), Brammer and Pavelin (2008), Clarkson et al. (2008) and Chester and Woofter (2005)
L1.2	*UN Global Pact*	D	Adhering to the principles of the UN Global Compact.	Sethi et al. (2017), Truant et al. (2017), Habek and Wolniak (2016), Siew (2015) and Garayar and Calvo (2002)
L1.3	*AA1000*	D	Adoption of the standard developed by the Institute for Social and Ethical Accountability.	Odriozola and Baraibar-Diez (2017), Pérez and López-Gutiérrez (2017) and Siew (2015)
L1.4	*IIFR*	D	Using the International Integrated Reporting Framework (IIFR).	Adams et al. (2017), Odriozola and Baraibar-Diez (2017), Pavlopoulos et al. (2017), Truant et al. (2017), Habek and Wolniak (2016) and Siew (2015)
L1.5	*Others SR standards*	D	Adoption of any different SR standard.	Mayo (2015), Wang et al. (2013), Djajadikerta and Trireksani (2012) and Kuo et al. (2012)
L2	*Social assurance*	D	If the company has addressed or not the assurance of all its contents on SR or partially for some social and/or environmental areas.	García-Sánchez et al. (2018), Al-Shaer et al. (2017), Odriozola and Baraibar-Diez (2017), Sethi et al. (2017), Odera et al. (2016), Michelon et al. (2015), Siew (2015), Clarkson et al. (2011) and Clarkson et al. (2008)

Source: Own

Table 3: SR: types of reports used (%) and their extension (pages)

SED: type of reports used (%)					
	2016	**2015**	**2014**	**Mean**	**Global variation (2016-2014)**
Annual report (total cases)	6	6	5	**5.7**	1
Sustainability report (total cases)	68	79	78	**75.0**	-10
SR report (total cases)	8	8	7	**7.7**	1
SED: extension (pages)									
	Sustainability Report			**SR Report**			**Annual Report**		
	Mean	*Maximum*	*Standard error*	*Mean*	*Maximum*	*Standard error*	*Mean*	*Maximum*	*Standard error*
2016	138.7	459.0	114.0	64.6	136.0	21.4	13.1	44.0	4.9
2015	147.6	442.0	103.1	68.4	148.0	22.5	13.0	40.0	4.5
2014	171.5	418.0	98.0	57.6	88.0	16.7	14.8	42.0	4.6
Global variation (2016-2014)	-32.9	41.0	15.9	7.1	48.0	4.7	-1.7	2.0	0.3
SED Quantity Index									
	2016			**2015**			**2014**		
Value (in pages)	**114.1**			**122.9**			**121.4**		

Source: Own

Table 4: SR standard used (%) and SR in the company (%)

SR standard used (%)						
	Presence of any SR standard	**UN Global Pact**	**GRI**	**AA1000**	**IIFR**	**Others**
2016 (total cases)	75	29	68	12	23	2
2015 (total cases)	84	53	79	11	25	1
2014 (total cases)	87	57	78	15	21	1
Mean	**82**	**46.3**	**75.0**	**12.7**	**23.0**	**1.3**
Global Variation (2016-2014)	-12	-28	-10	-3	2	1

SR integration in the company (%)			
	Social Assurance	**SR strategy**	**SR Committee**	**SR awards (Presence)**
2016 (total cases)	29	70	39	46
2015 (total cases)	38	79	48	38
2014 (total cases)	42	80	45	32
Mean	**36.3**	**76.3**	**44**	**38.7**
Global variation (2016-2014)	-13	-10	-6	14

SED Quality Index		
	Relevance SED sub-index	**Reliability SED sub-index**	**Quality SED Index**
2016	**24.9**	**27.2**	**25.9**
2015	**25.1**	**34.8**	**29.6**
2014	**16**	**35.7**	**29.7**

Source: Own

Table 5: SR indexes (2014-2016)

	Quantity SED Index	Quality SED Index	Relevance SED sub-index	Reliability SED sub-index	SED Index
2016	114.1	25.9	24.9	27.2	41.2
2015	122.9	29.6	25.1	34.8	44.1
2014	121.4	29.7	16	35.7	44.8
Mean	**119.5**	**28.2**	**22**	**32.6**	**43.4**
Global variation (2016-2014)	-7.3	-3.8	8.9	-8.5	-3.6
Standard deviation	4-71	2.17	5.20	4.67	1.91

Source: Own

Table 6: t Student Test

	Mean	Std. deviation	Std. Error mean	95% Confidence interval of the difference Lower	Upper	t	gl	Sig. (bilateral)
SED Index Average - SED Quantitative Index Average	-76,144358	62,4387520	6,24387520	-88,533562	-63,755155	-12,195	99	,000

Source: Own

Annex

Annex 1: Some relevant papers on IC/SR' relationship and reputation

Author/Year	Research objectives	Main advances	Implications for research
Alvino et al. (2020)	To study if IC can influence the creation of sustainable models through sustainable development goals	IC is considered as a driver of sustainable development	IC-SR' relationship
Al-Htaybat et al. (2019)	To analyze the harmonization of accounting non-financial practices	Accounting practices are related to the new digital era as a form of IC that contributes to sustainability	IC-SR' relationship
Massaro et al. (2019)	To analyze the relationship between IC and sustainability according to professionals point of view	It is detected that both IC and sustainability are complex and comparable issues that complement each other to meet the demands of stakeholders	IC-SR' relationship
Axjonow (2018)	To study the influence of SR on the reputation of the enterprise	The disclosure of information of a social nature in independent reports affects reputation among professional stakeholders, while this type of disclosure on the web pages affects reputation among professional stakeholders.	SR-reputation' relationship
Duff et al. (2018)	To study the extent and quality of voluntary intellectual capital disclosures (ICD) in UK professional accounting enterprises	ICDs differ by type of report used. Human capital is the most disclosed category and internal capital is the least disclosed. ICDs also improve corporate reputation	IC-reputation' relationship
Ginesti et al. (2018)	To analyze how IC influences the Italian companies' performance as well as their reputation	The efficiency of human capital influences the reputation. Companies with a reputation score according to the Italian Competition Authority are positively related to its IC and its financial performance	IC-reputation' relationship
Oyewumiz et al. (2018)	To analyze the influence of SR on a voluntary basis in the financial sector	Both reputation and financial performance are related to the disclosure of social information in a positive way	SR-reputation' relationship
Cavicchi et al. (2017)	To study the role of IC in sustainable development programs of the Emilia-Romagna health service	Social capital and new technologies led to the shift towards sustainability in the health sector, although the measurement of sustainable development is still in its infancy	IC-SR' relationship
Dyduch and Krasodomska (2017)	To analyze the influence of reputation on SR as well as its causes	The main benefit of SR is an improvement of corporate reputation	SR-reputation' relationship
Matos et al. (2017)	To analyze how to integrate new concepts in society such as Smart city and IC management in the strategic planning of companies	The relationship between Smart City and IC is demonstrated within the strategic planning of the company and its contribution to improve the competitiveness and sustainability of the sector	IC-SR' relationship

Birkey et al. (2016)	To analyze whether the disclosure of independent social reports affects the environmental reputation of the analyzed firms	It is found the positive relationship between reputation and voluntary disclosure of social information	SR-reputation' relationship
Dumay (2016)	To analyze the future of IC in a critical way	It is necessary to know how the information that has not been disclosed so far is disclosed, so that all stakeholders understand that the company analyzes the social and environmental impact of the CI	IC-SR' relationship
Giacosa et al. (2016)	To establish a model for companies to disclose voluntary IC information effectively	IC disclosures can be achieved by combining decisions that meet the needs of the firm and their stakeholders	IC-reputation' relationship
Wang et al. (2016)	To analyze the quality and extent of IC disclosures by Chinese and Indian companies belonging to the information technology sector	The level of disclosure of these countries is relatively high. It makes policy makers think about the possibility of including IC disclosures in mandatory annual reports to increase the quality of information and the reputation of the firms	IC-reputation' relationship
Veltri and Nardo (2013)	To analyze the integration of IC reports with sustainability reports	The intangibles report and the social report are integrated into a report called the Global Intangible Report	IC-SR' relationship
Cinquini et al. (2012)	To analyze the content, quality and frequency of ICDs and its evolution (2005 and 2006)	Human capital is the category that is widely disclosed followed by relational capital and organizational capital	IC-SR' relationship
Oliveira et al (2010)	To study voluntary disclosures of IC disclosed by firms of Portugal in sustainability reports	The disclosure of IC information is carried out mainly in the sustainability reports of those companies that are listed on the stock exchange and apply the Global Reporting Initiatives (GRI)	IC-reputation' relationship/ SR-reputation' relationship
Surroca et al. (2010)	To analyze the influence of an organization's intangible resources on the relationship between SR and financial performance	There is no direct relationship between SR and financial performance; rather, a company's investment in SR positively influences its intangibles and these intangibles, in turn, positively influence the financial performance of the firm	IC-SR' relationship
Pedrini (2007)	To study the similarity between IC reports and corporate social responsibility reports	There are similarities between the information described on human capital, on diversity and on the quality and magnitude of training	IC-SR' relationship
Castelo and Lima (2006)	To analyze the disclosure of social information from Portuguese banks	The banks with a higher level of disclosures are those that are most visible to stakeholders in order to improve their corporate image.	SR-reputation' relationship
Del Bello (2006)	To assess the relationship between IC reports and sustainability reports	Both types of reports have points in common and could be integrated into the same report.	IC-SR' relationship
Bhattacharya and Sen (2004)	To study the relationship between the relational capital of companies and SR activities carried out by these companies	It has been found that SR activities improve relationships with customers as stakeholders as well as the image of the company in the sector	SR-reputation' relationship

| Greening and Turban (2000) | To study the relationship between the social performance of companies and their human resources | Human resources through corporate social performance activities improves the attractiveness of the company to find work, its reputation and the achievement of a competitive advantage in the sector | SR-reputation' relationship |